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Role of Land Access in Youth Migration and Youth Employment Decisions

Empirical evidence from rural Nigeria

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ABSTRACT

The paper examines the role of land access in youth migration and employment decisions using a two wave panel data set from the Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) from Nigeria. Overall, the findings show that the size of expected land inheritance is significantly and negatively associated with long distance migration and migration to urban areas, while a similar impact is negligible when a broader definition of migration is adopted and when migration is deemed as temporary. A more disaggregated analysis by considering individual characteristics of the youth shows that results are more elastic for older youth and those that are less educated, while we find no difference when comparisons are made by gender. Similar analysis on the influence of land access on youth employment choices shows strong evidence that the larger the size of the expected land inheritance the lower the likelihood of the youth being involved in non-agricultural activities and a higher chance of staying in agriculture or the dual sector. The results further reveal that youth in areas with a high level of agricultural commercialization and modernization seem to be more responsive to land access considerations in making migration and employment decisions than are youth residing in less commercialized areas. Finally, the results from the differential analysis suggest that rural-to-urban migration and the likelihood of youth involvement in the dual economy is more responsive to the size of the expected land inheritance for less educated youth as compared to more educated ones.

Keywords: land access, migration decisions, youth employment, Nigeria

1. INTRODUCTION

Creating productive employment opportunities for youth is a major concern for many developing countries. The need for jobs is especially critical where the largest segment of the population is young and increasing numbers of this group seek employment. This is particularly important in sub-Saharan Africa where about 85 percent of youth, as defined by the International Labour Organization as all individuals between the ages of 15 and 24 years, are poor, 70 percent live in rural areas where agriculture is the main source for their income and subsistence, and 11 million are expected to enter the labor market every year for the next decade (World Bank 2014; Adesugba and Mavrotas 2016a). Nigeria can be taken as a showcase of the above situation. (Adesugba and Mavrotas 2016a and 2016b provide further discussion on this.)¹ As a result, the Assembly of Heads of State and Governments of the African Union declared the years from 2009 to 2019 as the decade of youth development in Africa.

Agriculture is still the largest employer of labor in most African countries. This sector will continue to employ the majority of the labor force in the next decade, but the share of those youth working in the agricultural sector, especially in production, is slowly declining (Yeboah and Jayne 2018). On-farm agricultural activities, especially those related to crop production, are seasonal in most sub-Saharan Africa countries. Consequently, youth involved in agriculture during the production season often tend to exit this sector in the off-season to take nonfarm jobs to ensure stable income (Nagler and Naudé 2014). Some migrate to urban areas until the next planting season. While records of youth exiting the agricultural sector in Nigeria are difficult to come by, studies suggest that such exits have occurred at a relatively higher rate than in other sectors since the discovery of oil. A recent study by Maïga, Christiaensen, and Palacios-Lopez (2015) indicates that youth in Nigeria now spend 62.8 percent less time employed in agriculture than adults. Youth in the southern parts of the country exit at a faster rate than those in the North.

Most of youth in sub-Saharan Africa countries live in rural areas where farming has been the main livelihood. However, many of these countries face severe land scarcity in some parts as population densities have increased and farm sizes have become very small. In countries where there is no well-functioning land market, where the credit market is very thin, and where there are few large farms that can provide on-farm wage employment, access to farmland is the most important factor that determines whether a rural youth can depend on an agricultural livelihood as well as whether a rural youth will migrate or remain in their place of origin.²

Studies have also shown that ownership or long-term lease of land for agriculture with tenure security could increase the amount and rate of investment in agriculture and of youth entry into the agricultural sector. Recent growth in production in sub-Saharan Africa countries has been attributed largely to farmland expansion rather than to an increase in actual productivity (Treichel et al. 2010; Penda 2012). Land tenure security is slowly evolving to meet the needs of agricultural production, but access to land is declining. Youth involved in agriculture have limited access to land except when it is inherited, bought, or leased. However, land leases are usually short and influenced by land tenure practices.

¹ The debate on youth unemployment globally and particularly in Africa hinges also on the differential pattern of structural change of economies that works against the creation of 'good' jobs (McMillan et al. 2014; McMillan and Rodrik 2011). Despite the economic growth that is being experienced, structural change in Africa is still minimal and mostly leads to creation of few high productivity jobs.

² At the same time, recent years have witnessed a demographic transition across many developing countries from high to low levels of fertility and mortality, and migration to urban areas. An important development associated with this transition is the decrease in dependency ratios in rural areas—a demographic dividend that can enhance growth. Conversely, migration to urban areas results in labor shortages in the agricultural sector, which in turn may lead to greater mechanization and higher wages (Keats and Wiggins 2016).

There are two competing hypotheses – pull versus push factors – that are argued as the cause of youth in the rural agrarian population opting for migration or for engaging in non-farm activities. The migration and livelihood choice literature mention both 'pull' and 'push' factors as reasons for migration and present evidence supporting both forces. Ellis (1998) argues that the notions of push versus pull factors can equally be interpreted as involuntary versus voluntary or as desperation versus choice, as they are ways of broadly categorizing alternative sets of circumstances that result in livelihood diversification or change. In practice, Ellis further argues that individuals change their livelihood strategy due to being influenced by multiple factors. Sometimes a single factor may dominate over all other factors for an individual in a specific context. But, usually a cumulative combination of factors presents challenges or opportunities for different individuals that result in them changing their livelihood strategies.

Despite the growing interest in understanding the drivers of migration and employment, especially for the youth, existing empirical work often neglects to investigate the role land access plays in influencing youth spatial and occupational mobility decisions. One possible reason for such an approach could be due to the blanket narrative that “Africa is land abundant” and “youth’s aspirations exclude agriculture”. The other major contributing factor for lack of comprehensive studies on how land access influences the occupational and spatial mobility decisions of youth is the notion that land access can serve as a push factor, or a binding constraint, only in land scarce areas and countries. However, challenging this notion are recent statistics showing that occupational shifts and migration trends are also prevalent in countries that are deemed to be considered land abundant, such as Nigeria.

Moreover, studies which aim to investigate the role that land access has on migration and employment decisions are not without flaws in their conceptualization or methodological approach (Abramitzky et al. 2013; Debnath et al. 2018; Gutu 2016; Mukthar et al. 2018; Naudé 2010; Shonchoya 2011; Wondimagegnhu and Zeleke 2017; and Xing 2009). These flaws emanate from several factors. First, migration is aggregated as an overall trend instead of disaggregating the different types of migration. Second, decisions on migration as well as livelihood choices crucially depend on the sunk costs involved in such decisions. Such costs vary depending on the type of migration one has in mind, such as permanent versus temporary or short distance versus long distance. Failure to account for these differences in the type of migration will undermine any analysis and may explain the inconclusive evidence such studies provide on the drivers of spatial and occupational mobility decisions.

