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DETERMINANTS OF INTERNAL MIGRATION AMONG SENEGALESE YOUTH

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Abstract

We analyze the socio-economic determinants of youth decision to internally migrate in Senegal. Young people undertake mostly rural-to-rural and urban-to-urban migrations and over half of them are temporary migrants. Using multinomial logit models, we estimate the role of household and community characteristics during childhood in later youth migration decisions. We find that these determinants are heterogeneous by gender and destination. The higher the fathers' education the more (less) likely are their daughters to move to urban (rural) areas. Young individuals, who spend their childhood in better off households, are more likely to move to urban areas. Also, the presence of younger siblings increases the propensity of moving to rural areas. Access to primary schools during childhood decreases the likelihood of migrating to urban areas for both men and women.

Keywords: Internal migration, Senegal, youth, multinomial logit

INTRODUCTION

Internal migration, mostly composed of young adults and the poor, constitutes the largest flow of people in developing countries (UNDP 2009). Recent empirical evidence has focused on analyzing the determinants as well as the impacts of international migration. The study of internal flows has been far more limited than international migration, partly due to the lack of reliable data as well as the fact that internal migration is far less of a political issue. The research on internal mobility patterns, including the main drivers and outcomes, is nonetheless relevant because it will provide information to policymakers to enhance the benefits of internal migration and manage its risks and costs.

The recent literature has pointed out the importance of family and social factors in the decisions of young adults to migrate (WDR 2007). In developing countries, where households face labor and financial market constraints, migration can be a strategy to diversify income sources and cope with risks, compensating in some cases for the absence of insurance markets (Rosenzweig and Stark 1989; Stark 1991; Potick and Kuhn 2006; Giles 2007). Families might encourage younger members to migrate, both sons and daughters, not only because they have higher earnings potential, but also because they are more likely to remit money (Taylor 2001). Furthermore, family and socioeconomic circumstances during childhood can influence his/her probability of migrating later in life (Abramitzky et al. 2012).

This paper addresses the following question: What are the socio-economic determinants of the decisions to internally migrate in Senegal among young adults? And are these factors differentiated by gender? In particular, we analyze whether the decision to migrate is influenced by individual characteristics, as well as the circumstances in the households and communities where young adults grew up.

Understanding the determinants of the migration decision at the individual level is empirically challenging in terms of requisite data (Carletto et al. 2007). First, we need information on both migrants and potential migrants in terms of their origins, and their decisions whether or not to migrate. Among those that do move, we want to know their destination and timing of the migration, including the duration spent away from their place of birth and childhood residence. The second requirement is socioeconomic data on migrants (and non-migrants) before their departure. In the best circumstances, panel data is the solution, even though its collection can be very costly (Blumenstock 2012). In the absence of panel data, we exploit a unique module of the 2003 *Education et Bien-être des Ménages au Sénégal* (Education and Household Welfare in Senegal) survey which was specifically designed to understand migration decisions by asking questions retrospectively on young adults (21 to 35 years of age). We specifically rely on data we collected on both migrants and non-migrants when they were 10 years old.

Although most empirical studies and policy debates have focused on rural-to-urban migration, reflecting concerns over the rapid rate of growth of cities, few studies have highlighted the importance of other internal migration patterns such rural-to-rural (Banerjee and Duflo 2007). Likewise, most studies have concentrated on permanent migration, rather than large flows of temporary migrants. In response, we focus on the scope of internal migration and the diverse nature and experience of internal mobility by differentiating between temporary and permanent migrants and whether their origins and destinations were rural or urban. We find that more than half of the total internal migration is temporary and rural to rural or urban to urban, not the more widely studied rural-to-urban permanent migration. We employ a multinomial

choice model to empirically model the decision of young people to migrate to either rural or urban areas.

In addition to variables on the individual characteristics, such age, gender, and ethnicity, we include childhood demographic characteristics, such as the number of siblings, the role of the family's financial constraints measured by the asset index of the household when the child was 10 years of age, parents' education, and shocks in terms of death of their father and/or mother. Furthermore, we control for childhood residence characteristics such as access to education and health centers. Empirical evidence in developing countries has shown that women and men may migrate for different reasons (Smith and Thomas 1997; Ritcher and Taylor 2008). Therefore, we estimate separate models for young men and women to test if the socioeconomic determinants are gender-specific.

Our findings reveal that the socioeconomic factors of youth internal migration are heterogeneous by gender. For example, ethnicity and age play differentiated roles for women and men in defining migration choices to either urban or rural areas. Also, fathers' education influences only young women's choices; the higher the fathers' education the more likely are the daughters to move to urban areas, and the less likely they are to move to rural areas. Our results also indicate that family and community circumstances during childhood play a role in predicting migration later in life. For instance, we observe that the number of siblings affects the migration decision: women with younger siblings are more likely to migrate to rural areas, suggesting that elder sisters can leave home if they have younger siblings who act as substitutes in their social and economic tasks in the household. While the results of these demographic variables are interesting, we emphasize the need for some caution in interpreting these effects causally, as unobserved heterogeneity may jointly affect fertility and migration decisions. We also find that

social infrastructure in the community where an individual lived at age of 10, shapes migration decisions; our results show that access to a nearby primary school decreases youth migration to urban areas.

The findings of this paper contribute to the literature that has drawn attention to the importance of household and community characteristics in the individual's decision to migrate, specifically adding to the very few studies that highlight the importance of family and community level characteristics during childhood in predicting later migration in life (Abramitzky et al. 2012). The determinants of youth internal mobility are particularly relevant in Senegal, a country where 65% of the population is less than 25 years old, where mobility is very high, and where poverty and mobility are interrelated. Understanding who is likely to migrate internally, and why, is thus fundamental to formulate education, employment, and other policies to mitigate the stresses associated with such movements and improve the success of new migrants.

The remainder of this paper is organized as follows: In the next section we describe the conceptual framework and empirical approach used in the paper. This is followed in Section 3 by a discussion of the household survey data, including how we define and classify migrants. We also present descriptive data on patterns of internal mobility. The fourth section presents the econometric results from multinomial models that explain the determinants of migration. In the final section of the paper, we conclude and discuss the limitations and implications of this research.

CONCEPTUAL FRAMEWORK AND EMPIRICAL METHODOLOGY

In contrast to the earlier models of migration that analyze the individual's decision to move as a function of his/her own expected net economic benefit (Harris and Todaro 1970), a growing literature has been modeling migration as both an individual and family decision that not only maximizes income but also minimizes risks (Stark, 1991; Stark and Bloom 1985; Taylor 2001). If migration is an investment decision whereby individuals incur costs to generate higher incomes, youth have lower costs in moving and have higher lifetime expected returns. This is not only because of longer life compared to older people but also because their opportunity cost in the place of origin can be lower due to, for example, high youth unemployment rates. On the other hand, if migration is a family decision and perceived as a risk-coping mechanism, the choice of which household member migrates is based on both earning potential and their ability to be engaged in family insurance arrangements. For instance, Rosenzweig and Stark (1989) show that Indian rural farm households tend to engage in longer distance marriage-cum-migration to cope with volatile profits.

Most family decision migration models thus imply that while a member of the household migrates, the rest of the household which remains in the sending place is focused on maintaining its integrity as an economic and social unit. To explain this type of family decision migration behavior, models typically include variables such as: i) physical and human capital assets, including household demographic composition and information on adults' education, which can be proxies for risk aversion and access to credit; ii) stochastic variables such as weather or agricultural shocks to measure the type of risks that the household copes with; and iii) family networks, included as a form of social capital, that together with the human capital assets can generate differences in the net benefit of the migration decision across households (Ritcher and

Taylor 2007). Along the same lines, recent studies have highlighted the role of an individual's childhood family background on their probability of migrating later in life. For instance, Abramitzky et al. (2012), using a novel dataset of the Age of Mass Migration (1850-–1913) from Norway to the US, find evidence that economic and family conditions of an individual's household during childhood, particularly parental wealth and gender composition of siblings, can shape the internal or international migration decisions later in adult life. Following this conceptual framework, we model the young people's decisions to migrate to either rural or urban areas in Senegal as a function of their individual characteristics, the characteristics of their childhood family, and community circumstances prior to their departure.

