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Youth aspirations, perceptions of farming, and migration decisions in rural Sub-Saharan Africa: Further empirical evidence from Ethiopia

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ZEF-Discussion Papers on Development Policy No. 296

Essa Chanie Mussa

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Abstract

The study discusses the aspirations and preferences of youth in rural sub-Saharan Africa using a large-scale SMS-based survey data and complements it with an investigation on the causal effects of adolescent aspirations on migration decisions when youth in southwestern Ethiopia. The cross-country youth study shows that most rural youth in Africa prefer working in nonfarm economic sectors. It also finds that above half of the rural youth are undecided about their migration aspirations, providing an opportunity for governments to influence the rural out migration of youth. However, policymakers should also be equally aware that anti-poverty policy measures that simply improve the incomes of rural youth might have unpredictable and unintended consequences on their migration decisions. As a result, policy measures may have to also influence the perceptions of youth toward farming and rural life, and to make rural areas more attractive to the youth. Taking southwestern Ethiopia as a case in point, it was found that above half the adolescents have negative perceptions about farming (both farming life and the pre-requisites to become a farmer). The results also show that educational and occupational aspirations during adolescence exert differing effects on migration decisions after four years. That is, while those who aspired to attain more years of schooling are unlikely to out-migrate within this time period, their counterparts who aspired to have high socio-economic status occupations tend to out-migrate from the respective areas. The study concludes that the out-migration of youth from rural areas and small towns may not be only due to push factors such as lack of farmland, but it could also be due to their aspirations to work in high socio-economic status occupations which are not often found in the rural areas. Thus, African countries should work to make rural areas and farming more attractive to the aspiring youth such as through improving access to technology, developing infrastructure, and providing support to rural non-farm sectors expansion.

Keywords: Aspirations, Perceptions, Migration decisions, Youth, Sub-Saharan Africa, Ethiopia

JEL codes: D91, I13, J24, O15

1. Introduction

1.1 Aspirations: Definitions and its formations

Aspirations are "an individual's desire to obtain a status object or goal such as a particular occupation or level of education" (MacBrayne, 1987, p. 135). Gorard et al. (2012, p. 6), on the other hand, defined it as "[it] is what an individual hopes will happen in the future", whereas Kosec and Khan (2017) understood it as "the goals that people set and intend to achieve". The latter definition implies that aspirations involve some set of actions to achieve the goals. In this regard, Bernard and Taffesse (2014) characterize aspirations as (1) future-oriented, i.e. goals that could be achieved in the future, (2) motivators, i.e. aspirations are something that people are willing to invest resources to achieve, and (3) specific dimensions of well-being such as wealth and social statuses, but also a combination of two or more of these dimensions to attain a general life outcomes. This implies that aspirations are very important psychological factors that could affect future-oriented current decisions and predict economic behaviors (Bernard & Taffesse, 2014; Camerer, Babcock, Loewenstein, & Thaler., 1997; Maertens, 2012). In this study, aspirations are defined as the education levels and the socio-economic status of occupations that the adolescents (aged 13-17 years) would like to have or attain when adults.

Related literature also provides explanations on how people form aspirations. Theoretically, it is assumed that people develop their aspirations through observations and comparisons such as with their neighbors and peers and by learning from 'relevant others' (Appadurai, 2004; Genicot & Ray, 2017; Ray, 2006). Relative positions compared to the 'relevant others' or reference groups can also influence people's aspirations (Fafchamps & Shilpi, 2008; Knight & Gunatilaka, 2012; Sakketa & Gerber, 2016), suggesting that aspirations can change through time and be influenced through public policies. Through an extensive empirical literature review, Leavy and Smith (2010) also conclude that individuals form aspirations within the broader and changing societal context where environmental and socio-cultural conditions interplay.

Given the multi-dimensional nature of aspirations, empirical evidence show that several factors including parents' aspirations, expectations, and local contexts can affect children's or adolescents' aspiration formations (Beaman et al., 2012; Galab et al., 2013; Tafere & Woldehanna, 2012). For instance, while Tafere and Woldehanna (2012) find that rural children and parents in Ethiopia aspire non-farming occupations to children when adults; and, in India, private school enrolment of children and higher investment in education are strongly associated with parental aspirations (Galab et al., 2013). A randomized natural experimental study in India also reveals that adolescents' aspirations, as well as their parents' aspirations, can be also affected by local contexts such as the presence of role models (Beaman et al., 2012).

1.2 Dimensions and measurements of aspirations

According to a review of existing aspirations measurement techniques by Bernard and Taffesse (2014), various measurements including depression scales and indicators of feelings about the future (Macours & Vakis, 2009), direct measures of aspirations, and locus of control have been used to measure aspirations. Among empirical studies, Beaman et al. (2012) measured parents' aspirations to girls using four future-oriented variables: The desired educational attainment, age of marriage, preferred occupation at the age of 25, and whether the parent wished for the child to become pradhan. In addition, the authors constructed standardized average indices of the first three variables using four indicators. Like some other related studies, their approach is a direct measure of aspirations by questioning individuals about their aspirations in several dimensions. On the other hand, Macours and Vakis (2009) used empirically tested measure of depression, by asking respondents about the occurrence of 20 different moods during the past week and aggregate results following a predefined scale. The authors used an aggregated indicator along with the sum of scores on separate positive and negative feelings-related questions and separate answers to questions relating to being cheerful and having strong positive expectations for the future. They also used future-oriented efforts to avoid the impacts of future shocks. However, the inconsistent measures of aspirations could make comparisons of findings difficult, thus Bernard and Taffesse (2014) proposed a set of aspirations measurement approaches using four dimensions: Income, wealth, education, and social status and tested the validity using a survey data. The authors suggest that while each of these indicators can be used to study a specific aspect of aspirations, a composite aggregated index can also be constructed using weighting scheme (the importance attached to each dimension by the respondent).

Following Beaman et al. (2012) and Bernard and Taffesse (2014), the current study measures aspirations independently using two dimensions: Educational and occupational aspirations. However, although Bernard and Taffesse (2014) suggest a person-specific weighting scheme to construct aggregate aspirations index; we did not have data on weights for each aspect of aspirations and the aggregated index is not generated. Further, data on aspired income, wealth and social status are also not available. This is one of the limitations of the study. In this study, a total of 2,109 adolescents in rural Ethiopia were directly asked as "What is the highest grade you think you will complete?" and "What job do you think you will have when you are an adult?" to capture their educational and occupational aspirations, respectively. In addition, they were also asked several questions about their perceptions and the importance of education, vocational training, social networks, effort, luck, and gender to become a farmer/ farm laborer. The study also uses adolescents' responses on what level of education they think is required to become a farm laborer, their estimations of farmer's annual income, and whether they think that a farmer can support his/ her family using farm income alone to construct their perceptions index on farming life and wellbeing. In addition, the study also

explores the general youth desires and expectations using a multi-country SMS-based data from 10,000 rural youth in sub-Saharan Africa.

1.3 Determinants and effects of aspirations

Identification of the causal effects of aspirations on various outcomes is less explored. A prime study in this regard is conducted by Beaman et al. (2012). Based on a randomized natural experiment where some villages reserve seats for women in the village council in India, they investigate the role model effects of this policy change on parental and adolescent girls' career and educational aspirations. Controlling for endogeneity of aspirations and educational outcomes, they find that compared to villages where there has never been a seat reservation, in villages where village councils reserve seats for women resulted in significant improvements in occupational and educational aspirations of parents and adolescent girls. The role model effect also reduced the gender-based education aspirations gap for parents and adolescents significantly. Pasquier-Doumer and Brandon (2015) also find that comparing children from similar socioeconomic status, those from indigenous communities have similar aspiration levels as their peers from non-indigenous people. However, children from indigenous people tend to have lower aspirations to high-status occupations compared to non-indigenous children.

In turn, aspirations could also have far-reaching consequences on many life frontiers. Previous studies explored the extent to which individuals' aspirations predict and explain long-term loans for productive activities (Bernard, Dercon, & Taffesse, 2012), expenditures on agricultural inputs, yields, and savings (Kosec et al., 2012), poverty (Dalton et al., 2016; Macours & Vakis, 2014; Ray, 2006), inequality (Genicot & Ray, 2017; Kosec & Mo, 2017), enrolling children in private schools and child schooling (Bernard & Taffesse, 2014; Galab, Vennam, Komanduri, Benny, & Georgiadis, 2013), educational attainment (Beaman et al., 2012; Powers & Wojtkiewicz, 2004; Serneels & Dercon, 2014), and food security (Mekonnen & Gerber, 2017). In general, the findings show that individuals' aspirations affect greatly their future-oriented decision-making behaviors such as investments in schooling (own and children), using long-term loans, and determine economic outcomes. This indicates that aspirations could be used as important entry points to help the poor break intergenerational poverty and ensure the social mobility of adolescents and youth. Understood to many of these studies is also low aspirations resulted in little efforts to change the status quo, and due to little investment in future-oriented activities, it may contribute to the persistent and intergenerational transmission of poverty (Appadurai, 2004; Ray, 2006). On the contrary, those individuals with higher aspirations are likely to have the willingness and exert persistent efforts to change obstacles for a better future. In this regard, given the intrinsic advantages of the adolescent period in its potential to change future circumstances, understanding their aspirations formation and the consequences on economic decisions such as migration is

relevant to effectively engage youth in productive economies, design supporting mechanisms, and increase employment in rural labor markets. However, the effects of aspirations on economic outcomes could be moderated by a multitude of factors. In this regard, for example, rural adolescents, mainly girls, are more likely to have narrow or wide aspirations gaps, leading to what is referred to as aspiration failure (Bernard, Dercon, & Taffesse, 2012), potentially limiting their abilities to aspire higher educational levels and to shift to non-farming or high socio-economic status occupations.

The paper is structured as follows. The subsequent subsections discuss aspirations in relation to youth's migration decisions, perceptions of farming, and outline the study objectives. Section 2 presents the conceptual framework of the study while the sampling, data sources, and the estimation method are explained in section 3. The empirical results are presented and discussed in section 4. Robustness of the study results are examined and presented in Section 5, whereas the caveats of the study are discussed in Section 6. Section 7 closes the study with conclusions and policy implications.

1.4 Aspirations and youth migration decisions in rural sub-Saharan Africa

Recent studies have been showing that the rural youth in Africa, due mainly to lack of access to farmland, are leaving agriculture (Ahaibwe et al., 2013; Bezu & Holden, 2014; McMillan & Harttgen, 2014), but, still the majority of the youth in the continent resides in the rural areas and work in family farms (62%) and in household enterprises (22%) (Filmer & Fox, 2014). However, emerging literature also claims that African rural youth are not interested in farming at all due to reasons including the perceptions of farming life, hence abandon agriculture (Leavy & Hossain, 2014; Sumberg et al., 2017). It is argued that youth's participation in agriculture in rural sub-Saharan Africa is constrained by the lack of access to productivity-boosting technologies and tools (AGRA, 2015). Consequently, studies propose that the introduction of new technologies such as information and communications tools and innovations (FAO, 2018) could change the perceptions of rural youth to farming and the employment structure in rural areas. Modern technologies such as expansion in off-grid power which could support irrigation agriculture and access to farming equipment such as Tractors through alternative platforms may also transform farming and the rural areas (Araba, 2018)[1]. Past studies on youth rural out-migration decisions also focus on labor market related drivers of migration including wage, job opportunities, and human capital (Blunch & Laderchi, 2015; de Brauw, 2015).

[1] Debisi Araba, the regional director for Africa at the International Center for Tropical Agriculture (CIAT), was interviewed on the effects of technologies on African agriculture and how technologies, through disruption opportunities, could revolutionize African agriculture. The interview is available on: https://www.forbes.com/sites/lorinfries/2018/08/26/the-future-will-surprise-us-technology-for-african-agriculture/#55e5c29f14f7

However, what is often less understood in the empirical literature and has received less policy attention is how youth's general aspirations, a crucial internal behavioral component, could play a role in their decisions either to stay and work in rural areas or out-migrate to urban areas. Aspirations, which are malleable to policies (Beaman, Duflo, Pande, & Topalova, 2012; Bernard & Taffesse, 2014) may play crucial roles not only in understanding the needs, preferences and future-oriented economic decision making behavior of youth, but also to identify the fundamental bottlenecks to the structural transformation in Africa at large. In line with this argument, Fox and Thomas (2016) point out that the aspirations formed during childhood and adolescent periods tend to have substantial effects in guiding youth's school-to-work transitions in Africa. This means that, in addition to the challenges in access to farmland (Bezu & Holden, 2014; Jayne et al., 2014), policy-making needs rigorous research evidence linking adolescents and youth aspirations and their migration decisions in sub-Saharan Africa.

Accordingly, in this paper, it is attempted to identify the effects of adolescents' educational and occupational aspirations on migration decisions later (after four years from the first observation), when they became youth. The study also attempts to address the endogeneity problem between adolescents' aspirations and later migration decisions resulted due mainly to the innate abilities. For instance, adolescents with better innate abilities such as having higher drive and intelligence may aspire to achieve a higher level of education and to work in high socio-economic status occupations also more likely to migrate to urban areas, where skills tend to have better returns, later when youths. However, such positive relationships should not be considered as causal effects before the confounding effects of these innate abilities are controlled using appropriate econometric methods. Cognizant of this identification problem, the study explores the effects of aspirations of adolescents on their migration decisions after four years in southwestern Ethiopia using instrumental variables approach. This will be, however, following a detailed discussion of the associations between aspirations, life expectations, and perceptions of rural African youth to farming using a large-scale SMS-based youth survey data from 21 sub-Saharan African countries.