This study accounts for such differences to delve deeper into the role of access to land in youth migration and occupation choice decisions. It also avoids an aggregate approach that treats youth as a homogenous group. Rather a differential analysis is done based on the individual characteristics of the youth, i.e., age, gender, education level, etc. Moreover, the study addresses methodological issues related to the indicator used to proxy land access by using individual-level information on the size of the expected land inheritance for an individual. Some studies use actual land access, which is often endogenous, so may result in reverse causality. Others use household per capita land holding as a land access indicator which may result in inaccurate measure of land access as ineligible household members may be considered in the analysis (Kosec et al. 2018). Finally, we take into consideration that youth in Africa, including Nigeria, may not be interested in subsistence agriculture livelihoods. Rather, they may seek to pursue livelihoods based in agricultural entrepreneurship (agripreneurship). In such cases, mere access to land can be considered as a necessary but not sufficient condition to influence migration and employment decisions. Especially, in countries like Nigeria, where agricultural land is deemed to be abundant, further scrutiny of the quality of land access, particularly its suitability for modernization or commercialization, is needed to investigate how important land access is in the spatial and occupational mobility decisions of youth by comparing different levels of agricultural market (input, output, and land) development, urbanization, and population growth and population density.

Failure to account for such differential effects of land access with respect to social and economic transformation and their dynamics may not only result in inconclusive evidence, but also to a lack of clarity as to how programs that facilitate land access to youth can be effective in slowing down the exodus of youth to urban areas, which is generally considered as unrewarding and dominated by push factors. Against this background, this study aims to bridge such knowledge gaps by addressing the conceptual and methodological flaws seen in earlier research on the topic and to better understand why and how land access matters as part of the spatial and occupation mobility decisions of youth. Most importantly, we account for social and economic transformation factors to investigate how land access alone may not sufficiently explain the linkages between migration or employment and land access, as can be seen in the inconclusive evidence in the existing literature. For this purpose, we take advantage of a Nigeria LSMS panel survey conducted in 2012/13 (hereafter called Wave 1) and 2015/16 (hereafter called Wave 2) and conducted a series of differential analyses on these data to understand how elastic youth migration and employment decisions are with respect to land access by considering social and economic mediating factors such as development of agricultural markets (input, output and land market), as well as levels of urbanization, population growth, and population density. To the best of our knowledge, no other study has investigated such differential effects of land access on migration and employment decisions.

Overall, our findings show that the size of expected land inheritance is significantly and negatively associated with long distance migration and migration to urban areas, while the impact is negligible when a broader definition of migration is adopted and when migration is deemed as temporary. A more disaggregated analysis by considering individual characteristics of the youth shows that the results are more elastic for older youth and those that are less educated. We find no difference when comparisons are made by gender. Similar analysis of the influence of land access on youth employment choices shows that the larger the size of expected land inheritance the lower the likelihood of the youth to be involved in non-agricultural activities and a higher chance of staying in agriculture or the dual sector³. The results further reveal that youth in areas with high levels of agricultural commercialization and modernization seem to be more elastic (responsive) to land access in making migration and employment decisions than youth residing in less commercialized areas. Also, the results from the differential analysis indicate that rural-to-urban migration and the likelihood of involvement by youth in the dual economy is more elastic to the size of expected land inheritance for less educated youth as compared to more educated ones.

The rest of the paper is structured as follows. Section two reviews the literature related to the drivers of migration and employment decisions, and the role of land access in the choice of livelihood strategies. Section three describes the data and variable measurement, while section four presents the empirical strategy. Section 5 discusses the key findings from the econometric analysis. The last section concludes the paper with some tentative policy implications emanating from the results of the analysis.

2. CONTEXT AND CONCEPTUAL FRAMEWORK

2.1 Youth employment and migration in Africa

Issues surrounding youth employment are an Africa-wide problem which is also a matter of concern in Nigeria (NPC 2013; Flynn 2016; Mayombe 2017). Nigeria's youth unemployment situation is particularly severe (Treichel et al. 2010; Adesugba and Mavrotas 2016a, 2016b). Although not entirely new as a factor impeding development in the country, what is new is the significant increase in youth unemployment in

³ Employment in the dual sector refers to those individuals whose primary occupation is agriculture but who also are involved in non-agricultural activities as a secondary occupation, or vice versa. Having this additional category as a livelihood choice is of particular relevance to Nigeria mainly to account for emerging urban agriculture (Moriconi-Ebrand et al. 2016; Adesugba and Mavrotas 2016b).

recent years (ILO 2012; Akande 2014). The growing population of Nigeria has resulted in a distressing increase in the youth population, thereby resulting in a significantly larger working age population.

Based on diverse motivations, migration has been viewed as a complex and multidimensional process, with across-the-board impacts or consequences for the individual, left-behind households, the place of origin, and the destination. Migration patterns vary greatly between countries and depend on the stages of structural transformation, as well as household and individual characteristics (de Brauw 2014; Lambert et al. 2014; FAO 2014; Nagler and Naudé 2017). In sub-Saharan Africa countries, among other drivers, unemployment is a key motivating factor for young people to migrate, especially in rural areas (IOM 2016; FAO 2014). Youth are often perceived to be obstinate in looking for employment in sectors other than agriculture (Awumbila et al. 2016) possibly with the hope of obtaining better incomes (Deshingkar and Grimm 2005) or less stressful jobs (Dorosh et al. 2012; Abramitzky et al. 2013).

In some cases, rural youth seek short-term seasonal employment to supplement their income in periods of the year when agricultural work is not available (FAO 2016). This can be described as temporal or seasonal migration (UNECA 2017). Rural youth in sub-Saharan Africa countries engage in seasonal migration due to medium-term unemployment and the cost implication of permanent migration, including limited resources, skills, networks, and market intelligence. In other cases, most youth wish to move to urban areas for a longer period, i.e., permanent migration. This is done for more than 12 months (IOM 2016) and is especially common for the landless and those rural youth without any expectation of inheriting land. Therefore, seasonal or temporal migration is the most affordable for rural youth, as it allows households to supplement their income, smooth consumption, and protect their asset base during the lean season.

2.2 Youth land access, migration and employment decisions

Recent studies have shown that Africa is changing from a continent of land abundance to one of land scarcity (Headey and Jayne 2014; Holden and Otsuka 2014). Demand for land is increasing rapidly for several reasons, including population growth and climate change (Holden and Otsuka 2014). Meanwhile, evidence from empirical studies has shown that access to land and tenure security plays a significant role in the development of rural economies (Deininger et al. 2011; Jayne et al. 2014; Holden and Otsuka 2014; Ali and Deininger 2015; Frank et al. 2017).

Improved agricultural productivity and investment, poverty reduction and food security can only be assured when tenure security is accomplished through adequate land titling (Lawry et al. 2017). However, the authors have noted that this is more likely to take place where favorable conditions are available for other policies to thrive effectively, such as those around credit performance, input supply, and product markets. In Africa, despite encouraging results in the tenure security and rural transformation nexus, for example, in Nigeria (Ghebru and Girmachew 2017), Malawi (Chinsinga, and Chasukwa 2012; Chamberlin and Ricker-Gilbert 2016), Zambia (Chamberlin and Ricker-Gilbert 2016), Ethiopia (Deininger et al. 2011; Holden et al. 2009a), Rwanda (Ali et al. 2014) and South Africa (Hoeks et al. 2014), overall, the formalization of land access, tenure security, and similar reforms has shown relatively weak impacts as compared to other regions of the world (Lawry et al. 2017; Frank et al. 2017).