Empirical studies addressing the determinants of migration face the challenge of observing the individual's migration at one point in time after this decision has been made. Furthermore, migration decisions can be made jointly with other household decisions such as investments in education and resource allocation, raising potential problems of endogeneity between migration and its determinants. We address this issue by using a survey from Senegal that contains retrospective data on young migrants and non-migrants, between 21 and 35 years old. The retrospective information on the household and community, when the individuals were 10 years old, allows us to simulate the impact of an individual's childhood circumstances prior to his/her migration decision.

The decision to migrate and the choice of destination are jointly modeled using a multinomial logit model where individuals can choose between staying (not moving), migrating to a rural area, or migrating to an urban area. More specifically, we estimate the following reduced form regression:

$$Ln\left[\frac{p(M_i = 1,2)}{p(M_i = 0)}\right] = \alpha + \beta' X_i + \delta' E_i + \theta' H_i + \rho' C_i + \pi' R_i + \epsilon_i$$

Where M_i *i*s the destination choice variable such that i takes the value of 0 if the individual does not migrate (the base case scenario), 1 if the individual migrates to a rural area, and 2 if the individual migrates to an urban area; X represents individual characteristics; E is parents' education at the time of survey; H and C are other household and community characteristics when the individuals were 10 years old; and R is a set of regional dummies, corresponding to the region of childhood residence, to control for fixed effects that can influence the cost of migration such as weather shocks, and economic and social networks effects. [1]

To amplify, among the individual characteristics we include age, ethnicity, and gender. In the case of the former, we would expect that younger individuals have a higher probability of migrating, reflecting, among other considerations, that according to the human capital theory of migration, younger individuals have higher earnings potential. In addition to running the models with a gender dummy variable, we also account for differences in the determinants of migration by estimating separate models for young women and men. In fact, some empirical studies in developing countries have shown that young women, unlike men, frequently move to marry (Smith and Thomas 1997). Also, gender differences are expected when parents encourage daughters, rather than sons, to migrate because of the expectation that the former are more likely to remit (WDR 2007). The individual's ethnicity is included as a proxy for social networks and cultural norms, which in the case of the Senegal is particularly important as we will describe

[1] Since the independent variables are from the chooser and not the destination choice, we are not required to implement a test of independence of irrelevant assumptions (IIA).

later. We exclude from the models any current individual's educational attainment because the potential reversal causality with migration.[2]

In terms of household covariates, if migration is considered as a family decision, the education of the father and mother are expected to influence a young person's decision to migrate, and should, therefore, be included among the model determinants (Smith and Thomas 1997; Quisumbing and McNiven 2006). The more educated the parents, the more information is available about the net benefit of migration, which can increase the odds of leaving. Also, parents' education can be a proxy for other household assets such as networks and family connections that can increase the probability of migrating. The empirical evidence is, however, not conclusive on the direction of the parents' education; while Ezra et al. (2001) do not find an effect of the household head's education on Ethiopian rural out-migration, Pessino (1991) shows that the years of education of the mother increases the likelihood to leave rural, but not urban areas in Peru.

To model the childhood environment prior to migration, we include different variables reflecting the household and community characteristics at the time the potential migrants were 10 years old. To measure the wealth and risk aversion of the household, we construct an asset index based on the dwelling conditions at age 10, described in the next section. Our expectation regarding the sign of the wealth effect on the probability of migrating is not unambiguous. On one hand, we can expect that better off households will be less likely to encourage their children to migrate, since the higher their assets, the better the potential economic opportunities in the

[2] In the 2003 EMBS survey, we lack a variable to instrument education, or we cannot infer the education completed before the migration decision.

community in which the young adult resides as a child.[3] On the other hand, we can expect that asset-poor households are less able to finance the costs of migration, and thus, less likely to migrate.[4] Indeed, Mackenzie et al. (2007) show that the probability of migrating from Mexico to the US has an inverse U-shaped relationship with wealth. This nonlinear effect is explained by the heterogeneity of migration networks: in sending communities with lower migration networks, the costs of migrating are relatively high and wealth is positively correlated with the likelihood to migrate, but once the migration networks are larger, the costs, and thus the importance of wealth on the decision to migrate, decrease. We tested in our models for an inverse U-shaped relationship between the asset index and the probability of migration by introducing a quadratic term in our regressions, but we did not find any statistically significance for this nonlinearity.

Additionally, young adults can migrate as a response to weather risks or any other type of income shock in the sending places (Yan and Choi 2008). Although, we lack information about weather shocks prior to an individual's departure, we do have information on whether either one or both parents had passed away by the time the individual was 10 years old. We capture this by including a dummy variable that takes the value of 1 when the individual reports that their father, mother or both passed away by the time they were 10 years old.[5] We expect that this shock can shape later migration decisions because sons and daughters are likely to assume economic and social responsibilities at home that can trigger or hinder their migration. Some studies in Ghana

[3] Other factors that affect this relationship are, for example, the land tenure systems in developing countries that can shape the youth migration decisions. For example, in the Philippines, young adults stay with their parents if they inherit the land (Quisimbuing and McNiven 2006).

[4] Marleto (2008) shows that poorer households in Bangladesh are only able to afford domestic migration while the better off households can afford the costs of international migration.

[5] We could not try a separate dummy variable for each parent's death since the number of cases for either mother or father was too small.

and Bangladesh show that losing a parent encourages children to move out of their childhood place of residence in search of income-generating activities (MDR 2009).

At the household level, we also include the number and gender composition of the individual's siblings. We do so while acknowledging that the number of siblings can be in part a function of household preferences for the quality and quantity of children. Nonetheless, the question of whether the presence of younger/older male and female siblings contributes to migration provides interesting insights in terms of these relationships, even if we cannot draw strict causal inferences from the results. These results can suggest some underlying mechanisms of intra-household allocation of time and resources, related to, for example, the division of household work and labor market activities, or even marriage practices and cultural norms, that shape an individual's migration decision. For instance, in the context of the migration from Norway to the US in the early nineteenth century, Abramitzky et al. (2012) show that men who had fewer brothers and were the oldest in their families were less likely to migrate later in life; the authors argue that this result is explained by the fact that in Norway the bequest was given to the oldest brother. Younger brothers, having less access to family resources, were more likely to migrate in search of better opportunities. In addition to the household allocation of resources among siblings, there may also be a role played by rights and tasks that relate to a child's birth order position relative to his siblings. For example, Protik and Kuhn (2007) show for Bangladesh that the migration of older brothers decreases the likelihood of sisters to marry and reside in places far from their parents. One explanation they give is that, in order to ensure for elderly care by their daughters, parents might prevent a marriage that involves migration. Furthermore, there might be substitution of tasks among siblings of the same gender that shape migration choices. For example, younger sisters are less likely to migrate since they assume expanded

responsibilities for performing household chores when replacing older siblings who have previously migrated (Smith and Thomas 1997; Quisibuing and and McNiven 2006).

At the community level, we include dummy variables on the access to primary and secondary schools and to hospitals, when the young adults were 10 years old. For each one of these variables, access is defined as the existence of the corresponding institution within five kilometers from the individual's residence when he/she was 10 years old. Since public policy determines the geographic distribution and disparity of social infrastructure, these variables are particularly important for understanding the role of government investments in migration choices. For instance, Katz (2000) shows that women in rural areas of Ecuador are more likely to remain in communities with high levels of local organization, such as access to school and hospitals.

