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ABSTRACT

Childhood Determinants of Internal Youth Migration in Senegal*

BACKGROUND: Internal migration, mostly composed of young adults and the poor, constitutes the largest flow of people in developing countries. Few studies document the patterns and determinants of internal youth migration in sub-Saharan Africa. OBJECTIVES: This paper analyzes the socioeconomic determinants of the decisions among young adults to internally migrate in Senegal. We focus on whether their decisions to migrate are influenced by individual characteristics, as well as the circumstances in the households and communities where young adults grew up, and whether these factors are differentiated by gender. METHODS: Using a unique migration household survey in Senegal, we estimate multinomial logit models to analyze the role of childhood socioeconomic determinants in later youth migration decisions to rural and urban areas. RESULTS: We find that young people undertake mostly rural-to-rural and urban-to-urban migrations, and over half of them are temporary migrants. We also find that the 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 betteroff households are more likely to move to urban areas. The presence of younger siblings during childhood increases the propensity of moving to rural areas. Access to primary schools from the childhood residence decreases the likelihood of migrating to urban areas for both men and women. CONTRIBUTION: We contribute to the sparse literature on internal youth migration in developing countries by highlighting the relevance of the family- and community-level characteristics during childhood in predicting later migration in life.

JEL Classification: O15, R23, J13, N37

Keywords: internal migration, youth, Senegal

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Introduction

Internal migration, mostly composed of young adults and people from the lower end of the income distribution, constitutes the largest flow of people in developing countries (UNDP, 2009). Although recent empirical evidence has focused on the analysis of the determinants and impacts of international migration, the study of internal migration has been far more limited, partly due to the lack of reliable data and because it is less politically salient. Few empirical studies have documented the drivers of internal youth migration in developing countries and whether these determinants are differentiated by gender. In this context, family and social factors weigh in the decisions of young adults to migrate. Households face labor and financial market constraints, and 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; Giles, 2007). Families might encourage younger members to migrate, both sons and daughters, not only because they have higher earnings potential in the destination locations, but also because they are more likely to remit money (Taylor, 2001; Heckert, 2015). Furthermore, family and socioeconomic circumstances during childhood can influence the probability of migrating later in life (Abramitzky et al., 2013).

This paper analyzes the socioeconomic determinants of the decisions among young adults to internally migrate in Senegal. We focus on 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, and whether these factors are differentiated by gender. The study of internal youth mobility is particularly pertinent in Senegal, where, like much of sub-Saharan Africa, 64% of the population is less than 25 years old, 59% of the population lives in rural areas, and internal

23 migration plays a critical role in the expansion of economic opportunity and social mobility (de
24 Brauw et al., 2014).[1]

25 More broadly, the analysis of the socioeconomic determinants of internal migration is
26 critical in the context of developing countries, where rural-to-urban migration occurs in
27 conjunction with economic development as rural economies undergo structural transformation
28 (Taylor and Martin, 2001). Although internal migration is widespread in Africa, more than half of
29 the population still lives in rural areas, and given the large and positive income differentials
30 between urban and rural areas, rural-to-urban migration rates might be expected to be even higher
31 in the future (de Brauw et al., 2014). Furthermore, recent studies have highlighted that rural-to-
32 rural, and even the reverse urban-to-rural flows have gained traction as internal migration flows in
33 some francophone African countries (Beauchemin and Bocquier, 2004; Beauchemin, 2011).

34 Senegal follows several of these regional patterns of internal migration. Previous research
35 indicates that most of the internal migrants are young people, aged 15 to 34 years old, and the
36 majority of them migrate to look for employment opportunities (Ba et al., 2017). However, family
37 reasons such as marriage are the most important reasons for women's internal migration (Chort et
38 al., 2017). Most migration gravitates toward urban areas, especially to Dakar, which is not
39 surprising in light of the fact that there are large disparities in education and income between rural
40 and urban areas. For instance, in 2005, the poverty rate was 37% in urban areas and 59% in rural
41 areas. While the average years of education was 7.3 in urban areas, it was only 4.8 in rural areas.[2]

[1] According to the 2002 census, a date close to our study, 59% of the population lived in rural areas. More recent figures estimate that this percentage has decreased to 53% (World Bank, 2019).

[2] The average years of education is calculated among the population ages 15–19, and the data source is the 2005 Demographic Health Survey. We selected data in 2005 because it is a year close to our survey (2003). Nevertheless, more recent data in 2014 show that the average years of education has increased to 6.5 in rural areas, closing the gap with urban areas. However, the gap in poverty rates between rural and urban areas has been about the same (World Bank, 2019).

There is, however, also a considerable amount of rural-to-rural migration from semi-arid regions (Middle Valley of the Senegal River) toward the Groundnut Basin (that is, mainly seasonal migrants working in groundnut cultivation). Furthermore, while small in proportion to other internal migration flows, there is even some urban to rural population movements, mainly in the form of migrants who return to invest in the agricultural sector and who build homes in their villages of origin (Ba et al., 2017).

Information on internal migration in sub-Saharan Africa is rare. Except for some recent efforts,[3] nationally representative household surveys usually do not include specialized migration modules or specific information to assess migration patterns between rural and urban areas (de Brauw et al., 2014). In this paper, 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 retrospective questions to young adults, aged 21 to 35 years. Using these household data, we employ a multinomial logit model to empirically estimate whether young people decide to migrate to either rural or urban areas. In addition to individual characteristics, such age, gender, and ethnicity, we include childhood demographic characteristics, such as the number and gender 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, including the death of their father and/or mother. Furthermore, we control for childhood residence characteristics such as access to education and health centers.

The remainder of this paper is organized as follows. In Section 2, we describe the conceptual framework that guides our empirical approach. Section 3 describes the household survey data, including a discussion on how we define and classify migrants and a description of

[3] Some recent panel household surveys have tracked individuals and migrants, such as the Kagera Household Survey (Beegle et al., 2011), and the World Bank's Living Standards and Measurement Study Surveys, among others.

64 the patterns on internal mobility. We also describe our empirical strategy in this section. Section 4
65 presents the econometric results from the multinomial models that explain the determinants of
66 migration. Finally, Section 5 presents the discussion and conclusions.
67

68 ## 2. Conceptual Framework

69 Most of the migration literature indicates that migrants are primarily young people (Lloyd, 2005;
70 Young, 2013), who seek to diversify and expand their economic opportunities, especially in
71 developing country contexts (McKenzie, 2008). Multiple individual, household, and contextual
72 factors encourage youth to migrate internally in search of opportunity, which makes the migration
73 process complex and context-specific (Massey et al., 1997; Heckert, 2015).

