DISCUSSION PAPER SERIES

No. 8311

EDUCATION AND MIGRATION CHOICES IN HIERARCHICAL SOCIETIES: THE CASE OF MATAM, SENEGAL

Emmanuelle Auriol
and Jean-Luc Demonsant

DEVELOPMENT ECONOMICS

Centre for Economic Policy Research

www.cepr.org

Available online at: **www.cepr.org/pubs/dps/DP8311.asp**

ISSN 0265-8003

EDUCATION AND MIGRATION CHOICES IN HIERARCHICAL SOCIETIES: THE CASE OF MATAM, SENEGAL

Emmanuelle Auriol, Toulouse School of Economics and CEPR
Jean-Luc Demonsant, Universidad de Guanajuato

Discussion Paper No. 8311
April 2011

Centre for Economic Policy Research
77 Bastwick Street, London EC1V 3PZ, UK
Tel: (44 20) 7183 8801, Fax: (44 20) 7183 8820
Email: cepr@cepr.org, Website: www.cepr.org

CEPR Discussion Paper No. 8311

April 2011

ABSTRACT

Education and Migration Choices in Hierarchical Societies: The Case of Matam, Senegal*

The paper aims at studying determinants of schooling in traditional hierarchical societies confronted with an established history of outmigration. In the village, a ruling caste controls local political and religious institutions. For children who do not belong to the ruling caste, migration is a social mobility factor that is enhanced by formal schooling. Since formally educated children tend not to return, the ruling caste seeks to develop family loyalty by choosing religious education instead. The theory hence predicts that the social status of the family has a significant impact on educational choice. Children from the ruling caste who are sent abroad have a lower probability of being sent to formal school. They are more likely to be sent to Koranic schools that emphasize religious and family values. The theoretical predictions are tested on data from Matam region in Senegal, a region where roughly one of every two children have ever attended school.

JEL Classification: I21, O12, O15, O17 and Z13
Keywords: haalpulaar senegal, migration, schooling and social status

Emmanuelle Auriol
Toulouse School of Economics
21 Allées de Brienne
F31000 Toulouse
FRANCE

Email: eauriol@cict.fr

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=127618

Jean-Luc Demonsant
Universidad de Guanajuato
Campus Guanajuato
DCEA-Sede Mar l, Fracc. I
El Establo, Guanajuato
GTO C.P. 36250,
MEXICO

Email: jldemonsant@gmail.com

For further Discussion Papers by this author see:
www.cepr.org/pubs/new-dps/dplist.asp?authorid=173442

* We would like to thank the French Development Agency (AFD) for its financial support and seminar participants at Paris School of Economics and at Banco de Mexico for useful comments on an early version of the paper, especially Sylvie Lambert, Gary Fields and Alejandrina Salcedo for their insightful advice and suggestions without implicating. During the research in Senegal, fjinancial supports from both the French ministry in charge of Higher Education (Aires Culturelles grant, 2001) and the French ministry of Foreign Affairs (Lavoisier grant, 2003-04) must be gratefully acknowledged along with Jean-Paul Azam. Ousmane Ba, Moussa Ly, Abou Sow, Abou Thiam and Hamath Thiam provided excellent field support. Finally we owe Jacqueline Hagan a lot for her generous proofreading. All remaining errors are ours.

Submitted 15 March 2011

1. Introduction

While migration policies are being designed to trigger development in sending countries, there is a need to better understand the effects of these policies on educational decisions of those who stay behind. Most of the literature on the impact of migration on education focuses on the impact of parental migration on children's education. The question as to whether migration is effective at increasing investment in schooling is still very much debated. Our paper takes a new view on the topic. We investigate how expectations of future remittances from children living abroad influence parental decisions about the education their children receive before migration. Our study takes place in a highly stratified rural community, in which religious, political and economic resources are controlled by a ruling elite caste, which represents about 40% of the village population. Based on data collected by one of the authors between April and September 2004 in Matam, rural Senegal, the paper shows a negative impact of migration on the formal education of children from the ruling caste. This result is explained by the fact that the parents have only imperfect instruments to control their children while they are away. The ruling caste chooses to provide a religious education to their future migrant children rather than a formal education so that they can join the village ruling elite if they return but would suffer social stigma if they stayed abroad, in the modern economy. Since their social status is higher at home than abroad, uneducated migrants from the ruling caste have strong incentives to return and hence to send strong incentives return home and hence send substantial remittances while abroad. This effect, which does not hold for families of lower castes, highlights the negative effect of migration on educational outcomes.

The Millennium Development Goals aim at universal primary education for 2015, but in 2004, the primary education enrollment ratio was 76% for Senegal.[2] This figure hides great regional disparities mostly along the rural-urban divide. In our region of study, primary enrollment was a low 60% in 2006 according to the Office of National Statistics (source: Situation Economique et Sociale de la Région de Matam, 2007). The main

[2]In 2008, the (gross) primary enrollment is 84% (source: Senegal at a Glance, World Bank, 2009). However, these ratios are based on the number of students formally registered in primary school and therefore do not necessarily reflect actual school attendance.

problem is believed to be arising from the supply side. Yet the UNESCO (2007) claims that "*the issue of universal access to primary education is currently being resolved in Senegal*". When schools are located at reasonable distance, as it is the case in the villages of our study, it is hard to argue that access is what prevents children from getting a formal education. But there are additional factors. Other explanations include the low perceived returns to education and the opportunity cost of child labor. Rates of return on education in traditional agricultural activities may be rather low compared to returns in the urban modern sector. [3] If low returns in agriculture explains why investment in education is low, the prospect of migration should alleviate the problem. In urban centers, education has a higher return so that parents of prospective migrants should have the incentives to invest in their children's education. This is at least what the new literature on the so-called "beneficial brain drain" or "brain gain" suggests. The central assumption of Mountford (1997) and Stark et al. (1997, 1998) is that the possibility of migration raises expected returns to education, which works as an ex-ante positive incentive to invest in human capital of future migrants.

The empirical evidence to support brain gain theory is mixed. The lack of consistent support for this theory stems from the fact that factors influencing parental migration also impact child education. At the macro level, Beine et al. (2008) shows that some countries having both low levels of human capital and low emigration rates of skilled workers experience brain gain. They instrument the endogenous "skilled migration rate" variable by the country's population size and migration stock. According to their study, Mali is shown to have a brain gain, which suggests that neighboring Senegal should probably experience a brain gain too as both countries share very similar characteristics. Recent empirical microeconometric studies also yield mixed findings. Cox-Edwards and Ureta (2003) in El Salvador, Yang (2008) in Philippines and Alcaraz et al. (2011) in Mexico using various econometric strategies to account for the endogeneity of remittances and schooling find that remittances favor schooling. Batista et al. (2011) find that increasing the probability

[3] According to the ILO definition of child labor, a third of Senegalese children work. Montgomery and Hewett (2005) find an urban advantage for children's primary schooling in Senegal and relate it to the absence of secondary schools in rural areas and therefore the limited motivation of parents to send their children to school (see also Amelewonou et al., 2003).

of own future migration increases the probability of completing secondary schooling in Cape Verde. However Kandel and Kao (2001) find more balanced results in Mexico: children in migrant households have higher grades, but they have lower aspirations, i.e., they have less motivation to pursue beyond average years of schooling. Finally, both Antman (2011) and McKenzie and Rapoport (2011) find negative effects of parental migration on children schooling in Mexico. According to Antman, the migration of the father reduces study hours at least in the short run. Similarly, McKenzie and Rappoport find that family migration depresses school attendance and attainment. The negative results are explained by the illegal nature of the migration, which yields lower returns to education, and as a consequence lowers investment in human capital in migrant households.

The literature on brain gain implicitly assumes that family members are able to efficiently bargain among themselves, or that parents, who are responsible for educational choices, are benevolent (unitary model of the household). According to this logic, school attendance should increase if education leads to higher returns to migration. However, our analysis reveals that moral hazard problems and incentive issues within the household can lead to under-investment by some parents. To instill obedience and family values, and thus a high level of remittances, the ruling caste chooses to educate less their future migrant children than their siblings by sending them to religious school rather than to formal school. By contrast, parents from low castes rather choose formal education for their future migrant children. Since the latter have less incentives to return if they migrate, it is pointless to prevent them from getting a formal education.

Previously, the social status of the family within the village has been identified as an important determinant of migration and remittance behaviors.[4] In a study conducted in Kayes, Mali (a neighboring region of Matam, Senegal, where our data come from) Azam and Gubert (2005) found that migration is aimed at "insuring the family pride" as remittances allow high caste families not to fall below some income threshold that would not allow the high caste family to keep it up with their high rank in the village. In the

[4]As defined by Weber (1922), social status is "an effective claim to social esteem in terms of negative or positive privileges". He argues that a status ranking is not directly related to wealth or income though it may be affected by them. This is especially true in traditional societies where social stratification is based on position in a caste system (e.g. the Indian or African caste systems).

case of India, Luke and Munshi (2011) also find that the caste system is a significant determinant of mobility: women from historically disadvantaged castes are more likely than women from any other caste to have their children residing outside the ancestral community. Our concern is also with how social status and castes influence educational choices of parents for their prospective migrant children. By studying educational choice in the context of a socially stratified society, our paper is close to Munshi and Rosenzweig (2006), who study the impact of caste on schooling choices. They find that lower-caste girls are more likely to favor English school over local language school, thus "*taking advantage of the opportunities that became available in the new economy*". In this paper, we find very similar behavior for the lower caste sons, who are more likely to be sent to the formal school instead of the Koranic school.

Few studies underline the influence of Koranic schools, as there are not enough reliable data. Still, in Senegal religious instruction is essential. In Matam region, where our data were collected, Muslim parents generally send children as young as three to five to the local Koranic school where they are taught basic knowledge of Koran, especially verses for their daily prayers. Pursuit of Koranic studies at such an early age can delay entry into formal schools. Attending both a formal and Koranic schooling is not always possible since the latter is often a full time commitment. For example, a common practice is to send boys (usually not girls) away from their parents to follow a Koranic master. Some children attempt to participate in both schools, going to the Koranic school after formal school classes and during holidays. However, based on a 2003 Senegalese household survey, André and Demonsant (2009) show that Koranic studies represent an actual barrier to formal school attendance. According to their study, Koranic and formal schools are substitute in the sense that pursuing in one negatively affects the probability of pursuing the other.

To guide the analysis, we model the educational choice made by self-interested parents with different social status. Our specification of preferences has the property that status and income are complements: as sociologists would put it, agents exhibit a taste for status congruence (see Auriol and Renault, 2002, 2008). This property implies that the marginal utility of income increases with social status. Parents have the choice between sending their children to formal or religious schools. The returns to education depend

on whether children will migrate (i.e, internationally or internally) [5] or not. The formal school, where children learn how to read and count, has higher returns than the Koranic school (where they focus on memorizing the Koran) if the child migrates. We derive from the model predictions that we test on the data from Matam region. It is a particularly policy-relevant case since it combines a high emigration rate with a feudal caste system and a low primary school enrollment.

If the plans of parents from the ruling caste include the migration of their children, they rather choose to send them to Koranic school, while parents from the lower castes choose formal schooling. This result comes from the fact that self-interested children send high remittances to their parents only when they plan to return home. If the children decide not to return then they have no incentive to send money to their relatives. They only send a minimum out of altruism and/or guilt. Parents from the ruling caste purposefully do not choose formal education for their future migrant children so as to maximize the differential in status levels (i.e., marginal utility of income) between migration destination and home. This is a key instrument to ensure the loyalty of their children that they combine with the "strategic bequest motive". [6] While away, the children generally occupy low-wage low-status jobs. The substantial remittances they manage to send home are partly invested in physical capital by their parents. When they return home, they enjoy their high social capital together with the family saved physical capital. By contrast, children from low castes have less incentive to return home. As the village society is characterized by rigid social barriers, migration is their only way out of the exclusion trap. When children from the low caste leave, it is thus often for good. Their parents have less incentive to prevent them from getting a formal education. If their children are altruistic, they might receive remittances, which increase with the income of their children abroad. Their income being higher if they have been to formal school, as a result, parents prefer to send them there. Thus, two types of migrants exist based on their social status. On the one hand, migrants

[5] In our sample, over a third of migrants remained in Senegal, mainly in the capital city of Dakar.