1.5 Migration aspirations and migration decisions

Individuals migrate (realized) after considerable time and resources have been spent to plan and execute the decisions to migrate. While theories are in their nascent stages, some empirical studies discuss how migration is initiated and experienced in relation to aspirations, a step back from a traditional approach to migration studies (Carling & Collins, 2018). The paper by Carling (2014) nicely differentiates between general aspirations, migration desires, and migration aspirations. It claims that general aspirations serve as the bases for migration desires, which, in turn, can be described as migration aspirations —a strong belief about the desirability of migration for its intrinsic values or at least it is preferred to staying in the status

quo. It argues that when it comes to migration aspirations, the main driving factor is the desire to be in a specific place perhaps the mobility bestows the migrants an agency. On the other hand, Kandel and Massey (2002) discuss migration aspirations as a socially sanctioned behavior.

Unlike migration aspirations, related to migration possibilities (Carling & Collins, 2018), in the current study, however, migration (the decisions to migrate) is conceptualized not for its intrinsic values, but as an instrument to achieve other objectives related to general aspirations of life (Carling, 2014). It is hypothesized that youths' out-migration serve as a strategy to realize their earlier (during adolescence) occupational and educational aspirations. Related to this notion, we find some empirical evidence on the relations between aspirations and migration decisions (Carling, 2014; Czaika & Vothknecht, 2012; Thorsen, 2007; Whitehead, Hashim, & Iversen, 2007). Thorsen (2007), for example, finds that rural adolescents in Burkina Faso form their aspirations of work and urban life through interactions with former migrants, by looking at the social status ascribed to these migrants in the society and their wealth, enticing them to engage in migration to fulfill their aspirations.

Accordingly, this study explores and provides new empirical evidence if aspiring (occupation and education) adolescents migrate or try to change their circumstances in their origin areas. In relation to aspirations formation and migration decisions, it also examines the roles of various individual and household-related factors. But, more importantly, the causal connection between occupational aspirations and migration decisions is yet another gray area in efforts to understand rural youths' development trajectories and the implications to rural areas. However, due to lack of data, the study does not differentiate between temporary, seasonal, and permanent migration decisions or between short- and long-distance migrations, which is also a limitation of the study.

1.6 Youth perceptions of farming

While aspirations are future-oriented behavioral factors potentially affecting youth's decisions either to stay or out-migrate from rural areas, as presented earlier, another surfacing narrative about African rural youth is that they generally have negative perceptions towards farming and farm life; becoming a major concern for policymakers, development agencies, and governments in sub-Sahara African countries (FAO, 2012, 2014; Leavy & Smith, 2010). A growing number of studies show that youth do not perceive agriculture as a rewarding or respected profession. In explaining this trend, it is argued that, in addition to economic reasons, in many parts of Africa, societal acceptance and culture, gender norms and social status ascribed to farmers (Boateng & Löwe, 2018; Kritzinger, 2002; Leavy & Smith, 2010; Perry, 2009) played crucial roles in youths perceptions of farming. Leavy and Smith (2010) argue that youth aspirations could be influenced by the social and economic roles and accepted occupations for men and women as set by the society. Corroborating this argument,

in Ghana, women are strongly discouraged from taking up physically demanding jobs such as cocoa farming due to the societal perceptions that it makes them too masculine and that if she does, she would not get a husband (Boateng and Löwe, 2018). In South Africa, due to low social status ascribed to farming children compared to their peers from the urban areas, girls perceived farming negatively. Similarly, Ethiopian women are culturally discouraged from farming using plow as it involves lots of physical work, which is traditionally understood as men's job, although some attitudinal changes have been noted in recent times (Holden et al., 2001; Mulema & Damtew, 2016). Such cultural biases and societal perceptions further hinder the technical supports and access to extension services, credit, inputs and the required policy attention that should have been given to women farmers, consequently, limiting their potentials to escape out of poverty (Frank, 1999).

However, we also find counterarguments to the narrative that "agriculture is generally an unpleasant job and not interesting to the youth". Boateng and Löwe (2018) argue that it is the psychological stress due to a significant amount of time and capital investment coupled with its uncertain returns that mainly influence youth's aspirations to agriculture. Consequently, the negative perceptions of farming among youth and to farm life in Africa may have also led many to migrate to urban areas in search of non-farm jobs (FAO, 2012, 2014; Munive et al., 2006). Thus, understanding the factors associated with youth perceptions of farming in SSA is critical in order to effectively support the efforts aimed at making agriculture more attractive to the youth and to change the perceptions from agriculture as an antithesis to progress and arduous profession to a highly regarded career.

The paper explores the following specific objectives:

1. To describe the associations among youths' current occupations, occupational preferences, and migration aspirations using a cross-country SMS-based survey,
2. To identify the predictors of migration aspirations in rural sub-Saharan Africa using a cross-country SMS-based survey,
3. To identify the factors associated with youth perceptions of farming in Ethiopia, and
4. To identify the formations and causal effects of occupational and educational aspirations on migration decisions among rural youth in Ethiopia.

2. Conceptual framework

Figure 1 shows how various factors could affect adolescents' (aged 13-17 years) aspirations formation which, in turn, also affect migration decisions when youth (aged 17-21 years) in rural Ethiopia. Household characteristics including resources and head characteristics and parental influence are hypothesized to affect aspirations formation. That is, adolescents' aspired occupations and the highest educational levels could be influenced by parental wealth, head characteristics including gender and educational level and economic factors. Equally relevant in aspirations formation are also adolescents' education statuses, general health, social networks, gender, and their participation in farming and non-farming jobs. Prior education levels could expand adolescents' aspirations windows (Ray, 2006)—to be able to aspire to attain more adult human capital and strive for better paying jobs. In addition to the indirect effects through affecting adolescents' aspirations, these factors are also expected to directly affect youth migration decisions.

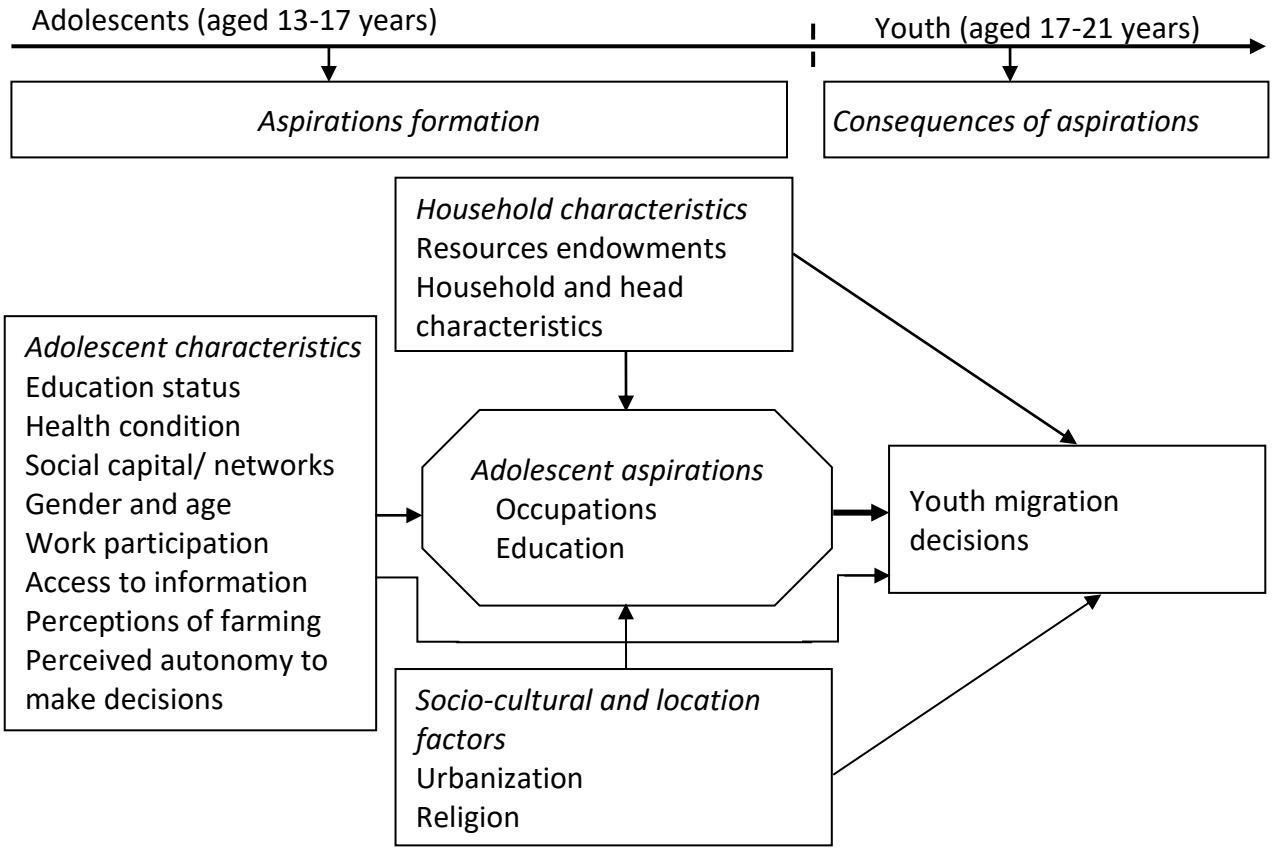

Figure 1: Aspirations formation and migration decisions, own conceptualization (2019)

Past studies show that males and better educated (Blunch & Laderchi, 2015; de Brauw, 2015) individuals tend to migrate to urban areas, where skills are better rewarded (Stark, 2004) and educated labor enjoys preferential treatments (Fields, 1975). Educated adolescents may

aspire to attain higher levels of schooling and better-paying jobs (often in non-farm economic sectors). On the other hand, previous studies also show that women tend to have lower aspirations than men in many important ways (Bernard & Taffesse, 2014; Bernard, Dercon, Orkin, & Taffesse, 2014); perhaps due to circumstances in their aspirations formation, which, in this study, is also argued that this could also differently affect their migration decisions. In this study, it is also argued that limited life opportunities in rural areas, partly explained by negative perceptions of farming, vis-à-vis higher aspirations due to such as better education attainment, which signals aspiration failures, may also result in out-migration of the rural youth.

Aspirations are also formed against a broader and changing social context in a society (Leavy & Smith, 2010). Adolescents' socio-cultural and location factors such as urbanization, religious affiliation, and linkages to urban (potential destinations) areas through kinship may influence aspirations formations, hence migration decisions. Leavy and Smith (2010) further outlined that social influences in ways such as religion could be stronger in rural areas, which may disproportionately affect aspirations formations of the rural adolescents than their counterparts in urban areas; partly manifested by lower educational expectations among rural young people than their urban peers. This may also limit their abilities to aspire. Giuliani et al. (2017), for instance, find that one in every five rural youth (22 percent) think that their skills and knowledge are not good enough to jobs in urban areas. This, in turn, could influence their migration decisions.

However, in order to identify the causal effects of aspirations during the adolescent period on migration decisions later when they become youth, one has to also address the endogeneity problem; if the above factors influence aspirations formations and consequently, aspirations (educational and occupational) affect migration decisions. This study used individual level unique panel data (aspirations and related factors observed during adolescence, and migration statuses observed after four years in rural southwestern Ethiopia) to identify the causal effects of educational and occupational aspirations on migration decisions, controlling for the variables discussed above.

3. Methodology

3.1 Aspirations measurement

The study uses two types of aspirations: Educational and occupational, to identify the effects of adolescents' aspirations on migration decisions later when youth. The indicators are drawn from questions asked directly to individuals when they were adolescents. More specifically, they were asked the types of occupations they would like to have when adults and the highest educational level they would like to attain when adults. While educational aspirations was measured by the number of years of schooling the adolescents aspired to attain, occupational aspirations was measured using the standard International Socio-Economic Index (ISEI) and standardized (This is further discussed in subsection 3.3). However, since adolescents were not asked about their aspired income and asset they would like to achieve, these components were not included in the aspirations analyses. In addition, due to the lack of the person-specific weights to each of the aspirations components, the study does not generate and use an aggregated aspirations index. The fact that other important aspects of aspirations and the aggregated index of aspirations were not included will be also a limitation of this paper.

3.2 Perceptions of farming

In 2005, adolescents in southwest Ethiopia were asked about their perceptions regarding the wellbeing and what is required to become a farmer/ farm worker. Accordingly, the study uses Factor Analysis to create adolescents' perception index of farming life or farmer's wellbeing using the following questions:

1) How much education do you think someone who is a farmer/farmworker needs in order to have this job?
2) How much you think a farmer/farmworker earns (answers adjusted to annual)?
3) If someone works as a farmer/farmworker only, do you think they earn enough to support him/ herself, spouse, and children?

   Note: Higher values correspond to a better perception of the adolescent towards farming, farm earnings and the wellbeing of being a farmworker.

In addition, adolescents' perceptions index regarding the pre-requisite to becoming a farmer/ farm worker has been constructed using the following questions:

1) How important is education to become a farmer/farmworker?
2) How important is vocational training to become a farmer/farmworker?
3) How important are connections through friends or school mates to become a farmer/farmworker?
4) How important are connections through relatives to become a farmer/farmworker?
5) How important is one's age to become a farmer/farmworker?

6) How important is good luck to become a farmer/farmworker?
7) How important is your religion to become a farmer/farmworker?
8) How important is to be a male to become a farmer/farmworker?
9) How important is to be a female to become a farmer/farmworker?

   Note: The aggregated index would show the importance of education, social networking, effort, and gender in farming or to become a farmer. Higher values correspond to higher regard to these factors to become a farmer/farmworker.

3.3 Occupation classification

The study uses the standard International Socio-Economic Index (ISEI) of occupational status (Ganzeboom et al., 1992), later renewed by Ganzeboom and Treiman (1996) using an international dataset, to categorize the occupations aspired by the adolescents and father's aspired occupations to adolescents. The ISEI is weighted averages of standardized measures of the income and education of each occupational incumbents, constructed using the 1988 International Standard Classification of Occupations (ISCO88) scale of occupational status (Ganzeboom & Treiman, 1996). The ISEI index, ranges between 16, assigned to occupational groups including subsistence agricultural farmers, domestic servants, cloth and home cleaners and daily laborers, and 90, a score assigned to Judges. The higher the value of the ISEI, the higher the socio-economic status of the occupation. Accordingly, in this study, the ISEI value is used to measure the socio-economic status or occupational standing of the adolescents or of the fathers to the adolescents. Further, to facilitate comparisons between adolescents by urbanization, the ISEI values were standardized.