Specifically, issues on land access and tenure security in Africa are more challenging and critical among the youth (Ali and Deininger 2015; Kosec et al. 2018). More than half of young farmers in a global survey⁴ stated that they were driven away from starting a farming activity due to their inability to access farmland. This lack of access to land drives unemployment among young Africans (Lawry et al. 2017; Frank et al. 2017). Among the array of issues facing youth employment decision in Africa, land tenure security is one of the most contentious (Ali and Deininger 2015; Lawry et al. 2017; UN-Habitat 2017; Kosec et al.

⁴ A joint project implemented by International Movement of Catholic Agricultural and Rural Youth (MIJARC) in collaboration with IFAD and FAO: 'Facilitating access of rural youth to agricultural activities' (further details available in Frank et al. 2017).

2018). Tenure security in the region is still very weak, even if complex, and problematic, but quite diverse (Deininger et al. 2017). The complexity and diversity of land tenure systems cannot be disconnected from tensions between ethnic groups and institutions, rates of population growth, rates of market development, climate and ecologies, and differing degrees of government influence in local tenure arrangement (Place 2009). By tradition in Africa, men inherit land while women and girls gain user rights through their relationship with a male relative (Byamugisha 2013; Deininger et al. 2017). Though, some countries in Africa have adopted statutory laws that grant women equal rights to land, customary laws continue to deny these rights in practice (Byamugisha 2013).

The situation on land access and tenure security is more challenging among youth in Nigeria (Rohl 2014). Youth in Nigeria have limited access to land except when it is inherited, bought, or leased. But, land leases are usually of short duration and influenced by land tenure practices (Ariyo and Mortimore 2011; Adesugba and Mavrotas 2016a). Over the years, inheritance has played a significant role in Nigeria on the access of youth to land due to different norms, religious practices, and customs across the country (Aluko and Amido 2006). In addition, heterogeneous laws of succession and inheritance make the harmonization of land tenure systems in Nigeria to be a significant challenge (Oni 2014). As a nation with strong ethno-diversity, the structure of customary inheritance differs from one ethnic or religious cluster to another (Aluko and Amido 2006). Oni (2014) shows that paternal descent patterns in Yoruba areas in the southwest of Nigeria governs inheritance there while maternal descent patterns govern inheritance in Afikpo, Abriba and Ohafia in the South East zone.

Under customary law, age and sex⁵ are important determinants of inheritance. A female child, regardless of her age, seems to be underrepresented in any inheritance sharing formulae (Mabogunje 2010; Edu 2016). The female child might be given the last choice in property sharing and her entitlements might also be smaller when compared to the claims of her brothers irrespective of their age (Oni 2014). This gender bias, especially for youth, is most noticeable in cases where only the first-born son can inherit the land. Though not well structured, land markets in Nigeria have made it possible for both young men and women to be able to access land through purchase, but this solely depends on the availability of funds (FAO 2014). Therefore, since inheritance laws are complex and challenging to modify, the expectation is that any land reform process should focus on restructuring land markets. Bringing land into the mainstream of the free market economy would eventually assist in reducing the gender bias in the disposition of land in the country (Mabogunje 2010). The deprivations youth and women face in accessing land also frequently motivates their decision to search for off-farm employment and migrate out of rural areas, while the prospect of inheriting land can reduce the probability of embarking on permanent migration (Bah et al. 2003).

Economically, the seminal model of migration by Harris and Todaro (1970) stated that achievable accumulative economic returns emanating from migration influences the decision whether or not to migrate as this cannot be disconnected from the choice of employment. Thus, despite rising aspirations, potential migrants would consider differences in employment opportunities (on-farm versus off-farm) as well as more attractive lifestyles in the destination compared to the origin areas. Population size, growth, density, and structure plays a significant role in driving migration and employment decision in Africa. Hatton and Williamson, (2002; 2003) found that pressures on natural resources that lead to conflict and competition over scarce or valuable resources, such as land, cannot be disconnected from population size, growth and density.

⁵The prevailing system among most ethnic groups, however, is that of partible inheritance with strong gender bias in favor of male children. Primogeniture, as an inheritance system that protects parcels of land from further subdivision at the death of its owner, is limited to a very few ethnic groups in the country, the Edo being the most notable.

Population growth and, to an increasing extent, mechanization is likely to decrease the probability of youth making decision to choose agricultural employment over non-agricultural employment owing to inflexible competition and other factors, such as conflict, culture, and nepotism, associated with access to agricultural inputs such as land. However, another view has it that the rates of emigration tend to be highest in Africa countries with highest population growth, but this is likely to happen where high fertility rates in the past resulted in a “youth bulge” with a population with a high proportion of migration-prone young adults (Naudé 2009). This suggests that high fertility rates are a determinant of migration through increasing population density (Skeldon 1997). This assertion has been tested empirically by Hatton and Williamson (2002) using historical migration data, and by Clemens (2014), Czaika and de Haas (2012), and de Haas (2010) using contemporary migration data from countries around the world.⁶

Education also plays a strong migration-stimulating role in Africa. The growing desire to acquire an education and rapidly rising levels of literacy across Africa has gained in importance as a driving force of mobility and migration (UNECA 2017). Evidence from multiple African countries revealed that the current generation with better educated youth is more migration-prone than older generations (Flahaux and de Haas 2016; Deshingkar et al. 2013; Elder et al. 2015). Improved education increases awareness of employment opportunities elsewhere. Hence, young people migrate to search for better employment.

3. DATA SOURCES, VARIABLE MEASUREMENT, AND DESCRIPTIVE RESULTS

3.1. Data sources

The study uses a two wave panel data set from the Living Standards Measurement Study—Integrated Surveys on Agriculture (LSMS-ISA) from Nigeria. This nationally representative data set includes detailed information on demographic and household characteristics, assets, agricultural production, nonfarm income and other sources of income, allocation of family labor, hiring of labor, access to services, and household shocks experiences. Information is also collected on household member education, labor allocation, health; participation in household no-farm enterprises and other income generating activities; and child development. The agriculture module contains information, among others, on agricultural and livestock production, farm technology, use of modern inputs, and productivity of crops and livestock. The community-level instrument contains information on local level infrastructure, basic public goods, quality of agricultural land, precipitation, and other factors that could affect individual migration and employment decisions.

This study will particularly benefit from the rich and comprehensive land tenure module integrated into the second wave of the survey that was implemented in 2012-2013. This provides a unique opportunity to test a host of hypotheses on the role land access plays in dictating occupational and spatial mobility decisions of rural youth in Nigeria. Moreover, both survey rounds (2012-13 and 2015-16) integrated a comprehensive tracking questions on occupation and locations of migrant household members, which enables analysis of key variables of interest on migration, such as comparing various features of migration by duration and destination, as well as employment choices. The study aims to assess how youth land access in 2012/13 (Wave 1 of the panel survey) influences occupational and spatial mobility decisions of the youth in 2015/16 (Wave 2).

⁶ As also stressed by the *Africapolis I Report* (Moriconi-Ebrand, Harre, and Heinrigs 2016), re-examining the criteria that distinguish urban from rural (see densities, type of housing, and the importance of agriculture) is also crucial since they may change our overall understanding of urbanization in West African countries, including Nigeria.