74 In contrast to earlier economic models of migration that analyze an individual's decision
75 to move as a function of their own expected net economic benefit, looking for opportunities to
76 improve their economic status (Harris and Todaro, 1970), a growing literature—the New
77 Economics of Labor Migration (NELM)—has modeled migration as both an individual and a
78 family decision, which not only maximizes income but also minimizes risks (Stark, 1991; Stark
79 and Bloom 1985; Taylor 2001). If migration is an investment decision whereby individuals incur
80 costs to generate higher incomes, youth have lower costs in moving and have higher lifetime
81 expected returns. This is not only based on their longer life expectancy, compared to older people,
82 but also because the opportunity cost of young people in the place of origin can be lower due to,
83 for example, high youth unemployment rates. On the other hand, if migration is a family decision
84 and perceived as a risk-coping mechanism, the choice of which household member migrates is
85 based on both earning potential and the individual's ability to be engaged in family insurance
86 arrangements. For instance, Rosenzweig and Stark (1989) show that Indian rural farm households

tend to engage in long-distance, marriage-cum-migration to cope with volatile profits. Also, households might send young members to migrate, with the expectation that they will send remittances back home (Heckert, 2015).

In this paper, we test the hypothesis of 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, and whether these factors are differentiated by gender. Although we mostly follow the NEML conceptual framework, which explains migration behavior by focusing on the households' characteristics in a broader societal context (Taylor and Martin 2001; De Haas 2010, Tegegne and Desta, 2016), we build on the work of Abramitzky et al. (2013), who underscores the role of childhood conditions on later migration decisions. Using a novel data set of the age of Mass Migration (1850-1913) from Norway to the United States, Abramitzky et al. (2013) 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 and international migration decisions later in adult life. While some studies have analyzed the effect of individual and household conditions, such as birth order and family size, on later economic outcomes such as labor market performance (Psacharopoulos and Patrinos, 1997; Edmonds, 2006), there is little evidence on how these conditions affect later internal migration decisions, and even less in the context of developing countries.

Socioeconomic conditions during childhood, such as wealth and parents' levels of education can shape youth migration; nevertheless, it remains an empirical question as to how, and in what direction, these factors affect internal migration flows. On the 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 within the community in which the

young adults reside as a children.[4] On the other hand, we can expect that asset-poor households are less able to finance the costs of migration, and thus, their members are less likely to migrate.[5] Indeed, McKenzie et al. (2007) show that the probability of migrating from Mexico to the United States has an inverse U-shaped relationship with wealth. This nonlinear effect is explained by the heterogeneity of migration networks: in sending communities with smaller migration networks, the costs of migrating are relatively high, and wealth is positively correlated with the likelihood to migrate; once the migration networks are larger, the costs, and thus the importance of wealth on the decision to migrate, decreases.

Along the same lines, if migration is considered a family decision, the education of the father and mother are expected to influence a young person's decision to migrate (Smith and Thomas, 1998; Quisumbing and McNiven, 2006). Parents' education can be a proxy for other household assets, such as networks and family connections, that can increase the probability of migrating. Although we would expect that the more educated the parents, the more information is available about the net benefits of migration, thereby increasing the odds of leaving, the empirical evidence is not conclusive on the direction of the effect of parents' education on migration of family members (Pessino, 1991; Ezra et al., 2001).

Gender dynamics may also dictate whether youth migrate, their destination, and the extent to which households invest in such decisions. There are reasons to believe that the drivers of migration are different between women and men. Some empirical studies in developing countries have shown that young women, unlike men, frequently move to marry (Smith and Thomas, 1998;

[4] The land tenure systems in developing countries can affect the relationship between wealth and migration and, thus, shape youth migration decisions. For example, in the Philippines, young adults stay with their parents if they inherit land (Quisimbuing and McNiven, 2006).

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

Reed, 2010; Chort et al., 2017). 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 (World Bank, 2007). It is also possible that parents provide less financial support to their daughters than their sons, because the parents internalize that their daughters' migration returns are lower than those of their sons (Heckert, 2015).

Furthermore, in Senegal, ethnicity plays an important role in female internal migration (Brockerhoff et al.1993; Chort et al. 2017). Indeed, studies have shown that women's internal migration patterns may be related to the different marital and cultural traditions across ethnic groups (Brockerhoff et al., 1993). For instance, Serere, Diola, and to a lesser extent, Wolof (Oulof) women are more likely to migrate for reasons related to work opportunities than are Toucouleur, Peul, or Soninke women, who virtually never migrate except with their spouses or families (Sy, 1991). More broadly, recent evidence from developing countries shows that different ethnic groups can have different preferences toward migration related to, for example, historical shocks, geographical situations, and ethnic-specific languages, among other factors. Thus, these differences can lead that some ethnic groups encourage mobility from the village of birth or origin while other groups can deter such movements. These different ethnic preferences can be shared through social norms, and therefore, are likely to affect the decision-making of the individuals within the group (Auwalin, 2019). Therefore, we account for ethnicity as a factor that can contribute to internal migration.

Gender can also shape migration decisions through issues related to birth order and norms regarding division of household roles and time use, which can include 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

United States in the early 19th century, Abramitzky et al. (2013) show that men who had fewer brothers and were the oldest in their families were less likely to migrate later in life, because the eldest brother was the primary recipient of family inheritance. 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 their siblings. For example, Protik and Kuhn (2007) show that, for Bangladesh, the migration of older brothers decreases the likelihood of sisters to marry and reside in places far from their parents. One explanation the authors give is that, in order to ensure elderly care be provided by their daughters, parents might prevent a marriage that involved migration. Furthermore, there could be a substitution of tasks among siblings of the same gender that shapes 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, 1998; Quisibuing and McNiven, 2006).

Although the NELM conceptual framework focuses on household determinants of migration, most of the movements of youth from rural to urban areas is driven by the unequal distribution of opportunities between these two areas (McKenzie, 2008). Opportunities available to youth migrants depend on the social and economic characteristics in the migrants' places of origin (Heckert, 2015). Thus, our models account for whether the availability of community-level social services during childhood can shape later-life migration decisions. Since public policy determines the geographic distribution and disparity of social infrastructure, these variables help us understand the role of government investments in migration choices.

Following this conceptual framework, we model young people's decisions to migrate to either rural or urban areas in Senegal as a function of their individual characteristics and their childhood family and community circumstances prior to their departure. Our paper contributes to the literature that explores the determinants and patterns of internal youth migration in developing countries (Clark and Cotton, 2013; Beegle and Poulin, 2015; Heckert, 2015) by highlighting the relevance of family- and community-level characteristics during childhood in predicting later migration in life (Abramitzky et al., 2013). This analysis also contributes to the scant empirical evidence on the determinants of female internal migration in developing countries (Assaad and Arntz, 2005; Chort et al., 2017).