3.4 Data and sampling

The study uses two different datasets. The first is a cross-country large-scale SMS-based youth survey data[2] to understand youths' labor market participation in rural areas, their occupational preferences, life goals, and aspirations. This dataset is used to shed light on the associations between current and preferred occupations, migration aspirations, and highlight the predictors of youth rural out-migration aspirations (possibilities to migrate) in rural Africa. The survey was administered to 10,000 youth (aged 18-35 years and distributed equally by gender) in rural regions of 21 sub-Saharan African countries[3] in 2017. It collected data

[2] The data collection was commissioned by the German Federal Ministry of Economic Cooperation and Development, BMZ and conducted in 2017.

[3] The countries include Benin, Burundi, Cameroon, Ivory Coast (Cote d'Ivoire), DR Congo, Ethiopia, Ghana, Kenya, Liberia, Madagascar, Malawi, Mozambique, Nigeria, Rwanda, Senegal, Sierra Leone, South Africa, Tanzania, Uganda, Zambia, and Zimbabwe.

regarding youth's life prospects, occupational preferences and migration aspirations[4], expectations, life optimism, and family ties. This discussion is followed by a causal analysis using Jimma Longitudinal Family Survey of Youth (JLFSY)[5], collected from southwestern Ethiopia to investigate the effects of aspirations during adolescent on migration (realized) decisions when youth[6], after four years. The survey is a representative of the regional city of Jimma (pop. 120,000) in Oromia region, Ethiopia, three nearby small towns (Yebu, Serbo, and Sheki), and nine rural areas adjacent to these small towns. The baseline surveys were conducted in 2005-2006 with randomly selected 3,695 households and 2,109 adolescents aged 13-17 years (2,084 successfully surveyed for the baseline study). The survey followed these adolescents for seven years to track changes in their knowledge, attitudes, behavior, and occurrence of key early life course events and transitions.

The JLFSY collects information on a wide range of variables such as human capital formation, labor market outcomes (employment and earnings), social networks, participation in health interventions, and the processes of becoming an economically productive adult. The second, third, and fourth rounds of the JLFSY surveys were conducted in 2006-2007, 2009-2010 and 2012-2014, respectively. This study uses the first and third round surveys[7] to identify the causal effects of adolescents' aspirations (observed in 2005-06) on migration decisions (status) in 2009-2010. The samples were distributed as 753 adolescents from Jimma city, 599 from small towns neighboring Jimma city, and 757 from rural areas adjacent to small towns, giving comparable sample sizes according to the levels of urbanization. The data are also used to identify the correlates to adolescents' perceptions of farming.

The households in the JLFSY were selected using multi-stage stratification, cluster sampling in Jimma city and stratification in the small towns and rural areas. In Jimma city, divided into three woredas, constituting a total of 21 urban kebeles (neighborhoods), two neighborhoods (clusters) were randomly selected from each woreda (strata) in the first stage, resulting in a total of six sample neighborhoods. This was followed by a street-by-street and door-by-door enumeration of all households to construct sampling frames. The samples from neighborhoods within each woreda were evenly distributed which resulted in a self-weighing with equal probabilities of selection for all households and youth. Secondly, sample households in the small towns and rural areas were selected based on simple random sampling using the lists of households from local administrators as sampling frames. Unlike

[4] The occupational distribution of surveyed youth includes: Students (40 per cent), self-employed/ petty trading (14.4 per cent), farming, both own and family farming, workers (16.2 per cent), employed youth (12.5 per cent), other jobs (4 per cent), and unemployed or no job (12.7 per cent).

[5] For more information about the survey: https://www.brown.edu/research/projects/jimma-longitudinal-family-survey-of-youth/population-surveys/jimma-longitudinal-family-survey-youth

[6] The age bracket for youth in this survey is 17-21 and it refers to a different group of respondents from those stated in the large-scale SMS-based survey.

[7] For more information about the study design: https://www.brown.edu/research/projects/jimma-longitudinal-family-survey-of-youth/jlfsy-study-design

Jimma city, local population registrations in the small town and rural areas were up-to-date to be used as sampling frames.

A two-stage sampling procedure was used to select adolescents. Households were classified into urban (Jimma city), semi-urban (Serbo, Debo, and Yebbu towns) and nine rural kebeles or villages (three in the vicinity of each of the three small towns). At the first stage, households were randomly sampled with the sample size in each kebeles determined by the relative proportion of the study population in the kebeles and the overall target sample size. This results in a total of 1407, 1063, and 1230 sample households, before weighting, from Jimma city, small towns, and rural villages, respectively. In the second stage, one adolescent (a boy or a girl) was randomly selected from each household using a Kish Table. In households with only one adolescent aged 13-17 years at the time of the baseline household survey, the adolescent was automatically included in the adolescent sample.

Follow-up surveys: In the second round of the household survey, data were also collected on the migrants through following up after getting relevant information about their new locations and contact information of those who moved out subsequent to the first-round survey. Moreover, households who migrated within the study area were tracked by the interviewers to their new locations. During the second-round survey, about 5% of households were lost-to-follow-up. On the other hand, in the subsequent survey, information on the current location, contact information, and expected time of the return of the adolescents who left the parent households were collected from the left-behind household members, mainly from household head or spouse. Thus, adolescents who left the households were resurveyed through repeated revisits of the households and at their new location if they formed a family and live within the baseline study area. A total of 643 adolescents, 30.5%, out-migrated from the respective baseline areas in four years and identified as migrants in this study, regardless of migration destinations, reasons for migration, intended duration of migration (temporary, seasonal, and permanent), and future migration intentions. As a result, the study doesn't differentiate between these aspects of migration decisions, due mainly to lack of data.

3.5 Econometric model specification

The identification problem

In order to identify the causal effects of aspirations during adolescent on migration decisions when adults, the endogeneity problem due to the confounding effects of unobserved innate abilities may pose identification challenge. Addressing this challenge, therefore, is required to establish the causal effects. Unlike most of the related migration studies that use cross-sectional data, however, reverse causality won't be a problem in this study, as aspirations and migration decisions are observed at different points in time—aspirations during adolescent period and migration decisions (statuses) four years later. The main endogeneity problem,

thus, comes from individuals' innate abilities such as inner drive and intelligence that persist over time, affecting aspirations formation and migration decisions. In order to overcome the problem and estimate consistent parameters, the study uses instrumental variables approach using 2-stage residual inclusion (2SRI) method (also known as control function) (Hausman, 1978; Wooldridge, 2015). Terza *et al.* (2008) and Klungel *et al.* (2015) show that when the relationship between the outcome and the variables of interest is nonlinear, the 2SRI method gives consistent estimates.

The structural equation that we would like to estimate is specified as:

$$Migration_{i.2009} = \beta_0 + \beta_1 X_{i.2005} + \beta_2 Aspirations_{i.2005} + \varepsilon_i^{2009} \quad (1)$$

However, since innate abilities may affect both aspirations formation and migration decisions, the outcome tends to be strongly correlated with the structural error term, composed of innate abilities and regression residual ($\varepsilon_i^{2009} = \gamma A_i + e_{i.2009}$), consequently, the true causal relation cannot be identified. In order to address this estimation problem, the study uses exogenous variables that affect education and occupational aspirations formations, independently during the adolescent period, but do not directly affect migration decisions when youth, hence the structural error term is uncorrelated with the instrument.

Given an instrumental variable, Z_i, that affects aspirations formation and other controls, X_i, the first-stage equation for different components of aspirations is written as:

$$Aspirations_{i.2005} = \varphi_0 + \varphi_1 X_{i.2005} + \varphi_2 Z_i + e_i^{2005} \quad (2)$$

where Z_i are relevant, $Cov(Z_i, Aspirations_{i.2005}) \neq 0$, exogenous, $Cov(Z_i, \varepsilon_i^{2009}) = 0$, and excludable from the migration equation, $Cov(migration_{i,2009}, Z_i | X_{i,2005}) = 0$.

In stage-two, the residuals estimated from equations (2) along with the endogenous variables are included and we estimate equation (1) in the following form:

$$Migration_{i.2009} = \alpha_0 + \alpha_1 X_{i.2005} + \beta_2 Aspirations_{i.2005} + \psi r + v_i^{2sri} \quad (3)$$

where X_i are relevant variables that predict aspirations formation during adolescent, including individual, household, parent, and village related factors and *r* denotes residuals predicted from the first-stage equations. Statistically significant residuals indicate that the unobserved effects are controlled well. The same procedure is followed to estimate the effects of educational and occupational aspirations on migration decisions.

Selection of instrumental variables

In this study, educational aspiration is defined as educational goals that the person sets for him-/herself. It serves as an important motivation and driver of other behaviors such as migration decisions (Fraser & Garg, 2011). On the other hand, occupational aspirations is the job or occupation one would like to have in the future or set of occupational activities (Hughes, 2011). The study uses fathers' aspired (desired) educations to the adolescents when grown up to predict adolescents' educational aspirations. Adolescents' occupational aspirations, on the

other hand, is instrumented using a multidimensional religiosity index, constructed using intensities on fasting on religious fasting days, if received religious instruction outside of home, how often does the adolescent pray, and how important is religion to the adolescent. The factors analysis excludes religious affiliation to construct religiosity index, as religious affiliation seems to have strong association with migration decisions in Ethiopia, mainly to Arab countries. Next, the paper elaborates on the validity of these instruments based on how they fulfill the fundamental conditions, that they strongly predict the endogenous variables (educational and occupational aspirations) and they can be excluded from the outcome (migration decisions) equations.

Parent (Father's) educational aspirations to the adolescent: For its direct and indirect effects, mainly through parents' involvement in children's schooling, parents' aspirations are expected to significantly influence children's/ adolescents' educational prospect or aspirations (Vryonides & Gouvias, 2012). Parental aspirations for their children's educational attainments reflect the parent's desired level of educational level and expectations or the highest possible level of education the parent aspires the adolescent to attain in the future, considering adolescent's perceived abilities and the available opportunities and resources (Janssen, 1982). In this paper, parental (father's) educational aspirations (using number of schooling years) for adolescents refer to the educational aspirations or expectations (desires) that fathers have for adolescents. The study also controls household and head related factors while predicting the adolescents' educational aspirations using fathers' educational aspirations to adolescents.

Several empirical studies suggest that parents' aspirations, expectations, and local contexts can affect children's or adolescents' aspirations formation (Beaman et al., 2012; Galab et al., 2013; Tafere & Woldehanna, 2012). One way through which parental aspirations could affect adolescents' aspiration is through investments in schooling. In this regard, in India, Galab *et al.* (2013) find that parental aspirations is strongly associated with private school enrolment of children and higher investment in education. Furthermore, using a longitudinal dataset following a cohort of children in Ethiopia, Favara (2016) finds that children's aspirations mirror parental aspirations, that parents' aspirations depend on their expectations for their children's future, and also finds changing educational parental aspiration to children, that is, after the age of 15 the pro-boys gender bias in aspirations is reversed. The author also suggests that parents may divert resources towards (or away from) a particular child because of their expectations and social norms about gender and gender roles. Here, it is also argued that parents' aspired education to adolescents can influence adolescents' future migration decisions only through affecting adolescents' education aspirations now, leading to a large majority to move, for example, to pursue further education.

Religiosity index: Religiosity could be understood as "the degree to which someone is involved in organized religious activity (religious practice), the degree to which their religion influences their behavior (religious influence), and the degree to which a person feels hope in a religious sense (religious hope)" (Jensen et al., 2019, p. 293). However, the evidence is limited on how

religiosity could influence occupational aspirations. Adolescents' religiosity is the importance he/she places on religion or "the degree to which someone internalizes religiosity as part of his or her identity" (Pearce & Hardie, 2012). The authors argue that since religiosity is often pro-family, it reinforces, adolescents, mainly girls, to aspire more female-dominated careers, prioritize their future family plans over investments in education and career achievement that are likely to lead to more prestigious occupations (Glass & Jacobs, 2005; Glass & Kanellakos, 2006). Accordingly, Pearce and Hardie (2012) stated that religiosity could influence occupational aspirations through shaping gender role attitudes and family plans. Conversely, some argue that a higher degree of religiosity can also give desirable qualities such as self-confidence in career choice, ability to adapt, self-efficiency and dedication to one's career (Duffy & Blustein, 2005).

Furthermore, "the desire to help others" is also another aspect how religiosity could influence occupational aspirations and choices (Hatos & Ștefănescu, 2019, p. 81). The authors explain that adolescents may aspire a career in medicine or a research to find a cure for a specific disease or illness if they closely know patients with disability or have lost somebody. Having known deprived or persons with special needs may also result adolescents to opt social work or politics. Generally, studies suggest while there is a lower level of religiosity in Economic and Social Sciences, it is in much a higher level in Humanities, Arts, Legal Sciences, and Education (Hatos & Ștefănescu, 2019; Kimball et al., 2009). This shows that differences in religiosity could differently influence adolescents' world view and decision-making process on what occupations they would like to have as adults.