3.2. Variables and measurement

Following youth charter of the African Union, we define *youth* as individuals within the age bracket of 15 to 35 years of age. We measured youth *land access* as the area of land that the youth was likely to inherit – as reported by the head of the household in which the youth was a member. As such, we measured land access as “*expected inheritance*” instead of “*actual inheritance*”. The latter is more prone to measurement biases and potential reverse causality compared to “*expected inheritance*”. (See further discussion in section 4.)

Outcome variables measurement

Youth Migration: In this study, following the conceptual framework and to be able to test our hypotheses, we defined/differentiated migration in four distinct ways:

- *Migration – Any:* A dummy variable for any household member who was present in the survey household in Wave 1 but either non-resident in Wave 2 or had been absent for at least one month during the previous 12 months before the Wave 2 survey was conducted, regardless of destination. It excludes deceased household members and those who moved within the same village.
- *Migration – temporary:* A dummy variable for any individual who is listed as a member of the household in Waves 1 and 2 but had been absent for at least one month during the previous 12 months before the Wave 2 survey was conducted, regardless of destination.
- *Migration – long distance:* A dummy variable for any individual who was present in Wave 1 but who was reported to be non-resident in Wave 2 and to have moved out of the state.
- *Migration – to urban:* A dummy variable for any individual who was present in Wave 1 but who was reported to be non-resident in Wave 2 and to have moved to an urban Local Government Area (LGA).

Youth employment decision: To account for emerging dual sector employment in Nigeria and to test for the “*agricultural ladder*” hypothesis⁷, we consider three employment outcome variables:

- *Agriculture:* A dummy variable if an individual’s primary occupation is agriculture and is not involved in non-agricultural activities.
- *Non-agriculture:* A dummy variable if an individual’s primary occupation is non-agriculture and is not involved in any agricultural activities.
- *Dual:* A dummy variable if an individual’s primary occupation is agriculture but is also involved in non-agricultural activities as a secondary occupation, or vice versa.

3.3 Descriptive analysis

Table 1 presents summary statistics of the outcome variables, land access measures, and individual and household characteristics for these individuals. About 14 percent of adults migrated between the two survey waves. Of these, 26 percent migrated permanently. Of all migrants, 36 percent were long distance migrants, which is defined as any migrants (permanent or temporary) who had moved out of state, and 21 percent migrated looking for jobs or land. The primary occupations of adults who migrated was either agriculture (28 percent) or schooling (52 percent), but 18 percent worked in non-agricultural sectors.

⁷ The agricultural ladder is a metaphor to depict the mobility ‘rungs’ by which tenants could climb to full ownership of agricultural land (Kloppenborg and Geisler 1985).

Table 1: Descriptive summary statistics for outcome and explanatory variables - youth

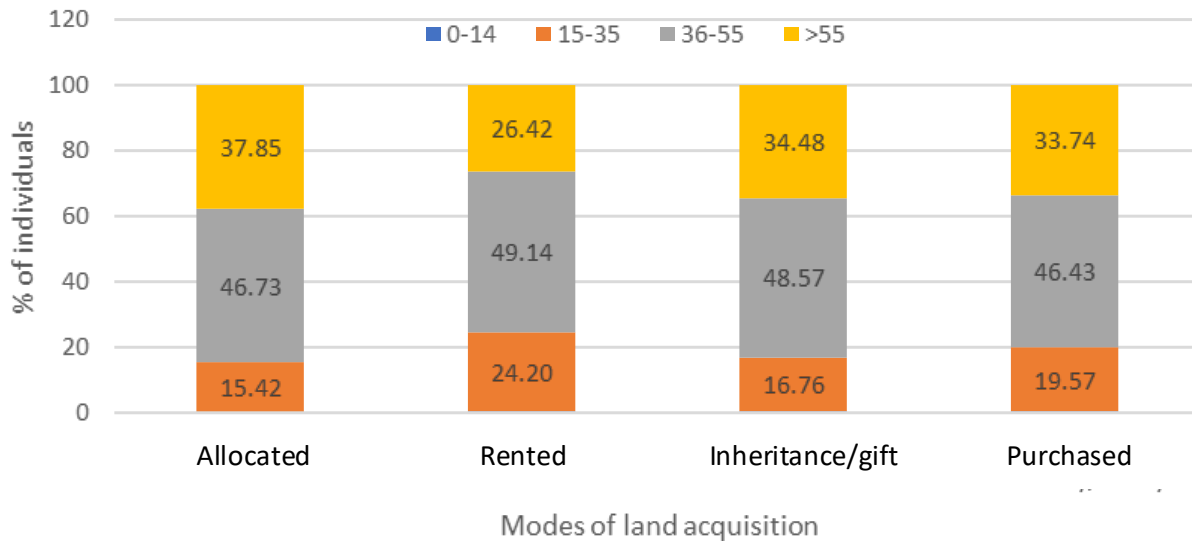
Variable	All states		Feed the Future focus states	
	Mean	Standard Deviation	Mean	Standard Deviation
Migration				
Migrant, 0/1	0.253	0.434	0.239	0.427
Temporary migrant, 0/1	0.201	0.400	0.194	0.388
Permanent migrant, 0/1	0.052	0.222	0.055	0.229
Long distance (permanent) migrant, 0/1	0.421	0.279	0.391	0.288
Rural-to-urban(permanent) migrant, 0/1	0.341	0.314	0.285****	0.279
Primary occupation is...				
In agriculture only, 0/1	0.298	0.457	0.348****	0.477
In non-agriculture only, 0/1	0.232	0.422	0.202****	0.401
In dual sector, 0/1	0.074	0.247	0.063	0.242
Land access, security and farm practice				
Inherited or expects to inherit land, 0/1	0.182	0.272	0.167	0.314
Log of size of expected land inheritance, ha	0.084	0.340	0.092	1.721
Individual controls				
Male, 0/1	0.520	0.499	0.569	0.499
Age, years	24.7	20.1	24.6	8.1
Schooling, years	11.2	4.4	12.1**	4.1
Observations	9,922		2,118	

Source: Authors' calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. The indicators of statistical significance indicate the significance of the t-test comparing the mean for each variable for 'All states' with the mean for the variable for the 'Feed the Future focus states'. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance.

Mean comparisons of such variables with a sub-sample from the focus states of the US government-supported Feed the Future program in Nigeria (right-hand side of Table 1) shows significant differences in key outcome variables, such as rural-urban migration and in employment in agriculture and non-agricultural activities. Hence, any inferences to be made about the Feed the Future focus states from this study should be with caution and merit separate in-depth analysis.

Figure 1 shows mode of land acquisition disaggregated by the age group of the individual landholders. In contrast to the notion that the dominant modes of land acquisition for youth in Africa are either via allocation by formal or traditional authorities or through gifts or inheritance from family, the results presented in Figure 1 show that acquiring farmland through the land rental market is predominantly associated with the youth (ages 15 to 35). One out of four farmers that acquired farm parcels through land rental markets are youth. Overall, youth constitute about one out of five landholders that used market-based forms of land acquisition either through purchase or renting. These market mechanisms are the predominant modes of acquisition of farmland for youth in Nigeria.