DATA SOURCES AND DESCRIPTIVES

The data we use in this paper is the 2003 Household Survey on Education and Welfare in Senegal (EMBS), conducted in 33 rural and 30 urban communities.[6] Although, as discussed by Glick and Sahn (2009, 2010), the sample is not truly nationally representative since it is part of a cohort study of young children, efforts were made to randomly select into the sample new households to ensure that it is as close as possible to a random sample. Indications from comparison with other national surveys are that this effort was quite successful and that the

[6] See Glick and Sahn (2007) and (2010) for details about the survey design

sample of 1,820 households is representative of the population in terms of religion, ethnic groups, and demographic characteristics, as well as other characteristics such as education.[7]

In our analysis, we rely extensively on the migration module of the EMBS which contains information on the current residence, the birth place, and the residence five years prior the survey (1998). It also provides the years of residence in the current location. In addition, this module has retrospective questions for adults above age 21 about where they lived, as well as the household and community characteristics when they were 10 years old. This data is a key component of our methodology, because it allows us to observe the childhood characteristics of both migrants and non-migrants that we use to analyze migration decisions.

Defining a migrant in empirical work is not always straightforward and often made difficult due to limitations of the available data. We define *migrant* as an individual who has ever been outside of his/her community for at least one year and departed from their place of origin after he/she was 10 years old.[8] Among our sample of 2,676 individuals who fall in the age group of 21 to 35 years old,[9] 35.01% are defined as *migrants*; in other words, 937 individuals left their

[7] For example, net primary enrollment in our sample (primary enrollments of children 7–12) is 66 percent compared with 63 percent for the country as whole in 2000 (World Bank 2006).

[8] We test whether our results will change if we exclude the individuals who migrated at younger ages, between 10 and 14 years old. It is plausible that for these individuals, parents might strongly influence or make their decisions to migrate. If this is the case, the migration decision will be endogenous to other household-level decisions, such as fertility. We find that our key results are not sensitive to this choice of including these younger migrants. (See Table A.3 in the Appendix.)

[9] We use this age range since previous studies of internal migration have shown that internal flows are the highest for persons in this age group, especially as they search for employment and better economic prospects (Ezra et al. 2001; Brockerhoff et al. 1993); additionally, this cohort is especially important in terms of their experiences and recentness of their moves. We also suspect that the recall data is more accurate for these younger adults than for older individuals..

communities at least for one year after they were 10 years old; the median age of departure among these young migrants is 20 years.[10]

While most of the empirical studies of internal migration in developing countries have focused on out-migration, especially from rural areas, they have neglected a careful examination of different patterns or types of migration such as rural-to-rural or sequential migration. Mainly, this omission has been justified by the lack of data. Among the few studies in developing countries, Pessino (1991) analyses the determinants of different types of migration in Peru. Identifying the movements by the degree of urbanization of the origin, the author finds that primary migrants, i.e., people who move for the first time, are more likely to come from rural areas while repeat or return migrants, i.e., people who have prior moves, come from urban areas. Reed et al. (2010), using a household survey in some regions in Ghana, find that past and future mobility are positively and strongly correlated, suggesting that previous mobility reduces the perceived cost of moving again.

Another important study that attempts to classify migrants is that of Juan and Kim (1979) using census data in the Philippines. The authors construct a comprehensive set of categories of migrants that distinguishes migrants by various characteristics, including the number of moves and whether they return to their birthplace. Building upon this previous work, and using the information from our survey on the place of residence: (1) at the time of the survey (2003), (2) five years prior to the survey (1998), (3) when individuals were 10 years old, and (4) when individuals were born, we first focus on the periodicity of movements—that is, how many times the individual moves across these points in time. We distinguish between primary (one move) and repeat migrants (two or more moves), as well as return migrants. The latter category includes

[10] We calculate the age of departure by subtracting the number of years of residence in the destination (current place) from the young migrant's current age.

those whose second or third move involved returning to their birthplace. To be included in the category of return migrants, by definition, they have to report having lived at a location other than their birthplace either when they were 10 year of age, in 1998, and/or at the time of the survey. In our sample, 25.4% are primary migrants, 3.0% are secondary or tertiary migrants, and 11.9% are return migrants. A final, and the largest group of migrants—fully 59.6%—are those who we define as "temporary return" migrants, but for whom we do not have information on their migration other than they were away from their birthplace for at least one year. Thus, these individuals report that they were both resident in another location for at least one year, but also that their birthplace is the same as their residence at the time of the survey, and that they lived in their birthplace in 1998 as well as when they were 10 years old. [11]

Table 1 shows the distribution of migration by the urban/rural origin and destination of the move, as well as the migration categories: primary, return, repeat and temporary, discussed above. We find that two-thirds of the migrants from rural to urban areas are primary migrants; this is consistent with the fact that most of the migrants in Dakar are more likely permanent migrants (World Bank 2006). On the other hand, almost 60% of the rural-to-rural and urban-to-urban migrants are temporary movers.

<< Table 1 about here>>

[11] Juan and Kim (1979) (as explained in Blisborrow (1984)) classify these persons as non-migrants, because they report the same place of residence at all points of time that are included in the survey. We acknowledge that there may be some misreporting among this group —that is, that they made an error in reporting having lived elsewhere for more than one year. However, we expect that the vast majority answered that question correctly, and are indeed return migrants who happened not to live away from their place of birth in 1998 and when they were 10 years of age. In our analysis, we explore whether the results are sensitive to the inclusion/exclusion of these groups being characterized as migrants.

Table 2 summarizes some socio-economic characteristics of migrants and non-migrants among our 21- and 35-year-old cohort of young adults. We include in these tables, and in the analysis that follows, temporary migrants, having tested that the results would not be appreciably altered by excluding the temporary migrants under the assumption that this group might have different triggers to migrate internally. (See Table A.4 in the Appendix.)

Our young migrants are mostly female, although they have similar ethnic distribution and education levels compared to the non-migrants.

<< Table 2 about here>>

Women represent more than two-thirds of the young migrants, compared to 53.3% in the non-migrant group and 57.3% in the total population. This female overrepresentation in the group of young migrants can be presumably explained by the association of migration and the decision to marry, as we will discuss further in the next section.

Migrants are slightly older than non-migrants in our sample. However, this difference is not statistically significant. In addition, there is no age difference between men and women within the migrant and non-migrant groups. Among the migrants, almost 30% are Wolof, 24 % Poular/Toucolder, 17% Mandingue, and 17% Serere, with the remainder belonging to other minority groups. This distribution is very similar for the non-migrants and the total sample. Some ethnographic evidence has shown an association between ethnicity and migration in West Africa. On one hand, Bockefort et al. (1993) document that young Serere and Diola women are more prone to migrate, especially seasonally, to urban areas for domestic work, while women belonging to Toucoluer and Sonike groups are less likely to move from the village. Similarly, the

authors show that women belonging to Wolof groups are less prone to migrate. We empirically investigate this further in our econometric models.

We also see that non-migrants have slightly more education; however, it is not statistically significantly different from migrants. More than 70% of the migrants' fathers did not go to school, and this percentage is even higher, 85%, for their mothers. This situation is not appreciably different for non-migrant young adults; 68% of their fathers and 83% of their mothers did not go to school.

Descriptive statistics on the access to social infrastructure when young migrants and non-migrants were 10 years old indicate that migrants come from areas with less access to a nearby primary school, lower secondary school, and upper secondary school, as well as a hospital. Approximately 91% of the young people had a primary school near their residence. However, this percentage is only 86% for the migrant youth. Along the same lines, 46% of young migrants came from a region with a middle school (lower secondary) nearby while this percentage was almost 10 points higher for the non-migrants. Similar patterns are found when analyzing access to upper secondary school. The access to health services was also unequal between migrants and non-migrants in their childhood residences. While 72% of the migrant had access to a hospital, this percentage was 84% for the non- migrant population.