[6] This classical motive was first invoked by Bernheim et al. (1985). As children compete for parents' inheritance, parents can threaten their children not to bequest them anything if they had not being supportive. Accordingly, young children remit to secure their bequest. In Botswana, Lucas and Stark (1985) found that wealthier families in terms of cattle ownership receive more remittances. Hoddinott (1992) tested this model on rural Kenyan data, and found remittances responsive to bequeathable lands.

from the most prestigious families migrate temporarily as a means to augment their social status in the village and return to enjoy their advantageous position. On the other hand, migrant youth from low caste families have little incentive to return because of the social stigma attached to their caste at home. A key to their social mobility in domestic urban centers or abroad is their educational level. The theory hence predicts lower level of formal education for the migrants from the ruling caste but a higher level of remittances, which is confirmed by the data.

The paper is organized as follows. The Matam region and the Haalpulaar society are first briefly described in section 2.1, the importance of Islam in the region and its impact on educational choices are accounted for in section 2.2, while section 2.3 describes the past and present migrations of the Haalpulaaren. Section 3 presents the model and the theoretical analysis. Remittance strategies are analyzed in section 3.1, bequest strategies in section 3.2, return strategies in section 3.3, migration decisions in section 3.4 and education decisions in section 3.5. The relevance of the theory is assessed with the help of an original dataset which is described section 4. The empirical analysis is conducted section 5. Finally section 6 offers some concluding comments.

2. The institutional setting

2.1. The region of Matam and the Haalpulaar society

Matam is located in the Senegal River middle valley in a semi-arid environment surrounded by deserts: the Sahara to the North and the "Ferlo" (semi-arid plains) to the South. The population is ethnically homogeneous: the Haalpulaaren represent the vast majority. [7]

Matam is 400 km upstream from Saint-Louis connected by a national road following the river which is badly kept and hence continuously in poor conditions. Because of its remoteness, there are no industries so that the majority of the population works on family farms. Local economic activities include agriculture, cattle breeding and fishing. Three main agriculture types coexist: rain-fed, flood-fed and irrigated crops. The villages are

[7] Also known as "Tukulors" or "Toucouleurs" in French. "Haalpulaar" (plural Haalpulaaren) means those who speak "Pulaar" (aka "fulfulde") their vernacular.

unequally endowed with different land qualities: irrigated lands are exclusively found next to the river banks, whereas flood-fed agriculture is practiced in backwaters as well. The natural annual river flood have allowed farmers with plots in the lowlands to reap an additional harvest during the dry season. The control over those fertile lands gave the economic power to the local aristocracy.

Similar to other Sahelian societies, the Haalpulaar society is highly stratified. Statutory groups inherited from former African empires still strongly determine the social status of a family in the village society.[8] These groups are initially based on the division of labor and responsibility between "nobles", artisans and slaves.

The nobles, also referred to as "free men", represent a rather heterogeneous group: mixing both political leaders and commoners. At the top of the hierarchy are the "Torrobe" who are the religious leaders, along with some "Fulbe", traditionally cattle breeders. Usually of lesser prestige than former sub-categories are the fishermen, "Subalbe" and the warriors, "Sebe". It is usually the case that not all sub-categories can be found in each village, and usually one category dominates.[9] The most prestigious category, the "Torrobe", emerged in the 18th century as a new elite formed by Muslim clerics. This group was open for a short period of time to anyone mastering the Koran, but it quickly closed (N'Gaide, 2003). Still today, they have a monopole on religious powers: most imams and Koranic masters originate from the "Torrobe" caste. The nobles are the traditional land holders.

The artisans, "Nyenbe" are referred to as the "les castés" in French as this group matches best the idea of caste with job specialization (along with the usual endogamous feature it shares with the other categories). All the traditional crafts are represented from the blacksmith "Waylibe" to the leather workers "Sakebe" and the wood workers "Laobe". Along with the craftsmen are the bards, "Griots" in French, "Aolube" in Pulaar. Today, artisan families do not necessarily practice in their traditional specialized activity but they usually still have been transmitting the know-how of their job. They cannot have

[8] According to Tamari (1991), this organization originates from the Mali Empire in the 13th century. The region known as "Tekrur" in the 10th century, was first annexed by the Ghana Empire and then by the Mali Empire from the 13th until the 16th century.

[9] In reality there exists many other subgroups. For a complete description of the Haalpulaar organization see Wane (1969).

access to the local political power.

At the bottom end of the pyramid, are the former slaves "Maccube", rather called "captives". In fact, at times of wars and "jihads", prisoners ended up as slaves. As a result, many family names of slaves are of other ethnic group origins, and as a consequence stigmatized, although many slaves took the name of their master. During almost seven centuries, it was common to change status due to wars: slaves would be turned into free men (nobles) to become warriors and noble prisoners would be enslaved. Ironically, the official abolition of the former caste system in 1848 put an end to this specific mobility, thus becoming rigid social barriers.[10] As a result, although it was legally banned more than a century ago, slave status has evolved slowly.

Today in Haalpulaar society, social recognition is based on one's lineage and the prestige of one's lineage is assessed with regard to one's statutory group. N'Gaide (2003) explains that when two Haalpulaaren meet they ask each other their family names and try to trace back the patrilineal branch of the family tree to identify who they are talking to, in order to pay deserved tribute according to the ancestors' prestige. Descendants of slaves are expected to be deferential to nobles, to cook on festive occasions and sometimes repair their houses.[11] They distinguish themselves by their willingness to work hard (see Klein, 2005). An illustration of their position in the society can be found in "joking relationships". Depending on one's family name, one is allowed to tease people from another clan (one's "joking kin") without offending anybody. Usually, the jokes are very humiliating and are centered on either greed for food or calling the other "my slave". Similarly, some body and verbal languages are directly linked with low caste. For instance, nobles would avoid using insults in order to avoid being mistakenly taken for an artisan or slave (e.g., again, see Klein, 2005). N'Gaide (2003) emphasizes that each person must act according to his statutory group at the risk of being rejected: anyone who would decide to reject the social hierarchy would be treated as a fool and consequently excluded from the society.

Discrimination and stigmatization suffered by artisans and slaves, are restrictions on

[10] In Senegal it is in 1901 that the law starts to be enforced, and become efficient in 1906. See for instance Delaunay (1984, pg. 43), Klein (2005) and references within.

[11] Each year after the rainy season, traditional mud houses need to be repaired, especially the roof.

land access, and political and marital constraints. In the private sphere of marriages, there are many restrictions. Above all, men from the artisan and former slave categories are not allowed to marry noble women. For this reason, parents of the prospective bride are very active in the selection of the prospective groom, and are particularly cautious when dealing with men of distant village, inquiring about his actual social origin.

Probably the greatest stigmatization in a gerontocratic village society is being a patriarch but not having a say outside the family circle. Local dignitaries descending from lineages of village founders and other prestigious families, referred to in the sequel of the paper as the "ruling caste", make up only a fraction within the "free men" category, the rest, referred to in the sequel of the paper as "low caste", being, along with the majority of the artisans and slaves excluded from the village political life. [12] The low castes do not vote for the village chief and are not entitled to accede to local political power, nor become religious leaders, which, as we saw, is an exclusive privilege of the "Torrobe". The ruling caste are the village dignitaries: the village chief and other eligible families and members of the village council who nominate the village chief. The village chief is usually picked among few main families. [13]

2.2. Islam and Koranic School

The Haalpulaaren, which belong historically to the "Tijanyyah" Sufi brotherhood, are responsible for spreading Islam all over West-Africa, and are highly respected for that in the sub-region.[14] Islamization began as early as the 9th century in the area. Originating in North Africa, Islam was initially embraced by the elite along the trans-Saharan trading routes (see Robinson, 2004). It was until the 19th century, that a massive conversion movement swept through all strata of the Haalpulaar society, fueling the army of "Jihads"

[12]Actually, a small fraction of artisans and slaves can have access to local political power. They usually represent the former slaves or artisans attached to the most prestigious families. Symmetrically, as mentioned earlier, some noble families are not part of the ruling caste. However, concretely, which families belong to the ruling caste is largely based on their caste origin, as the data shows: the ruling caste represents 40% of all sampled families, but for instance, around 60% of the "Torrobe" belong to the ruling caste, while only around 30% of all the slaves and artisans do so.

[13]Schmitz (1994) shows that there are indeed dynasties of village chiefs spreading over centuries.

[14]Senegal is renowned for its tolerant Islam belonging to the "Sufi" branch, which is a mystical branch of Islam. It is characterized by the intensity of the master-disciple relationship. The master ("marabout" in Senegalese French) teaches his "method" to his disciples, to seek the ultimate truth through spiritual practices and asceticism.

against the European colonizers and non-Muslim states.[15] The religious leaders come exclusively from the "Torrobe" category, which demonstrates how Islam in the Haalpulaar culture appeared both as a response to resistance to colonizers and to strengthen its hierarchical society.

Similar to other countries under French colonial rule, state schools offered little or no religious education. So children are sent to informal Koranic school. Because of their informal nature, Koranic schools do not have any precise structure (timetables, curricula...). There are two types of Koranic Schools: boarding schools in which the student (usually boys, rarely girls) lives with and studies under the direction of a master, and after-school programs, the latter of which is more suited and compatible with formal schooling [16]. In the Koranic schools, students are taught to read, write, and memorize Koranic verses in the Arabic language Nevertheless, they rarely master Arabic language in the end. This raises the question as to what skills are actually transmitted in Koranic schools. André and Demonsant (2009) suggest that the main economic attractiveness of Koranic schools resides in the building of reliable networks. Bonding under the authority of a common Koranic master develops a strong sense of group identity.

By contrast, in formal primary schools, children learn how to read, write, and count in French, the official language of Senegal. Since both religious and formal education are generally available in the region of our study, it is important to understand how parents make their choice [17].

2.3. Past and present migrations

The Haalpulaaren have a long tradition of internal and international migration (e.g., see Diop, 1965; Delaunay, 1984; Minvielle, 1985). It has long been a household strategy to cope with agricultural risks resulting from the harsh climate of the region. While Dakar, the capital of Senegal, is the most common destination for the Haalpulaaren (see Diop, 1965), they also have an established history of international migration to other African

[15] In the 19th century, El Hajj Futyu Umar Tall led a "jihad" recruiting among the "Fuutankobe" (i.e., "those of Fuuta") to resist the French army (see Robinson, 1985).

[16] A detailed description of Koranic schools in Senegal is given in André and Demonsant (2009).

[17] Huet-Gueye and de Léonardis (2005) using a lexical and morphosyntactical analysis of parents' perceptions vis-à-vis the Senegalese modern society, show that traditionalist versus modernist views seem to shape Koranic versus formal schooling choices

countries (Côte d'Ivoire, Cameroon, Gabon, Sierra Leone, Congo, etc.) [18] and France, and more recently to Italy, Spain and the US. Well established networks link Haalpulaar families to these multiple destinations where they find jobs in the service sector, the most common of which is cook, an occupational niche established during colonial rule.

Nowadays, the economic success of a family depends on the receipt of workers' remittances. Demonsant (2008b) shows that the migration of family members is a way to maintain the social order for high caste families. Indeed, a great portion of remittances are redistributed in the village to secure the dominant position of the ruling caste through gifts to their clientele during religious ceremonies. Hence, central to the understanding of the parents' strategies concerning schooling is the problem of providing incentives for their children to remit.

Migration is also an exit strategy for low-caste people. As the village society is characterized by strong social rigidities, migration is a way out of the discrimination trap. In India, this is illustrated by Luke and Munshi (2011) where low-caste are more likely to leave their ancestral community. Similarly in West Africa, there are several historical accounts of the migration of slaves, who chose to migrate to urban centers or abroad to escape the social condition in their village. Klein (2005) mentions the massive exodus of slaves when transactions in persons were banned in 1905 and when the "tirailleurs"[19], who were 75% slaves, returned from First and Second World Wars and decided not to return to their home communities. A key to their social mobility in urban centers or abroad, would then be their educational level. In what follows we study how the educational choice is made by parents of different castes.