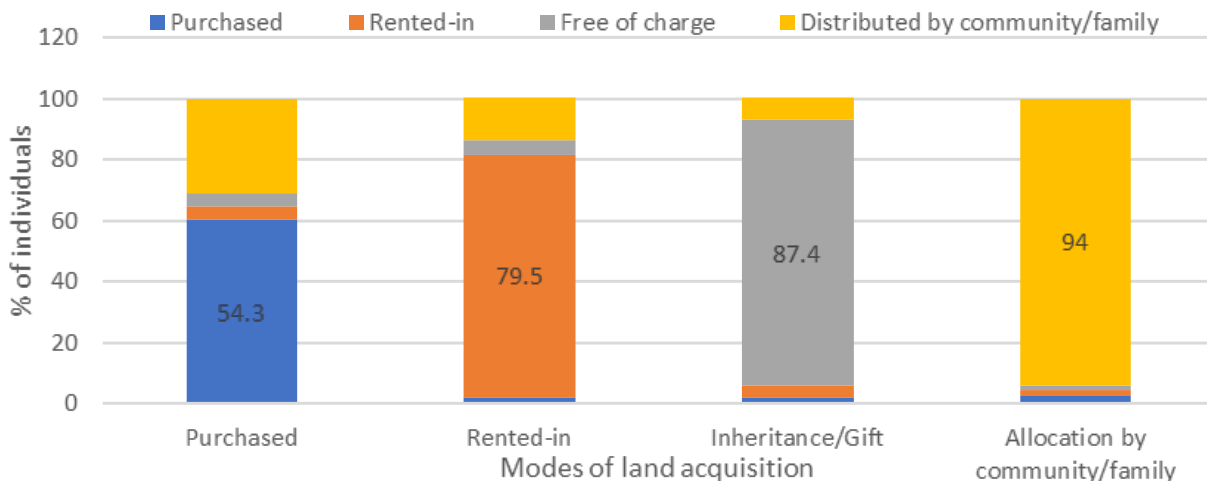
Figure 1: Modes of land acquisition by age group of landholders in Nigeria



Source: Authors' calculation using the Nigeria LSMS-ISA 2012/13.

Figure 2 shows how diversified the various means of land acquisition are for each landholder. The figure shows the proportion of landholders that employed each form of land acquisition who has also acquired land parcels via other modes of land acquisition. Interestingly, comparing the two market-based forms of land acquisition, purchase and land rental, which are the dominant modes of land acquisition for youth, Figure 2 shows that land acquisition via land rental markets seem to be the predominant mode of land acquisition for first-time landholders, i.e., for the previously landless, as compared to those that acquired land via purchase. This can be seen in that four out of five landholders who acquired land through the land rental market have parcels only acquired via rental. On the other hand, the comparable proportion is significantly lower for those that purchased land – 46 percent with access to purchased land also acquired parcels using other modes of acquisition, i.e., allocated land, inherited or gift, or rental.

Figure 2 Other modes of land acquisition in Nigeria categorized by whether a landholder employed a specific mode of land acquisition



Source: Author's calculation using the Nigeria LSMS-ISA 2012/13.

Any linkages between modes of land acquisition and the occupational choice of landholders was investigated. Again, focusing on the two market-based land acquisitions, those who have acquired at least one parcel through purchase are more likely to be associated with being involved in the dual-sector, while those who are renting land are predominantly pure farmers, i.e., practicing farming only.

Table 2: Modes of land acquisition of parcels and occupation of holders of the parcels in Nigeria

Occupation	Total	Purchased	Rented-in	Inheritance or gift	Allocated by community or family
Agriculture only	61.3	44.3***	65.7*	61.1	61.6
Non-agriculture only	4.2	5.7	3.3	5.9*	4.0
Dual sector	34.4	50.0***	31.1	33.0	34.4
Observations	3,467	212	396	512	2,540

Source: Author's calculation using the Nigeria LSMS-ISA 2012/13. The indicators of statistical significance indicate the significance of the test comparing the percentage share for each mode of land acquisition by occupation with the 'Total' percentage share for the occupation. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance.

Note: Includes all parcels in which household members have been reported to have ownership, management, or control over land.

This suggests that involvement in rural non-farm sectors, as proxied by the dual sector in the analysis here, could be serving as a way of accumulating capital to purchase land while land renting seemingly is a way of breaking the entry barrier into agriculture, perhaps due to increasing land scarcity or continued marginalization of youth. This is so since land acquisition through renting is often associated with being landless or a first-time land owner. This result is consistent with the "agricultural ladder hypothesis" of Kloppenburg and Geisler (1985) that tenants are more often young with lower agricultural skills who use the land rental market to break into agriculture. In contrast, land purchasers practice a mix of farm and rural non-farm activities, i.e., they are employed in the dual sector.

4. EMPIRICAL STRATEGY

Following our literature review and using the data set described above, we estimate two key models to examine the effect of access to land and tenure security on youth's decision regarding migration and livelihood strategies. The dependent variables for the models are the youth migration and employment decisions. First, we estimate the effect of land and tenure security on migration decisions by using a linear probability model:

$$ME_{ih} = \gamma_l L_i + \gamma_x X_i + \gamma_d F_d + v_i + \varepsilon_i \quad (1)$$

ME_{ih} denotes the outcome indicators for migration (any, temporary, long distance and rural urban migration) and employment (agriculture, non-agriculture, and dual) for individual i in household h . L_i is a vector of land access (size of expected land inheritance) and X_i is a vector of other individual and household level control variables, while F_d constitutes a vector of cluster or district level characteristics. v_i are household fixed effects.

The study aims to assess how land access influences occupational and spatial mobility decisions of youth. However, land access is likely to be endogenous to migration and to employment. There are several possible sources for this potential endogeneity. For example, land endowment, wealth skills, and network connections of a given household may influence both land access and migration and employment decisions. On the other hand, a host of possibly omitted variables may influence both land access and employment or migration outcomes simultaneously, causing a possible reverse causality issues. As a result, a simple ordinary least square estimate could bias the results (Kosec et al. 2018).

To rectify such methodological challenges, the study adopts two major empirical approaches. Firstly, a household fixed effects approach is used to account for the first issue. All specifications include household fixed effects to capture all characteristics of a district and a household that may influence youths' decisions. This empirical approach will help to avoid the potential bias in our estimates due to unobserved heterogeneity. Secondly, to minimize the potential biases in our estimates that could be caused by the potential reverse-causality scenario, we estimate the key outcome variables on migration

and employment against land access proxied by size of *expected* land inheritance - instead of using the size of *actual* land inherited, which is expected to be more prone to be endogenous than expected inheritance. Lastly, we use baseline values of the key variables of interest to address potential reverse causality issues and to control for factors that may influence both expected land inheritance and migration and employment decisions. Hence, we estimate migration and employment outcomes in time t (Wave 2) against land access and other key variables of interest in time $t-1$ (Wave 1) as stated in the model specification below:

$$ME_{iht} = \gamma_l L_{it-1} + \gamma_x X_{it-1} + \gamma_x F_{dt-1} + \gamma_i L_{it-1} * F_{dt-1} + v_i + \varepsilon_i, \quad (2)$$

The effect of interest is γ_i , which captures the differential impact of land access to the various conditioning variables highlighted in section 3.2.

We now discuss some of the mediating variables used in the analysis to examine the differential effect of land inheritance on youth migration and employment.