As noted above, we create an asset index following standard procedures using factor analysis and the dwelling characteristics where the young adults lived at 10 years of age.[12] While 40% of the migrant children came from the lowest quartile, this percentage was 30% among the

[12] We construct the asset index based on the floor material, the source of potable water, and the type of bathroom for the dwelling. These were the only characteristics available in the retrospective survey module.

non-migrant group. However, this difference seems to be smaller for the highest quartile. Overall, we find that the non-migrant's asset distribution first order dominates the migrant's.

RESULTS AND DISCUSSION

The results of the multinomial logit models are presented in Appendix Table A.1, with the marginal effects shown in Table 3. Panel A shows the marginal effects for all the individuals between 21 and 35 years old; panels B and C show the results for young men and women, respectively. Given that the marginal effects are more meaningful and easier to interpret, we will concentrate our discussion on these estimates.

<<Table 3 about here >>

Individual Characteristics

From the model that includes both men and women, the negative and significant gender variable indicates that women are 6.4% more likely than men to move to rural areas, although no gender difference exists for moves to urban areas. These results may reflect that young women often move as a consequence of following their spouses. While we are unable to prove the causal effect of marriage on female youth migration, previous research indicates that marriage is the main reason for migration among women between 15 and 49 years old in Senegal (Safir 2009). We examined the relationship between the age of marriage and age of migration. First, we note that on average, among married couples, men are 12 years older.[13] Second, we notice that 72

[13] In the 2003 EMBS sample of married couples, the average woman's age is 38 while for men, it is 50 years old.

percent of the women who migrate were already married, in contrast to only 31 percent of the male migrants.

We also examine the marginal effect of age among the cohort of individuals between 21 and 35 years old, and as shown in Panel A, being one year older increases by 7.6% the probability of migrating to rural areas and decreases by 5% the probability of migrating to urban areas. While age has no effect for men on the likelihood to migrate to either rural or urban areas, for women this effect varies with their destination. As age increases, women are 10% more likely to migrate to rural areas and 6% less likely to migrate to urban areas; however, this effect is non-linear as seen by the statistical significance of the quadratic term.

The results also show evidence that ethnicity influences the likelihood of migrating to rural and urban areas[14]. This effect is differentiated by gender. On one hand, belonging to the Serere group, relative to the Mendingue/Sose group that was excluded, decreases by 17% the likelihood of migrating to urban areas. This marginal effect has similar magnitudes among women and men. On the other hand, belonging to the Wolof group decreases only male migration to urban areas by 12%, while belonging to the Poular group decreases only female migration to rural areas by 9%. Also, men who belong to other ethnic minority groups have a 15% lower probability of moving to urban areas while women belonging to the same groups have a 13% lower probability to go to rural areas. These results are consistent with the study by Bockefort et al. (1993) who discuss the importance of ethnicity in the decision for women to migrate in Sub-Saharan countries, including Senegal.

Demographic and Economic Household Characteristics

[14]We also include a dummy variable for missing observations given the substantial amount of misreporting of this variable in the sample (523 observations for non-migrants and 253 for migrants).

Our results indicate that the children of fathers with more education are less likely to move to rural areas, and more likely to move to urban areas, where the magnitude of these effects are very similar. Mother's education, however, is not significant[15]. When examining the gender-disaggregated results, we observe that the effect of the father's education on youth migration is larger and more statistically robust for their daughters than it is for their sons.[16] This result may reflect the role of fathers in arranged marriages, or perhaps in terms of promoting more educational opportunities for their daughters, which often requires migrating to urban areas. These two mechanisms, in fact, may be related: greater education of the fathers, whether it be through ability, economic well-being, or more expansive social networks, may enable them to find more favorable husbands for their daughters who will move with their husbands to the city in pursuit of greater opportunity, or similarly, to improve educational opportunities for their daughters, which requires schooling in urban areas. In contrast, fathers' education may discourage marriage arrangements whereby daughters migrate to rural areas where the returns of migration areas are likely to be lower. These results are similar to those found by Quisimbuing et al. (2005) in the Philippines where fathers' education increases the probability of daughters moving from the village, and interestingly, mothers' education had the opposite effect.

Our models also suggest that better living conditions during childhood, measured by the dwelling asset index, are associated with higher likelihood of migrating to urban areas, while decreasing the likelihood of migrating to rural areas; however, the latter effect is not statistically

[15] We corroborate these results by estimating the same multinomial model (not shown) but including a dummy variable for each father and mother if he/she is literate (i.e., has some level of education).

[16] The effect of the father's education on young males is significant only at 10%, and it is not robust to the specification of a father's literacy dummy variable.

significant[17]. The asset index does not have a differentiated effect by gender. This result might suggest that young women and men who grew up in asset-poor households are less able to afford the costs of migration to urban areas. We also test if there was a differentiated effect of the asset index by rural/urban origin. A better-off asset position of the household in the rural origin decreases the likelihood of migrating to either rural or urban areas. Interestingly, this effect is statistically significant for men and not for women, suggesting that male migration might be deterred by better economic opportunities, probably associated with agricultural activities, in the rural areas. (See Table A.5 in the Appendix.)

The multinomial regressions shown in Table 3 also include information on the demographic make-up of the households when individuals were 10 years old. The results indicate that a higher number of younger siblings increase the probability of migrating to rural areas, while a higher number of older siblings does not have any effect on the probability of migrating to either urban or rural areas. Looking at the models by gender, the results show that the marginal effect of having younger siblings is still statistically significant for women; and this effect is only positive and significant in the case of women moving to rural areas. Also, the presence of older siblings only decreases male migration to urban areas.[18]

One possible explanation is that women with a higher number of younger sisters are more likely to migrate because their young female siblings act as substitutes in home production (Smith and Thomas 1997; Quisminbuing 2005). Indeed, we further examine the sex and birth order composition of the siblings in the likelihood of migration. We estimate the multinomial models including younger and older brothers and sisters. (See Table A.2 in the Appendix.) We

[17]This result is consistent with the fact that the asset distribution for migrants going to urban areas first order dominates the migrants going to rural areas.
[18] However, this result is not statistically robust when disaggregating the siblings by gender and birth order composition.

find that having younger sisters increases the odds of moving to rural areas, and this effect is significant for women, but not for men.

In addition, we account for whether the individual is an orphan of either father or mother, or both, by the time s/he was 10 years old. Our results indicate that the marginal effect of the loss of a parent during childhood increases by 6.3% the probability of migrating to rural areas, but it does not affect the likelihood of moving to urban areas. By gender, we find that being an orphan only affects female and not male migration, and this effect is only significant for those women going to rural areas.

Community Characteristics

The availability of social infrastructure, such as schools and hospitals, in the community where the individual lived as a child influences their probability of moving. Access to a primary school within five kilometers decreases the likelihood of moving to urban areas by 18%, but it does not affect the probability of moving to rural areas. This marginal effect is of a similar magnitude for both men and women, although it is no longer statistically significant for men migrating to rural areas. We also investigate whether the nearest primary school has a differentiated effect on the likelihood to migrate by whether the individual lived in a rural or urban area as a child. To do so we estimate the models (not shown) including an interaction between the urban dummy and the nearest primary school. We find that proximity to primary school decreases the probability of migrating to urban areas only if the early childhood residence is in a rural area.