3. The model

We consider education and migration decisions in a hierarchical society. In stratified societies, status allocation is embedded into an exogenous and rigid system of castes. Individuals are born into a ruling caste or a non ruling caste and their status is ascribed

[18] Bredeloup (1994) gives a detailed account of Haalpulaar diamond diggers and merchants first in Sierra Leone and Côte d'Ivoire, then in Congo and more recently as far as Zambia.

[19] They are Africans who served in the French colonial army. The first tirailleurs were from Senegal, so the units were often referred to as the "Tirailleurs Sénégalais".

at birth. We assume that there are two castes: the high caste (i.e., the ruling caste), denoted h, and the low caste (i.e., the non ruling caste, mostly commoners, slaves and artisans), denoted l. The status of a low caste s^l is hence low and fixed. The status of the ruling caste, $s^h(e)$, depends on his religious education. We denote by e the educational choice of the parents: $e = 1$ corresponds to formal schooling (e.g. formal school) while $e = 0$ corresponds to religious schooling (e.g., Koranic school). Consistent with André and Demonsant (2009), who found that formal and religious education are substitutes, we assume that both are mutually exclusive (at equilibrium): the parents choose either $e = 0$ or $e = 1$. Social prestige for the ruling caste is related to religious authority so that: $s^h(0) > s^h(1) > s^l$.

However, if members of the low caste migrate to join the world economy they might escape their low status fate. In modern economy, social mobility is more fluid than in traditional caste systems, and social status is related to economic success and material well-being and stems mostly from relative income or wealth (see Veblen, 1899). While abroad, we hence assume that the status of a migrant depends on his formal education level but that it does not depend anymore on his birth: $s^{mi}(e) = s^m(e)\ \forall i \in \{l, h\}$. Social status in modern economy is related to formal education (either directly as illiterate people are suffering from social stigma, or indirectly through income effect, as economic success is a way to mark status in modern economies) so that $s^m(1) > s^m(0)$.

One important assumption for the paper results is the relative ordering of social status at destination and at home. Modern economies are characterized by higher social mobility and lower social stratification than hierarchical societies, which translates into $s^l < s^m(1)$: the status of a low caste is worse than the status of an educated worker in a modern economy. Similarly a member of the ruling elite with religious authority has a higher prestige in his community than a worker with a formal education in a modern economy: $s^m(1) < s^h(0)$. The following assumption summarizes the global social status ordering of the model.

A1 $\qquad s^l < s^h(1) < s^h(0) \qquad$ and $\qquad s^l < s^m(1) < s^h(0)$

What is less clear is how the status of a member of ruling caste without religious education in the hierarchical society, $s^h(1)$, compares to the status of an educated worker

in a modern economy, $s^m(1)$, and how the status of an uneducated worker in a modern economy, $s^m(0)$, compares to the social status of a low caste in the hierarchical society, s^l. Since there is no obvious ranking between theses status we do not make any specific assumptions about their relative orderings.

Abroad, wages depend on the formal education level, $w^m(e)$, while at home they are independent of education, $\underline{w}$, capturing the low return of formal education in traditional agricultural economy. Consistently with empirical evidence we assume that

A2 $$\underline{w} \ < \ w^m(0) \ < \ w^m(1).$$

Following Auriol and Renault (2008), we define the instantaneous utility of agent i as:

A3 $$u^i(w^i, s^i) = w^i s^i$$

where w^i is the income and s^i the social status of the agent $i \in \{h, l\}$ at the time of consumption. This specification of preference reflects in a simple manner the agents' taste for money and status. Since income and status are both positively valued, indifference curves relating these two variables are strictly decreasing. This reflects the substitution between status and income. However preferences over status and income are strictly convex so that there is not a perfect substitution between these two variables: a prestigious status does not compensate for the absence of income, nor does a good income make up for an humiliating status. As it is standard for this type of utility function, convexity of preferences implies some complementary between social status and income.

Individuals live for three periods: childhood, adulthood and old age. Children and old people are unproductive. Education occurs in the first period, work (either at home or abroad) occurs in the second period, retirement occurs in the third period. Since social security and formal retirement plans are sparse in Matam region old people rely mainly on their children during old age.

Finally, we define the agents' discount factor δ. For the sake of simplicity we assume that δ is equal to the growth rate of the economy, which is also the interest rate of the agents' savings abroad. This assumption means that individuals can smooth consumption across periods if they do not return. It avoids introducing a bias against or in favor of saving.

There are sequential choices for each type of agent $i \in \{l, h\}$. In chronological order,

the parents move first and the child moves next:

1. The decisions by parents i:
   - to send the child to Koranic or formal school, $e^i \in \{0,1\}$,
   - to have the child migrate or not, $m^i \in \{1,0\}$,
   - to invest a share of income in durable $\alpha^i \in [0,1]$,
2. The decisions by child i:
   - to remit, $r^i \in [\tilde{r},1]$,
   - to return, $R^i \in \{0,1\}$.

All the variables are dummy variables, but α^i which belongs to $[0,1]$ and r to $[\tilde{r},1]$. Let $\underline{r} > 0$ denote the exogenous share of income that a child who stays in the village will give to support his old parents. It is a social obligation to support aging relative, so that $\underline{r} > 0$. By contrast, if he migrates and chooses not to return, the minimum amount of remittances that one will send to his aging parents (out of altruism or guilt), $\tilde{r}$, is random. For the sake of simplicity we assume that $\tilde{r}$ is identically and independently distributed in $[0,\underline{r}]$ with a mean $E\tilde{r}$ so that:

A4 $$E\tilde{r} < \underline{r} < 1.$$

If on average the minimum level of remittances is low, some parents will have interest in perpetuating the caste system and will want their children to return home. If the average minimum remittance is large then it is always optimal to permanently send formally educated children abroad and to live on the minimum they send. In practice, the average minimum level of remittance is low: in our database 38% of migrants do not send anything to their parents.

Finally, we assume that individuals, who are self-interested, are expected utility maximizers. A child will remit and return home if and only if his expected utility is higher than when he does not remit and does not return. The decision to remit is thus intimately linked to the decision to return. We first study the incentive a child has to remit.

3.1. Remittances

At the stage of choosing remittance levels, education is already fixed. The migrant needs to consider two cases. First, given his education, if he migrates and does not return

the agent $i = h, l$ will get status $s^m(e)$ and income $w^m(e)$ in his productive period, that he can spread as he wishes between adulthood and retirement. If he remits r and saves τ he will consume $w^m(e)(1-r)(1-\tau)$ in the first period and $w^m(e)(1-r)\tau\delta$ in the second period. Since his social status will be the same in both periods his inter-temporal utility is $u^i(e) = s^m(e)\left(w^m(e)(1-r)(1-\tau) + \frac{w^m(e)(1-r)\tau\delta}{\delta}\right)$. We deduce that he maximizes with respect to the remittance rate:

$$u^i(r) = w^m(e)s^m(e)(1-r) \tag{1}$$

This is a decreasing function of r, so that an agent who does not plan to return will remit the minimum $\tilde{r}$.

Second, if he migrates and plans to return, he will remit. Otherwise he will not be welcome home upon return. Remittances are a key instrument to maintain the family social status and his future influence in the village.[20] Moreover remittances represent his retirement plan in case of return. If he remits, a share $\alpha \in [0, 1]$ of the remittance is invested by his parents in productive assets (e.g., cattle) and durable (e.g., house) so that it is a form of saving. The reminder is used for their current household consumption. The productivity of the parents' savings is assumed to be fixed and non-liquid. Customary rights to exploit fertile lands or inherited houses in the village cannot be sold. The migrant will enjoy them only if he returns home. Let k^i denote the productivity of the family stock of illiquid capital that is transmitted from one generation to the next ($i = l, h$). The noble ruling elite has control (customary rights) over the best, most productive lands. The slave descendants, artisans and the commoners do not have such rights. This implies that $k^h - k^l = k > 0$. For the sake of simplicity we normalize $k^l = 0$ so that $k^h = k$. As a result, if he remits r a migrant from type $i = h, l$ will consume $w^m(e)(1-r)$ in the first period and $r\alpha w^m(e)(1+k^i)\delta$ in the second period. His social status will be $s^m(e)$ in the first period and $s^i(e)$ in the second. After actualization his inter-temporal utility is for

[20] See Demonsant (2008b) about the redistribution that takes place in the village as the ruling caste transfers large amounts of money to their former clients, artisans and slaves, to keep up with their rank.

$i = l, h$ and $e = 0, 1$:

$$u^i(e) = (1-r)w^m(e)s^m(e) + r\alpha^i(e)w^m(e)(1+k^i)s^i(e) \tag{2}$$

Deriving (2) with respect to r yields $\frac{du^i(e)}{dr} = -w^m(e)s^m(e) + \alpha^i(e)w^m(e)(1+k^i)s^i(e)$. We deduce that if $\alpha^i(e)s^i(e)(1+k^i) \geq s^m(e)$ then $r^i = 1$, if $\alpha^i(e)s^i(e)(1+k^i) < s^m(e)$ then $r^i = \tilde{r}$. The next lemma follows.

Lemma 1. *Let* $\alpha^l(e) = \frac{s^m(e)}{s^l}$ *and* $\alpha^h(e) = \frac{s^m(e)}{s^h(e)(1+k)}$.

- *Individuals from caste* $i = l, h$ *with education* $e = 0, 1$ *remit the maximum if the saving rate of their parents is higher than the threshold* $\alpha^i(e)$. *They remit the minimum* $\tilde{r} \in [0, \underline{r}]$ *otherwise.*

- *Threshold values are such that:* $\alpha^l(1) > \alpha^l(0) > \alpha^h(1) > \alpha^h(0)$.

Proof: See the appendix.

The all-or-nothing structure of the results of Lemma 1 comes from the convexity of individuals' preference over status and income. At first sight, this is surprising because convex preferences usually lead to balanced, interior solutions. However, with Cobb-Douglas preferences the individuals' marginal utility of income increases with social status. Everything else being equal, they will rather consume in the state of nature where their social status is the highest. Since formally educated non elites have a higher social status abroad than at home, they would rather enjoy their consumption while away. By assumption A1 $\alpha^l(1) = \frac{s^m(1)}{s^l} > 1$ so that there is no saving rate that will compel them to remit. This is different for religiously educated children from the ruling caste who have a higher status at home than abroad. For these illiterate migrants from the ruling caste the decision to remit depends on the saving strategy of the parents. On the one hand, if their bequest is large enough they will return home to enjoy their retirement savings as the ruling caste. We refer to these effect as "the strategic bequest motive" described earlier. On the other hand, if their parents do not save enough they will rather severe the family ties and never return home to enjoy larger consumption levels. Finally, the possibility to make formally educated children from the ruling caste and the low caste without any formal education

remit large amounts hinges on the differential between their status at home and at migration destination. It is impossible for the low caste parents to make their offspring remit if $s^m(1) > s^m(0) \geq s^l$. Whatever education level they may have, there is no saving rate that will compel them to return home. By contrast, if $s^m(1) > s^l > s^m(0)$ it is possible to make low caste children without any formal education willing to return home by choosing $\alpha^l(0) \geq \frac{s^m(0)}{s^l}$. Similarly, for the high caste children with a formal education the condition to make them remit is $s^h(1)(1+k) > s^m(1)$. A sufficient condition for this inequality to hold is simply $s^h(1) \geq s^m(1)$.

Finally, the last point of Lemma 1 implies that everything else being equal, low caste children remit less than high caste ones. It also implies that educated children remit less than children without any formal education.

We next study the parents incentive to save for their migrant children.