3. Data and Methods

3. 1 Data Sources and Descriptives

The data we use in this paper comes from the 2003 Household Survey on Education and Welfare in Senegal (EMBS). From 28 rural and 32 urban communities (communes), 1,820 households were surveyed.[6,7] The 2003 EBMS revisited children originally included in a 1995–96 survey: a nationally representative, school-based survey known as PASEC (*Programme d'Analyse des Systemes Educatifs de la CONFEMEN*). The PASEC survey administered tests of ability to a sample of students (20 per school) in 2nd grade (CONFEMEN, 1999). The original PASEC cohort

[6] EMBS was collected by the Centre de Recherches Economiques Appliquées (CREA), l'Université Cheikh Anta Diop (Senegal) and Cornell University.

[7] Our household survey defines the rural and urban areas following the official definition by the Government of Senegal, specifically the *Agence National de la Statistique et de la Demographie*, which designates certain administrative areas as a *commune de ville* or urban area. Thus, urban areas consist of localities erected in communes regardless of the number of inhabitants, while rural areas *(communautés rurales)* correspond to the rest of the territory (ILO, 2018). It is worth noting that a commune is the smallest administrative level in Senegal. This definition has been valid since 1976; therefore, it is consistent throughout the period of our analysis and does not affect our results.

was not a representative sample of all children in the country, because it was school-based; thus, it excluded children who had never enrolled, or who dropped out of school during their first year of enrollment. To address the selection problem of excluding non-enrollees, in 2003 we enumerated all the children and their households in the 60 original PASEC communities included in our survey. We then randomly selected households with children of similar ages as those children included in the original 60 PASEC communities. The participants in the 2003 survey thus included those who were originally part of the PASEC sample and those that were not because they were not enrolled in school at the time of the PASEC survey, either due to delayed enrollment or because they never entered school.

As discussed by Glick and Sahn (2009, 2010), despite these efforts to address the selection problem of enrollment, the sample is not truly nationally representative since it is part of a cohort study of young children. Any cohort study will lose its representativeness over time. To mitigate this concern, as discussed above, we randomly selected into the sample new households and their children to ensure that the sample is as close as possible to a random sample of the villages that were initially randomly selected from throughout the country. Of course, the problem remains that the selection of villages sampled in 2003 was based on a listing from eight years earlier, that is, there may be new villages that were formed between 1995 and 2003, which would not be included in the sample. Considering these concerns, we made a comparison of descriptive statistics from the survey with other national surveys. This effort was quite encouraging, since it showed that for a range of demographic characteristics, as well as other characteristics such as education, the EBMS sample of 1,820 households is consistent with those of a nationally representative sample.[8] Likewise, the characteristics of the EBMS population, in terms of religion and ethnicity, are also

[8] For example, the 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).

reflective of the nation as a whole. One small difference is that the proportion of rural households in the 2003 EMBS is 53.2%, which is close to, but smaller than the rural population at the national level of 59% according to the 2002 Census.

In our analysis, we rely extensively on the migration module of the EMBS, which contains information on the current residence, the birthplace, and the residence five years prior to the survey (1998). It also provides the years of residence in the current location. In addition, this module has retrospective questions for adults above the age of 21 (migrants and nonmigrants) about where they lived, as well as the household and community characteristics when they were 10 years old. These data are key components of our methodology, because we can observe the childhood characteristics of both migrants and nonmigrants 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 *migrants* as individuals who have lived outside of their communities for at least one year, departing from their place of origin after they were 10 years old.[9] Among our sample of 2,676 individuals who fall in the age group of 21 to 35 years old, 35% are defined as *migrants*; in other words, 937 individuals left their communities for at least for one year after they were 10 years old. It is worth noting that we are accounting for the last move prior to the individual being surveyed, and as such 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.[10]The median age of departure among these young migrants is 20 years.

[9]This definition is similar to Heckert (2015) who, in the context of Haiti, defines a migrant as an individual whose departure is after of 10 years old and has been outside from the place of origin at least for three years.

[10] In other words, this "age of departure" is the age of arrival in the last residence. Although it is reasonable to assume only one migration experience at these young ages, this approach does not account for the possibility that there might be more than one migration experience.

We use the age range, 21–35 years old, because previous studies of internal migration have shown that internal flows are the highest for individuals in this age group, especially as they search for employment and better economic prospects (Brockerhoff et al., 1993; Ezra et al., 2001). This cohort is especially important in terms of their experiences and recentness of their moves.[11]

We also suspect that the recall data is more accurate for these younger adults than for older individuals. Furthermore, we test whether our results change if we exclude the individuals who migrated at younger ages, between 10 and 14 years old who represent 15% of the sample migrants. 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 the choice of including these younger migrants (see Table A.2 in the Appendix).

Although 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, as documented in the case of West Africa by Beauchemin and Bocquier (2004). Among the few studies in developing countries, Pessino (1991) analyzed 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, that is, people who move for the first time, are more likely to come from rural areas whereas repeat or return migrants, that is, those people who have made prior moves, come from urban areas. Reed et al. (2010), using

[11] To compare this number of internal migrants with other data sources in Senegal, we use the 2002 census and define an internal migrant as an individual that lives in a different region than the region of birth. We find that 21.65% of individuals, aged between 21 and 35, are internal migrants. Although this definition is different from the one used in this paper, the magnitude is comparable, as it does not include people that migrate and return within a shorter period of time, that is, our temporary migrants.

254 a household survey in Ghana, find that past and future mobility are positively and strongly
255 correlated, suggesting that previous mobility reduces the perceived cost of moving again. Another
256 important study that attempts to classify migrants is that of Juan and Kim (1979) who used census
257 data in the Philippines. The authors construct a comprehensive set of categories of migrants that
258 distinguishes migrants by various characteristics, including the number of moves and whether they
259 return to their birthplaces.