Access to secondary school does not affect the decision to migrate in the aggregate sample; however, when we examine the gender-disaggregated models we see that a secondary school within five kilometers actually increases the female probability of migration to urban areas by 7%, and by a similar magnitude, decreases the male probability of migration to the same

areas. We expect that this is mediated by the fact that improved access to secondary schools as children exposes girls and their families to the potential of greater opportunities associated with education and a greater openness to migrate in search of opportunity, whether in the labor market or in search of more education. Proximity to a nearby hospital decreases the odds of migrating to rural areas only, but again, this is only the case for potential women migrants.

In general terms, our results indicate that better access to social infrastructure during childhood, particularly primary schools and hospitals, deters later youth migration, a finding which is consistent with other empirical evidence in developing countries (Katz 2000). However, there are potential countervailing forces that might contribute to better social infrastructure encouraging migration: that is, easier access to schools can also trigger migration if individuals who accumulate more human capital in presence of schools migrate to other places to look for higher returns to their capital accumulation. In fact, we find that women with access to secondary school when they are ten years of age are likely to migrate to urban areas.

The models in Table 3 also show that the region where the individuals were living at age 10 plays a role in shaping their decision to migrate since it can reflect differences in economic opportunities and social networks that directly affect the cost and benefits of migration. For instance, our results suggest that the probability to migrate to urban areas increases by 15% (12% for rural areas) for young people who lived in Ziguinichor. This region is located in Casamence, an area where poverty is persistent and conflict has been present for the last 30 years (World Bank 2006). Finally, the dummy for whether the childhood residence was either rural or urban corroborates the patterns described earlier: when the childhood residence is rural, the likelihood to migrate to other rural areas increases by 15%; similarly, when the residence is urban, the likelihood to migrate to urban areas increases by 10%.

CONCLUSIONS

Our goal in this paper has been to highlight the importance and magnitude of internal migration in Senegal, and to analyze the socio-economic determinants of the decisions of young people to internally migrate. Young women, in particular, are far more likely to migrate internally, and the determinants of migration also differ by gender. We focus on the role of household and community characteristics prior to the decision to migrate, using household survey data from Senegal which includes retrospective information from when individuals were 10 years old. Our multinomial logit model allows for individuals, between 21 and 35 years old, to decide between not migrating, and moving to rural and urban areas in Senegal.

Our findings suggest that the decision to migrate internally in Senegal is heterogeneous by gender, and that the determinants of migration differ for those leaving their childhood residence for an urban or rural destination. For example, father's education has an important role in women's migration choices. The more educated the father, the more (less) likely are the daughters to go to urban (rural) areas. In the context of our sample, where 72 percent of the female migrants are married, this result could suggest that a father's education is influential not only in marriage arrangements, but also in the probability that his daughter will marry someone and leave the childhood residence with their new husband in search of greater economic opportunity in urban areas. However, this is only conjecture, as we do not have further information to disentangle the role of marriage and economic opportunity in the decision to migrate. Young people who are orphans are also more likely to migrate, presumably reflecting weaker ties to their childhood places of residence.

The characteristics of the community in which children reside shape migration decisions. Proximity to better social infrastructure during childhood, particularly primary schools and hospitals, are generally associated with a lower probability of migrating. The one clear exception is access to secondary schools, which in fact increases the probability of migration to urban areas for young women. While, on the one hand, proximity to secondary schools may mitigate the need to migrate in search of more education, such accessibility is likely associated with higher schooling attainment, especially for girls whose parents are more reluctant to send their daughters away to boarding schools and/or reside with relatives in order to improve school attainment. These human capital investments may subsequently encourage migration of the young women to urban areas in search of employment opportunities that exploit their human capital investments in education.

Our findings suggest that the presence of younger siblings during childhood is associated with migration decisions. For instance, women with younger sisters (but not brothers) are more likely to migrate, suggesting that younger female siblings act as substitutes in household responsibilities. We also find that those who lived in households with a higher asset index are more likely to migrate to urban areas, possibly because these young women and men are able to finance the costs of migrating to urban areas and to reap the benefits of better opportunities in these areas. Nevertheless, controlling for educational background and infrastructure where a child grows up, there is less of a push factor in the migration decision for those households with better living conditions in rural areas, especially for men.

While these is still much to be learned about the internal migration of young people in Senegal, and more generally in other developing countries, the high degree of mobility and the recognition of certain factors that contribute to these population movements is important for

policymakers, both in terms of affecting and planning for the widespread migration. While there remain many questions about the determinants of migration, and how to cope with the stresses on communities and households affected by these population movements, there is every reason to expect that they will only accelerate in years to come.

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TABLE 1 Distribution of migrants by rural/urban birthplace and urban/rural residence in 2003

	Primary	Repeat	Return	Temporary	Total
Urban -Rural	60.6%	3.0%	1.5%	34.8%	100.0%
Rural- Rural	7.3%	0.5%	14.7%	77.5%	100.0%
Urban -Urban	26.2%	4.3%	14.5%	55.1%	100.0%
Rural -urban	59.8%	8.3%	2.3%	29.5%	100.0%

Source: Authors calculations based on 2003 EMBS

TABLE 2 Socioeconomic characteristics of migrants and nonmigrants

	Migrants	Nonmigrants	Total
Characteristics in 2003- year of the survey			
Percentage of female	64.78	53.36	57.36
Average age	27.79	26.39	26.88
Average years of education	4.15	4.50	4.38
Ethnicity			
% belong to Wolof	29.39	35.77	33.47
% belong to Poular	24.71	19.98	21.68
% belong to Mandingue	17.84	13.40	15.00
% belong to Serere	16.23	20.39	18.89
Parents Education			
% whose mother has none school	85.37	82.17	83.28
% whose father has none school	72.91	68.30	69.90
Access to Social services at age of 10 years			
Access to Primary School	0.86	0.95	0.91
Access to lower Secondary	0.46	0.55	0.51
Access to Upper School	0.35	0.46	0.42
Access to Hospital	0.72	0.84	0.79
Distribution by asset quartiles at age 10 years			
(percentage of Individuals)			
First	40.77	30.76	34.27
Second	18.36	17.42	17.75
Third	19.10	27.26	24.40
Fourth	21.77	24.55	23.58

Source: Authors' calculation from 2003 EMBS

TABLE 3 Marginal Effects of multinomial logit models by rural and urban destinations

	Panel a All		Panel b Men		Panel c Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Individual Characteristics						
Gender (1=male)	-0.064***	-0.013				
	(0.014)[a]	(0.015)				
Age	0.076***	-0.052**	0.041	-0.025	0.099***	-0.063**
	(0.022)	(0.024)	(0.025)	(0.035)	(0.034)	(0.031)
Age squared	-0.001***	0.001**	-0.001	0.001	-0.002***	0.001**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Wolof	-0.016	-0.062*	-0.018	-0.122***	-0.020	-0.012
	(0.030)	(0.032)	(0.035)	(0.044)	(0.046)	(0.044)
Poular	-0.019	-0.007	0.033	-0.038	-0.087**	0.025
	(0.025)	(0.032)	(0.026)	(0.044)	(0.040)	(0.045)
Serere	0.007	-0.168***	-0.023	-0.155***	0.038	-0.174***
	(0.032)	(0.042)	(0.036)	(0.056)	(0.051)	(0.059)
Diola	-0.024	-0.004	0.014	-0.015	-0.055	0.004
	(0.038)	(0.044)	(0.041)	(0.061)	(0.060)	(0.062)
Other	-0.092*	-0.080*	-0.057	-0.145**	-0.132*	-0.016
	(0.048)	(0.048)	(0.062)	(0.070)	(0.071)	(0.064)
Missing ethnicity	0.004	-0.074**	0.021	-0.118***	-0.014	-0.034
	(0.026)	(0.031)	(0.029)	(0.042)	(0.042)	(0.043)
Household Characteristics						
Father's highest education	-0.017***	0.011***	-0.013*	0.005	-0.022**	0.017***
	(0.006)	(0.004)	(0.007)	(0.006)	(0.009)	(0.005)
Mother's highest education	-0.005	0.005	0.004	-0.006	-0.011	0.010
	(0.009)	(0.006)	(0.010)	(0.008)	(0.014)	(0.008)
Asset Index	-0.008	0.028**	-0.018	0.028	-0.002	0.022
	(0.011)	(0.012)	(0.014)	(0.018)	(0.017)	(0.016)
Being Orphan	0.065***	0.038	0.052	0.068	0.080**	0.020
	(0.025)	(0.031)	(0.032)	(0.049)	(0.037)	(0.039)
No. older siblings	-0.002	-0.002	-0.007*	-0.006	0.004	0.001
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.005)
No. of younger siblings	0.007**	0.001	0.001	0.005	0.012**	-0.003
	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. Marginal effects are evaluated at the mean
[a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses
No observations: All, 2429; Men: 1047; Women: 1382