Differential analysis by age: To permit an assessment of how elastic land access is to predict migration and employment outcomes by age groups of youth, we use a dummy *older youth* for youth above the median age of the youth in our sample, i.e., being 24 years old or older, while *younger youth* are below the median age cutoff.

Differential analysis by level of education: Due to the notion that the opportunity cost of (no) migration or employment in agriculture also varies by the level of human capital investment, differential analysis was conducted comparing more educated youth versus less educated youth. Hence, we defined *more educated* youth as those with above the median year of schooling for youth in our sample, i.e., having 10 years of schooling or above, while *less educated* youth are below the median cutoff for number of years of schooling.

Differential analysis by the level of agricultural market development:

- **Input market (agricultural modernization):** First, a dummy variable was generated to identify households who utilize modern agricultural practices, such as use of irrigation, use of fertilizers (inorganic or organic), participation in extension programs, use of hired labor, use of crop damage preventions, or use of improved seeds. Then, we used the median proportion of households in a Local Government Area (LGA) who adopt at least one of these modern agricultural practices as a cutoff to group communities/LGA's into *high agricultural modernization*, i.e., communities with proportion of households above the median proportion, and *low agricultural modernization*, i.e., communities with proportion of households below median proportion.
- **Output market (agricultural commercialization):** First, a household level dummy variable was generated to identify households who reported the sale of at least one agricultural output, whether crop, fruit or livestock products. Then, we used the median LGA proportion of households who reported to have sold farm products as a cutoff value to group communities/LGA's into *high commercial*, i.e., communities with above median proportion, and *low commercial*, i.e., communities with below median proportion.
- **Land market:** We used the median LGA proportion of households who acquired at least one parcel either through rental or purchase to group communities/LGA's as *active land markets*, i.e., communities with above the median proportion, and *inactive land markets*, i.e., communities with below the median proportion.

Differential analysis by level of urbanization: We used the median LGA proportion of households that have a dwelling with modern roofing material to group communities/LGA's as *more urbanized*, i.e., communities with above median proportion, and *less urbanized*, i.e., communities with below median proportion.

Differential analysis by population density: To test the potential “labor supply effect” of population density, we used the LGA level median population density as a cutoff to group communities/LGA’s as *high density*, i.e., communities with above median density, and *low density*, i.e., communities with below median density.

5. EMPIRICAL ANALYSIS

This section discusses the results from the regressions of the effect of land access, proxied by the size of land a youth is expected to inherit, on youth migration and employment decisions. Table 3 and Table 4 first estimate an OLS (linear probability) specification to examine the linkage between size of expected land inheritance on migration and employment outcomes under Panel I in each table, respectively, while Panel II presents results based on the household fixed effects model that enable us to control for biases that may exist due to unobserved household heterogeneity. To assess the differential effect land access may have on various youth groups, Tables 5 to 7 present similar analyses disaggregated by various individual and cluster level characteristics. Overall, results from the household fixed effects model that controls for biases due to possible household unobserved heterogeneity – Panel II in both Tables 3 and 4 - largely support the OLS results reported under Panel I.

Table 3: Analysis of the impacts of land access on youth migration – OLS and fixed effects models

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Type of Migration							
	Any		Temporary		Long distance		Rural-to-urban	
Panel - I: OLS								
Log of land inheritance	-0.006 (0.012)	0.001 (0.013)	0.009 (0.011)	0.007 (0.012)	-0.015** (0.007)	-0.015** (0.008)	-0.043**** (0.006)	-0.031**** (0.007)
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.07	0.26	0.02	0.31	0.05	0.37	0.08	0.33
Panel - II: Fixed Effects Model								
Log of land inheritance	0.011 (0.012)	0.018 (0.012)	0.018 (0.011)	0.018 (0.011)	-0.014* (0.006)	-0.011* (0.007)	-0.027**** (0.006)	-0.020*** (0.007)
Additional controls	No	Yes	No	Yes	No	Yes	No	Yes
R-squared	0.01	0.22	0.02	0.24	0.02	0.19	0.04	0.21

Source: Authors’ calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance. Additional controls include gender, age, educational level of individuals, endowment variables such as livestock, agricultural and non-agricultural assets, etc. Observations: 9,922. Number of households: 3,787.

In support of our hypothesis, and partly explaining the inconclusive evidence in the literature on the linkage between land access, migration, and employment, our results in Table 3 show that the size of expected land inheritance has little or no effect in influencing migration when broadly defined as “any migration”. This finding merits the methodological approach adopted in this study to disaggregate the different types of migration as reported under temporary migration (columns 3 and 4), long-distance (out-of-state) migration (columns 5 and 6) and rural-to-urban migration (columns 7 and 8). However, perhaps due to the lower cost of migration associated with temporary migration, land access does not seem to have significant influence in dictating youth temporary migration. This seems to remain so regardless of whether the model specification includes the full set of controls (column 2) or not (column 1). Accordingly, our results show that expected land inheritance has a negative and statistically significant effect on influencing long distance migration and migration to urban areas. This suggests that expectations of inheriting a larger amount of land is associated with less migration of a permanent nature, both in the case of long-distance migration and migration to urban areas, while no significant influence is observed when migration is broadly defined to include rural-to-rural as well as temporary migration.

Table 4: Analysis of the effects of land access on youth employment – OLS and fixed effects model

Variables	(1)	(2)	(3)	(4)	(5)	(6)	
	Type of Employment						
	Agriculture only		Non-agricultural only		Dual sector		
Panel - I: OLS							
Log of land inheritance	0.195****		0.119****	-0.112****	-0.059****	0.039****	0.022**
	-0.018		-0.018	-0.009	-0.009	-0.011	-0.011
Additional controls	No		Yes	No	Yes	No	Yes
R-squared	0.12		0.39	0.08	0.46	0.03	0.31
Panel - II: Fixed Effects Model							
Log of land inheritance	0.132****		0.080****	-0.078****	-0.037****	0.039****	0.021*
	-0.017		-0.017	-0.011	-0.01	-0.011	-0.011
Additional controls	No		Yes	No	Yes	No	Yes
R-squared	0.02		0.13	0.03	0.16	0.04	0.29

Source: Authors' calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance. Additional controls include gender, age, educational level of individuals, endowment variables such as livestock, agricultural and non-agricultural assets, etc. Observations: 9,922. Number of households: 3,787.

Table 4 presents estimates of the role of land access on employment in agriculture (columns 1 and 2), in non-agricultural sectors (columns 3 and 4), and in the dual-sector (both agriculture and non-agricultural; columns 5 and 6). Similar to the migration outcomes, our estimates from the fixed effects model, as presented in Panel II, generally supports the linear probability model (OLS) estimates presented under Panel I. The regression results show that an increase in farm size under youth control/ownership increases the incidence of farm employment. On the other hand, the likelihood of being primarily employed in non-agriculture is significantly lower for those expected to inherit larger amounts of land, regardless of whether the full control set is included or not. More interestingly, our results also show that not only does access to land increase the likelihood of youth being primarily engaged in agricultural, but also facilitates youth's likelihood to engage in the dual sector – doing both agriculture and non-agricultural activities. This suggests that receiving a land inheritance is associated with higher likelihood of employment in agriculture as well as in the dual sector, but that the magnitude of the impact is larger for agriculture employment than for employment in the dual sector. Such a finding is indicative of the agricultural ladder hypothesis that access to land facilitates a potential and gradual exit strategy for the youth as more land access for youth is associated with transitioning to non-agricultural activities.