260 Building upon this previous work, and using the information from our survey on the place
261 of residence: (1) at the time of the survey (2003); (2) five years prior to the survey (1998); (3)
262 when individuals were 10 years old; and (4) when individuals were born, we first focus on the
263 periodicity of movements—that is, how many times the individual moves across these points in
264 time. We distinguish between primary (one move) and repeat migrants (two or more moves), as
265 well as return migrants. The latter category includes those whose second or third move involved
266 returning to their birthplace. To be included in the category of return migrants, by definition, they
267 have to report having lived at a location other than their birthplace either when they were 10 years
268 of age, in 1998, and/or at the time of the survey. In our sample, 25.4% are primary migrants, 3.0%
269 are secondary or tertiary migrants, and 11.9% are return migrants. A final and the largest group of
270 migrants—fully 59.6%—are those who we define as "temporary" migrants, but for whom we do
271 not have information on their migration, other than they were away from their birthplace for at
272 least one year. Thus, these individuals report that they were both residents in another location for
273 at least one year, but also that their birthplace is the same as their residence at the time of the
274 survey, and that they lived in their birthplace in 1998 as well as when they were 10 years old.[12]

[12] Juan and Kim (1979) (as explained in Bilsborrow (1984)) classify these persons as nonmigrants, 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

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 previously. We find that two-thirds of the migrants moving from rural to urban areas are primary migrants; this is consistent with the fact that most of the migrants in Dakar are more likely to be permanent migrants (World Bank, 2006). Interestingly, we also find that almost 60% of the urban-to-rural flows are of primary migrants. On the other hand, almost 60% of the rural-to-rural and urban-to-urban migrants are temporary movers. Although our data do not allow us to capture trends in migration, the descriptive statistics in Table 1 are consistent with other empirical evidence that points out that rural-to-rural flows, and even the reverse urban-to-rural flows, have gained prominence as internal migration movements in West Africa (Beauchemin and Bocquier, 2004; Beauchemin, 2011).

<Insert Table 1 approximately here>

Table 2 summarizes the main socioeconomic characteristics of our sample. We include temporary migrants in this table, and in the analysis that follows. Given that temporary migrants can have different triggers to migrate internally from the rest of the migrants in the sample, we tested that our main results are robust to excluding this group of temporary migrants from the analysis (see Table A.3 in the Appendix).

Table 2 shows that our young migrants are mostly female. Women represent more than two-thirds of the young migrants, compared to 53% in the nonmigrant group and 57% in the total

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 or exclusion of these groups being characterized as migrants.

296 sample. The female overrepresentation in the group of young migrants can be explained
297 presumably by the association of migration and the decision to marry, as we will discuss further
298 in the next section.
299
300 <Insert Table 2 approximately here>
301
302 Our sample individuals have completed 4.3 years of schooling on average. Although the
303 school attainment is slightly higher for the nonmigrant group, compared with the migrant group,
304 this difference is statistically significant. We observe similar patterns regarding parents' education:
305 more than 70% of the migrants' fathers and 85% of their mothers did not go to school. Although
306 this situation is not appreciably different for nonmigrant young adults—68% of their fathers and
307 83% of their mothers did not go to school—the differences between these two groups are still
308 statistically significant.
309 Descriptive statistics on the access to social infrastructure when young migrants and non-
310 migrants were 10 years old indicate that migrants come from areas with less access to a nearby
311 primary school, to a secondary school, and to a hospital.[13] Approximately 91% of the young people
312 had a primary school near their residence. However, this percentage is only 86% for the young
313 migrants. Similarly, 45% of young migrants came from a community with a secondary school
314 nearby while this percentage was almost 10 points higher for the nonmigrants. Access to health
315 services was also unequal between migrants and nonmigrants in their childhood residences. While
316 71% of the migrants had access to hospitals, this percentage was 83% for the nonmigrant
317 population.

[13] We define secondary school access as the existence of the school within 5 kilometers of a lower- or upper-level secondary school.

As noted earlier, 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.[14] While 40% of the migrant children came from the lowest quartile, this percentage was 31% among the nonmigrant group. However, this difference seems to be smaller for the highest quartile. Overall, we find that the nonmigrant's asset distribution, first order dominates that of the migrants.

3.2 Empirical Strategy

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, the decision to migrate 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. In a regression model, endogeneity is defined as a situation in which the residual or error term is not statistically independent from one or more covariates (Wooldridge, 2002). This issue can occur when there is potential reciprocal or simultaneous causation between the dependent and independent variables in the regression model. To a certain extent, and following other demographic research (for example, Robles and Oropresa, 2011), we address this issue by using a survey that includes retrospective data on young migrants and nonmigrants aged 21 to 35. This retrospective information on household and community characteristics of individuals, when they were 10 years old, allows us to estimate the impact of childhood circumstances long before they migrate, thereby reducing concerns over simultaneous causation or reverse causality. Nevertheless, we acknowledge that we are not able to strictly establish

[14] 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.

causality of the migration determinants, but rather explain whether these childhood determinants are associated with migration among young adults.

Following our conceptual framework, the decision to migrate and where to migrate are jointly modeled using a multinomial logit model in which individuals can decide between staying (not moving), migrating to a rural area, or migrating to an urban area. We empirically test whether the decision to migrate is influenced by individual, household, or community characteristics and circumstances of their origins—that is, where the migrants grew up. These characteristics and circumstances are based on those that existed when the individuals were 10 years old. More specifically, we estimate the following reduced form regression equation:[15]

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

where M_i^k is the destination variable of individual *i, k* 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_i represents individual characteristics such as age, ethnicity, and gender.[16] It is worth noting that 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. We also control for E_i, the education of the individual's parents. We exclude from the models any current individual's educational attainment because of its potential

[15] Given that the independent variables are from the individual and not the destination choice, we are not required to implement a test of independence of irrelevant assumptions (IIA).

[16] To mitigate concerns related to potential multicollinearity between ethnicity and other control variables, we have calculated the variance inflation factor (VIF), and it is less than 10, suggesting that this issue is not a concern. Our results are also robust to the exclusion of ethnicity as a control variable.

358 reversal causality with migration.[17] Nevertheless, our results are qualitatively similar when we
359 include the individual's years of education in our models (see Table A.1 in the Appendix).

360 H_i represents the household characteristics when the individuals were 10 years old. To
361 measure the household's wealth and risk aversion, we include an asset index; as described earlier,
362 the index constructed was based on the dwelling conditions at age 10.[18] We also include the
363 number and gender composition of the individual's siblings, while acknowledging that these
364 variables can be in part a function of household preferences for the quality and quantity of children.
365 Nonetheless, the question of whether the presence of younger or older male and female siblings
366 contributes to migration provides for interesting insights about these relationships, even if we
367 cannot draw strict causal inferences from the results. We also control by whether either one or both
368 parents had passed away by the time the individual was 10 years old. We capture this by including
369 a dummy variable that takes the value of 1 when the individual reports that their father, mother, or
370 both passed away by the time they were 10 years old.[19]

371 Finally, C_i represents the community-level characteristics when individuals were 10 years
372 old. We include dummy variables for the access to primary and secondary schools and to hospitals
373 when the young adults were 10 years old. For each one of these variables, access is defined as the
374 existence of the corresponding institution within 5 kilometers from the individual's residence when
375 they were 10 years old. Finally, we include R_i, a set of regional dummies corresponding to the
376 region of childhood residence, to control for social and economic characteristics that influence the

[17] Using the 2003 EMBS data, we are not able to instrument the individual's education at the time of the survey, nor can we infer the education completed before the migration decision.