However, the measurement of religiosity is debatable, and several studies use modified versions to fit the specific contexts (Mathur, 2012). Although there some differences across studies on what factors constitute the religiosity index, the three most common aspects include religious affiliation (e.g. Orthodox Christian, Muslim, Protestant), religious activities (e.g. praying, fasting, church/ mosque attendance) and religious beliefs (e.g. believing in the religious scriptures of their belief or the importance one attaches to religion in life (Bjarnason, 2007; Mathur, 2012). For the purpose of this study, religious affiliation is not considered to construct the index as it may directly link to migration decisions, mainly to Arab countries, in Ethiopia, where many Muslims are likely to migrate to Arab countries. Accordingly, following Bjarnason (2007), religiosity was measured by using a modified version that includes religious practices (fasting on religious fasting days in the last year, ever received religious instruction outside of home for example Quranic school or Bible classes, and how often does the adolescent pray) and religious beliefs (how important is religion to the adolescent's life). Thus, the religiosity index covers the practice/ activities and the belief components. Responses were given in Likert scales indicating the extent to which adolescents practice the indicators (responses were reverse coded so that higher values indicate responses including 'very important', 'daily', or 'all of the time' while lower values indicate lower intensities of the indicators). Thus, higher scores indicate higher religiosity levels.

In order to examine the relevance of instruments, Table 1 presents the first-stage regression results of the 2SRI estimations. It shows that father's educational aspiration to adolescent is strongly and positively associated with educational aspirations of adolescents (*p*<1%). Adolescents' religiosity index has also a strong and positive association with occupational aspirations (*p*<1%) [full-length results are presented in Table 9]. Here, it is argued that the decisions to migrate or not when adults could be influenced by father's educational aspiration to the adolescent and religiosity only through effecting educational and occupational aspirations, respectively, during adolescent period.

Table 1: First stage regression results of 2SRI model on the validity of instruments

	Educational aspirations	Occupational aspirations
Father's educational aspiration to adolescent	0.0418***	
	(0.0030)	
Religiosity index		0.0608***
		(0.0211)
Other variables	YES	YES
Observations	2,084	2,084

Significance levels: *** P<1%, ** P<5%, * P<10%. The results are extracted from the first stage 2SRI estimations, therefore, several variables are controlled but not reported here. Poisson and OLS regressions were run as first stage estimations on the number of years of schooling adolescents aspired to attain when adults and on the normalized ISEI index for occupational aspirations, respectably. For OLS regression (Occupational aspirations), robust standard errors are reported in parentheses.

In addition, the study uses a Multinomial logit model to identify the predictors of the intention to migrate or stay in rural areas and small towns in five years of time among youths in rural sub-Sahara Africa and a Probit regression model to identify the correlates to the intention to out-migrate to cities in five years of time against staying in rural areas. Further, using youth surveys from rural southwestern Ethiopia, perceptions of farming indices were estimated by the level of urbanization using an OLS regression.

4. Results and discussions

4.1 Youth occupational preferences in Sub-Saharan Africa

To start with the discussion of results, first, the paper presents the occupational description of youths based on the large-scale SMS survey from 21 sub-Sharan African countries. The survey of youth (N=10,000) in rural regions of these countries was composed of students (40.1%), farming (16.2%), self-employed/petty-trading (14.4%), employed workers (12.5%) and the rest were unemployed and working in other sectors. The gender disaggregated results also show that the current occupational distributions were similar between males and females. Using this dataset, Table 2 cross-tabulates youth's current against their preferred occupations. The results show that while communication transport, and services sectors and government employment have been identified as the major sectors that the rural youth aged 18-35 years would like to work, many of the youth, mainly those currently working in farming and self-employment also preferred to continue working in the agricultural sector including farming, food and fishery activities.

Table 2: Most preferred economic sector by the youth according to their current occupations

	Youth's preferred jobs				
Current occupation	Agriculture and food	Communication and transport	Govern-ment	Manufacturing/ craftsman	Mining
Employed worker	21.7	32.35	30.26	9.93	5.76
Farming	40.26	24.85	19.79	9.56	5.55
Self-employed/ Petty-trade	28.0	32.78	19.27	12.68	7.28
Other	17.28	42.96	24.44	7.90	7.41
No Job	23.27	35.93	25.39	8.96	6.45
Student	19.51	36.22	29.41	8.88	5.99
Average	24.76	33.63	25.78	9.64	6.19

Note: values in the table are percents calculated by row. For example, values in the first row show the distribution of currently employed youth across their preferred jobs.

More specifically, the three most preferred jobs by the youth include communication and transport (33.63%), government jobs (25.78%), and agriculture and food (24.76%). From the descriptive results, it is noted that while the youth working currently in farming seem to have a positive attitude toward farming, the share of those who indicated farming as a preferred occupation shows that sizable share of youth still would like to work in the sector, which goes against the narrative that rural youth are abandoning agriculture. In this regard, youth were also asked about the most desirable attributes of a job that they consider in their occupational choices. Interestingly, while factors such as better quality of life, ability to help others, experience matching, and normal working hours were identified by youths as less desirable

job attributes, for about 38% of them the most desirable job attributes were good working conditions and wages. The results have been consistent according to gender as well.

4.2 Youth occupational preferences and migration aspirations in sub-Saharan Africa

Youths' motives and preferences such as the kind of economic sector they would like to work could be useful drivers of their migration decisions. While youth may develop such occupational preferences as a result of socio-economic and cultural factors, similar factors may also interplay to shape their aspirations to either stay in their current locations or out-migrate to areas where they can better realize their dreams and aspirations. Figure 2 shows migration aspirations (intention to migrate and the desired residential locations) of rural sub-Saharan African youth in five years of time from 2017, presented according to their preferred economic sectors that they would like to work.

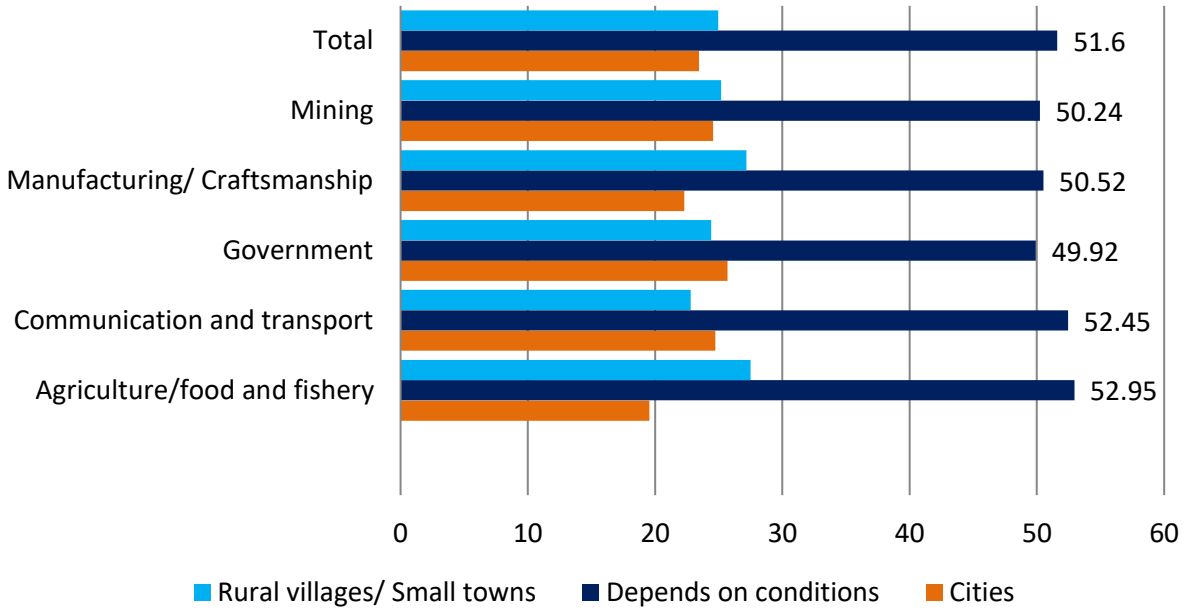

Figure 2: Youth migration aspirations to cities, staying in rural villages/ small towns or being undecided based on their occupational preferences in rural sub-Saharan Africa

The results show that regardless of the sectors they would like to work, as many youths as those who aspire to out-migrate to cities in the next five years also intend to stay in the rural villages and small towns. Understandably, the intention to stay in the rural areas and small towns is slightly higher among those who would like to work in the agriculture, food and fishery sector and manufacturing and craftsmanship jobs such as metal and woodworks.

On the contrary, perhaps as a big opportunity for policymakers in sub-Sharan Africa to design policy interventions to influence youth rural out-migration, slightly above half of the surveyed

youth are undecided about their migration decisions in the next five years. They responded that their decisions either to stay in rural areas and small towns or to migrate to cities depend on conditions. This means that improvements in rural infrastructure such as electricity and roads, and access to technologies and public services may be critical factors for these youth to influence their migration decisions. Possibly, while improvements in these conditions could help to retain aspired rural youth in rural areas and small towns, they may migrate to urban centers otherwise. This can have extensive consequences for origin areas and communities. While migrants often tend to be better educated, to whom migration could be an economically meaningful decision; this may impede the development of rural (origin) areas and the agriculture sector. Conversely, unless governments invest in rural infrastructure, due to lower labor productivity and lack of innovation those youth who stay behind may also be trapped in chronic poverty and underdevelopment. The relation could be even more complicated and social costs are higher if those who out-migrated to cities fail to find better rewarding jobs in the urban areas. Therefore, in this regard, identifying the associations and causality between aspirations at one stage of life and later migration decisions could be helpful to explore the entry points to support youth and societal developments in rural sub-Sharan Africa.

Figure 3 also presents the youths' current residential areas and aspired migration destinations in five years of time. The findings, according to their current residential areas, are also consistent with the previous results, in that, about half of the rural youths' migration decisions in the coming five years depend on conditions. This shows that no matter what types of sectors youth preferred to work, job attributes they consider in the occupational preferences, and their current residential locations based on urbanization level, future migration decisions depend on how governments and policymakers in sub-Saharan Africa understand the problems faced by rural youth and effectively address these problems. Rural youth need better infrastructure, technologies, better-paying jobs and ability to invest. In the next section, the study discusses the factors that are associated with decisions to migrate to cities and to stay in rural areas and small towns than being undecided.

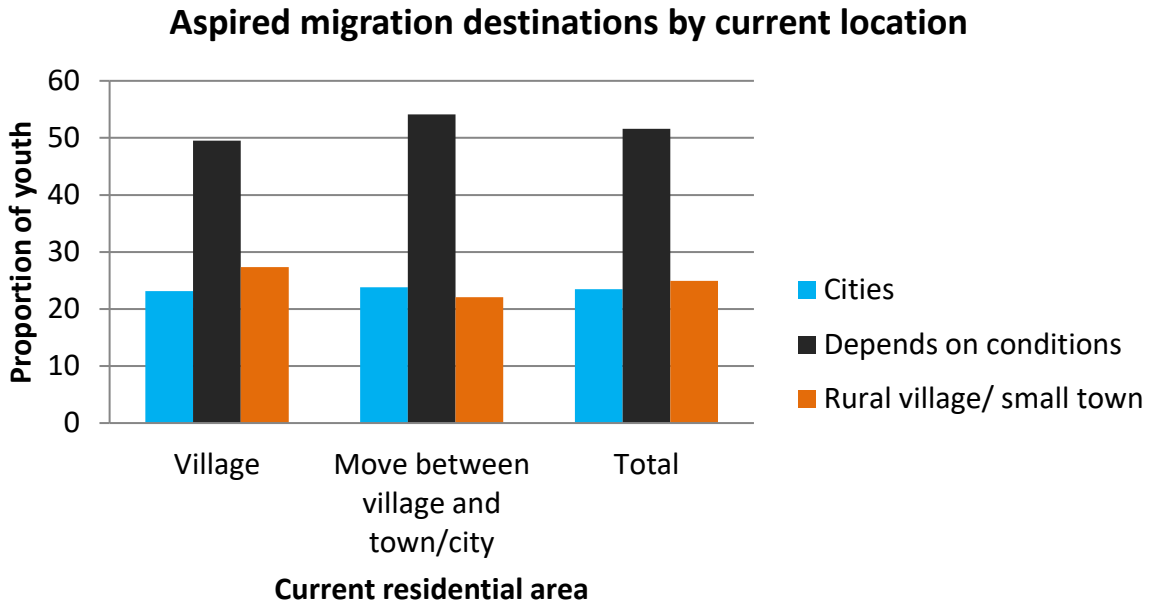

Figure 3: The distributions of migration aspirations of youth to cities, staying in rural villages/ small towns or being undecided based on their current residential areas

4.3 Predictors of youth migration aspirations in sub-Saharan Africa

4.3.1 Who stays behind and who migrates

Below, the study presents multinomial logit regression model results on the predictors of youth migration aspirations (proxy by intention or the desire to migrate) based on a cross-country youth survey. The outcome variable has three parts: the intention to migrate to cities, staying in the rural villages and small towns, and being undecided about their intentions to migrate—their migration decisions in five years of time will depend on conditions. The estimates use the latter as a base outcome to study the relative risk ratios for the first two outcomes: Aspiring to migrate to cities and staying in rural and small towns, versus being undecided. The models control for youth-related factors and national and rural conditions. Standard errors are clustered at the country level.

The multinomial logit model has a stringent assumption that the outcome categories for the model have the property of independence of irrelevant alternatives (IIA). It states that the inclusion or exclusion of categories does not affect the relative risks associated with the regressors in the remaining categories. Under the IIA assumption, there should be no systematic change in the coefficients if we exclude one of the outcomes from the model (Hausman & McFadden, 1984). Accordingly, Hausman test (Hausman test and suest-based Hausman tests) results showed strong evidence that we fail to reject the null hypothesis that differences in coefficients are not systematic. This means that the model meets the assumption of no systematic change in the coefficients if a category is excluded. It should also be noted that the results must be interpreted as associations, not causation due to a potential

endogeneity problem arising from unobserved confounders such as youth's innate abilities and motivations that influence migration decisions and some of the explanatory variables, obscuring any causal links between the left and right-hand side variables.