Table 5: Differential analysis on the effects of land access on youth migration and employment - by age, gender, and educational level of the youth

Variables	Migration		Employment		
	Long distance	Rural to urban	Agriculture only	Non-agriculture only	Dual sector
	(1)	(2)	(3)	(4)	(5)
Panel - I: By age of the youth					
Log land inheritance * (older, 24 - 35)	-0.045**** (0.004)	-0.055**** (0.004)	0.158**** (0.024)	-0.055**** (0.009)	0.011 (0.013)
Log land inheritance * (younger, 15 - 23)	0.015 (0.014)	-0.007 (0.012)	0.073*** (0.025)	-0.055**** (0.014)	0.034* (0.018)
R-squared	0.37	0.42	0.49	0.57	0.42
F-statistic of difference	17.88****	15.69****	6.44**	0.36	1.16
Panel - II: By gender of youth					
Log land inheritance * (male)	-0.019** (0.009)	-0.030**** (0.007)	0.122**** (0.020)	-0.061**** (0.008)	0.022* (0.013)
Log land inheritance * (female)	-0.002 (0.016)	-0.035** (0.015)	0.105** (0.041)	-0.054* (0.031)	0.023 (0.019)
R-squared	0.29	0.32	0.13	0.16	0.29
F-statistic of difference	0.88	0.08	0.14	0.05	0.01
Panel - III: By level of education					
Log land inheritance * (less educated, <= 9 yrs)	-0.025** (0.011)	-0.050**** (0.008)	0.145**** (0.024)	-0.059**** (0.013)	0.039** (0.018)
Log land inheritance * (more educated, > 10 yrs)	-0.007 (0.010)	-0.015 (0.010)	0.100**** (0.024)	-0.059**** (0.011)	0.010 (0.013)
R-squared	0.48	0.44	0.25	0.28	0.41
F-statistic of difference	1.56	8.04***	1.84	0.01	2.82*

Source: Authors' calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance. Observations: 9,922. Number of households: 3,787.

Interacted models by **age** (panel – I): a dummy variable for older youth is for youth above the median age of youth in our sample, i.e., 24 years old or older, while younger youth are represented by a group below the median age cutoff.

Interacted models by **gender** of the youth are presented in panel – II.

Interacted models by **educational level** (panel – III): A dummy variable for more educated youth is defined as youth having an educational attainment level above the median year of schooling for youth in our sample, i.e., having 10 years of schooling or above, while less educated youth are those whose education attainment level is below or equal to the median cutoff for number of years of schooling, i.e., 9 years.

Additional controls include gender, age, educational level of individuals, endowment variables such as livestock, agricultural and non-agricultural assets, etc.

As shown in Panel I of Table 5, differential analysis by age groups of youth shows stark differences in elasticity to youth land access when comparing migration versus employment outcomes. Results in columns 1 to 4 show that the negative influence that access to land has in reducing all migration outcomes is more explained by the older youth as compared to younger youth. These findings are possibly due to younger youth, i.e., ages 15 to 24 years, can afford to delay migration decisions as compared to older youth, i.e., ages 24 to 35 years, as the former can still be considered as legitimate dependents of their parents. Moreover, the lower magnitude or significance level for the estimates of expected land inheritance for the younger youth can also be explained by the role agricultural skills play in migration and livelihood choice decisions. Regardless of the amount of land younger youth may expect to inherit, the influence of expected land inheritance in deterring migration could be minimal, at least as compared to older youth, since younger youth may lack the required agricultural skill set to opt for staying in agriculture. On the other hand, such comparisons between younger and older youth also shows that the positive effect access to land has on employment in agriculture is more explained by older youth as compared to younger youth. This probably is for the same reasons related to lack of skills among younger youth making this group to be not as elastic to land access as are older youth.

However, similar analyses to assess the differential effect on non-agricultural employment and employment in the dual economy was not found to be statistically significant, although the influence of land access on being involved in the dual sector seems to be favorable to younger youth. Similarly, as it is the case with non-agricultural employment effects for younger youth versus older youth individually, results from the F-statistic of differences reported under Panel II in Table 4 show that land inheritance predicts similar employment and migration outcomes regardless of the gender of the youth.

Results reported under Panel III in Table 5 are consistent with this hypothesis. We see that rural-to-urban migration and likelihood of involvement in the dual economy, as shown by the statistically significant F-test of differences in column 2 and 5, respectively, is more elastic to the size of expected land inheritance for less educated youth compared to more educated youth. Stated otherwise, less educated youth are more responsive in their decision to delay migration to urban areas if they expect to inherit relatively more land, while similar responsiveness is not seen among more educated youth. More interestingly, the agricultural ladder hypothesis on the gradual transitioning from agriculture to non-agriculture in Nigeria seems to be explained more by the less educated youth than the more educated ones, since the former group shows more elasticity to land access in their decision to get involved in the dual economy. This result may support the idea that providing improved land access to youth, such as through, for example, the establishment of youth land banks, will guarantee more success in avoiding unrewarding spatial and occupational mobility decisions of less educated youth, while having a minimal effect on the decisions of youth with relatively higher education.

To investigate further the key hypotheses of this study that youth may simply not be interested in mere land access when making migration and career decisions, but, rather, the quality of the land to which they have access is what is important as they consider its suitability land for agribusiness or agripreneurship, we conduct further analyses to assess the possible differential impact land access may have by comparing areas/locations depending on the level of agricultural modernization, commercialization, land market development, and population density. Directly or indirectly, we expect these factors to explain or influence the associated social and economic costs of migration and the opportunity costs of employment in agriculture.

Table 6: Differential analysis on the effects of land access on youth migration and employment, by level of agricultural commercialization or transformation

Variables	Migration		Agriculture only	Employment	
	Long distance	Rural to urban		Non-agriculture only	Dual sector
	(1)	(2)	(3)	(4)	(5)
Panel - I: By land market vibrancy					
Log land inheritance * (high)	-0.015 (0.009)	-0.017 (0.010)	0.046* (0.024)	-0.044**** (0.012)	0.027* (0.015)
Log land inheritance * (low)	-0.016 (0.011)	-0.042**** (0.008)	0.166**** (0.023)	-0.058**** (0.010)	0.011 (0.015)
R-squared	0.37	0.42	0.47	0.54	0.39
F-statistic of difference	0.01	4.06**	13.81****	0.92	0.60
Panel - II: By agricultural modernization					
Log land inheritance * (high)	-0.009 (0.009)	-0.028**** (0.008)	0.068 (0.045)	-0.023 (0.033)	-0.004 (0.022)
Log land inheritance * (low)	-0.027** (0.012)	-0.037*** (0.012)	0.127**** (0.019)	-0.066**** (0.008)	0.026** (0.012)
R-squared	0.33	0.35	0.5	0.57	0.42
F-statistic of difference	3.75*	2.86*	2.72*	0.31	4.56**
Panel - III: By agricultural commercialization					
Log land inheritance * (high)	-0.007 (0.013)	-0.026** (0.012)	0.121**** (0.023)	-0.053**** (0.014)	0.007 (0.013)
Log land inheritance * (low)	-0.020** (0.009)	-0.034**** (0.007)	0.116**** (0.027)	-0.064**** (0.010)	0.042** (0.018)
R-squared	0.38	0.40	0.51	0.58	0.43
F-statistic of difference	2.71*	2.89*	0.02	0.58	2.68*

Source: Authors' calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance. Observations: 9,922. Number of households: 3,787.