[18] In our models, we tested 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 significant result for this nonlinearity.

[19] 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.

costs of migration (for example, the distance to the capital, Dakar) that vary across regions, but not over time.[20]

4. Results

Table 3 presents the average marginal effects of our multinomial models. Panel A shows the average marginal effects for all the individuals between 21 and 35 years, while Panels B and C show the results for young men and women, respectively.

<Insert Table 3 approximately here>

4.1 Individual Characteristics

From the model that includes both men and women, the negative and significant gender variable indicates that women are 7.2% 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, we examined the relationship between the age of marriage and the age of migration. First, we note that, on average, among married couples, men are 12 years older.[21] Second, we notice that 72 percent of the women who migrate were already married, in contrast to only 31 percent of the male migrants. These descriptive findings are consistent with empirical evidence in Senegal showing that typically marriage is the main reason for migration

[20] Our sample size is too small to accurately test the determinants of our models for each of the migration dyads: (1) rural-to-rural; (2) rural-to-urban; (3) urban-to-urban; and (4) urban-to-rural.

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

among women of reproductive age (Safir, 2009), and that short-distance rural-to-rural marriage-related migrations are more frequent among women than men (Chort et al., 2017).

We also examine the marginal effect of age among the cohort of individuals between 21 and 35 years old, as shown in Panel A: being one year older increases the probability of migrating to rural areas by 8.5% and decreases the probability of migrating to urban areas by 5%. While age has no effect for men on the likelihood to migrate to 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 nonlinear, as seen by the statistical significance of the quadratic term, which indicates that the effect of age is not monotonic along the age range of the women in our sample.

The results also show evidence that ethnicity influences the likelihood of migrating to rural and urban areas.[22] This effect is differentiated by gender. On the one hand, belonging to the Serere group, relative to the Mendingue/Sose group that was excluded, decreases the likelihood of migrating to urban areas by 17%. This marginal effect has a similar magnitude among women and men. On the other hand, belonging to the Wolof group decreases only male migration to urban areas by 11%, while belonging to the Poular group decreases only female migration to rural areas by 8%. These results are in line with ethnographic evidence underlying the association between ethnicity and migration, particularly for women, in West Africa (Bockefort et al., 1993).

4.2 Demographic and Economic Household Characteristics

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. Mother's education, however, is not statistically

[22] In our models, we include a dummy variable for missing observations, given the substantial amount of misreporting of this variable in the sample (523 observations for nonmigrants and 253 for migrants).

419 significant in any of our models.[23] When examining the gender-disaggregated results, we observe
420 that the effect of the fathers' education on youth migration is larger and statistically more robust
421 for their daughters than it is for their sons.[24] This result may reflect the role of fathers in arranged
422 marriages, or perhaps in terms of promoting more educational opportunities for their daughters,
423 which often requires migrating to urban areas. In fact, these two mechanisms may be related:
424 greater education of the fathers, whether it be through ability, economic well-being, or more
425 expansive social networks, may enable them to find more favorable husbands for their daughters
426 who will move with their husbands to the city in pursuit of greater opportunities, or similarly, to
427 improve educational opportunities for their daughters, which requires schooling in urban areas. In
428 contrast, a father's education may discourage marriage arrangements in which daughters would
429 migrate to rural areas, where the returns to education are likely to be lower.[25]

430 Our models also suggest that better living conditions during childhood, measured by the
431 dwelling asset index, are associated with the higher likelihood of migrating to urban areas while
432 decreasing the likelihood of migrating to rural areas; however, the latter effect is not statistically
433 significant.[26] The asset index does not have a differentiated effect by gender. The result might
434 suggest that young women and men who grew up in asset-poor households are less able to afford
435 the costs of migration to urban areas. We also test if there was a differentiated effect of the asset
436 index by rural or urban origin. A better-off asset position of the household in a rural origin

[23] We corroborate these results by estimating the same multinomial models and instead of parents' highest education, we include dummy variables for whether each of the parents has some level of education. Results are available upon request.

[24] 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.

[25] Some empirical studies in African countries have shown that father's education increases the education of both boys' and girls' schooling rather than mother's education (Tansel, 1997), and in some cases, paternal education can favor more girls' than boys' education (Glick and Sahn, 2000).

[26] 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.

437 decreases the likelihood of migrating to either rural or urban areas. Interestingly, this effect is
438 statistically significant for men and not for women, suggesting that male migration might be
439 deterred by better economic opportunities in rural areas, which are most probably associated with
440 agricultural activities (see Table A.4 in the Appendix).

441 The multinomial regressions in Table 3 also include information on the demographic make-
442 up of the households when individuals were 10 years old. The results indicate that a higher number
443 of younger siblings increases the probability of migrating to rural areas, while a higher number of
444 older siblings does not have any effect on the probability of migrating to either urban or rural areas.
445 Looking at the models by gender, the results show that the marginal effect of having younger
446 siblings is still statistically significant for women, and this effect is only positive and significant
447 in the case of women moving to rural areas. One possible explanation is that women with a higher
448 number of younger sisters are more likely to migrate, because their young female siblings act as
449 substitutes in home production (Smith and Thomas, 1998; Quisimbuing and McNiven, 2006).
450 Indeed, we further examine the sex and birth order composition of the siblings in the likelihood of
451 migration. We estimate the multinomial models, including younger and older brothers and sisters
452 (see Table 4). We find that having younger sisters increases the odds of moving to rural areas, and
453 this effect is significant for women but not for men.
454
455 <Insert Table 4 approximately here>
456
457 In addition, we account for whether the individual has lost either their father or mother to
458 death, or both parents, by the time they were 10 years old. Our results indicate that the marginal
459 effect of the loss of a parent during childhood increases by 7% the probability of migrating to rural

areas, but it does not affect the likelihood of moving to urban areas. By gender, we find that loss of a parent only affects female and not male migration, and this effect is only significant for those women going to rural areas. Young people who have lost one or both parents are also more likely to migrate, presumably reflecting weaker ties to their childhood places of residence.

4.3 Community Characteristics

The availability of social infrastructure, such as schools and hospitals, in the community where the individual lived as a child, influences the probability of moving. Access to a primary school within 5 kilometers decreases the likelihood of moving to urban areas by 17.5%, 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. We also investigate whether the nearest primary school has a differentiated effect on the likelihood to migrate based on whether the individual lived in a rural or urban area as a child. To do so, we estimate models that include 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. Results are available upon request.