TABLE 3 Marginal Effects of multinomial logit models by rural and urban destinations (continued)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Community Characteristics						
Access-Primary School (1=yes)	-0.023	-0.178***	0.020	-0.197***	-0.064*	-0.173***
	(0.022)	(0.036)	(0.026)	(0.056)	(0.034)	(0.046)
Access- Secondary School(1=yes)	0.006	0.002	0.034	-0.073*	-0.025	0.074*
	(0.023)	(0.029)	(0.025)	(0.039)	(0.037)	(0.041)
Access-Hospital(1=yes)	-0.069***	0.046	-0.031	0.088*	-0.099***	0.021
	(0.018)	(0.034)	(0.020)	(0.052)	(0.029)	(0.045)
Rural residence 10yrs (1=yes)	0.148***	-0.097***	0.130***	-0.142***	0.139***	-0.055
	(0.027)	(0.029)	(0.032)	(0.041)	(0.042)	(0.041)
Regions						
Diourbel	-0.013	0.054	-0.045	0.044	0.003	0.055
	(0.038)	(0.034)	(0.051)	(0.050)	(0.056)	(0.046)
Fatick	-0.014	0.161***	-0.026	0.098	-0.003	0.201***
	(0.046)	(0.044)	(0.060)	(0.065)	(0.070)	(0.060)
Kaolack	0.006	0.033	0.008	-0.009	-0.001	0.061*
	(0.034)	(0.026)	(0.040)	(0.038)	(0.051)	(0.035)
Kolda	0.101***	-0.055	0.035	-0.061	0.157***	-0.059
	(0.035)	(0.035)	(0.043)	(0.051)	(0.053)	(0.048)
Louga/Matam	-0.014	0.008	-0.043	0.020	0.015	0.002
	(0.039)	(0.033)	(0.053)	(0.046)	(0.056)	(0.045)
Saint Louise	-0.031	0.030	-0.027	0.035	-0.021	0.027
	(0.040)	(0.030)	(0.049)	(0.044)	(0.059)	(0.041)
Tambacounda	0.023	-0.127***	0.032	-0.169**	-0.000	-0.097*
	(0.038)	(0.045)	(0.045)	(0.067)	(0.060)	(0.058)
Thies	0.019	0.003	0.030	-0.028	0.016	0.021
	(0.032)	(0.026)	(0.040)	(0.041)	(0.047)	(0.034)
Ziguinchor	0.125***	0.144***	0.088*	0.133**	0.129*	0.157***
	(0.042)	(0.037)	(0.048)	(0.055)	(0.067)	(0.049)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. Marginal effects are evaluated at the mean
[a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses
No observations: All, 2429; Men: 1047; Women: 1382

APPENDIX

TABLE A.1 Coefficients of Multinomial logit models by rural and urban destinations

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Individual Characteristics						
Gender (1=male)	-0.617***	-0.192				
	(0.13) [a]	(0.12)				
Age	0.639***	-0.311	0.543	-0.165	0.657***	-0.358
	(0.20)	(0.19)	(0.35)	(0.30)	(0.25)	(0.25)
Age squared	-0.010***	0.007*	-0.008	0.004	-0.011**	0.007*
	(0.00)	(0.00)	(0.01)	(0.01)	(0.00)	(0.00)
Wolof	-0.235	-0.520**	-0.412	-1.073***	-0.172	-0.129
	(0.27)	(0.25)	(0.50)	(0.38)	(0.34)	(0.35)
Poular	-0.182	-0.080	0.416	-0.284	-0.622**	0.076
	(0.23)	(0.26)	(0.36)	(0.38)	(0.30)	(0.35)
Serere	-0.171	-1.345***	-0.526	-1.372***	0.035	-1.339***
	(0.30)	(0.34)	(0.51)	(0.49)	(0.38)	(0.47)
Diola	-0.231	-0.066	0.177	-0.115	-0.412	-0.045
	(0.35)	(0.36)	(0.59)	(0.53)	(0.45)	(0.49)
Other	-0.971**	-0.775**	-0.996	-1.322**	-1.021*	-0.319
	(0.44)	(0.38)	(0.87)	(0.60)	(0.53)	(0.50)
Missing ethnicity	-0.062	-0.587**	0.147	-0.995***	-0.153	-0.290
	(0.24)	(0.24)	(0.42)	(0.36)	(0.31)	(0.34)
Household Characteristics						
Father's highest education	-0.139**	0.066**	-0.172*	0.025	-0.145**	0.104***
	(0.06)	(0.03)	(0.09)	(0.05)	(0.07)	(0.04)
Mother's highest education	-0.037	0.030	0.050	-0.047	-0.069	0.063
	(0.08)	(0.04)	(0.14)	(0.07)	(0.11)	(0.06)
Asset Index	-0.034	0.216**	-0.213	0.223	0.020	0.176
	(0.10)	(0.10)	(0.20)	(0.15)	(0.13)	(0.13)
Being Orphan	0.662***	0.393	0.819*	0.655	0.637**	0.280
	(0.23)	(0.25)	(0.45)	(0.42)	(0.27)	(0.31)
No. older siblings	-0.019	-0.019	-0.112*	-0.062	0.030	0.011
	(0.03)	(0.03)	(0.06)	(0.05)	(0.04)	(0.04)
No. of younger siblings	0.069**	0.017	0.025	0.042	0.089**	-0.009
	(0.03)	(0.03)	(0.05)	(0.04)	(0.04)	(0.04)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors reported in parentheses. N° observations: All, 2429; Men: 1047; Women: 1382; Pseudo R^2: All, 0.1482; Men, 0.1584; Women, 0.156