3.2. Investment in durable

Let us first study the investment decision of the low caste parents. Since $\alpha^l(0) > 1$ Lemma 1 implies that low caste parents with formally educated migrant children have the following expected utility with respect to saving ratio $\alpha \in [0,1]$:

$$u_1^l(\alpha) = s^l w^m(1) E\tilde{r}(1-\alpha) \tag{3}$$

This is a decreasing function of α so that they will not save for their children: $\alpha^l(1) = 0$. Low caste parents with uneducated migrant children have the following utility with respect to saving ratio α:

$$u_0^l(\alpha) = s^l w^m(0) \begin{cases} 1-\alpha & \text{if } \alpha \geq \frac{s^m(0)}{s^l} \\ E\tilde{r}(1-\alpha) & \text{otherwise} \end{cases} \tag{4}$$

Parents who want their children to remit will save the minimum amount compatible with the remittance incentive constraint: $\alpha^l(0) = \frac{s^m(0)}{s^l}$. Parents who do not wish to make their children remit will choose 0. The optimal choice between saving or not saving depends on the value of $1-\alpha^l(0)$ compared to $E\tilde{r}$. It is optimal to save at rate $\alpha^l(0)$ if $\frac{s^l - s^m(0)}{s^l} > E\tilde{r}$, and 0 otherwise.

We next study the investment decision of the high caste parents. They have, depending on $e \in \{0,1\}$, the following utility with respect to saving ratio α:

$$u_e^h(\alpha) = s^h(e)w^m(e) \begin{cases} 1-\alpha & \text{if } \alpha \geq \frac{s^m(e)}{s^h(e)(1+k)} \\ E\tilde{r}(1-\alpha) & \text{otherwise} \end{cases} \tag{5}$$

Both terms in equation (5) are decreasing in α. To maximize the utility in the first case parents need to save the minimum value compatible with the remittance incentive constraint of the children, $\alpha^h(e) = \frac{s^m(e)}{s^h(e)(1+k)}$. By contrast, in the second case they choose 0. The optimal choice between saving or not saving depends on the value of $1-\alpha^h(e)$ compared to $E\tilde{r}$. It is optimal to save at rate $\alpha^h(e)$ if $\frac{s^h(e)(1+k)-s^m(e)}{s^h(e)(1+k)} > E\tilde{r}$, and 0 otherwise. Let $r^i(e)$ be the threshold of $E\tilde{r}$ below which parents of caste $i = l, h$ start to save for their migrant child of education $e = 0, 1$.

$$r^l(e) = \frac{s^l - s^m(e)}{s^l} \qquad \text{and} \qquad r^h(e) = \frac{s^h(e)(1+k) - s^m(e)}{s^h(e)(1+k)} \tag{6}$$

The next lemma collects the results.

Lemma 2. *Let $e \in \{0,1\}$. Low caste parents are saving at rate*

$$\alpha^l(e) = \begin{cases} \frac{s^m(e)}{s^l} & \textit{if } \ r^l(e) > E\tilde{r} \\ 0 & \textit{otherwise} \end{cases} \tag{7}$$

High caste parents are saving at rate

$$\alpha^h(e) = \begin{cases} \frac{s^m(e)}{s^h(e)(1+k)} & \textit{if } \ r^h(e) > E\tilde{r} \\ 0 & \textit{otherwise} \end{cases} \tag{8}$$

Since $s^h(1) > s^h(0) > s^l$ by assumption A1 and since $k > 0$, Lemma 2 implies that the saving rate of low caste parents must be higher than the saving rate of the high caste parents if they wish to compel their children to remit large amounts: $\frac{s^m(e)}{s^l} > \frac{s^m(e)}{s^h(e)(1+k)}$. They are indeed obliged to compensate by a large bequest the humiliating status that their children will suffer if they return home. As a result, low caste parents save less often for their children than the ruling caste. We deduce the next result.

Proposition 1. *Let $r^i(e)$, $i = l, h$ and $e = 0, 1$, be defined equation (6).*

- *If $s^m(1) \geq (1+k)s^h(1)$ then $r^l(1) < r^h(1) \leq r^l(0) < r^h(0)$.*
- *If $s^m(1) < (1+k)s^h(1)$ then $r^l(1) < r^l(0) < r^h(1) < r^h(0)$.*

Proof: See the appendix.

Proposition 1 implies that, for a given level of education, low caste parents choose more often than high caste parents not to save for their children. That is, for the same level of education, $e = 0, 1$, we always have: $r^l(e) < r^h(e)$. More interestingly, for a given level of minimum remittance $E\tilde{r}$, and independently of their caste origin, parents of formally educated children save less often than parents of children without such a formal education. That is, for a given level of social status, $i = l, h$, we always have $r^i(1) < r^i(0)$. Combining the result of Proposition 1 with Lemma 1 we deduce that everything else being equal, **low caste children remit less than high caste ones** and that **educated children remit less than children without any formal education**. Since we observe family social status, migrants' education and remittance in our dataset we will be able to assess the relevance of both predictions.

3.3. Return

By virtue of Proposition 1, those who benefit most from returning rather than not returning, are uneducated individuals from the ruling caste. To see how the decision to return unfolds let us first focus on those high caste children. The utility reached by the uneducated migrant child from the ruling caste if he does not return is $(1-\tilde{r})w^m(0)s^m(0)$. His utility of returning varies with the saving rate, $\alpha^h(0)$, chosen by his parents, which ultimately depends on $E\tilde{r}$. If $E\tilde{r} < r^h(0)$, Lemma 2 implies that the parents' saving rate is: $\alpha^h(0) = \frac{s^m(0)}{s^h(0)(1+k)}$. The utility of the migrant depending on whether he comes back home, $R = 1$, or not, $R = 0$, is $u_R^h(0) = (1-R)(1-\tilde{r})w^m(0)s^m(0) + Rw^m(0)\alpha^h(0)(1+k)s^h(0)$. Substituting $\alpha^h(0)$ by its value yields $u_R^h(0) = (1-R)(1-\tilde{r})w^m(0)s^m(0) + Rw^m(0)s^m(0)$, so that the optimum is reached for $R = 1$. By contrast if $E\tilde{r} \geq r^h(0)$ the parents saving rate is 0 and the utility upon return is $u_R^h(0) = (1-R)(1-\tilde{r})w^m(0)s^m(0)$ so that the

optimum is reached for $R = 0$.[21]

Similarly, a formally educated child from the high caste has an incentive to return home if his utility when he stays abroad, $(1 - \tilde{r})w^m(1)s^m(1)$, is lower than his utility when he returns. His utility of returning varies with the saving rate, $\alpha^h(1)$, chosen by his parents. The saving rate is $\alpha^h(1) = \frac{s^m(1)}{s^h(1)(1+k)}$ if $E\tilde{r} < r^h(1)$ so that $u_R^h(1) = (1 - R)(1 - \tilde{r})w^m(1)s^m(1) + Rw^m(1)s^m(1)$ and $R = 1$. The saving rate is 0 otherwise, so that the optimal decision is $R = 0$.

For uneducated children of the low caste, the decision to return depends on the value of $E\tilde{r}$. If $E\tilde{r} \leq r^l(0)$ then parents will choose to save enough to trigger a high level of remittances from their children and strengthen their willingness to return home. By contrast, if $E\tilde{r} > r^l(0)$, which will be always the case as long as $s^l \leq s^m(0)$, then parents will choose not to save. The children will choose a minimum level of remittances $\tilde{r}$ and will not return.

Finally Lemmas 1 and 2 imply that formally educated children of the low caste will not return home. Because they are not remitting, they would not be welcome home. It is worth noting that even if they could return without having contributing to the village functioning while abroad, they would not choose to do so. Indeed, they have the following expected utility depending on whether they return, $R = 1$, or not, $R = 0$: $u_R^l(1) = w^m(1)(1-\tilde{r})\Big\{(1-R)s^m(1)+R\left[s^m(1)(1-\tau)+\tau s^l\right]\Big\}$ where τ is their retirement saving rate. By virtue of assumption A1, $s^m(1) > s^l$. For $i = l$ and $e = 1$ the optimal decision is $R = 0\ \forall\tau \geq 0$. Given their social stigma in their village their marginal utility of income is always lower at home than abroad. Not returning is always the best strategy for formally educated low caste children.

The next lemma collects the results about the return decision equilibrium.

Lemma 3. *Let $r^i(e)$ be defined by equation (6). A child from caste $i = h, l$ with education*

[21] It is worth noting that even if the assumption $E\tilde{r} < r_0^h$ is not satisfied, religiously educated from the ruling caste would have some incentive to return. Indeed, assume $\frac{s^h(0)(1+k)-s^m(0)}{s^h(0)(1+k)} < E\tilde{r}$ which implies that $\alpha^h(0) = 0$ and a minimum level of remittances $\tilde{r}$. If one neglects the social stigma he would suffer because of the lack of remittance, his utility is $u_0^i(R) = w^m(0)(1-\tilde{r})\Big\{(1-R)s^m(0)+R\left[s^m(0)(1-\tau)+\tau s^h(0)\right]\Big\}$. Since $s^h(0) > s^m(0)$ the optimum is reached for $\tau = 1$ and $R = 1$. He would ideally like to save his income to enjoy it in a state of nature where his social status is high. In practice, he cannot enjoy a prominent ruling caste status unless he has remitted while abroad.

$e = 0, 1$ *returns if and only if* $E\tilde{r} \leq r^i(e)$.

Since by construction $r^l(1) < 0$, formally educated migrants from the low caste never return. For the other types of migrants the decision depends on $E\tilde{r}$. For instance, let us assume that $s^m(1) < (1+k)s^h(1)$. Lemma 3 combined with Proposition 1 implies that:

- For $r^l(0) > E\tilde{r}$ all migrant children return with the exception of formally educated children from the low caste.
- For $r^h(0) > r^h(1) > E\tilde{r} \geq r^l(0)$ children from the high caste return, children from the low caste do not return.
- For $r^h(0) \geq E\tilde{r} > r^h(1)$ uneducated children from the ruling caste are the only ones to return.
- For $E\tilde{r} \geq r^h(0)$ all migrants stay permanently abroad.

The case $s^m(1) \geq (1+k)s^h(1)$ is derived in a similar way.

3.4. Migration decision

Let $F \geq 0$ be the fixed cost of migration. The existence of this sunk cost, and of tight credit constraints explain that parents are limited in their ability to finance the migration of their children. In our database, there are on average 1.5 migrant sons per household. To keep the exposition simple, our model assumes that only one child per family migrates. The results are easily generalized to more than one child.[22]

Let $\underline{r} > 0$ be the exogenous share of income that a child who stays in the village has the social obligation to give to support his old parents. The parents will finance their child's migration if they expect a return larger than $F + \underline{r}\ \underline{w}$. The return to migration, $rw(e)$, depends both on the wage $w(e)$ and on the remittance rate $r \in [\tilde{r}, 1]$.

Let us start with the case $E\tilde{r} \geq r^i(e)$ where $r^i(e)$ is defined by equation (6). By virtue of Lemma 3, the children from caste $i = l, h$ with education $e = 0, 1$ will not return. As a result, they will remit the minimum $\tilde{r}$. In this case, the parent with education e^p has

[22] If it is worthwhile to have one child migrate, it is worthwhile to have two. In the model, parents are limited in their ability to have more than one child migrate by their credit constraint.

the following expected utility depending on whether he has the child with education e migrate, $m = 1$ or not, $m = 0$:

$$u^i(m)/s^i(e^p) = m\big[w^m(e)E\tilde{r} - F\big] + (1-m)\underline{r}\ \underline{w} \qquad i = h, l \quad e = 0, 1 \tag{9}$$

We deduce from equation (9) that the parents from caste i choose to have a child with education e migrate if and only if $w^m(e)E\tilde{r} > \underline{r}\ \underline{w} + F$. By assumption A2, $w^m(1)E\tilde{r} > w^m(0)E\tilde{r}$ so that the migration condition is easier to meet for formally educated children. The interpretation of the condition is that when the average level of minimum remittance, $E\tilde{r}$, is large enough, it is always worthwhile to have a child migrate, even if he should never return.