Access to secondary school does not affect the decision to migrate in the aggregate sample; however, when we examine the gender-disaggregated models, we find that a secondary school within 5 kilometers actually increases the female probability of migration to urban areas by 10%. We expect that this effect is mediated by the fact that access to secondary schools exposes girls and their families to the potential of greater opportunities associated with education and increases their 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 to primary schools and hospitals, deters later youth migration, consistently with other empirical evidence in developing countries (Katz, 2000). However, there are potential countervailing forces that could contribute to better social infrastructure, thereby encouraging migration: that is, easier access to schools can also trigger migration if individuals who accumulate more human capital in the presence of nearby 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 10 years of age are likelier to migrate to urban areas.

Finally, the dummy variable for whether the childhood residence was either rural or urban corroborates the migration 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 7%.

5. Discussion and Conclusions

Our goal in this paper is to highlight the importance and magnitude of internal migration in Senegal and to analyze the socioeconomic determinants of the decisions of young people to migrate internally. We also examine whether these factors differ by gender. We focus on the role of household and community characteristics during childhood, in the years prior to the decision to migrate, using household survey data from Senegal that include retrospective information from the time when individuals were 10 years old. Our multinomial logit model allows for individuals, between 21 and 35 years, to decide between not migrating, or moving to rural or urban areas in Senegal.

We find that more than a third of the individuals in our sample are migrants, and their median age of departure is 20. Furthermore, we find that more than half of the total internal youth migration is temporary and rural-to-rural or urban-to-urban, in contrast with the more widely studied rural-to-urban permanent migration. Indeed, this finding highlights prior evidence from documenting the relevance of these mobility patterns in francophone West Africa (Beauchemin and Bocquier, 2004; Beauchemin, 2011).

Our findings suggest that the determinants of internal migration in Senegal are heterogeneous by gender and differ for those leaving their childhood residence for an urban or rural destination. Similar to Chort et al. (2017), we find that Senegalese women are more likely to migrate for reasons related to marriage, something that has been documented in other sub-Saharan African countries (Kudo, 2015). We also find that childhood socioeconomic conditions, such as father's education, the demographic composition of the household, and access to educational opportunities where individuals grew up, can shape later youth migration differently for women and men. For example, fathers' education has a particularly important role in women's migration choices: the more educated the father, the more (less) likely are the daughters to move to urban (rural) areas. In our sample, 72 percent of the female migrants are married. This result could suggest that father's education is influential in marriage arrangements and in the probability that a daughter will marry someone and leave the childhood residence with her new husband in search of greater economic opportunity in urban areas. These results are similar to those found by Quisimbuing and McNiven (2006) in the Philippines, where father's education increases the probability of a daughter moving from the village, and interestingly, mother's education has the opposite effect. However, this is only conjecture, as we do not have further information to disentangle the role of marriage and economic opportunities in the decision to migrate.

Furthermore, 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, when they were 10 years old, are more likely to migrate to urban areas. This may be because these young women and men are able to finance the costs of migrating to urban areas and to reap the benefits of better employment opportunities in the cities.

The characteristics of the community in which children reside also shape migration decisions. Proximity to better social infrastructure during childhood, particularly primary schools and hospitals, is 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 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 raise school attainment. These human capital investments may subsequently encourage migration of young women to urban areas in search of employment opportunities that utilize their human capital and education. Although we are not able to test this empirically, it is plausible that access to secondary school is more relevant for women than men, because education has a larger effect on female than male migration. Indeed, Chort et al. (2017) show that years of schooling increases the likelihood of migrating to urban areas, especially for women, suggesting that education can be a channel to promoting women's migration, independent of the usual reason of migrating for family and marriage reasons.

Our findings motivate further research on the expected consequences of internal youth migration for individuals, their households, and their communities. Even though migration can expand labor market opportunities, some research has pointed out that young people are vulnerable to negative migration experiences (Tienda et al., 2008; Heckert, 2015). Furthermore, while young migrants can provide benefits to their households by sending remittances, the high costs of financing migration and family disruptions could also negatively affect those households.[27] Similarly, while remittances can improve the economic conditions of the communities of origin, migration can also be detrimental if the young, educated people leave their communities (as with "brain drain"). Whether the benefits outweigh the costs of migration on individuals, households, and communities remains an empirical question and cannot be answered generally. However, future research can build on our findings by collecting long-term, longitudinal data, before and after migration, thus allowing researchers to track the welfare consequences of internal migration of young individuals, their households, and communities. This research can identify patterns and circumstances which may enable policymakers to intervene to ensure the benefits of migration outweigh its possible negative consequences.

While there 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 knowledge 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. Indeed, in a country such as

[27] The literature on the effects of remittances on household welfare is vast in developing countries. For instance, see Binci and Gianelli (2018) for a review of the effects of remittances on education and child labor.

573 Senegal where the young population will have doubled by 2035, and more than half of the
574 population still lives in the rural areas, factors such as increasing land pressure, the adverse effects
575 of climate change, and rapid structural transformation to a more industrialized and service-oriented
576 economy can be expected to increase internal youth mobility in the country (de Brauw et al., 2014;
577 Ba et al., 2017).

578 Although our analysis sheds light on whether childhood conditions influence later youth
579 mobility, it does not establish causality between the socioeconomic factors when young migrants
580 were 10 years old and their later internal mobility decisions in Senegal. To provide such causal
581 empirical evidence, future research could leverage experimental methods, an emerging
582 methodology in migration research (McKenzie, 2015), to study specific policy instruments for
583 managing internal migration.

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TABLES

Table 1: Distribution of Migrants by Rural/Urban Birthplace and 2003 Residence

	Urban–Rural	Rural–Rural	Urban–Urban	Rural–Urban
Primary	60.6%	7.3%	26.2%	59.8%
Repeat	3.0%	0.5%	4.3%	8.3%
Return	1.5%	14.7%	14.5%	2.3%
Temporary	34.8%	77.5%	55.1%	29.5%
Total	100%	100%	100%	100%
N [a]	66	409	325	132

[a] Refers to the total number of migrants by urban–rural destination.