Columns (1) and (2) show the predictors for migrating to cities and staying in rural areas versus 'being undecided' in five years of time; before country-specific variables are controlled for. The results in columns (1) and (2) are also robust for controlling country-specific factors, as presented using columns (3) and (4). While occupational preferences have been strong predictors of the aspirations to migrate to cities (positively), and to some extent to stay in rural areas and small towns, the results show that compared to those who preferred to work in farming, food, and fishery sector, those who would like to work in communications, transportation, and service sectors, manufacturing, craftsmanship, and government jobs are more likely to aspire to migrate to cities than being undecided.

Table 3: Predictors of intentions to migrate to cities or staying in rural villages and small towns in five years of time–Multinomial logit model

Variables	(1) Migration to Cities	(2) Staying in villages/ towns	(3) Migration to Cities	(4) Staying in villages/ towns
Youth age group				
Age 25-35 years[1]	-0.170**	-0.0593	-0.228***	-0.0880
	(0.0702)	(0.0667)	(0.0627)	(0.0721)
Youth is male	0.109	0.112**	0.116	0.115**
	(0.0743)	(0.0560)	(0.0770)	(0.0571)
Job preferences[2]				
Communication, Transport and	0.289***	-0.150**	0.278***	-0.159**
Services	(0.0919)	(0.0686)	(0.0843)	(0.0740)
Government jobs	0.364***	-0.0360	0.376***	-0.0608
	(0.0929)	(0.0774)	(0.0891)	(0.0768)
Manufacturing/ Craftsmanship	0.234***	0.0519	0.216**	0.0683
	(0.0900)	(0.0820)	(0.0989)	(0.0853)
Mining	0.276	-0.0259	0.229	-0.0947
	(0.182)	(0.120)	(0.143)	(0.107)
Perception of income situation[3]				
Not sufficient at all	-0.0867	-0.348***	-0.116	-0.363***
	(0.0727)	(0.0486)	(0.0812)	(0.0628)
Sufficient	0.708***	0.469***	0.622***	0.421***
	(0.101)	(0.0651)	(0.0935)	(0.0692)
Sufficient but temporary	0.191**	0.135*	0.137**	0.104

[1] Age Group reference group: 18-24 years old,
[2] Job preference categorized reference group: Agriculture/Food and Fishing
[3] Income Situation reference group: Not sufficient

shortages	(0.0743)	(0.0792)	(0.0674)	(0.0806)
Family ties is important to me	0.158*	-0.0842	0.167**	-0.0821
	(0.0833)	(0.117)	(0.0730)	(0.0909)
Agricultural Productivity[1]				
High	0.490***	0.437***	0.398***	0.388***
	(0.0789)	(0.0778)	(0.0557)	(0.0704)
Very high	-0.0779	-0.0559	-0.147	-0.0767
	(0.115)	(0.0734)	(0.103)	(0.0741)
Low	1.224***	0.481***	1.070***	0.395***
	(0.104)	(0.116)	(0.119)	(0.108)
Very low	-0.122	-0.0200	-0.188*	-0.00790
	(0.119)	(0.117)	(0.101)	(0.0978)
Prefers a job if it has good working condition.	0.262	-0.0879	-0.0163	-0.205
	(0.327)	(0.153)	(0.237)	(0.159)
Prefers a job if it has good wage.	-0.117	0.115	0.0465	0.207*
	(0.325)	(0.144)	(0.246)	(0.124)
Prefers farming if it uses technology.	0.259**	0.0543	0.228**	0.0523
	(0.122)	(0.0792)	(0.0909)	(0.0740)
Prefers farming if training is provided.	0.0304	0.0489	0.0270	0.0186
	(0.0757)	(0.0921)	(0.0750)	(0.0893)
Prefers farming if I get access to land.	0.0536	0.123	-5.40e-05	0.0751
	(0.0733)	(0.0898)	(0.0667)	(0.0847)
Prefers farming if it pays well.	-0.0225	-0.0956	0.0266	-0.0825
	(0.0929)	(0.111)	(0.0721)	(0.0981)
National conditions				
Share of rural population with access to electricity (Infrastructure)			0.0193**	0.00807
			(0.00902)	(0.00620)
Crop production index (2004-2006 = 100) (Agriculture)			-0.0229***	-0.00882**
			(0.00461)	(0.00421)
Mobile cellular subscriptions (per 100 people) (Tech penetration)			-0.0262***	-1.10e-05
			(0.00583)	(0.00492)
Share of national population living below poverty line ($1.90)			-0.00176	0.00924**
			(0.00398)	(0.00404)
Rural population growth rate (race to access resources)			-0.354***	-0.115
			(0.128)	(0.124)
Constant	-1.613***	-0.796***	2.729***	-0.0309
	(0.210)	(0.168)	(0.839)	(0.686)
Observations	10,000	10,000	10,000	10,000

Note: Robust standard errors are in parenthesis and clustered at the country level.
Reference outcome of Migration intention: Depends on conditions; Significance levels: *** p<0.01, ** p<0.05, * p<0.1. The data for the analyses come from an SMS-based multi-country survey.

[1] Agricultural Productivity reference group: Average

Similarly, those who preferred working in communication, transport, and Services are less likely to stay in rural areas and small towns compared to being undecided. Exponentiating the estimates, for instance, it shows that those who prefer working in communication, transport, and service sectors have 1.335 times more relative risk of migrating to cities than the undecided youth. Moreover, moving from those who perceived that their income situations are 'insufficient' to those who think that it is 'not sufficient at all' the likelihoods of staying in rural areas reduces than being undecided whereas those who have better perceptions about current income may equally likely aspire to migrate to cities and staying in rural areas than being undecided. Interestingly, both high and low agricultural productivities compared to the average are also strongly associated with the decisions to aspire to migrate to cities and staying in rural areas than being undecided. Perhaps, while, for instance, high agricultural productivity, through its income effect to finance migration costs and the desire for urban life could increase the aspirations to move to cities, an increased income through substitution effects could also encourage youth to take up rural non-farm activities, hence youth prefer staying in rural areas and small towns.

The cross-country youth survey provides evidence that while most rural youth aged 18-35 years preferred working in non-farm economic sectors including communication, transport, and services and government jobs, mainly those who currently work in farming, food, and self-employment also preferred to continue working in the agriculture, food, and fishery activities. Further, while it is also revealed that while above half of the youth, regardless of their occupational preferences, are undecided about their migration desires, the econometric results suggest that compared to those who preferred working in agriculture, food and fishery sectors, those who preferred to work in non-farm jobs such as communication, transport and services, government jobs, and manufacturing tend to aspire to leave rural villages and migrate to cities. This indicates that policy interventions to support rural non-farm sectors could be critical in influencing the flight of youth out of rural areas where the efforts to reduce poverty, achieve food security, and ensure inclusive and sustainable developments are most likely to be determined. However, the mixed evidence that those who perceive their current incomes are sufficient tend to stay in rural areas and also migrate to cities compared to youths with insufficient current income situation than being undecided about their future migration decisions suggest that anti-poverty policy measures that simply improve the income of youth might have unpredictable and unintended consequences on the migration of rural youth. While the latter means that those who may leave rural areas are likely to be economically better-off compared to the left behind youth, similar youth could also be found in rural areas.

4.3.2 Aspirations to migration to cities

Considering only those who aspire to migrate to cities and staying in rural and small towns, that is, excluding the 'undecided'[1] youth about their future migration, Table 4 shows the probability of migration to cities in the long-term versus staying in rural areas and small towns. The results show that aspirations to migration to cities tend to decline with age, mainly when national conditions are included. It is found that compared to youth aged 18-24 years, those 25-35 years old youth have a 7.11 % lower probability of the intention to migrate to cities in five years of time than staying in rural areas or small towns. Perhaps, when youth get older, they tend to have stronger family ties in rural areas and less interested in leaving their communities.

Table 4: Predictors of the intention to out-migrate to cities in five years of time–Probit model

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	Pooled	Pooled	Females	Females	Males	Males
Youth age group						
Age 25-35 years[2]	-0.0639	-0.0751**	-0.0595	-0.0818*	-0.0789	-0.0792
	(0.0399)	(0.0375)	(0.0478)	(0.0474)	(0.0627)	(0.0580)
Youth is male	-0.00365	-0.000589				
	(0.0346)	(0.0352)				
Job preferences[3]						
Communication, Transport and	0.280***	0.272***	0.242***	0.236***	0.310***	0.302***
Services	(0.0580)	(0.0534)	(0.0758)	(0.0750)	(0.0793)	(0.0718)
Government jobs	0.254***	0.279***	0.184**	0.213**	0.329***	0.348***
	(0.0605)	(0.0499)	(0.0931)	(0.0836)	(0.0831)	(0.0831)
Manufacturing/ Craftsmanship	0.122*	0.104*	-0.122	-0.126	0.327***	0.305***
	(0.0629)	(0.0567)	(0.100)	(0.111)	(0.124)	(0.111)
Mining	0.193**	0.188**	0.275**	0.275**	0.142	0.136
	(0.0771)	(0.0728)	(0.111)	(0.112)	(0.0934)	(0.0831)
Perception of income situation[4]						
Not sufficient at all	0.162***	0.153***	0.135*	0.116*	0.195***	0.193***
	(0.0484)	(0.0451)	(0.0748)	(0.0703)	(0.0515)	(0.0493)
Sufficient	0.147**	0.127*	0.147*	0.128	0.168*	0.145
	(0.0662)	(0.0661)	(0.0783)	(0.0788)	(0.0891)	(0.0906)
Sufficient but temporary	0.0355	0.0146	0.0190	-0.00341	0.0704	0.0466
shortages	(0.0354)	(0.0382)	(0.0550)	(0.0598)	(0.0496)	(0.0499)

[1] The Wald tests for combining alternatives (N=10,000) suggests that no categories or responses could be combined. Thus, in order to identify the factors associated with the decisions to migrate to cities and stay in rural villages, we exclude the 'undecided' youth from the analysis.

[2] Age Group reference group: 18-24 years old,

[3] Job preference categorized reference group: Agriculture/Food and Fishing

[4] Income Situation reference group: Not sufficient

Family ties is important to me	0.142***	0.135***	0.177**	0.167**	0.113**	0.103*
	(0.0532)	(0.0503)	(0.0858)	(0.0834)	(0.0464)	(0.0534)
Agricultural Productivity[1]						
High	0.0362	0.00552	0.0478	0.0246	0.0306	-0.00646
	(0.0564)	(0.0547)	(0.0854)	(0.0882)	(0.0813)	(0.0775)
Very high	-0.0155	-0.0541	-0.0431	-0.0699	0.0164	-0.0364
	(0.0611)	(0.0529)	(0.0823)	(0.0811)	(0.0884)	(0.0831)
Low	0.469***	0.421***	0.369***	0.329***	0.575***	0.517***
	(0.0970)	(0.0876)	(0.123)	(0.117)	(0.121)	(0.109)
Very low	-0.0617	-0.121*	-0.0152	-0.0654	-0.100	-0.166**
	(0.0900)	(0.0733)	(0.130)	(0.122)	(0.0954)	(0.0791)
Prefers a job if it has good working condition.	0.185	0.0871	0.347	0.263	0.0141	-0.0953
	(0.198)	(0.138)	(0.253)	(0.179)	(0.201)	(0.185)
Prefers a job if it has good wage.	-0.107	-0.0623	-0.322	-0.308*	0.135	0.207
	(0.176)	(0.123)	(0.228)	(0.164)	(0.176)	(0.160)
Prefers farming if it uses technology.	0.126**	0.113**	0.0558	0.0408	0.190**	0.179**
	(0.0586)	(0.0474)	(0.0697)	(0.0549)	(0.0818)	(0.0779)
Prefers farming if training is provided.	-0.00973	0.00970	-0.125*	-0.105*	0.0992	0.123
	(0.0462)	(0.0416)	(0.0648)	(0.0594)	(0.0853)	(0.0903)
Prefers farming if I get access to land.	-0.0441	-0.0459	-0.0228	-0.0327	-0.0701	-0.0615
	(0.0595)	(0.0487)	(0.0798)	(0.0634)	(0.0902)	(0.0872)
Prefers farming if it pays well.	0.0395	0.0690	-0.0745	-0.0512	0.155**	0.197***
	(0.0520)	(0.0458)	(0.0838)	(0.0795)	(0.0695)	(0.0704)
National conditions						
Share of rural pop. with access to electricity (Infrastructure)		0.00725		0.00719		0.00788
		(0.00552)		(0.00527)		(0.00650)
Crop production index (2004-2006 = 100) (Agriculture)		-0.0083**		-0.010***		-0.0070
		(0.0035)		(0.0026)		(0.0046)
Mobile cellular subscriptions (per 100 people) (Tech penetration)		-0.016***		-0.015***		-0.017***
		(0.0034)		(0.0036)		(0.0039)
Share of national pop. living below poverty line ($1.90)		-0.0064**		-0.008***		-0.00450
		(0.0026)		(0.0025)		(0.0032)
Rural pop. growth rate (race to access resources)		-0.139		-0.0869		-0.188
		(0.0929)		(0.0810)		(0.115)
Constant	-0.509***	1.605***	-0.398***	1.800***	-0.639***	1.371**
	(0.106)	(0.509)	(0.142)	(0.457)	(0.106)	(0.659)
Observations	4,840	4,840	2,363	2,363	2,477	2,477

Note: Standard errors are in parenthesis and clustered at the country level. The models use the SMS-based cross-country survey data. Significance levels: *** p<0.01, ** p<0.05, * p<0.1.

Furthermore, compared to those who preferred working in agriculture, food and fishery sectors, those who would like to work in communication, transport and services, government

[1] Agricultural Productivity reference group: Average

jobs, manufacturing, and mining have a higher probability of migration to cities than staying in rural areas and small towns (Model 1). While this seems to be a highly expected pattern, the results also signal that youth seem to perceive that those who would like to work in non-farm sectors have to migrate to cities. In addition, the intention to migrate to cities than staying in rural areas and small towns have mixed relationships with satisfaction in current income situations which could also mean that those who may migrate are likely to be both economically well to do and those who aren't. Partly corroborating this income argument, it is showed that moving from average to low agricultural productivity areas, youth tend to out-migrate to cities than staying in rural areas or small towns.