Next, we turn to $E\tilde{r} < r^i(e)$. For the high caste, $i = h$, the condition might hold for both levels of education $e = 0, 1$. However, in the case where the migrant from the ruling caste has been to the formal school instead of the Koranic one, it requires that $(1+k)s^h(1) > s^m(1)$. If $E\tilde{r} < r^h(e)$ then children from the ruling caste will return and will remit the maximum so that the parents' utility is:

$$u^h_e(m)/s^h(e^p) = m\left(\frac{s^h(e)(1+k) - s^m(e)}{s^h(e)(1+k)}w^m(e) - F\right) + (1-m)\underline{r}\ \underline{w} \tag{10}$$

We deduce that it is optimal for the ruling caste to have their child with education $e = 0, 1$ migrate if and only if $\frac{s^h(e)(1+k)-s^m(e)}{s^h(e)(1+k)}w^m(e) > F + \underline{r}\ \underline{w}$.

For the low caste formally educated children, the condition $E\tilde{r} < r^i(e)$ is never met as $r^l(1) < 0 < E\tilde{r}$. The only case where it might hold is when $e = 0$. Assuming $E\tilde{r} < r^l(0)$, which requires $s^l > s^m(0)$, the child will return and will remit the maximum so that the parents' utility is:

$$u^l_0(m)/s^l(e^p) = m\left(\frac{s^l - s^m(0)}{s^l}w^m(0) - F\right) + (1-m)\underline{r}\ \underline{w} \tag{11}$$

We deduce that if $E\tilde{r} < r^l(0)$, the patriarch from the low caste will choose to have one of his uneducated children migrate if and only if $\frac{s^l-s^m(0)}{s^l}w^m(0) > F + \underline{r}\ \underline{w}$.

The next lemma collects the results about the decision to have a child migrate.

Lemma 4. *Let $r^i(e)$ be defined by equation (6). Parents of caste $i = l, h$ choose to have*

a child with education $e = 0, 1$ *migrate if and only if either* $E\tilde{r} \geq \max\left\{r^i(e), \frac{F+\underline{r}\ \underline{w}}{w^m(e)}\right\}$ *or* $r^i(e) \geq \max\left\{E\tilde{r}, \frac{F+\underline{r}\ \underline{w}}{w^m(e)}\right\}$.

In Matam region, the income from agriculture is low compared to income at destination whether domestic urban centers or abroad. We hence make the following assumption:

A5 $$F + \underline{r}\ \underline{w} \ < \ w^m(0)E\tilde{r}.$$

Assumption A5 implies that the returns to migration are sufficiently high so that each type of parents, $i = h, l$, might find profitable to have a child migrate.[23] This assumption is consistent with the evidence in our database: both type of parents have their children migrate. In practice, the average returns to migration is sufficiently large to cover the cost of migration and the opportunity cost of local revenue loss.

3.5. Education

The decision to send a child to school is made by the parents. If the child does not migrate, the parents of the low caste are indifferent between sending them to formal or Koranic school. The education decision is relevant only when parents plan to have a child migrate. We need to consider two cases. First, for low caste parents, if $r^l(0) = \frac{s^l - s^m(0)}{s^l} \leq E\tilde{r}$, whether the child is educated or not does not affect the remittance rate which will always be minimum: $\tilde{r}$. Then, the expected return to migration is $E\tilde{r}w(e)$. Since $w(1) > w(0)$, if the child migrates it is optimal to send him to formal school to receive higher expected remittances. Second, if $r^l(0) > E\tilde{r}$ then a child without formal education remits the maximum. We thus need to compare the net income of the parents when $e = 1$, $w^m(1)E\tilde{r} - F$, with their net income when $e = 0$, $w^m(0)r^l(0) - F$. We deduce that it is optimal for low caste parents to send a child to formal school if and only if $\frac{w^m(0)}{w^m(1)}r^l(0) \leq E\tilde{r}$.

We now turn to the ruling caste educational choice. We need to consider different cases. Let us first focus on $E\tilde{r} \geq r^h(0)$. By virtue of Lemma 3, independently of their education, the children do not return. Their remittance rate is minimum $\tilde{r}$ so that the

[23] Since $w^m(0) < w^m(1)$, A5 implies that $E\tilde{r} > \frac{F+\underline{r}\ \underline{w}}{w^m(e)}\ \forall e = 0, 1$. We deduce that under A5, the first condition in Lemma 4 is equivalent to $E\tilde{r} \geq r^i(e)$, while the second condition is equivalent to $r^i(e) \geq E\tilde{r}$: parents always find optimal to have at least one child migrate.

expected return to migration is $E\tilde{r}w(e) - F$. Since $w(1) > w(0)$, if the child migrates it is then optimal to send him to formal school.

Second, we study the case $r^h(0) \geq E\tilde{r} > r^h(1)$. By virtue of Lemma 3, a high caste child without formal education remits the maximum, while a formally educated one remits the minimum. We thus need to compare the net income of the parents when $e = 1$, $w^m(1)E\tilde{r} - F$, with their net income when $e = 0$, $w^m(0)r^h(0) - F$. We deduce that it is optimal for the ruling caste parents to send a child to Koranic school whenever $r^h(1) < E\tilde{r} \leq \frac{w^m(0)}{w^m(1)} r^h(0)$. This obviously requires that:

A6 $$\frac{r^h(1)}{r^h(0)} \leq \frac{w^m(0)}{w^m(1)}.$$

Condition A6 is not too demanding. It is for instance always true under the threshold assumption $s^h(1)(1+k) \leq s^m(1)$ of Proposition 1.[24] Yet, whether $s^h(1)(1+k) \leq s^m(1)$ holds or not is an empirical issue. It might be true in some contexts, and not in others. In light of the emphasis which is put on religious education for the ruling caste in Matam region and of the rigidity of such social norms, a man from the ruling caste who possesses a formal education instead of a religious one suffers a significant loss of prestige. In particular, he cannot be a leader in his community. In the context of the model, this is likely to translate into $s^h(1) < s^m(1)$. However, even if $s^h(1)(1+k) > s^m(1)$, condition A6 might still hold. It requires that the wage gap in the modern economy between the formally educated and the religiously educated is not too large. Here again, it depends on the particular context under study. In the Matam context, it is true that this differential is not great. First of all, many migrants work as cooks in the restaurant industry. Clearly it is better to be a literate cook than an illiterate one, but the wage gap between the two is not that substantial. The second point is that the average formal school level achieved is low in our sample, i.e., 2.4 years on average. Here again, this is unlikely to generate huge wage differentials. Condition A6 will also hold more easily as long as, in the Matam region, the status differential between a spiritual leader in the village and an illiterate migrant worker in a modern economy remains large. Finally, in the context of our empirical study it is easy to assess whether condition A6 holds or not. Indeed, if

[24] Condition A6 is equivalent to $\frac{s^h(0)}{s^h(1)} \frac{s^h(1)(1+k) - s^m(1)}{s^h(0)(1+k) - s^m(0)} \leq \frac{w^m(0)}{w^m(1)}$.

condition A6 does not hold then it is always optimal to send a future migrant child from the ruling caste to formal school. Since we observe instead, that the ruling caste tend to send their future migrant son to Koranic school, this suggests again that in the Matam context A6 holds.

Let us finally focus on $r^h(0) > r^h(1) > E\tilde{r}$. By virtue of Lemma 3, children from the high caste always return home. We need to compare the net income of the parents when $e = 1$, $r^h(1)w^m(1) - F$, with their net income when $e = 0$, $r^h(0)w^m(0) - F$. We deduce that it is optimal for the ruling caste to send a child to Koranic school whenever $r^h(1)w^m(1) \leq r^h(0)w^m(0)$ which is true under condition A6.[25]

We deduce the next proposition.

Proposition 2. *Under assumptions A1 to A6, parents from caste $i = h, l$ send their future migrant children to the formal school if and only if $r^i(0) \leq \frac{w^m(1)}{w^m(0)} E\tilde{r}$.*

Since $r^l(0) < r^h(0)$, Proposition 2 implies that, everything else being equal, **parents from the ruling caste are more likely to send their future migrant child to Koranic school than parents from the low castes, who are more likely to prefer formal school**. For the ruling caste, the decision to send a child to the formal school rather than the Koranic one is costly in terms of the child's local social status. This reduces the child's incentive to return home, and thus his incentive to remit. Since he will not be able to be a leader if he comes back, he might as well constitute his own saving plan and enjoy it at his migration destination. By contrast, he will always come back if he has no formal education and his bequest is large enough. He will then remit the maximum possible amount. For the ruling caste, there is thus a trade-off in the educational choice: the child remits more when he has no formal education but he earns less. There are two opposite effects of formal schooling in this cultural context. Besides the fact that a higher formal education increases the probability of entering the modern sector and hence secure higher revenues, it also enters in competition with Koranic schooling. Pursuing higher Koranic studies is not viable with formal school attendance. Yet, in Akerlof (1976) words, the Koranic school can be seen as a "loyalty filter". Following arguments in Becker (1993)

[25] If $r^h(1) > \frac{w^m(0)}{w^m(1)} r^h(0)$ formal schooling is always optimal.

and Becker (1996), parents try to instill a feeling of guilt if children are not loyal to them. Hence investing in religious and traditional educations, which inculcate family values, is instrumental to shape a son's loyalty before sending him abroad.

In what follows, we assess the relevance of the theory by testing some of the results on our data from the Matam region in Senegal.

4. The data and descriptive statistics

The data come from a survey conducted by one of the authors in six villages around Matam, Senegal in Spring 2004. Initially, the survey was designed to address the issue of old-age support given by migrants to their fathers. Accordingly, all men above 64 years old - referred to as patriarchs - who had at least one son above 25 still alive, were surveyed. Information was gathered for 149 families at the level of the patriarch, his children, whether they live with him or not, and all household members. "Household" refers to an intergenerational family composed of the descendants of the patriarch who share meals together. Data on 1765 permanent household members were collected, reflecting the impressive household sizes in this region, with an average of almost 12 members per household. [26]

The questionnaire covers broad topics apart from migration and transfers: social status, health, land ownership, equipment and inheritance. Data on education are available for all household members 7 years old and older, and all patriarchs' children whether they live there or have migrated.

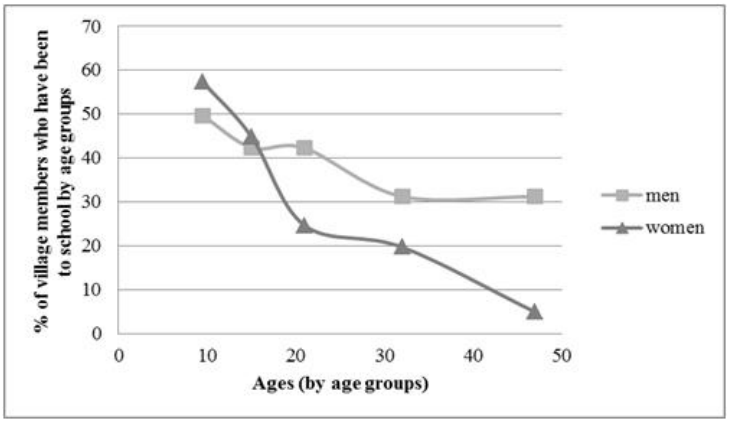
Figure 1 displays the percent of all men and women living in the villages (7 years and older) who have ever attended formal school, by age groups.[27] For both men and women, the graph is decreasing showing that formal schooling is a recent phenomena. Indeed, there is a primary school in each village surveyed, constructed 6 years before the time of the survey for the most recent one, and 43 years earlier for the oldest one. So that

[26] For more details on the survey c.f. Demonsant (2008a).

[27] As the recording of birth in the civil registry is relatively recent, and still incomplete, collecting the exact age of the household members is very difficult, time consuming and usually flawed with measurement errors. As a result, the exact age was collected for the patriarch and his children only. For the rest of the household members the age groups is used instead: 0-6, 7-12, 13-17, 18-24, 25-39, 40-54, 55-64, 65 and over.

school attendance should not be subject to access constraints for the youngest cohorts, but probably comes into play for older ones. Only three adults above 55 years old have ever been to formal school. There is an advantage for girls for the two youngest cohorts only. The sharp decline for girls between 15 and 21 must be due to a strong selection bias explained by early age at marriage in the villages: single girls above 18 are unlikely to be found in a village, and remaining married girls are more likely to never have been to school.