Table 2: Socioeconomic Characteristics of Migrants and Nonmigrants

	Migrant	Non-migrant	Total
Individual Characteristics in 2003			
Percentage female	64%	53%	57%
Average age	27.79	26.40	26.90
	(4.55)	(4.42)	(4.52)
Years of education	4.14	4.45	4.34
	(4.61)	(4.25)	(4.38)
Ethnicity groups (%)*			
Wolof	29.4%	35.8%	33.5%
Poular	24.7%	20.0%	21.7%
Sose	13.8%	17.84%	15%
Serere	20.4%	16.2%	18.9%
Diola	8.2%	5.0%	6.2%
% whose Father has no education	73.1%	69.2%	70.6%
% whose Mother has no education	85.4%	82.7%	83.7%
Characteristics at age of 10 years			
Average number of older siblings	1.80	1.88	1.85
	(2.01)	(2.05)	(2.04)
Average number of younger siblings	2.57	2.42	2.47
	(2.09)	(2.10)	(2.10)
Access to primary school	86%	95%	91%
Access to secondary school	45%	55%	51%
Access to hospital	71%	83%	79%
Distribution by asset quartiles			
First	40.22%	31.5%	34.6%
Second	19.57%	18.1%	18.6%
Third	28.60%	25.6%	23.1%
Fourth	21.61%	24.8%	23.7%
N	855	1546	2401

Notes: Standard deviations in parenthesis. Other ethnicity and regional dummy variables are not shown. Individuals from other ethnicities represent 4% of the sample.

Table 3: Average Marginal Effects of Multinomial Logits by Rural and Urban Destination

	Panel A ALL		Panel B MEN		Panel C WOMEN	
	Rural	Urban	Rural	Urban	Rural	Urban
Individual Characteristics						
Gender	–0.072***	–0.009				
	(0.015)	(0.015)				
Age	0.085***	–0.052**	0.061*	–0.028	0.096***	–0.058*
	(0.024)	(0.024)	(0.034)	(0.037)	(0.034)	(0.031)
Age-squared	–0.001***	0.001**	–0.001+	0.001	–0.002***	0.001**
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Wolof	–0.025	–0.049+	–0.026	–0.111**	–0.029	–0.000
	(0.033)	(0.032)	(0.047)	(0.046)	(0.046)	(0.044)
Poular	–0.016	–0.021	0.045	–0.054	–0.079**	0.008
	(0.027)	(0.032)	(0.034)	(0.046)	(0.040)	(0.045)
Serere	0.004	–0.167***	–0.030	–0.155***	0.033	–0.174***
	(0.035)	(0.042)	(0.048)	(0.058)	(0.050)	(0.059)
Diola	–0.027	–0.006	0.020	–0.013	–0.056	–0.003
	(0.042)	(0.044)	(0.055)	(0.063)	(0.059)	(0.061)
Other ethnicity	–0.099*	–0.071+	–0.062	–0.141*	–0.131*	–0.011
	(0.053)	(0.047)	(0.083)	(0.073)	(0.071)	(0.063)
Household Characteristics						
Father's education	–0.018***	0.012***	–0.017*	0.006	–0.022**	0.018***
	(0.007)	(0.004)	(0.009)	(0.006)	(0.009)	(0.005)
Mother's education	–0.006	0.004	0.005	–0.006	–0.012	0.008
	(0.010)	(0.006)	(0.013)	(0.009)	(0.014)	(0.007)
Asset index (z-score)	–0.007	0.029**	–0.021	0.033*	–0.000	0.022
	(0.012)	(0.012)	(0.018)	(0.019)	(0.017)	(0.016)
Older siblings	–0.002	–0.002	–0.009+	–0.006	0.004	–0.000
	(0.004)	(0.004)	(0.006)	(0.005)	(0.006)	(0.005)
Younger siblings	0.009**	0.000	0.002	0.005	0.013**	–0.004
	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)	(0.005)
Loss of parent(s)	0.070***	0.035	0.068*	0.062	0.077**	0.020
	(0.027)	(0.030)	(0.042)	(0.051)	(0.036)	(0.038)
Community Characteristics						
Primary school	–0.024	–0.175***	0.027	–0.198***	–0.063*	–0.170***
	(0.024)	(0.037)	(0.034)	(0.061)	(0.033)	(0.048)
Secondary school	–0.002	0.028	0.034	–0.054	–0.033	0.102**
	(0.026)	(0.029)	(0.034)	(0.041)	(0.037)	(0.040)
Hospital	–0.074***	0.044	–0.039+	0.080+	–0.097***	0.020
	(0.020)	(0.035)	(0.027)	(0.055)	(0.028)	(0.045)
Rural 10 years	0.155***	–0.070**	0.168***	–0.130***	0.129***	–0.022
	(0.031)	(0.029)	(0.043)	(0.043)	(0.043)	(0.040)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include regional dummies for childhood place when 10 years old. Number of observations: ALL: 2,401; Men: 1,035; Women: 1,366.

Table 4: Average Marginal Effects including Siblings' Gender and Age Composition

	Panel A		Panel B		Panel C	
	ALL		MEN		WOMEN	
	Rural	Urban	Rural	Urban	Rural	Urban
Father's education	–0.018***	0.012***	–0.017*	0.006	–0.023**	0.018***
	(0.007)	(0.004)	(0.009)	(0.006)	(0.009)	(0.005)
Mother's education	–0.005	0.004	0.006	–0.006	–0.011	0.008
	(0.010)	(0.006)	(0.013)	(0.009)	(0.014)	(0.007)
No. older brothers	0.003	0.006	–0.014	–0.000	0.017*	0.013+
	(0.006)	(0.006)	(0.010)	(0.008)	(0.009)	(0.008)
No. older sisters	–0.007	–0.013*	–0.005	–0.013	–0.010	–0.015+
	(0.007)	(0.007)	(0.011)	(0.010)	(0.010)	(0.009)
No. younger brothers	0.005	–0.002	–0.001	0.001	0.010	–0.007
	(0.005)	(0.006)	(0.007)	(0.008)	(0.008)	(0.008)
No. younger sisters	0.013**	0.002	0.007	0.007	0.016**	–0.002
	(0.006)	(0.006)	(0.008)	(0.008)	(0.008)	(0.008)
Asset index (z-score)	–0.007	0.029**	–0.021	0.033*	–0.000	0.022
	(0.012)	(0.012)	(0.018)	(0.019)	(0.017)	(0.016)
Loss of parent(s)	0.070***	0.038	0.064+	0.064	0.078**	0.021
	(0.027)	(0.030)	(0.042)	(0.051)	(0.036)	(0.038)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include individual and community variables as well as regional dummies for childhood place when 10 years old. Number of observations: ALL: 2,401; Men: 1,035; Women: 1,366.