TABLE A.1 Coefficients of Multinomial logit models by rural and urban destinations (continued)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Community Characteristics						
Access-Primary School (1=yes)	-0.457**	-1.469***	0.033	-1.675***	-0.734***	-1.484***
	(0.20) [a]	(0.30)	(0.36)	(0.51)	(0.26)	(0.38)
Access-Secondary School(1=yes)	0.063	0.025	0.387	-0.588*	-0.081	0.554*
	(0.21)	(0.23)	(0.36)	(0.33)	(0.27)	(0.32)
Access- Hospital (1=yes)	-0.580***	0.276	-0.329	0.717	-0.721***	0.025
	(0.17)	(0.27)	(0.28)	(0.46)	(0.21)	(0.35)
Rural residence 10yrs (1=yes)	1.243***	-0.575**	1.663***	-1.066***	0.975***	-0.238
	(0.26)	(0.24)	(0.46)	(0.36)	(0.32)	(0.32)
Regions						
Diourbel	-0.051	0.419	-0.589	0.324	0.106	0.449
	(0.35)	(0.27)	(0.71)	(0.43)	(0.41)	(0.36)
Fatick	0.096	1.278***	-0.245	0.815	0.272	1.609***
	(0.43)	(0.36)	(0.84)	(0.56)	(0.53)	(0.49)
Kaolack	0.102	0.272	0.105	-0.064	0.082	0.486*
	(0.31)	(0.21)	(0.57)	(0.33)	(0.38)	(0.27)
Kolda	0.864***	-0.305	0.414	-0.480	1.101***	-0.242
	(0.33)	(0.28)	(0.60)	(0.44)	(0.39)	(0.38)
Louga/Matam	-0.122	0.047	-0.590	0.122	0.114	0.039
	(0.36)	(0.26)	(0.74)	(0.40)	(0.42)	(0.35)
Saint Louise	-0.248	0.199	-0.337	0.266	-0.118	0.183
	(0.37)	(0.24)	(0.69)	(0.37)	(0.44)	(0.32)
Tambacounda	0.038	-0.995***	0.247	-1.416**	-0.142	-0.778*
	(0.35)	(0.36)	(0.63)	(0.59)	(0.45)	(0.46)
Thies	0.182	0.050	0.393	-0.200	0.150	0.191
	(0.29)	(0.21)	(0.56)	(0.35)	(0.35)	(0.27)
Ziguinchor	1.366***	1.336***	1.426**	1.265***	1.202**	1.444***
	(0.39)	(0.30)	(0.69)	(0.47)	(0.50)	(0.39)
Constant	-10.953***	3.686	-11.820**	2.335	-10.446***	3.685
	(2.85)	(2.62)	(4.95)	(4.15)	(3.57)	(3.46)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors reported in parentheses. N° observations: All, 2429; Men: 1047; Women: 1382; Pseudo R^2: All, 0.1482; Men, 0.1584; Women, 0.156

TABLE A.2 Multinomial logit models with siblings' composition (Marginal effects)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Gender (1=male)	-0.064***	-0.013				
	(0.014) [a]	(0.015)				
Age	0.076***	-0.052**	0.040	-0.026	0.098***	-0.061*
	(0.022)	(0.024)	(0.025)	(0.035)	(0.034)	(0.031)
Age squared	-0.001***	0.001**	-0.001	0.001	-0.002***	0.001**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Wolof	-0.016	-0.063**	-0.019	-0.122***	-0.020	-0.012
	(0.030)	(0.032)	(0.035)	(0.044)	(0.046)	(0.044)
Poular	-0.019	-0.009	0.033	-0.040	-0.092**	0.024
	(0.025)	(0.032)	(0.026)	(0.044)	(0.040)	(0.045)
Serere	0.007	-0.168***	-0.024	-0.155***	0.038	-0.174***
	(0.032)	(0.042)	(0.036)	(0.056)	(0.051)	(0.060)
Diola	-0.023	-0.003	0.015	-0.013	-0.053	0.008
	(0.038)	(0.044)	(0.041)	(0.061)	(0.060)	(0.062)
Other	-0.092*	-0.079*	-0.058	-0.139**	-0.133*	-0.018
	(0.048)	(0.048)	(0.061)	(0.070)	(0.071)	(0.064)
Missing ethnicity	0.005	-0.072**	0.019	-0.118***	-0.012	-0.031
	(0.026)	(0.031)	(0.029)	(0.042)	(0.042)	(0.043)
Father's highest education	-0.017***	0.011***	-0.013**	0.005	-0.024**	0.017***
	(0.006)	(0.004)	(0.006)	(0.006)	(0.009)	(0.005)
Mother's highest education	-0.004	0.004	0.004	-0.006	-0.011	0.010
	(0.009)	(0.006)	(0.010)	(0.008)	(0.014)	(0.008)
Asset Index	-0.008	0.028**	-0.017	0.029*	-0.002	0.022
	(0.011)	(0.012)	(0.014)	(0.018)	(0.017)	(0.016)
Being Orphan	0.066***	0.040	0.048	0.069	0.081**	0.021
	(0.025)	(0.031)	(0.032)	(0.049)	(0.037)	(0.039)
No. of older brothers	0.002	0.006	-0.012	-0.000	0.016*	0.012
	(0.006)	(0.006)	(0.007)	(0.008)	(0.009)	(0.008)
No. of older sisters	-0.006	-0.012*	-0.002	-0.014	-0.010	-0.013
	(0.007)	(0.007)	(0.008)	(0.010)	(0.010)	(0.009)
No. of younger Brothers	0.004	-0.001	-0.001	-0.000	0.010	-0.005
	(0.005)	(0.006)	(0.005)	(0.007)	(0.008)	(0.008)
No. of younger sisters	0.011**	0.002	0.004	0.010	0.015*	-0.003
	(0.005)	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)
Access-Primary School (1=yes)	-0.024	-0.179***	0.019	-0.201***	-0.065*	-0.173***
	(0.022)	(0.036)	(0.025)	(0.056)	(0.034)	(0.046)
Access- Secondary School (1=yes)	0.007	0.002	0.033	-0.074*	-0.024	0.074*
	(0.023)	(0.029)	(0.025)	(0.038)	(0.037)	(0.041)
Access-Hospital(1=yes)	-0.069***	0.046	-0.030	0.089*	-0.100***	0.021
	(0.018)	(0.034)	(0.020)	(0.052)	(0.029)	(0.044)
Rural residence 10yrs (1=yes)	0.148***	-0.097***	0.129***	-0.141***	0.138***	-0.055
	(0.027)	(0.029)	(0.032)	(0.041)	(0.042)	(0.041)

***, **, *: significant at 1%, 5%, 10% levels. [a] Standard errors of marginal effects calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All, 2429; Men: 1047; Women: 1382; Pseudo R^2: All, 0.1497; Men, 0.1598; Women, 0.1594.

TABLE A3 Multinomial logit models excluding younger individuals (Marginal effects)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Individual Characteristics						
Gender (1=male)	-0.061***	-0.017				
	(0.013) [a]	(0.014)				
Age	0.066***	-0.021	0.035*	0.018	0.086**	-0.041
	(0.021)	(0.023)	(0.021)	(0.033)	(0.034)	(0.031)
Age squared	-0.001***	0.001	-0.000	-0.000	-0.001**	0.001
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Wolof	-0.027	-0.064**	-0.020	-0.127***	-0.041	-0.006
	(0.029)	(0.031)	(0.031)	(0.041)	(0.046)	(0.045)
Poular	-0.023	-0.012	0.030	-0.049	-0.105***	0.031
	(0.023)	(0.031)	(0.021)	(0.040)	(0.040)	(0.045)
Serere	-0.009	-0.138***	-0.015	-0.143***	0.005	-0.123**
	(0.031)	(0.039)	(0.031)	(0.050)	(0.050)	(0.058)
Diola	-0.036	0.002	0.013	-0.026	-0.078	0.032
	(0.036)	(0.042)	(0.033)	(0.056)	(0.059)	(0.061)
Other	-0.120**	-0.083*	-0.031	-0.163**	-0.216**	0.001
	(0.052)	(0.047)	(0.050)	(0.070)	(0.086)	(0.063)
Missing ethnicity	-0.004	-0.071**	0.021	-0.110***	-0.033	-0.027
	(0.025)	(0.030)	(0.025)	(0.038)	(0.042)	(0.044)
Household Characteristics						
Father's highest education	-0.012**	0.009**	-0.008	0.004	-0.017**	0.013***
	(0.006)	(0.004)	(0.006)	(0.005)	(0.009)	(0.005)
Mother's highest education	-0.005	0.004	-0.002	0.000	-0.005	0.006
	(0.009)	(0.005)	(0.009)	(0.007)	(0.013)	(0.007)
Asset Index	-0.004	0.026**	-0.011	0.026	0.002	0.023
	(0.011)	(0.011)	(0.012)	(0.016)	(0.017)	(0.015)
Being Orphan	0.057**	0.049*	0.039	0.078*	0.071**	0.030
	(0.024)	(0.028)	(0.026)	(0.043)	(0.036)	(0.036)
N°. older siblings	-0.001	-0.001	-0.005	-0.004	0.004	0.001
	(0.004)	(0.003)	(0.004)	(0.005)	(0.006)	(0.005)
N°. of younger siblings	0.007**	0.002	0.001	0.007	0.012**	-0.004
	(0.003)	(0.003)	(0.003)	(0.004)	(0.005)	(0.005)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All: 2301; Men: 994; Women: 1307; Pseudo R^2 :All, 0.1497; Men, 0.1598; Women, 0.1594