What is more, national-level conditions also play useful roles in youth's decisions to migrate to cities or stay in rural areas and small towns. The result (Model 2) shows that a 1% increase in crop production index is associated with a reduction in youth migration aspirations to cities by about 0.83% (also significant among females when disaggregated) among rural African youths. This suggests that, although the correlation is inelastic, increased in crop production index, an indicator of agricultural production, may make farming and rural areas more attractive to rural youth. In addition, modern technological penetration seems to be also negatively associated with the intention to migrate to cities than staying in rural areas and small towns. Results show that a 1% increase in the share of Mobile cellular subscriptions is associated with a reduction in the probability of rural youth with the intention to migrate to cities by 1.6% (1.5% among females and 1.7% among males). This suggests that access to technologies in rural areas might contribute many rural youth to aspire to stay and work in rural areas and small towns. The share of national population living below the poverty line ($1.90) is also negatively associated with rural youth's intention to migrate to cities. Perhaps, national poverty, manifested as poor urban social services and infrastructure and widespread urban youth unemployment or precarious jobs, may make migrating to cities less attractive to the rural youth.

4.4 Adolescents' perceptions of farming and aspirations in southwestern Ethiopia

Focusing on Ethiopia, in this section, the study uses the JLFSY dataset, which includes adolescents (aged 13-17 years) who were revisited after four years from rural villages, small towns, and Jimma city in southwestern Ethiopia. The survey asks adolescents several questions to investigate their perceptions of farming and pre-requisites to become a farmer / farm laborer. Further, the study examines the aspirations formation during their adolescent period and migration statuses after four years (when aged 17-21 years), considered to be youth in this specific survey, unlike the earlier definition (aged 18-35) in the large-scale sub-

Saharan Africa survey. Table 5 presents their key characteristics, households, heads, and their distribution based on the urbanization levels.

4.4.1 Basic profiles of adolescents

The results show that about 51% of the surveyed adolescents are males and have attained about 5 years of schooling. With about 28.7% of work participation and 91% of adolescents attended schooling during the baseline survey, it is noted that school participation is higher in the survey areas compared to the rural average in Ethiopia. Furthermore, it is also found that one in every two adolescents is a member of clubs, associations, and groups where they may learn social skills, build networks, and form their aspirations on education and jobs for later in life. In addition, about 16% of adolescents had adult relatives living in Addis Ababa, which may influence their educational and occupational aspirations and migration decisions.

Table 5: Basic characteristics of adolescents and household heads

Variables	Obs.	Mean (Std. Dev.)	Min	Max
Adolescent is male	2,109	0.509(0.500)	0	1
Education adolescent attained (years)	2,084	5.161 (2.655)	0	13
Number of groups the adolescent belongs to	2,109	0.496(0.695)	0	2
Adolescent currently works in a job	2,084	0.287(0.452)	0	1
Adolescent currently attending school	2,084	0.910(0.286)	0	1
Has an adult relative in Addis Ababa	2,109	0.161(0.368)	0	1
Can have a job that parents do not approve of	2,084	0.684(0.465)	0	1
Never missed class in the last 12 months*	2,084	0.605(0.489)	0	1
Age of the head (years)	2,109	49.404(12.303)	16	98
Household head is male	2,109	0.821(0.384)	0	1
Years of schooling head completed	2,109	3.991 (4.453)	0	18
Head can read and write other than local language	2,109	0. .633(0.482)	0	1
Household size	2,109	7.522(2.539)	1	20
Proportion of adolescents in the households	2,109	0.228(0.105)	0.056	1
Out-migrated (left the village) after baseline	2,109	0.305(0.4610)	0	1
Household owns radio or TV	2,109	0.638(0.481)	1	0
Multiple response variables		Categories	Freq.	%
Religious affiliation (Obs.: 2084)		Muslims	1268	60.84
		Orthodox Christian	690	33.11
		Others	126	6.05
Adolescents' age group (Obs.: 2109)		13-14 years	938	44.48
		15-17 years	1171	55.52
Urbanization level (Obs.: 2109)		City (Jimma)	753	35.7
		Small towns	599	28.4
		Rural areas	757	35.89

General reported health condition (Obs.: 2084)	Very good	1693	81.24
	Good	252	12.09
	Moderate or bad	139	6.67
Household head's marital status (Obs.: 2109)	Single, divorced	428	20.29
	Married/ monogamy	1196	56.71
	Married/ polygamy	485	23.0
Importance of spouse's level of education (Obs.: 2084)	Very important	1345	64.54
	Important	491	23.56
	Somehow important	158	7.58
	Not important	90	4.32
Feeling tired or lacking energy in last month (Obs.: 2084)	Very often	57	2.74
	Sometimes	412	19.77
	Rarely	323	15.50
	Never	1292	62.00

Note: Descriptive results are generated using JLFSY dataset. *Those who are not attending school currently (3.5%) are grouped under missing classes.

Household heads, averaged aged 49 years, attained about 4 years of formal schooling, and about 82% of the households were headed by males. About 63.3% of heads also read and write other local languages than Oromifa such as Amharic, suggesting that household heads may have access to various information outlets through which adolescents' aspirations formation could also be affected. With the average household size of 7.5 persons, which is above the national average of less than five people, one in every five household members is an adolescent aged between 13 and 17 years. It is also found that 63.8% of households own either radios or television, which could serve as sources of information.

As indicated in the data description section, adolescents were distributed proportionally between rural areas (35.89%), small towns (28.4%) and Jimma city (35.7%) and about 61% and 33% were Muslims and Orthodox Christians, respectively. Moreover, while about 81% of adolescents rate their general health as very good, about 12% and 7% reported generally good and moderate or bad health conditions, respectively. It is expected that health conditions may significantly affect adolescents' perceptions of rural life and farming, their educational and occupational aspirations, and migration decisions later in life. Related to this but specific to the adolescents' state of health in the last month, about 22.5% said that very often or sometimes they felt tired or lacked energy in the previous 30 days which may affect short-term activities such as school attendance, hence their education aspirations. Further, the distribution of adolescents based on 'how spouse's education is important to them' is as follows: 65.54% think it is very important; 23.56% important; 7.58% somehow important; and 4.32% not important.

The table also shows the migration of adolescents after the baseline survey in 2005-2006. Every attempt was made to interview all those who moved within the study areas between

survey rounds. As a result, excluding all refusals and deceased members, migrant adolescents in this study are those who were reported by the household as out-migrated or left the village as of the 2008 household survey and those who were not found in the villages during the third round adolescent survey, conducted in 2009. Accordingly, a total of 643 adolescents, 30.5%, have out-migrated from the villages, towns, and Jimma city in the four-year period. However, it has to be noted that although the data did not explicitly capture the reasons to migration and migration destinations, given the high level of school participation at baseline, migration due to schooling may have been one of the main reasons and accordingly adolescents who were residing in villages and towns may have to migrate to nearby other towns and cities to attend their schooling. Thus, although evidence on these issues would have been highly insightful, this study devotes to migration decisions without further exploring the migration reasons and destinations.

4.4.2 Perceptions of farming

One of the most useful aspects to understanding occupational aspirations, life goals, and preferences of rural youth and their efforts and investments toward attaining these outcomes is to explore their perceptions of farming life and the requirements to become a farmer or farm laborer. In this study, adolescents' perceptions of farming has been explored involving their (1) understandings about what level of education is required to become a farmer/ farmworker, the income that a farmer/farmworker might earn, and if they think that a farmer/farmworker can sufficiently support own household; and (2) perceptions of the pre-requisite to become a farmer/ farmworker which shows the importance of education, social networking, effort, and gender in farming or to become a farmer. Indices were generated where higher values correspond to better perceptions of adolescents towards farming, farm earnings and the farmworkers' wellbeing, and higher regards adolescents give to education, social networking, effort, and gender in farming or to become a farmer.

Table 6 shows that about 51% of adolescents in rural Ethiopia, in general, have negative perceptions to farming. More specifically, while 54.65% have negative perceptions about faming life/ wellbeing, about 48.08% have negative perceptions towards the prerequisites to become a farmer or farm laborer. On the contrary, only 5.52% of adolescents have high regards to farming life and none thinks that farming occupation needs education, networking, and effort.

Table 6: Adolescents' perceptions to farming in southwestern Ethiopia

	Perception to farm life/ wellbeing		Perception to prerequisite to farming		General perceptions to farming	
	Freq.	%	Freq.	%	Freq.	%
Negative perception	1139	54.65	1002	48.08	1061	50.91
Low perception	589	28.26	725	34.79	849	40.74
Medium perception	241	11.56	357	17.13	155	7.44
High perception	115	5.52	0	0	19	0.91
Total	2084	100	2084	100	2084	100

Note: While negative perceptions to farming constitute those with indices lower than zero, low to high perceptions are categorized with one standard deviation difference as low [0, 1], medium (1, 2] and high perception includes indices above 2. General perception is a simple average of the first two dimensions.

Next, in order to identify the predictors of adolescents' farming perceptions (based on the components) and according to urbanization levels (city, towns and rural villages), the perceptions indices regressed on a set of adolescent-, head- and village-related variables. Results presented in Table 7 show that male adolescents, compared to female adolescents aged 13-14 years, have better perceptions of farming life and attaches higher regards to education, social networking, and effort to become a farmer or work as a farm laborer. For example, the findings indicate that being a male adolescent aged 13-14 years is associated with better perceptions of farming livelihood and wellbeing and considers education, networking and effort as important pre-requisites to becoming a farmer by about 15.7% (model 1) and 50.0% (model 5), respectively compared to female adolescents aged 13-14 years. The values are robust but vary in extent according to location. In this regard, interestingly, male adolescents residing in cities have much better perceptions than the pooled average about a farmer/farm life and lower than the general average about the pre-requisites to become a farmer, although it is positive and significant compared to the female adolescents aged 13-14 years.

Table 7: Correlates to adolescents' perceptions of farming by the level of urbanization, Southwestern Ethiopia

	Perceptions of farming livelihood and wellbeing				Perceptions of pre-requisites to become a farmer			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Variables	Pooled	City	Small towns	Villages	Pooled	City	Small towns	Villages
Gender and age interaction[1]								
Female & aged 15-17 years	0.0315	0.182	-0.0510	-0.0232	0.0110	-0.223**	0.0367	0.179*
	(0.0630)	(0.123)	(0.114)	(0.0916)	(0.0642)	(0.113)	(0.124)	(0.102)
Male & aged 13-14 years	0.157***	0.303**	0.172*	0.0179	0.500***	0.230*	0.720***	0.588***
	(0.0603)	(0.124)	(0.102)	(0.0909)	(0.0643)	(0.129)	(0.117)	(0.0976)
Male & aged 15-17 years	0.212***	0.539***	0.105	0.00436	0.533***	0.281**	0.742***	0.595***
	(0.0631)	(0.133)	(0.112)	(0.0880)	(0.0645)	(0.122)	(0.119)	(0.103)
Highest grade completed	0.0224**	0.0164	0.0336	0.0178	0.00850	0.0136	0.0261	0.00813
	(0.0110)	(0.0218)	(0.0217)	(0.0155)	(0.0114)	(0.0206)	(0.0234)	(0.0169)
Number of club membership	0.0348	0.0497	0.0325	0.0354	0.0400	0.0401	0.0108	0.0257
	(0.0343)	(0.0572)	(0.0622)	(0.0599)	(0.0309)	(0.0525)	(0.0549)	(0.0529)
Religion[2]								
Orthodox	-0.0978*	-0.00903	-0.0806	-0.339***	0.00585	0.0487	-0.0477	0.0601
	(0.0537)	(0.0892)	(0.0862)	(0.0801)	(0.0528)	(0.0858)	(0.0790)	(0.117)
Other	-0.0284	0.169	-0.136	-0.297**	-0.105	-0.0197	-0.0279	-0.505**
	(0.102)	(0.167)	(0.148)	(0.132)	(0.104)	(0.148)	(0.184)	(0.228)
Has autonomy to choose a job	-0.276***	-0.155*	-0.375***	-0.332***	0.142***	0.0334	0.243***	0.225***
	(0.0504)	(0.0901)	(0.0988)	(0.0741)	(0.0473)	(0.0830)	(0.0916)	(0.0745)
Currently works in a job	0.0941**	-0.00957	0.179**	0.0693	-0.184***	-0.177*	-0.129	-0.220***
	(0.0469)	(0.106)	(0.0869)	(0.0643)	(0.0491)	(0.107)	(0.0855)	(0.0738)
Adolescent's general health[3]								
Good	0.186***	0.255**	0.222*	0.0356	-0.158**	-0.185	-0.133	-0.136
	(0.0643)	(0.122)	(0.113)	(0.0964)	(0.0647)	(0.117)	(0.121)	(0.100)
Moderate or bad	0.194**	0.290*	0.380*	-0.0656	-0.229***	-0.424**	0.0490	-0.185
	(0.0936)	(0.167)	(0.201)	(0.132)	(0.0855)	(0.172)	(0.131)	(0.119)
Parental wealth status[4]								
2nd quartile	-0.0455	-0.0363	-0.0636	-0.0423	0.118**	0.132	0.0478	0.162*
	(0.0608)	(0.112)	(0.107)	(0.0972)	(0.0601)	(0.110)	(0.107)	(0.0968)
3rd quartile	-0.0177	0.0765	0.0323	-0.159*	0.0834	0.137	0.00908	0.0885
	(0.0651)	(0.125)	(0.122)	(0.0932)	(0.0641)	(0.119)	(0.114)	(0.101)