ONLINE APPENDIX (NOT FOR PUBLICATION)

Table A.1: Average Marginal Effects—Main Results including Individual's Education

	Panel A		Panel B		Panel C	
	ALL		MEN		WOMEN	
	Rural	Urban	Rural	Urban	Rural	Urban
Individual Characteristics						
Gender	–0.075***	–0.014				
	(0.016)	(0.015)				
Age	0.088***	–0.051**	0.074**	–0.034	0.096***	–0.054*
	(0.024)	(0.024)	(0.034)	(0.037)	(0.034)	(0.031)
Age-squared	–0.001***	0.001**	–0.001*	0.001	–0.002***	0.001*
	(0.000)	(0.000)	(0.001)	(0.001)	(0.001)	(0.001)
Years of education	0.002	0.003+	0.008***	0.005**	–0.006*	0.001
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
Household Characteristics						
Father's education	–0.017**	0.010**	–0.019**	0.003	–0.016*	0.017***
	(0.007)	(0.004)	(0.009)	(0.006)	(0.010)	(0.005)
Mother's education	–0.011	0.004	0.004	–0.007	–0.020	0.009
	(0.011)	(0.006)	(0.013)	(0.009)	(0.016)	(0.008)
Asset index (z-score)	–0.007	0.026**	–0.025	0.029+	0.006	0.019
	(0.012)	(0.012)	(0.018)	(0.019)	(0.017)	(0.016)
No. older siblings	–0.001	–0.004	–0.011*	–0.008	0.006	–0.001
	(0.004)	(0.004)	(0.006)	(0.006)	(0.006)	(0.005)
No. younger siblings	0.008**	0.001	0.002	0.005	0.013**	–0.003
	(0.004)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Loss of parent(s)	0.067**	0.044+	0.074*	0.075	0.067*	0.025
	(0.027)	(0.031)	(0.042)	(0.052)	(0.036)	(0.038)
Community Characteristics						
Primary school	–0.027	–0.174***	0.014	–0.192***	–0.058*	–0.167***
	(0.024)	(0.038)	(0.033)	(0.062)	(0.034)	(0.048)
Secondary school	–0.003	0.025	0.029	–0.049	–0.035	0.098**
	(0.026)	(0.029)	(0.033)	(0.041)	(0.038)	(0.041)
Hospital	–0.073***	0.044	–0.044+	0.080+	–0.089***	0.017
	(0.020)	(0.035)	(0.027)	(0.055)	(0.028)	(0.045)
Rural at 10 years	0.159***	–0.074**	0.171***	–0.124***	0.122***	–0.031
	(0.031)	(0.030)	(0.042)	(0.043)	(0.044)	(0.040)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include regional dummies for childhood place at 10 years old. Number of observations: ALL: 2,401; Men: 1,035; Women: 1,366.

Table A.2: Average Marginal Effects—Main Results excluding the Youngest Migrants

	ALL	
	Rural	Urban
Individual Characteristics		
Gender	–0.071***	–0.012
	(0.015)	(0.015)
Age	0.077***	–0.022
	(0.024)	(0.024)
Age-squared	–0.001***	0.001
	(0.000)	(0.000)
Household Characteristics		
Father's education	–0.014**	0.010***
	(0.006)	(0.004)
Mother's education	–0.006	0.004
	(0.010)	(0.006)
Asset index (z_score)	–0.004	0.028**
	(0.012)	(0.012)
Older siblings	–0.001	–0.001
	(0.004)	(0.004)
Younger siblings	0.008**	0.001
	(0.003)	(0.003)
Loss of parent(s)	0.063**	0.047*
	(0.027)	(0.029)
Community Characteristics		
Primary school	–0.029	–0.149***
	(0.024)	(0.037)
Secondary school	0.006	0.017
	(0.026)	(0.028)
Hospital	–0.078***	0.044
	(0.020)	(0.034)
Rural at10 years old	0.156***	–0.065**
	(0.031)	(0.028)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include regional dummies for childhood place when 10 years old. Number of 0bservations: ALL: 2,274.

Table A.3: Average Marginal Effects—Main Results excluding Temporary Migrants

	ALL	
	Rural	Urban
Gender	–0.026**	–0.008
	(0.012)	(0.014)
Age	0.048**	–0.022
	(0.020)	(0.023)
Age-squared	–0.001**	0.000
	(0.000)	(0.000)
Household Characteristics		
Father's education	–0.007+	0.009**
	(0.004)	(0.004)
Mother's education	–0.002	0.001
	(0.006)	(0.006)
Asset index	–0.006	0.042***
	(0.010)	(0.012)
No. older siblings	–0.004	–0.002
	(0.003)	(0.003)
No. younger siblings	0.001	–0.005+
	(0.003)	(0.004)
Loss of parent(s)	0.037*	0.057**
	(0.020)	(0.027)
Community Characteristics		
Primary school	–0.019	–0.165***
	(0.022)	(0.034)
Secondary school	0.012	0.030
	(0.020)	(0.027)
Hospital	–0.013	0.027
	(0.018)	(0.032)
Rural at 10 years	0.054**	–0.001
	(0.024)	(0.028)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include ethnicity dummies and regional dummies for childhood place when 10 years old. Number of observations 1,897

Table A.4: Main Results including interaction between Asset Index and Rural Origin

	Panel A		Panel B		Panel C	
	All		MEN		Women	
	Rural	Urban	Rural	Urban	Rural	Urban
Father's education	–0.018***	0.012***	–0.016*	0.006	–0.022**	0.018***
	(0.007)	(0.004)	(0.009)	(0.006)	(0.009)	(0.005)
Mother's education	–0.006	0.004	0.006	–0.006	–0.012	0.008
	(0.010)	(0.006)	(0.012)	(0.009)	(0.014)	(0.007)
Older siblings	–0.002	–0.002	–0.010*	–0.006	0.004	–0.000
	(0.004)	(0.004)	(0.006)	(0.005)	(0.006)	(0.005)
Younger siblings	0.009**	0.000	0.003	0.005	0.013**	–0.004
	(0.003)	(0.004)	(0.004)	(0.005)	(0.005)	(0.005)
Asset index	0.029+	0.033**	0.032	0.044**	0.027	0.020
	(0.020)	(0.014)	(0.032)	(0.021)	(0.027)	(0.019)
Rural at 10 years	0.148***	–0.080***	0.165***	–0.164***	0.126***	–0.022
	(0.030)	(0.031)	(0.047)	(0.049)	(0.045)	(0.040)
Rural*asset	–0.056**	–0.022	–0.079**	–0.068*	–0.042	0.001
	(0.024)	(0.024)	(0.038)	(0.040)	(0.033)	(0.031)
Loss of parent(s)	0.069***	0.034	0.070*	0.059	0.075**	0.020
	(0.027)	(0.030)	(0.041)	(0.051)	(0.036)	(0.038)

Notes: *** p<0.01, ** p<0.05, * p<0.1, + p<0.15. Standard errors calculated using the delta method. All models include individual and community variables as well as regional dummies for childhood place when 10 years old. Number of observations: ALL: 2,401; Men: 1,035; Women: 1,366.