TABLE A3 Multinomial logit models excluding younger individuals (continued)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Community Characteristics						
Access-Primary School (1=yes)	-0.027 (0.021) [a]	-0.150*** (0.035)	0.033 (0.022)	-0.159*** (0.051)	-0.092*** (0.034)	-0.146*** (0.046)
Access-Secondary School (1=yes)	0.013 (0.022)	-0.009 (0.027)	0.032 (0.021)	-0.086** (0.035)	-0.020 (0.037)	0.071* (0.039)
Access-Hospital(1=yes)	-0.070*** (0.018)	0.044 (0.033)	-0.033* (0.017)	0.090* (0.047)	-0.092*** (0.029)	0.008 (0.044)
Rural residence 10yrs (1=yes)	0.142*** (0.026)	-0.087*** (0.027)	0.114*** (0.029)	-0.119*** (0.037)	0.134*** (0.041)	-0.051 (0.039)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All: 2301; Men: 994; Women: 1307; Pseudo R^2: All, 0.1497; Men, 0.1598; Women, 0.1594.

TABLE A4 Multinomial logit models excluding temporary migrants (Marginal effects)

	Rural	Urban
Individual Characteristics		
Gender (1=male)	-0.022** (0.010)	-0.011 (0.013)
Age	0.041** (0.017)	-0.019 (0.020)
Age squared	-0.001** (0.000)	0.000 (0.000)
Wolof	0.034 (0.023)	-0.026 (0.023)
Poular	0.027 (0.021)	-0.008 (0.024)
Serere	0.048* (0.025)	-0.086*** (0.031)
Diola	0.013 (0.031)	0.030 (0.031)
Missing ethnicity	0.029 (0.021)	-0.053** (0.022)
Household Characteristics		
Father's highest education	-0.006 (0.004)	0.008** (0.003)
Mother's highest education	-0.001 (0.005)	0.001 (0.005)
Asset Index	-0.005 (0.008)	0.032*** (0.010)
Being Orphan	0.033* (0.017)	0.055** (0.024)
No. older siblings	-0.003 (0.003)	-0.002 (0.003)
No. of younger siblings	0.000 (0.002)	-0.003 (0.003)
Community Characteristics		
Access-Primary School (1=yes)	-0.016 (0.019)	-0.141*** (0.029)
Access- Secondary School(1=yes)	0.011 (0.017)	-0.006 (0.024)
Access- Hospital(1=yes)	-0.012 (0.015)	0.028 (0.028)
Rural residence 10yrs (1=yes)	0.044** (0.019)	-0.039 (0.025)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All: 2301; Men: 994; Women: 1307; Pseudo R^2:All, 0.1497; Men, 0.1598; Women, 0.1594

TABLE A5 Multinomial logit models with interaction between asset index and rural origin (marginal effects)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Individual Characteristics						
Gender (1=male)	-0.065***	-0.013				
	(0.014)	(0.015)				
Age	0.078***	-0.051**	0.044*	-0.022	0.100***	-0.063**
	(0.022)	(0.024)	(0.025)	(0.035)	(0.034)	(0.031)
Age squared	-0.001***	0.001**	-0.001	0.001	-0.002***	0.001**
	(0.000)	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)
Wolof	-0.015	-0.061*	-0.015	-0.121***	-0.020	-0.012
	(0.030)	(0.032)	(0.035)	(0.044)	(0.046)	(0.044)
Poular	-0.018	-0.006	0.033	-0.037	-0.087**	0.025
	(0.025)	(0.032)	(0.026)	(0.044)	(0.041)	(0.045)
Serere	0.004	-0.170***	-0.023	-0.162***	0.035	-0.173***
	(0.032)	(0.042)	(0.037)	(0.056)	(0.051)	(0.059)
Diola	-0.020	-0.005	0.016	-0.018	-0.050	0.005
	(0.039)	(0.044)	(0.043)	(0.061)	(0.061)	(0.062)
Other	-0.094*	-0.080*	-0.058	-0.146**	-0.134*	-0.015
	(0.049)	(0.048)	(0.062)	(0.070)	(0.072)	(0.064)
Missing ethnicity	0.003	-0.073**	0.019	-0.119***	-0.015	-0.033
	(0.027)	(0.031)	(0.030)	(0.042)	(0.043)	(0.043)
Household Characteristics						
Father's highest education	-0.017***	0.011***	-0.012*	0.005	-0.022**	0.017***
	(0.006)	(0.004)	(0.007)	(0.006)	(0.009)	(0.005)
Mother's highest education	-0.005	0.005	0.005	-0.006	-0.011	0.010
	(0.009)	(0.006)	(0.009)	(0.008)	(0.014)	(0.008)
Asset Index	0.030	0.033**	0.027	0.046**	0.032	0.019
	(0.019)	(0.014)	(0.025)	(0.020)	(0.027)	(0.019)
Asset Index*Rural residence	-0.059***	-0.027	-0.065**	-0.082**	-0.053	0.005
	(0.023)	(0.024)	(0.029)	(0.039)	(0.034)	(0.031)
Being Orphan	0.065***	0.036	0.054*	0.065	0.079**	0.020
	(0.025)	(0.031)	(0.032)	(0.049)	(0.037)	(0.039)
No. older siblings	-0.002	-0.002	-0.008*	-0.007	0.004	0.001
	(0.004)	(0.004)	(0.004)	(0.005)	(0.006)	(0.005)
No. of younger siblings	0.008**	0.001	0.002	0.005	0.013**	-0.003
	(0.003)	(0.004)	(0.003)	(0.005)	(0.005)	(0.005)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All: 2301; Men: 994; Women: 1307; Pseudo R^2: All, 0.1497; Men, 0.1598; Women, 0.1594.

TABLE A5 Multinomial logit models with interaction between asset index and rural origin (continued)

	All		Men		Women	
	Rural	**Urban**	**Rural**	**Urban**	**Rural**	**Urban**
Community Characteristics						
Access-Primary School (1=yes)	-0.025	-0.180***	0.016	-0.201***	-0.065*	-0.173***
	(0.022)	(0.036)	(0.026)	(0.055)	(0.034)	(0.047)
Access- Secondary School(1=yes)	0.003	-0.001	0.031	-0.084**	-0.029	0.074*
	(0.024)	(0.029)	(0.026)	(0.039)	(0.038)	(0.041)
Access- Hospital(1=yes)	-0.063***	0.054	-0.024	0.102**	-0.093***	0.021
	(0.019)	(0.034)	(0.021)	(0.051)	(0.029)	(0.045)
Rural residence 10yrs (1=yes)	0.145***	-0.106***	0.128***	-0.180***	0.136***	-0.054
	(0.029)	(0.031)	(0.035)	(0.046)	(0.044)	(0.041)

Notes: ***, **, *: significant at 1%, 5%, and 10% levels respectively. [a] Standard errors of marginal effects are calculated by the delta method and reported in parentheses. Marginal effects of regional dummies not shown. N° observations: All: 2301; Men: 994; Women: 1307; Pseudo R^2: All, 0.1497; Men, 0.1598; Women, 0.1594.