4th quartile	0.00747	0.147	-0.00644	-0.0901	0.109*	0.128	0.144	0.0808
	(0.0646)	(0.120)	(0.119)	(0.0948)	(0.0621)	(0.107)	(0.115)	(0.101)
Age of the head (years)	0.000536	0.000893	0.00103	-0.00273	0.00303	0.00224	0.00228	0.00367
	(0.00204)	(0.00385)	(0.00378)	(0.00301)	(0.00199)	(0.00333)	(0.00375)	(0.00359)
Household head is male	-0.00300	0.148	-0.123	-0.254	-0.249***	-0.314**	-0.0768	-0.166
	(0.0956)	(0.139)	(0.185)	(0.206)	(0.0926)	(0.129)	(0.173)	(0.219)
Head's marital status[5]								
Married, mono	-0.0114	-0.103	0.0287	0.171	0.129	0.193	-0.110	0.236
	(0.0932)	(0.144)	(0.189)	(0.185)	(0.0876)	(0.124)	(0.171)	(0.194)
Married, poly	-0.176*	-0.255*	-0.183	0.0665	0.125	0.294**	-0.167	0.184
	(0.0941)	(0.143)	(0.194)	(0.189)	(0.0952)	(0.139)	(0.185)	(0.210)
Head's completed schooling (years)	0.00237	-0.00106	0.00273	-0.0133	0.0140**	0.0128	0.0156	0.00993
	(0.00677)	(0.0113)	(0.0109)	(0.0146)	(0.00660)	(0.00998)	(0.0116)	(0.0153)
Proportion of adolescents in the	-0.214	-0.396	-0.792**	0.514	0.0380	-0.0542	0.314	-0.0363
households	(0.218)	(0.362)	(0.382)	(0.353)	(0.220)	(0.344)	(0.409)	(0.406)
Urbanization level[6]								
Small towns	-0.245***				-0.0905			
	(0.0584)				(0.0564)			
Rural villages	-0.394***				0.0351			
	(0.0725)				(0.0715)			
Constant	0.211	-0.131	0.153	0.189	-0.510***	-0.253	-0.834***	-0.766***
	(0.163)	(0.300)	(0.296)	(0.248)	(0.155)	(0.250)	(0.285)	(0.271)
Observations	2,084	746	589	749	2,084	746	589	749
R-squared	0.082	0.062	0.096	0.071	0.087	0.067	0.145	0.113

Note: Regression results are based on JLFSY dataset from southwestern Ethiopia; hence adolescents are those aged 13-17 years.
Robust standard errors in parentheses; Significance levels: *** p<0.01, ** p<0.05, * p<0.1. Multicollinearity tests (VIF) are conducted for pooled OLS regression models and that there are no strong linear correlations between control variables.
Reference groups: [1]Female & aged 13-14 years, [2]Muslim, [3]very good, [4]1st quartile, [5]Single and, [6]Cities

While educational attainment of adolescents for the pooled sample positively and significantly associated with perceptions on farm wellbeing, adolescents' perceived autonomy in choosing an occupation, which might not be approved by parents, and being resided in rural areas and small towns strongly and negatively correlate with perceptions of farming life. In contrast, adolescents' autonomy to choose a job is positive and significantly associated with giving high regards to education, networking and efforts to become a farmer or farm laborer. Accordingly, compared to those who believe that they cannot have an occupation that is not approved by their parents, owning an autonomy to choose a job that is not approved of by parents (independent of parental influence) is associated with a lower perceptions about farming wellbeing and livelihood by about 27.6% and also more likely (14.2%) to think that one needs education, networking and effort to become a farmer. Looking at it from reported general health, having moderate or bad health condition is positively and negatively associated with the perceptions of farming life and pre-requisites to be a farmer, respectively, compared to those with 'very good' health condition.

The labor market participation of adolescents is another important variable strongly associated with perceptions of farming livelihoods and wellbeing and pre-requisite to becoming a farmer. We find that being a working adolescent is associated with an increase in positive perceptions of farming livelihoods and wellbeing by 9.41% (model 1). On the contrary, we find that being a working adolescent is associated with a reduction in the roles of education, social networking, and effort to become a farmer by 18.4% (model 5).

However, parent wealth differentials, in general, seem to have insignificant associations with the perceived wellbeing and livelihood of a farm laborer. Still, compared to those from a lower wealth quartile, adolescents from the second quartile and fourth quartile give high regard to the roles of education, social networking, and effort. The study also explored if perceptions of farming vary by adolescents' location. It was found that compared to adolescents residing in cities, being from nearby small towns and adjacent rural areas to these towns are associated with reductions in positive perceptions of farming livelihood and wellbeing by about 24.5% and 39.4%, respectively. However, the associations between locations and adolescents' perceptions of the pre-requisites to becoming a farmer/ farm laborer are statistically insignificant.

4.4.3 Educational aspirations

Adolescents were asked "What is the highest grade you think you will complete?" in order to understand their educational aspirations to be achieved later in life. The responses to this direct question are reported using Table 8. The results show that while about 95% of adolescents would like to attain tenth grade and above levels of education, a minority (2.26%) aspired grades less than 9 years of schooling while 3.69% have no intention at all to attend schooling and complete some grades. This shows that, perhaps due to their current educational status (participation and

attainment), adolescents seem to have higher education aspirations which could also be a potential indicator of the occupational conditions that they would like to have.

Table 8: Aspired educational levels of adolescents during the baseline survey (2005)

	Pooled (n=2084)	Females (n=1028)	Males (n=1056)	Mean
Aspired education levels	Percent	Percent	Percent	*t*-test
0 years (no aspired schooling)	3.69	3.79	3.6	0.785
Less than 9 years	2.26	1.95	2.56	0.363
10 to 12 years	37.67	35.7	39.58	0.094*
Above 12 years of schooling	56.38	58.56	54.26	0.03**
Years of schooling (average)	13.06	12.98	13.1	0.345

Significance levels: *** P<0.01, ** P<0.05, * P<0.1

Looking at the above results by gender, the study finds that there are no significant differences between females and males in their educational aspirations when it comes to aspiring below nine years of schooling. In contrast, we find that while more male adolescents than their female counterparts aspire to attain 10 to 12 years of schooling, relatively more females than males would like to attain above 12 years of education levels which includes joining university and college education. However, these differences disappear when we consider the average grade aspired by adolescents according to gender. Regardless of gender, adolescents aspired to join university and attain one more year of education. To complement this discussion, the section below presents the occupational aspirations, also disaggregated by adolescent gender.

4.4.4 Occupational aspirations

Unlike the findings from the SMS-based multi-country survey of youth, as discussed in the earlier section, the current survey of adolescents from rural southwestern Ethiopia has shown that only 2.16% of the respondents aspired to work as farmers or farm laborers (without considering skill and the farming nature as subsistence or commercial). Instead, about 51.87% of adolescents would like to be medical doctors later in life. For the fact that the respondents in rural Ethiopia were aged 13-17 years and more than 90% were attending schools during the baseline survey, it is highly likely that their occupational aspirations could be influenced by their peers and could also be adjusted as they grow up. The next majority, 17.32%, also would like to be teachers (at different levels), 8.59% others and 6.24% would like to work in non-farm jobs when adults.

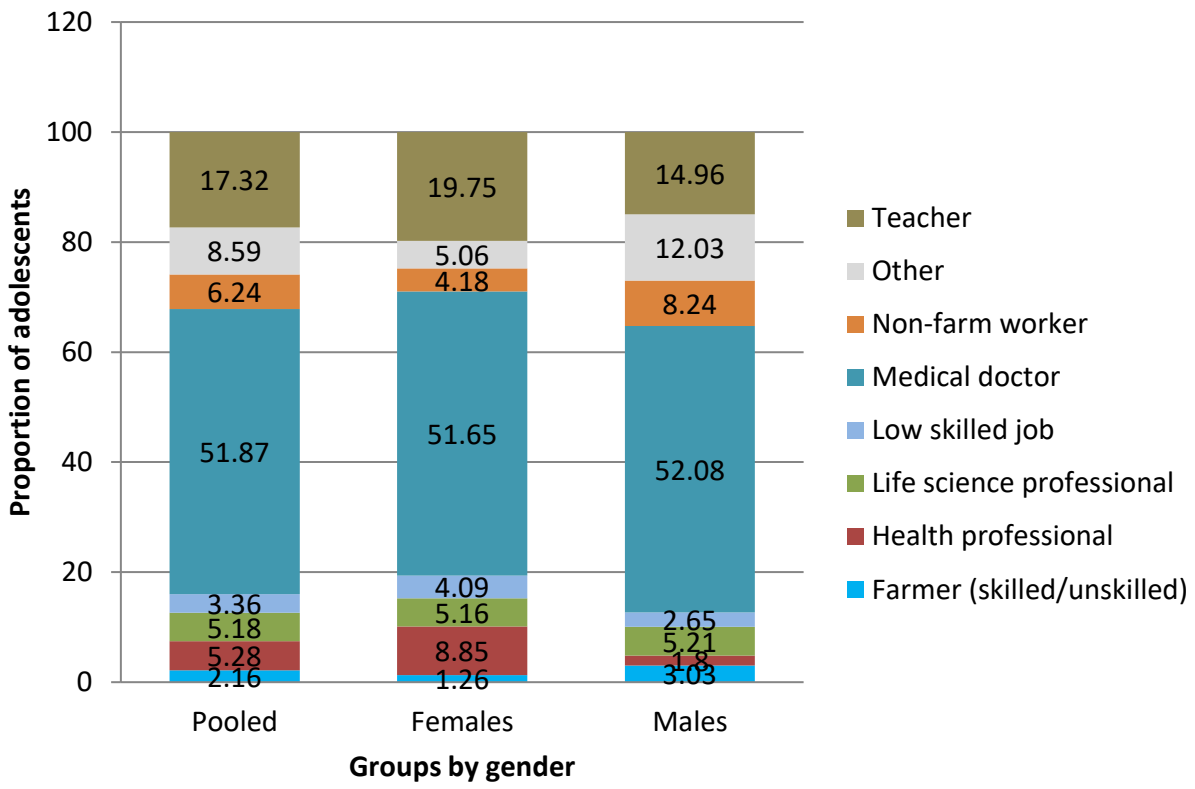

Figure 4: Youth occupational aspirations according to the gender of youth

Looking at it from a gender perspective, the study finds that consistent with the findings using pooled data, female adolescents aspired to be medical doctors (51.65%), teachers (19.75%) and health professionals such as Nursing (8.85%). On the other hand, males aspired to be medical doctors (52.08%), teachers (14.96%) and other occupations such as Journalism and Musician (12.03%). This shows that while male and female adolescents would like to be medical doctors and teachers alike, females would like to be health professionals and their male counterparts aspire to pursue as Journalists and Musicians.

A study by Tafere and Woldehanna (2012) using a Young Lives (Ethiopi) data finds that children keep changing their occupational aspirations over time mainly based on their educational achievements. In their study, while it was also found that farming has been identified by very few children as their aspired occupation, those who could not proceed in their schooling and failed to achieve their aspired educational levels tend to work in farming. This, therefore, suggests that aspirations studies among children and adolescents could become more robust through repeated observations. However, having very few educated adolescents aspired to work in farming has useful implications for rural development, reducing poverty and achieving food security in Africa. Empirical studies that try to identify the processes of adolescents' aspirations formation should also push the frontier of analysis further to unravel the causal effects of such aspirations on key

outcomes such as the decisions to out-migrate in the long-term. The section below also discusses the causality using the JLFSY dataset.

4.5 Effects of aspirations on migration decisions: IV estimates

The causality between aspirations formation during adolescent and migration decisions when youth could be biased due to endogeneity arising from unobserved or innate abilities that affect both variables. Individual specific innate abilities such as higher drive and intelligence may affect both educational and occupational aspirations formations and whether the adolescent would like to stay or out-migrate later. In order to address this identification problem, the study uses instrumental variables (IVs) approach to predict the aspirations formation using exogenous variables and through which to identify the causal effects on migration decisions. In this regard, the IVs must be relevant to induce the changes in the educational and occupational aspirations and satisfy exclusion restriction, i.e. from predictors of youth migration equations. Thus, the IVs should not have direct effects on migration decisions but only through affecting aspirations formation. Accordingly, the educational levels fathers aspired/ wants(ed) to their adolescents is used to instrument adolescents' educational aspirations and adolescents' multidimensional religiosity index is used to instrument their occupational aspirations (Table 9). In addition, a multicollinearity test was conducted for the OLS regression / first stage equation (in model 2) and robust standard errors are generated. The post-estimation VIF test shows that there is no strong linear correlation between independent variables in the model.

First-stage regression

From the Two-stage residual inclusion (2SRI) estimators (Terza et al., 2008), in the first stage, endogenous variables (educational and occupational aspirations) were regressed on the instrumental variables and other relevant pre-migration factors. The first-stage results show that the educational level that a father aspired/ wants(ed) to his adolescent boy or girl strongly predicts the adolescent's educational aspirations. An increase in the educational level a father wants(ed) to adolescent by one year, the difference in the logs of expected aspired years of education by adolescents would be expected to increase by 0.0418 years, holding the other variables in the model constant. Moreover, the result also indicates that an increase in religiosity index by one score is associated with an increase in the occupational aspirations by 0.060 standard deviation, showing that religiosity positively and significantly induces adolescents to aspire high socio-economic status occupations. The residuals estimated from the first-stage 2SRI regression results are also statistically significant in the second-stage equations, showing that the approach significantly controls the confounding effects of unobserved and omitted variables in the outcome equations.

Second stage estimations

Educational aspirations and migration decisions

The second stage of Model 1 regression results, using the pooled sample, present causal effects of educational aspirations formed during adolescents on migration status observed after four years. It suggests that an increase in educational aspirations by one year during adolescent period results in a reduction in the probability of being a migrant in four-year time by about 0.7% (average marginal value). The results seem to be contrary to an expectation that those who aspire higher educational levels tend to migrate. However, this study shows that four years after the baseline survey, most youth could still be attending their high schools and preparatory education which is more likely to be available in the respective areas, resulting in those who aspire more years of schooling to remain in their villages during the follow up survey in order to attend their schooling. This also means that although we find a deterrent effect of higher educational aspirations on migration decisions after four years, the causal direction may change when youth finish their pre-college education.