Figure 1: Percentage of all household members living in the village who have ever attended formal school by age group and gender.



Although access to (formal) primary school is not an issue for the youngest cohorts, only 51% of the 7 to 17 year-old children are enrolled, which was the national level 10 years ago. It is striking that 35% of households do not send any children to formal school at all.

Table 1 profiles the patriarchs by social status. As explained earlier in section 2.1, the Haalpulaar caste system is rather complex, however, the real prestige lies in the hand of the families who have exclusively access to political power: the ruling caste. Hence, for the purpose of the analysis it is sufficient to divide the sample in two status groups: the "high caste" or "ruling caste" and the rest, hence labeled "low caste".

In Table 1, we can see that there is no significant difference between household size and number of adult sons between the ruling caste and the low caste, which tends to prove that household composition are similar across social status. However, the ruling caste has significantly more migrant sons and they have themselves been significantly longer abroad (at the 10% level).

	Total N=146	The low caste N=86	The ruling caste N=60	T-test
VARIABLES				
Age of the patriarch	73.7	72.8	75.1	-2.13**
	(6.4)	(6.2)	(6.6)	
Age when he left Koranic school	11.8	10.4	13.8	-2.54**
	(7.9)	(8.3)	(7.0)	
Household size	7.1	7.2	7.0	0.20
	(3.4)	(3.4)	(3.6)	
No. of adult sons	3.2	3.1	3.5	-1.18
	(1.8)	(1.8)	(1.8)	
No. of (adult) sons currently abroad	1.5	1.3	1.8	-1.95*
	(1.5)	(1.4)	(1.7)	
No. of years the patriarch spent abroad	9.8	8.3	12.0	-1.79*
	(12.2)	(11.9)	(12.4)	
=1 if possesses any land	86%	87%	85%	0.38
=1 if possesses any cattle	55%	50%	62%	-1.39
=1 if possesses house in durable material	45%	40%	52%	-1.53
Wealth index based on his inherited wealth	0.0	-0.3	0.5	-3.55***
	(1.5)	(1.3)	(1.6)	
Wealth index based on his current agricultural assets	0.0	-0.2	0.4	-2.57**
	(1.4)	(1.2)	(1.7)	
Wealth index based on food consumption	0.0	0.0	0.0	-0.04
	(1.3)	(1.5)	(0.9)	
Wealth index based on equipment possessions	0.0	-0.2	0.2	-1.40
	(1.6)	(1.6)	(1.7)	
=1 if the father of the patriarch was born in the village	82%	73%	93%	-3.16***
=1 if belongs to the ruling caste	41%			

Notes: Standard errors in parentheses. T-tests of difference of means tests are reported last column (* significant at 10%, ** at 5%, and *** at 1%).

Table 1: Profile of the patriarchs

Nevertheless, it is important to bear in mind that only patriarchs who have returned are taken into account here. According to the theory there could be a selection bias, as the migrant patriarchs from the low caste might have chosen not to return to avoid their local social stigma. This would explain the difference between the two groups. Indeed, 54% of return migrant patriarchs are from the ruling caste while only 37% of non migrants are, and the difference is statistically significant at the 10% level.

Regarding wealth status, several wealth indicators were built using PCA techniques to account for different measures. To measure the "initial wealth" an index based on the wealth inherited by the patriarch, including cattle and land received as inheritance along with the number of spouses of the patriarch's father. We then created separate indices for productive assets reflecting current agricultural assets including current cattle and

land ownership of the patriarch along with possessions of other productive assets (such as vehicles and animals used for farming) and non productive assets, mainly equipment (furniture, appliances, and the type of construction material [28] of the house). Finally, to capture diet and access to food and health, a food (and health) consumption index was created.

As expected, the ruling elite caste has much higher inherited wealth and productive assets indices when compared to non ruling castes, and the differences are significant at the 1% and 5% levels, respectively. These differences are supported in the larger literature which also finds that the best and most productive lands are controlled by the ruling elite (Schmitz, 1994). In contrast, there are no significant differences between the ruling elite and non elite castes for the other indices, as although the ruling caste does have a higher non-productive index than the other castes, the difference is not statistically significant. Field observations of community events and every-day life by one the authors also found that food consumption and ownership of non-productive assets is not related to social status among the Haalpulaaren, due to important redistributions, which take place during social events in the villages.[29]

In line with what is expected from the status of the ruling caste, they are significantly older, more likely to be born in the village, and studied Koranic schools longer than those not in the ruling caste. It is important here to remember that all sampled patriarchs were on average born in the 30's, when there was no formal primary schools in the region and therefore no alternative to Koranic studies. Only 28 out of 149 (19%) reported they did not attend Koranic schools at all. One legitimate concern here is that the ruling caste may have overestimated their Koranic studies as it is a sign of wisdom and a signal of their prestige. However, what counts is that the ruling caste values Koranic studies more than the low caste. With the introduction of formal education, parents have alternatives for their children, and as we already mentioned it, parents have to choose which system is the best.

In this paper, we will focus on the patriarch's adult sons (i.e., above 17 years old),

[28] Basically whether the house is built in durable material or in traditional mud bricks that must be consolidated annually

[29] More on that in Demonsant (2008b)

	Total	The low caste	The ruling caste	T-test	Non migrants	Migrants	T-test
	N=470	N=263	N=207		N=257	N=213	
Age	30.7	30.2	31.4	-1.49	28.8	33.1	-5.82***
	(8.3)	(8.0)	(8.8)		(8.2)	(7.9)	
Birth order among the patriarch's sons	2.6	2.6	2.7	-0.95	2.8	2.4	2.79***
	(1.6)	(1.6)	(1.7)		(1.7)	(1.5)	
=1 if has ever been to formal school	35%	37%	31%	1.33	38%	31%	1.73*
No. of years of formal school achieved	2.4	2.6	2.1	1.45	2.3	2.4	-0.39
	(3.7)	(3.9)	(3.5)		(3.2)	(4.2)	
=1 if is currently living abroad	45%	41%	51%	-2.09**			
=1 if patriarch migrated before the son was 7 y.o.	67%	59%	77%	-4.24***	63%	70%	-1.60
=1 if belongs to the ruling caste	44%				40%	49%	-2.09**

Notes: Standard errors in parentheses. T-tests of difference of means tests are reported last columns (* significant at 10%, ** at 5%, and *** at 1%).

Table 2: Profile of the patriarchs' adult sons

which number 470. This sample is not representative as they are descendants of patriarchs over 65 years old who are still alive. Yet, they are representative of the sons of elders who are key actors in gerontocratic village societies. Most had finished their schooling at the time of the survey (only 24 were still studying in the formal system and 16 in Koranic schools). Table 2 displays their profile according to their status in the village and whether they were living in the village or abroad at the time of the survey: 45% of all adult sons were abroad (or in a Senegalese urban center). The fourth and the last columns show t-statistics of mean difference tests between the ruling caste and the low caste, and between non migrants and migrants, respectively.

There are no significant difference between ruling and other castes with respect to age and birth order. Migrants are significantly (at the 1% level) older and of a lower birth order. The overall formal educational level is very low: 2.4 years of formal schooling on average for all adult sons. In the initial sample including both migrants and non migrants, there is no significant difference between the two castes with respect to formal schooling. What is striking, however, is the finding that migrants are significantly less likely (at the 10% level) to have been to formal school. For 67% of all sons, their father (the patriarch) had already migrated when they reached 7 years old. Surprisingly, there is no difference between migrant and non-migrant sons on this dimension, but there is a significantly higher proportion (at the 1% level) of sons from the ruling caste than the low caste who had their father who had already migrated when they reached 7. Significantly (at the 5% level) more sons of the ruling caste are abroad.

Turning to the sub-sample of migrant sons, Table 3 lists the descriptive statistics among the migrant sons testing significant mean differences depending on the social status and remittance choice. In our database, 62% of all migrants do remit regularly.

If there is no significant differences among migrants in the age of the sons of the ruling caste compared to lower castes, remitters are significantly older than non remitters (at the 1% level). However, sons from the ruling caste are of significantly higher birth order (at the 5% level). There is no significant difference in the migrants' destination with regard to their ruling caste status, neither in their length of stay, or if they have a wife who stayed with the patriarch. Not surprisingly, remitters who have been abroad for a longer period, are more likely to have left the African continent (usually for Europe or the US),

	The low caste N=108	The ruling caste N=105	T-test	Non remitters N=80	Remitters N=113	T-test
Age	32.9	33.3	-0.38	31.1	34.3	-2.96***
	(7.7)	(8.2)		(7.0)	(8.2)	
Birth order among the patriarch's sons	2.2	2.6	-2.21**	2.5	2.3	0.48
	(1.3)	(1.8)		(1.4)	(1.6)	
=1 if has ever been to formal school	38%	23%	2.42**	39%	26%	2.03**
No. of years of formal school achieved	3.0	1.8	2.13**	3.4	1.8	2.68***
	(4.6)	(3.8)		(5.1)	(3.6)	
=1 if he remits regularly	50%	75%	-3.92***			
=1 if patriarch migrated before the son was 7 y.o	66%	75%	-1.52	71%	70%	0.20
No. of years he has been abroad	6.6	5.6	1.29	4.7	6.9	-2.80***
	(6.4)	(4.9)		(5.3)	(5.8)	
=1 if he lives outside the African continent	20%	15%	0.98	5%	26%	-3.91***
=1 if one wife currently lives with the patriarch	44%	41%	0.51	28%	52%	-3.57***
=1 if belongs to the ruling caste				33%	59%	-3.92***

Notes: Standard errors in parentheses. T-tests of difference of means tests are reported last columns (* significant at 10%, ** at 5%, and *** at 1%).

Table 3: Profile of the patriarchs' migrant adult sons

and are more likely to have a wife staying with their father.

A central result that appears from this descriptive analysis is that among migrants, those from the low caste have a significantly higher educational level than those of the ruling caste. This is in line with our model's prediction (see Proposition 2), along with the fact that the ruling caste is more likely to remit while remitters have a lower educational attainment than non-remitters (see Lemma 1). These preliminary results are consistent with the model's predictions. We now turn to the econometric analysis.

5. The Empirical analysis

Focusing on the patriarchs' adult sons, our paper tests the model developed in the previous section. We will focus on education, migration and remittance decisions, since we observe all of those in our database. Unfortunately, although we can observe the effects of accumulated capital, we are unable to assess the effects of savings or investments in durables as we lack complete data and in particular the timing of the savings and of the investment made.

We start with the two predictions of Proposition 1 regarding remittance decision: children of lower castes remit less than children of the ruling caste, and children with formal education remit less than children without any formal education.

5.1. Results on remitting decision

In this section, we focus on the subset of adult sons who had migrated at the time of the survey.

We first examine which groups are more likely to remit. Results of the probit models are displayed columns (1) to (3) in Table 4. We are specifically interested in whether sons from the ruling caste are *ceteris paribus* more likely to remit than sons from lower castes, and whether sons without formal education are more likely to remit than those with formal education. We also study the amount of remittances using Tobit models to account for the fact that 38% of migrant sons do not remit at all to their father. Tobit estimation results about amounts remitted are displayed in columns (4) to (6) in Table 4.

Across all model specifications and for the probability as well as the amount remitted we find similar and consistent results. The son's age and birth order are not significant

Table 4: Determinants of remitting behavior among the patriarchs' migrant sons

	Remits regularly (probit) N=213			Log of the amount remitted per year (tobit) N=210		
	(1)	(2)	(3)	(4)	(5)	(6)
Age of the son	-0.0123	-0.00967	-0.00928	-0.0498	-0.0430	-0.0483
	(0.00834)	(0.00679)	(0.00660)	(0.0541)	(0.0436)	(0.0455)
Birth order (among patriarch's sons)	-0.0247			-0.0812		
	(0.0341)			(0.275)		
Nb. of years of formal school achieved by the son	-0.0330***	-0.0330***	-0.0371***	-0.251***	-0.249***	-0.285***
	(0.0118)	(0.0121)	(0.0112)	(0.0801)	(0.0814)	(0.0813)
Nb. of years the son has been abroad	0.0224***	0.0223***	0.0221**	0.160***	0.162***	0.163***
	(0.00852)	(0.00861)	(0.00930)	(0.0561)	(0.0556)	(0.0613)
=1 if the son lives outside the African continent	0.384***	0.388***	0.402***	4.110***	4.180***	4.532***
	(0.0636)	(0.0629)	(0.0600)	(0.828)	(0.784)	(0.819)
No. of the son's children living with the patriarch	0.0858**	0.0805**	0.0726**	0.329*	0.335**	0.355**
	(0.0349)	(0.0324)	(0.0317)	(0.173)	(0.160)	(0.171)
Age of the patriarch	0.0167**	0.0133*	0.0149**	0.104	0.0974*	0.134**
	(0.00806)	(0.00686)	(0.00711)	(0.0679)	(0.0545)	(0.0575)
Patriarch's household size	0.00706			0.00775		
	(0.0143)			(0.119)		
No. of patriarch's sons abroad	-0.00916			-0.0865		
	(0.0293)			(0.224)		
Age of the patriarch when he left Koranic school	0.0179**	0.0166**		0.151**	0.147**	
	(0.00854)	(0.00810)		(0.0637)	(0.0609)	
No. of years the patriarch spent abroad	0.00235	0.00238	0.00516	0.0205	0.0184	0.0430*
	(0.00373)	(0.00361)	(0.00359)	(0.0266)	(0.0240)	(0.0248)
=1 if patriarch possesses land	0.300*	0.279*	0.315**	1.893*	1.793*	2.069*
	(0.159)	(0.154)	(0.159)	(1.011)	(1.001)	(1.139)
Wealth index of patriarch's inherited wealth	-0.0273	-0.0295		-0.123	-0.126	
	(0.0294)	(0.0289)		(0.194)	(0.196)	
=1 if belongs to the ruling caste	0.218**	0.203**	0.236***	1.686***	1.629***	1.855***
	(0.0890)	(0.0864)	(0.0863)	(0.607)	(0.603)	(0.663)

Notes: Marginal effects for probit models reported. Robust standard errors in parentheses; * significant at 10%; ** at 5%; *** at 1%; Villages dummies are included, but not displayed.

in any specifications. The size of the patriarch's household is also not significant, but the fact that the age of the patriarch has a significant positive effect for both the probit and the Tobit models, could reflect the greater needs of older patriarchs (e.g., in terms of health expenditure increasing with age). The number of other patriarch's sons abroad could have both a positive impact if there is social pressure among brothers to support the family back home (i.e., a "peer effect") or a negative effect if each son is relying on his brother(s) to take care of their parents (i.e., a "free riding" effect). Both effects seem to cancel out here as it is not significant in any model specifications.

The longer the son has been away, the higher the probability of remitting and the higher amounts sent to the patriarch. This shows how important time in area of destination is to securing employment and higher earnings. Migrants who succeeded in leaving the African continent have also access to better jobs that are usually better paid increasing both the probability to regularly remit and the amounts remitted. Having children living in patriarch's home increases the probability of remitting and the amount remitted. This illustrates somehow what Cox (1987) calls "the exchange motive": remittances depend on the amount and cost of services provided to the migrant by those who stay behind. The primary service provided to the migrant is the care giving to the child left behind. It might also reflect an implicit "hostage" strategy, where the patriarch keeps the migrant's children to ensure that he will have incentives to return and to remit. [30]

The wealth index based on the patriarch's inherited wealth proves not to be significant, but the fact that the patriarch possesses land significantly increases both the probability of remitting and the amounts remitted. This effect reflects "the strategic bequest motive" illuminated in the theory: it is easier to make sons remit when there are illiquid assets (such as land) to inherit upon return. Migrants remit so that they can later claim their share of the inheritance. This result is identical to what Hoddinott (1992) found in rural Western Kenya.

One of the main results of these regressions regarding our model's predictions, is that sons from the ruling caste are both more likely to remit and remit higher amounts. Across

[30]Similarly, in a three-generation setting, Cox and Stark (1996) were the first ones to mention the "demonstration effect", where the parent takes good care of his own parents hoping that his own children who live with their grand-parents will do the same when time comes that he will retire.

different model specifications, we consistently find increased years of Koranic schooling of the patriarch[31], which implies a higher social rank of the family in the village, is associated with both higher probability to remit and higher amounts. Indeed, as mentioned earlier, to be a leader in Matam region requires both noble lineage and Koranic studies. As a consequence, when removing patriarch's years of Koranic studies, the impact of the ruling caste dummy increases both in significance and magnitude.

The second main result of the regressions, and perhaps the most interesting, is the impact of schooling. It is found to be significantly negative on both the probability to remit and the amount sent. Although counter-intuitive at first sight, this result is consistent with the result of Proposition 1 and Lemma 1. It illustrates the trade-off faced by parents when they want to have a child migrate. Formal education is a source of higher revenue but also of child emancipation. The main concern for the parents is to ensure that, once away from the village, their child will have the right incentives to remit. From this perspective, religious education is the best as it instills family values. Empirically, the income loss due to the lack of formal schooling is only of second order.

5.2. Results on migration decision

We ran probit models of the decision to have a child migrate by caste status testing different specifications. Results are displayed in Table 5.

Throughout all specifications and sub-samples, we found that older sons have a higher probability of migrating but their birth order and the patriarch's age have no significant impact. Running two separate regressions depending on whether the family belongs to the ruling caste, we found that both groups have different migration strategies. For the ruling caste, the patriarch's earlier migration impacts significantly and positively the probability of the son migrating, while the patriarch's longer Koranic studies decreases significantly the probability of his son migrating. The first result suggests that the migration of the ruling caste has been a strategy to maintain local social status for decades. They have built strong migration networks to maintain control of their children abroad. Indeed, when a migrant arrives at destination he may need the help of his extended family for many

[31] We collected the age at which the patriarch left Koranic school, which is a good proxy of Koranic studies duration.

Table 5: Determinants of the migration of the patriarchs' sons depending on whether they belong to the ruling caste

	The ruling caste N=207		The low caste N=263		Whole sample N=470	
	(1)	(2)	(3)	(4)	(5)	(6)
=1 if son went to formal school	-0.262**		0.0614		-0.0783	
	(0.116)		(0.0843)		(0.0696)	
No. of years of formal school achieved by the son		-0.0142		0.0238**		0.00671
		(0.0175)		(0.0102)		(0.00951)
Age of the son	0.0203***	0.0211***	0.0160***	0.0162***	0.0166***	0.0168***
	(0.00653)	(0.00688)	(0.00617)	(0.00618)	(0.00467)	(0.00473)
Birth order (among patriarch's sons)	0.0306	0.0338	-0.0325	-0.0384	0.00186	0.000988
	(0.0322)	(0.0338)	(0.0259)	(0.0254)	(0.0224)	(0.0225)
Age of the patriarch	0.00634	0.00504	0.0105	0.0127*	0.00687	0.00769
	(0.00866)	(0.00895)	(0.00762)	(0.00757)	(0.00582)	(0.00576)
Age of the patriarch when he left Koranic school	-0.0248**	-0.0215**	-0.000858	-6.54e-05	-0.00889*	-0.00753*
	(0.0104)	(0.00949)	(0.00508)	(0.00510)	(0.00455)	(0.00439)
=1 if patriarch migrated before the son was 7 y.o.	0.219**	0.194*	0.0650	0.0241	0.146**	0.110
	(0.111)	(0.116)	(0.0908)	(0.0930)	(0.0663)	(0.0681)
Wealth index of patriarch's inherited wealth	-0.0399	-0.0550	0.00446	0.00365	-0.0102	-0.0139
	(0.0345)	(0.0344)	(0.0326)	(0.0327)	(0.0202)	(0.0207)
=1 if belongs to the ruling caste					0.0911	0.103
					(0.0628)	(0.0635)

Notes: Marginal effects reported. Robust standard errors in parentheses; * significant at 10%; ** at 5%; *** at 1%; Villages dummies are included, but not displayed.

services including housing. Living together allows also making sure that the new migrant respects the village and family social norms (e.g., see Ba, 1996). By contrast, migrants of lower castes rely more on their own human capital (as they usually benefit from a higher formal education level as next section shows) and less on social networks. Concerning the second result on the patriarch's Koranic studies, all religious leaders belong to the ruling caste, so their sons will also pursue longer Koranic studies than the rest, which can delay their labor migration.[32]

Most importantly, we found that while a higher formal school level significantly increases the probability of migrating for the low caste, it is the reverse for the ruling caste: sons from the ruling caste without formal education have a higher probability of migrating. Hence, the regressions' results confirm the model predictions of Proposition 2. Ruling caste parents plan the migration of their religiously educated sons, while those from lower castes plan the migration of their formally educated sons instead. Pooling the data over the whole sample in columns (5) and (6), the contradictory impacts of formal schooling on migration cancel each other out: it becomes not significant on the probability of migrating. Nor is there an effect of the caste of the family, which reflects the fact that both types of parents find it profitable to send a child abroad.

5.3. Results on schooling decisions

The main focus of the paper is to study the impact of migration prospect on educational choices in Matam region. Accordingly, different specifications of the probit model of having attended formal school and the tobit model of formal school duration are displayed in Table 6. The use of the tobit model is necessary to account for the high proportion of uneducated sons: 65% of adult sons have never been to formal school.

In all three specifications of the probit models, empirical results suggest that the age and birth order of the son along with the age of the father, do not have a significant impact on either formal school attendance or number of years of formal school attended. The fact that the patriarch migrated before the son reached 7 years old has a consistently significant positive effect on both the probability of formal school attendance and number of years

[32]Or possibly they will not migrate but instead dedicate to a Koranic master's career in their own village.

Table 6: Determinants of formal school's enrollment and duration of the patriarchs' adult sons

	Has been to formal school (probit)			No. of years (tobit)		
	(1)	(2)	(3)	(4)	(5)	(6)
Age of the son	-0.00463	-0.00248	-0.00262	-0.0780	-0.0309	-0.0356
	(0.00466)	(0.00441)	(0.00448)	(0.0863)	(0.0825)	(0.0828)
Birth order (among patriarch's sons)	0.000979	0.0101	0.0108	0.0153	0.191	0.205
	(0.0232)	(0.0226)	(0.0224)	(0.440)	(0.436)	(0.425)
=1 if patriarch migrated before the son was 7 y.o.	0.267***	0.281***	0.293***	6.545***	6.772***	7.060***
	(0.0583)	(0.0597)	(0.0564)	(1.413)	(1.376)	(1.372)
Age of the patriarch	-0.00855	-0.00843	-0.00728	-0.179	-0.176	-0.154
	(0.00646)	(0.00627)	(0.00642)	(0.116)	(0.110)	(0.112)
Wealth index based on the patriarch's inherited wealth	0.0471**	0.0248	0.0360	0.603	0.147	0.406
	(0.0236)	(0.0233)	(0.0252)	(0.421)	(0.399)	(0.445)
=1 if belongs to the ruling caste	-0.159**		-0.118	-3.267**		-2.480*
	(0.0684)		(0.0740)	(1.461)		(1.489)
Age of the patriarch when he left Koranic school		-0.0133***	-0.0115**		-0.252***	-0.217***
		(0.00459)	(0.00466)		(0.0848)	(0.0837)

Notes: Number of observations: 470; 147 clusters (families). Marginal effects reported for probit models. Robust standard errors in parentheses; * significant at 10%; ** at 5%; *** at 1%. Villages dummies are included, but not displayed.

attended. This can be interpreted in two ways. Either it is an income effect showing that the family could afford the opportunity cost of schooling, or it is the "brain gain" effect described earlier: while abroad, the patriarch realized the importance of formal schooling. Concerning wealth effect, to avoid any simultaneity bias, a wealth index based on the patriarch's own bequest is introduced. It shows that wealthier families are more likely to send their children to formal school. However, when patriarch's Koranic school years is introduced it becomes non-significant, and it has also no significant impact on the number of years of formal schooling.