Other important drivers of migration decisions above and beyond educational aspirations include age of the adolescent (older adolescents tend to out-migrate than younger peers), having a perceived autonomy to choose a job not approved of by parents (positively), perception on pre-requisites to become a farmer (those who give higher regards to education, networking and effort tend to be found in the baseline locations after four years) and household size (negatively).

Occupational aspirations and migration decisions

The study also analyzed the causal effects of occupational aspirations on migration decisions, Model 2. Unlike educational aspirations, occupational aspirations during the adolescent period increase the likelihood of out-migration after four years. It was found that an increase in socio-economic status of aspired occupations by one standard deviation results in a 35.68% (average marginal value) of increase in the probability of being a migrant four years later. This finding suggests that out-migration of youth from rural areas and small towns may not be only due to push factors such as lack of farmland but it could also be due to their aspirations to work in high socio-economic status jobs which are not often found in rural areas and small towns. Accordingly, those remaining behind, on the contrary, could be either students or those who have lower aspirations to high socio-economic status occupations due to various reasons.

Table 9: Effects of aspirations on migration decisions, all adolescents, southwestern Ethiopia

	Educational aspirations and migration decisions		Occupational aspirations and migration decisions	
	(Model 1)		(Model 2)	
Variables	1st stage (Poisson)	2nd stage (Probit)	1st stage (OLS)	2nd stage (Probit)
Instrumental variables				
Educational level father aspired/ wants(ed) to his adolescent	0.0418***(0.00276)			
Religiosity index			0.0608***(0.0212)	
Key variables of interest and residuals				
Highest education (grade) adolescent aspired		-0.0230*(0.0127)		
Residuals of educational aspirations		-0.0446*(0.0249)		
Occupational aspirations (Standardized)				1.092**(0.531)
Residuals of occupational aspirations				-1.092**(0.533)
Control variables				
Gender and aspired occupations interactions				
Female and occupational aspirations	0.0222**(0.00931)	0.0267(0.0441)		
Male and occupational aspirations	0.0441***(0.0091)	0.0699(0.0464)		
Gender and aspired education interactions				
Female and educational aspirations			0.156***(0.0295)	-0.325***(0.099)
Male and educational aspirations			0.257***(0.0306)	-0.324**(0.142)
Adolescent's age[1]				
Aged 15-17 years	-0.0126(0.0133)	0.585***(0.0698)	-0.159***(0.0431)	0.725***(0.0959)
Number of groups belongs to	0.00323(0.00911)	-0.0262(0.046)	0.0968***(0.0302)	-0.162**(0.0735)
Adolescent currently works	0.000195(0.0143)	-0.098(0.0695)	-0.119**(0.0482)	0.0181(0.0902)
Urbanization level[3]				
Small/ secondary towns	0.0253(0.0162)	0.0837(0.0868)	0.126**(0.0533)	-0.0796(0.107)
Rural villages	-0.00897(0.0230)	0.0951(0.118)	-0.254***(0.0766)	0.442***(0.168)

Reported general health[4]				
Good	-0.0455**(0.0196)	0.0541(0.095)	0.101(0.0660)	0.0141(0.0996)
Moderate or bad	-0.0507*(0.0266)	-0.153(0.124)	-0.131(0.0868)	0.0917(0.142)
Has an adult relative in Addis Ababa	0.0184(0.0170)	0.00918(0.0895)	-0.0177(0.0584)	0.0454(0.0882)
Could have a job not approved of by parents	0.0201(0.0141)	0.205***(0.0688)	0.0586(0.0463)	0.146**(0.0730)
Food Insecurity Index	-0.00765(0.00653)	0.0289(0.0293)	0.0206(0.0206)	0.0174(0.0301)
Parent's wealth[7]				
2nd quartile	-0.0215(0.0185)	-0.0813(0.0931)	0.105*(0.0619)	-0.214**(0.108)
3rd quartile	0.00266(0.0194)	0.0978(0.0981)	0.0635(0.0658)	-0.00804(0.102)
4th quartile	-0.00235(0.0205)	0.247**(0.103)	0.114*(0.0684)	0.0754(0.116)
Household head is male	-0.0260(0.0270)	-0.197(0.135)	0.00949(0.0902)	-0.170(0.129)
Head's marital status[8]				
Married, mono	0.0351(0.0263)	0.177(0.135)	-0.0608(0.0867)	0.205(0.133)
Married, poly	0.0251(0.0276)	0.307**(0.141)	-0.167*(0.0920)	0.476***(0.166)
Head's education level/ grade attained (years)	-0.00024(0.0017)	-0.0015(0.0089)	-0.0067(0.00583)	0.00699(0.00941)
Head reads and writes other local language	0.0156(0.0200)	0.187*(0.101)	0.169***(0.0644)	-0.127(0.134)
Proportion of adolescents in the household	0.00157(0.0645)	-0.215(0.341)	0.336(0.215)	-0.599(0.391)
Household has radio or TV	-0.00968(0.0153)	-0.0672(0.0737)	0.00621(0.0514)	-0.0821(0.0738)
Household size	0.0002(0.00294)	-0.044***(0.015)	0.0120(0.0100)	-0.060***(0.016)
Additional controls to predict educational aspirations				
Never missed class in the last 12 months	0.0623***(0.0135)	0.0716(0.0716)		
Perceptions to farming life/ wellbeing	-0.00516(0.00649)	-0.0123(0.0324)		
Perceptions on pre-requisites to become a farmer	0.000836(0.00633)	-0.0555*(0.0330)		
Highest grade already attained by adolescent[2]				
1-4 years of schooling	1.075***(0.0486)	0.262(0.222)		
5-8 years of schooling	1.098***(0.0497)	0.0418(0.231)		
9 and above years of schooling	1.151***(0.0538)	0.388(0.274)		
Felt tired or lacked energy in the last month[5]				

Sometimes	0.0447(0.0405)	0.153(0.189)		
Rarely	0.0202(0.0412)	-0.0481(0.195)		
Never	-0.00899(0.0390)	-0.113(0.182)		
Importance of spouse's level of education[6]				
Very Important	-0.0356(0.0238)	-0.185(0.123)		
Important	-0.0201(0.0258)	-0.197(0.133)		
Not important	-0.0398(0.0371)	-0.319(0.199)		
Constant	0.900***(0.0804)	0.117(0.323)	-0.171(0.135)	-0.489**(0.228)
Observations	2,084	2,084	2,084	2,084
R-squared/ Pseudo R-squared	0.1347	0.0690	0.136	0.058
F-test / Wald chi-squared	1649.30	155.79	15.39	134.17

Standard errors in parentheses and bootstrapped with 500 replications in the 2nd stage regressions; Sig levels: *** p<0.01, ** p<0.05, * p<0.1.
Reference groups: [1]13-14 years old, [2]Illiterate, [3]Cities, [4]very good, [5] very often, [6]Somehow important, [7]1st quartile, and [8]Single

Once again, the gender and aspired education interactions show that females and males with higher educational aspirations less likely to be migrants after four years. Further, we find that factors such as adolescent age, being from rural villages compared to a city, and having an autonomy to choose a job independent of parents' influence significantly and positively associated with future migration decisions. However, the number of groups adolescents belong to and household size tend to reduce the probability of leaving baseline areas after four years. For example, we note that being a member of one more group among adolescents resulted in, perhaps due to strong social networks in the origin areas, a reduction in migration decisions by about 5.3%.

The above results indicate that adolescents' educational and occupational aspirations affect their migration decisions at least after four years (when youth) in opposite directions. It means that keeping all other factors constant, while aspiring higher educational levels may keep adolescents in the respective places during the study periods, aspiring high socio-economic status occupations resulted in adolescents to out-migrate. However, the fact that in the long-term aspiring higher socio-economic status occupations and higher levels of education could correlate strongly; both types of aspirations may affect migration decisions in a similar manner. In line with Ray's (2006) 'aspirations window', it seems that migration is one of the pathways through which aspiring individuals use to realize their desires, dreams, and life goals. In this regard, migration is not an outcome by itself; instead, it could serve as a means to achieve other aspirations such as working in high socio-economic status occupations elsewhere.

5. Robustness check

Presuming nonlinear causal effects of aspirations on migration decisions, two-stage residual inclusion (2SRI) (also known as control function estimator) (Hausman, 1978; Wooldridge, 2015) approach is used to estimate consistent parameters. Terza *et al.* (2008) and Klungel *et al.* (2015) also show that when the relationship between the outcome and exposure variables is nonlinear, 2SRI method gives consistent estimates, hence they favor it over other alternative methods such as the two-stage least squares (2SLS) approach. However, traditionally, 2SLS has been applied for similar estimation problems; thus, this study presents the results for 2SLS as a robustness check to the 2SRI estimates. Unlike 2SRI, the 2SLS approach applies OLS in the second stage while the former is flexible to adopt appropriate methods such as bivariate models. In this regard, other alternative estimation methods such as fixed effects approach can't be used due to the time-invariant nature of the main variable of interest, that is, aspirations.

The results presented in Table 10 show that the causal effect of educational aspirations on migration decisions using 2SRI could be stronger (upward bias) if 2SLS is used, but at the expense of doubling the standard error, reducing the prediction accuracy. This tells us that the 2SRI estimate is preferable as the smaller the standard error of the estimate is, the more accurate the predictions are. For occupational aspirations, 2SRI and 2SLS estimation strategies provide very similar results. In both cases, the robustness checks show that the relations established in Table 9 can be comfortably interpreted in causal terms.

Table 10: Robustness check using results from two-stage least squares (2SLS) approach

	Educational aspirations and migration decisions		Occupational aspirations and migration decisions	
	(1)	(2)	(3)	(4)
Variables	2SRI – 2nd stage	2SLS– 2nd stage	2SRI – 2n stage	2SLS– 2nd stage
Educational aspirations	-0.0074*	-0.0214**		
	(0.0041)	(0.0084)		
Occupational aspirations			0.3568**	0.3601*
			(0.1727)	(0.2099)
Other controls	YES	YES	YES	YES
Observations	2,084	2,084	2,084	2,084

The second stage values for 2SRI are average marginal effects for comparison of coefficients with linear regression (2SLS) models. The second stage results only are shown for both estimation strategies. Significance levels: ***p<0.01, **p<0.05, *p<0.1

6. Caveats of the study

The study has some caveats which should be taken into consideration while drawing inferences and policy implications. Firstly, related to one of the key variables of interest, due to lack of data the study considers only two dimensions of aspirations— educational and occupational— whereas other important dimensions of aspirations—Income, wealth, and social status (Bernard & Taffesse, 2014) are not included. In addition to the incompleteness of dimensions, due to lack of person-specific weights to various dimensions of aspirations, the study also does not discuss the aggregated aspirations index. Secondly, in relation to migration decisions, the study does not differentiate the Spatio-temporal dimensions of migration decisions as these aspects of youth migration were not captured in the household and adolescent surveys. Thirdly, it is also worth to note that the causal analyses between aspirations formation and migration decisions are based on 4 year-long longitudinal data; thus, it is difficult to draw long-term causal inferences as youth behaviors and other factors may change significantly. Finally, while conditions after the baseline survey and current situations may contribute to the observed migration statuses, this study is limited to identifying the causal effects of conditions during adolescence (pre-migration) such as aspirations on the migration status observed four years later. Thus, important variables such as changes in parents' wealth, infrastructure, and labor market situations observed after the baseline survey are not controlled to explain migration statuses.

7. Conclusions and policy implications

This study goes beyond the classical approaches in migration studies such as explaining the drivers of migration (why people decide to migrate), why individuals decide/ choose to migrate to specific destinations, and effects of labor market factors (wage rate, labor supply and demand, and employment) on migration decisions. In so doing, the study is expected to contribute to the emerging conceptualization of migration as an outcome of internal psychological factors in addition to external social, economic and demographic characteristics.

The cross-country youth survey provides several interesting and policy-relevant evidence. While most youths in rural Africa preferred working in non-farm economic sectors, above half of the youth are undecided about their migration intentions in the next five years. In addition, it also shows that compared to those who preferred working in agriculture-related activities; those who preferred working in non-farm jobs aspire to leave rural villages and migrate to urban areas. This indicates that policy interventions to support rural non-farm sector expansion could be critical in regulating the flight of educated and aspired youth out of rural areas. However, policymakers should also be aware that anti-poverty policy measures that simply improve the income of youth might have unpredictable and unintended consequences on the migration of rural youth. As a result, policy measures may have to also influence the perceptions of youth toward farming and to make rural areas more attractive to the youth.

Coming to the causal effects of educational aspirations on migration decisions, it is found that an increase in educational aspirations resulted in a reduction in the probability of out-migration decisions observed four years later. Perhaps, during the 17-21 years period, most youth could still be attending their high schools and preparatory education which is more likely to be available in the respective areas, resulting in those who aspire more years of schooling to be found in their villages during the follow-up survey. This also implies that the causal direction might change when adolescents complete their pre-college or pre-university education. The study also finds that aspiring high socio-economic status occupations increases the probability of out-migrating from origin areas after four years. From this, it is inferred that out-migration of youth from rural areas and small towns may not be only due to push factors such as lack of farmland but it could also be due to their aspirations to work in high socio-economic status occupations which are not often found in the rural areas and small towns. Accordingly, those remaining behind (stayers) could be either students or those who have lower aspirations for high socio-economic status occupations due to various reasons. The out migration of aspiring and innovative youth from rural areas is a critical issue potentially undermining the rural development, poverty reduction, and food security in rural areas. In this regard, sub-Saharan African governments should work to make rural areas and farming more attractive to the aspiring youth such as through improving access to technology and infrastructure and providing support to rural non-farm sectors.

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