Especially interesting from the theoretical perspective is the finding that ruling caste families are less likely than lower castes to send their children to formal school and send them fewer years. Similarly, the number of years the patriarch has studied Koran has a significant negative impact on the probability of having attended formal school and the number of years. This is hardly surprising as the local power of the ruling caste is related to religious achievement. Indeed, there is a very high correlation between both variables in our data. As we saw in Table 1, patriarchs from the ruling caste remained in Koranic school three years more than patriarchs from other castes and this difference is significant at the 5% level.

Thus, the introduction of the patriarch's Koranic studies lowers the significance of the ruling caste dummy: when both are introduced, the sign of the ruling caste dummy is still negative but it becomes marginally non significant (i.e., it is almost significant at the 10% level) for the probability of having attended formal school, while it remains significant but of lower impact for the number of years of formal schooling. These results are consistent with the results of Proposition 2.

Not all children of the ruling caste are less likely to attend formal school, only those that parents plan to send abroad. Recall from the descriptive statistics that migrant sons of the ruling caste are significatively less likely to attend formal school compared to their lower caste counterparts and when they do, their years of formal schooling are also significatively fewer than those of sons of lower castes (see Table 3). In the initial subsample, of both migrants and non-migrants, the difference in formal schooling outcomes is not statistically significant between sons of both castes (see Table 2). This important result highlights the deliberate strategy of the ruling caste parents not to send their future mi-

grant sons to formal school, while they are as likely as lower caste parents to send their non migrant sons to formal school.

6. Conclusion

In a hierarchical society where members are stratified by caste and social mobility is restricted, motivations to migrate are shaped by caste identity. On the one hand, low caste migrants may be looking for the anonymity of the big city or a foreign country to shed their social stigmas. On the other hand, high caste migrants may be looking for increased earnings to remit in order to maintain their social ranking with expectations of returning. In this context, what would be the schooling strategy of each group?

Introducing in the utility function the social status along with the revenue, we were able to replicate what was observed in the Matam region of Senegal. What is clear is that the pursuit of happiness is not limited to monetary success. Social recognition also counts. Hence, migrants from the ruling caste experience a significant loss of prestige when they migrate. Moreover, receiving a Koranic education strengthens their position in the village. In contrast, migrants from lower castes receive social recognition through migration, especially if they have received a formal education prior to migration. The model describes the strategic choices parents make regarding the educational and migration careers of their sons and how it is optimal for high caste parents not to send their son to formal school.

This study gives additional support in favor of getting rid of an obsolete caste mentality in such a context. It is an additional barrier to the formal education of high caste children. Migration can play an effective role in local development through the return of skilled migrants. Yet in our context, not only the best educated low caste sons will contribute to the "brain drain" affecting the potential development of the region, but also the ruling caste prevents the achievement of universal primary schooling. Looking at the details of such a mechanism, we realize that the absence of a developed social security system (e.g., a reliable pension system) hinders development. It is indeed the need of the ruling elite to rely on their sons which impedes parents to send their sons to formal school.

7. Appendix

7.1. Proof of Lemma 1:

Given the assumption $s^l < s^m(1)$ (see A1) and $k^l = 0$, it is impossible to find $\alpha^l \leq 1$ so that $\alpha^l s^l \geq s^m(1)$. Formally educated children from low caste do not remit. By contrast if $e^l = 0$ and $s^m(0) < s^l$ then it is possible to set $1 \geq \alpha^l \geq \frac{s^m(0)}{s^l}$ so that children remit the maximum. With high caste children the assumption $s^h(0) > s^m(0)$ (see A1) and $k^h = k > 0$ imply that $\alpha^h(0) = \frac{s^m(0)}{s^h(0)(1+k)} < 1$. It exists α^h so that $1 > \alpha^h \geq \alpha^h(0)$ which implies $r^h(0) = 1$. Similarly if $s^h(1)(1+k) > s^m(1)$ then it exists $\alpha^h(1) = \frac{s^m(1)}{s^h(1)(1+k)} < 1$ so that it exists α^h so that $1 \geq \alpha^h \geq \alpha^h(1)$ which implies $r^h(1) = 1$. It is straightforward to check that under assumption A1 $\alpha^l(0) > \alpha^h(1) > \alpha^h(0)$.QED

7.2. Proof of Proposition 1:

Let $r^l(e) = \frac{s^l - s^m(e)}{s^l}$ and let $r^h(e) = \frac{s^h(e)(1+k) - s^m(e)}{s^h(e)(1+k)}$ $(e = 0, 1)$. It is straightforward to check that under assumption A1, and $k > 0$ we always have: $r^l(e) < r^h(e)$ $\forall e = 0, 1$ and $r^i(1) < r^i(0)$ $\forall i = l, h$. Moreover one can easily check that if $s^m(1) \geq (1+k)s^h(1)$ then $r^l(0) \geq r^h(1)$ (and symmetrically if $s^m(1) < (1+k)s^h(1)$ then $r^l(0) < r^h(1)$).QED

Akerlof, G., 1976. The economics of caste and of the rat race and other woeful tales. The Quaterly Journal of Economics 90, 599–617.

Alcaraz, C., Chiquiar, D., Salcedo, A., 2011. Remittances, schooling, and child labor in mexico. The Journal of Development Economics forthcoming.

Amelewonou, K., Brossard, M., Reuge, N., 2003. Atteindre la scolarisation primaire universelle au sénégal. eléments d'analyse de la rétention. Pôle de Dakar. Note d'Analyse.

André, P., Demonsant, J.L., 2009. Koranic schools in senegal : A real barrier to formal education ? Universidad de Guanajuato, Department of Economics and Finance Worping Paper EM200901.

Antman, F., 2011. The intergenerational effects of paternal migration on schooling and work: What can we learn from children's time allocations? The Journal of Development Economics forthcoming.

Auriol, E., Renault, R., 2002. Incentive hierarchies. Annales d'Economie et de Statistique 63-64, 261–282.

Auriol, E., Renault, R., 2008. Status and incentives. RAND Journal of Economics 39, 305–326.

Azam, J., Gubert, F., 2005. Those in kayes: The impact of remittances on their recipients in africa. Revue Economique 56, 1331–1358.

Ba, C.O., 1996. Dynamiques Migratoires et Changements Sociaux au Sein des Relations de Genre et des Rapports Jeunes/Vieux des Originaires de la Moyenne Vallée du Fleuve Sénégal. Ph.D. thesis. Université Cheikh Anta Diop de Dakar.

Batista, C., Lacuesta, A., Vicente, P., 2011. Testing the 'brain gain' hypothesis: Micro evidence from cape verde. Journal of Development Economics forthcoming.

Becker, G.S., 1993. Nobel lecture: The economic way of looking at behavior. Journal of Political Economy 101, 385–409.

Becker, G.S., 1996. Accounting for Tastes. Harvard University Press, Cambridge.

Beine, M., Docquier, F., Rapoport, H., 2008. Brain drain and human capital formation in developing countries: Winners and losers. The Economic Journal 118, 631–652.

Bernheim, B.D., Scleifer, A., Summers, L.H., 1985. Strategic bequest motive. Journal of Political Economy 93, 1045–1076.

Bredeloup, S., 1994. L'aventure contemporaine des diamantaires sénégalais. Politique Africaine 56, 77–93.

Cox, D., 1987. Motives for private income transfers. The Journal of Political Economy 95, 508–546.

Cox, D., Stark, O., 1996. Intergenerational transfers and the demonstration effect. Mimeo, Department of Economics, Boston College.

Cox-Edwards, A., Ureta, M., 2003. International migration, remittances, and schooling: Evidence from el salvador. The Journal of Development Economics 72, 429–461.

Delaunay, D., 1984. De la Captivité à l'Exil : Histoire et Démographie des Migrations Paysannes dans la Moyenne Vallée du Fleuve Sénégal. Paris: ORSTOM.

Demonsant, J.L., 2008a. How Family Prestige can Shape Intergenerational Transfers : Migration, Remittances and Schooling in Matam, Senegal. Ph.D. thesis. Université de Toulouse. Toulouse School of Economics ARQADE.

Demonsant, J.L., 2008b. Un système informel de retraite basé sur le prestige des notables au village: Etude de cas à matam (sénégal), in: Antoine, P. (Ed.), Les Relations Intergénérationnelles en Afrique : Approche Plurielle.. Paris : CEPED, pp. 121–142.

Diop, A.B., 1965. Société Toucouleur et migration. Enquête sur l'immigration Toucouleur à Dakar. Dakar: IFAN.

Hoddinott, J., 1992. Rotten kids or manipulative parents: Are children old-age security in western kenya? Economic Development and Cultural Change 40, 545–565.

Huet-Gueye, M., de Léonardis, M., 2005. Society's representations and educational practices in context of cultural disparity: school attendance's choices for the child among senegalese parents. Psychologie Française 52, 183–197.

Kandel, W., Kao, G., 2001. The impact of temporary labor migration on mexican children's educational aspirations and performance. International Migration Review 35, 1205–1231.

Klein, M., 2005. The concept of honour and the persistence of servility in the western soudan. Cahiers d'Etudes Africaines 45, 831–851.

Lucas, R., Stark, O., 1985. Motivation to remit: Evidence from botswana. The Journal of Political Economy 93, 901–918.

Luke, N., Munshi, K., 2011. Women as agents of change: Female income and mobility in india. Journal of Development Economics 94, 1–17.

McKenzie, D., Rapoport, H., 2011. Can migration reduce educational attainment? evidence from mexico. Journal of Population Economics forthcoming.

Minvielle, J.P., 1985. Paysans Migrants du Fouta Toro. La Vallée du Sénégal. ORSTORM.

Montgomery, M., Hewett, P., 2005. Poverty and children's schooling in urban and rural senegal. Policy Research Division, Population Council. Working Paper No. 196.

Mountford, A., 1997. Can a brain drain be good for growth in the source economy? Journal of Development Economics 53, 287–303.

Munshi, K., Rosenzweig, M., 2006. Traditional institutions meet the modern world: Caste, gender, and schooling choice in a globalizing economy. American Economic Review 96, 1225–1252.

N'Gaide, A., 2003. Stéréotypes et imaginaires sociaux en milieu haalpulaar : Classer, stigmatiser et toiser. Cahiers d'Etudes Africaines 172, 707–738.

Robinson, D., 1985. The Holy War of Umar Tal: The Western Sudan in the mid-nineteenth century. Oxford: Clarenton Press.

Robinson, D., 2004. Muslim Societies in African History. New York: Cambridge University Press.

Schmitz, J., 1994. Cités noires : les républiques villageoises du fuuta tooro (vallée du fleuve sénégal). Cahiers d'Etudes Africaines 133-135, 419–460.

Stark, O., Helmenstein, C., Prskawetz, A., 1997. A brain gain with a brain drain. Economics Letters 55, 227–234.

Stark, O., Helmenstein, C., Prskawetz, A., 1998. Human capital depletion, human capital formation, and migration: a blessing or a "curse"? Economics Letters 60, 363–367.

Tamari, T., 1991. The development of caste system in west-africa. The Journal of African History 32, 221–250.

UNESCO, 2007. Senegal Country Case Study. Technical Report. Country Profile commissioned for the Education For All Global Monitoring Report.

Veblen, T., 1899. The Theory of the Leisure Class: an Economic Study of Institutions. London: Allan and Unwin. Reprinted New-York: Modern Library, 1934.

Wane, Y., 1969. Les Toucouleurs du Fouta Toro: Stratification Sociale et Structure Familiale. Dakar: IFAN.

Weber, M., 1922. Economy and Society. Translated and reprinted. Berkeley: University of California Press, 1978,.

Yang, D., 2008. International migration, remittances and household investment: Evidence from philippine migrants' exchange rate shocks. The Economic Journal 118, 591–630.