Models by **Land market vibrancy** (panel - I): Local Government Area (LGA) dummy variable *high land market vibrancy* for those LGA's with above median proportion of households with at least one parcel obtained either via rental or purchase (median proportion=12.3 percent), while *low land market vibrancy* is for communities with below the median proportion.

Models by **input market development - agricultural modernization** (panel - II): LGA dummy variable for high agricultural modernization for those LGA's with above median proportion of households who adopt at least one of the modern agricultural practices (median LGA proportion= 42 percent), while *low agricultural modernization* for communities with below the median proportion.

Models by **output market development – agricultural commercialization** (panel - III): LGA dummy variable for *high agricultural commercialization* for those LGA's with above median proportion of households who reported to have sold any agricultural products – such as, crop, animal or perennial plant products (median LGA proportion=39 percent), while *low agricultural commercialization* for communities with below median proportion.

Additional controls include gender, age, educational level of individuals, endowment variables such as livestock, agricultural and non-agricultural assets, etc.

Table 6 reports results on the elasticity of youth migration and employment decisions to land access by comparing Local Government Areas (LGA) based on (1) the level of agricultural modernization, (2) agricultural commercialization and (3) development of land markets. This is done by examining whether a given LGA is below or above the median in terms of its share of households (1) that adopts modern farm practices⁸, (2) that have reported the sale of at least one agricultural product⁹, and (3) that have acquired a parcel via market (rental or purchase), respectively. Consistent with the findings of similar study from Ethiopia by Kosec et al. (2018), the results from column 2 and 3 of Panel - I in Table 6 show that youth are more elastic (responsive) to the size of expected land inheritance in making the decision of spatial and

⁸ Modern farm practices: A household takes the value one if they report to have adopted at least one of these modern farm practices in at least one of their parcels, and zero otherwise.

⁹ Agricultural products include crop, animal or perennial tree products/outputs. A household takes the value one if they report to have sold at least one of these products and zero otherwise.

occupational mobility in areas with less vibrant land rental markets. It is shown that in areas where land rental market activity is low, i.e., below the median, an increase in one's land inheritance predicts a significantly lower tendency to migrate to an urban area, but a higher likelihood to be employed in the agricultural sector than that seen in areas with more active rental markets. Indicating the partial sustainability between inheritance and market-based land access, in areas with poorly developed land markets, youth not inheriting land will tend to migrate and exit the agricultural sector to a larger extent than in areas with relatively developed land markets.

Similarly, both results from Panel - II and Panel - III in Table 6 support our hypotheses that land access is only a significant predictor of youth migration and employment mobility decisions in areas with a higher level of commercialization and agricultural modernization than in areas with lower levels of commercialization and agricultural modernization. This suggests that the quantity of land to which a youth has access may not be a sufficient binding condition to influence youth migration and employment decisions. And this could explain why the literature is still inconclusive about this evidence, unless complementing factors such as access to modern farm implements and/or better market integrations activities are fulfilled. Similar to earlier findings (e.g., Chinsinga and Chasukwa 2012; Deininger et al. 2011; Holden et al. 2009a), this is also indicative of how national policy actions that focus on facilitating farmland access to youth may not succeed in achieving the desired outcomes of reducing unrewarding migration decisions by the youth, as are witnessed in many large cities in Nigeria, unless such policy interventions are complemented by measures to modernize the farming sector with better market integration.

Table 7: Differential analysis on the effects of land access on youth migration and employment - by level of urbanization and population density

Variables	Migration			Employment	
	Long distance (1)	Rural to urban (2)	Agriculture only (3)	Non-agricul- ture only (4)	Dual sector (5)
Panel - I: By level of urbanization					
Log land inheritance * (high)	0.031 (0.022)	0.006 (0.018)	0.109*** (0.039)	-0.057*** (0.019)	0.062* (0.032)
Log land inheritance * (low)	-0.026**** (0.008)	-0.038**** (0.007)	0.103**** (0.019)	-0.049**** (0.009)	0.01 (0.011)
R-squared	0.48	0.44	0.24	0.27	0.4
F-statistic of difference	5.96**	5.11*	0.02	0.17	2.74*
Panel - II: By population density					
Log land inheritance * (high)	-0.002 (0.018)	0.003 (0.019)	0.067** (0.032)	-0.061*** (0.020)	0.060** (0.024)
Log land inheritance * (low)	-0.020** (0.008)	-0.042**** (0.006)	0.139**** (0.021)	-0.058**** (0.009)	0.007 (0.012)
R-squared	0.33	0.35	0.5	0.35	0.42
F-statistic of difference	0.87	5.34**	3.62**	0.02	4.22**

Source: Authors' calculations based on Nigeria LSMS-ISA 2012/13 and 2015/16. **** $\leq 0.1\%$; *** $\leq 1\%$; ** $\leq 5\%$; * $\leq 10\%$ level of significance. Observations: 9,922. Number of households: 3,787.

Interacted models by **Level of urbanization** (panel - I): Local Government Authority (LGA) level dummy variable *more urbanized rural areas* for those LGA's with above LGA level median proportion of households who have a dwelling with modern roofing material (LGA level median proportion of households with modern roofing material=71.4 percent) and *less urbanized rural areas* for communities with below median proportion.

Interacted models by **population density** (panel - II): LGA level dummy variable *more densely populated areas* for those LGA's with above LGA level median population density (LGA level median population density= 687.7 individuals per KM²) and *less densely populated areas* for communities with below median proportion.

Additional controls include gender, age, educational level and marital status of individuals, endowment variables such as livestock, agricultural and non-agricultural assets, etc.

Dual sector engagement and the agricultural ladder hypothesis is seen more clearly in the more urbanized areas than in the less urbanized ones – showing that youth in more urbanized rural areas may not only use land access, i.e., the expected inheritance of land, as a way to diversify their livelihood into non- agricultural sector, as shown by the significant F-statistic under column 5 in Table 7, but also delay or avoid the decision on long distance migration as well as migration to urban areas – see significant F-statistic of differences in columns 1 and 2. Hence, this suggests that youth with better land access in more urbanized rural areas consider migration to urban areas as a last resort, since they seem to choose a gradual occupational shift to the non-agricultural sector.

Finally, the results reported under panel-II in Table 7 show that in more densely populated areas the potential negative labor supply effect outweighs the potential role land access plays in youth migration and employment decisions, while such mobility decisions, both spatial and occupational, seem to be more reliant on the amount of land to which a youth has access in less densely populated areas.

6. CONCLUSIONS AND POLICY IMPLICATIONS

Despite growing interest in understanding the drivers of youth migration and employment, existing empirical evidence often neglects to investigate the role that land access may play in influencing the spatial and occupational mobility decisions of youth. The handful of studies which aim to investigate the role land access has on their migration and employment decisions are not free from conceptual and methodological shortcomings (Abramitzky et al. 2013; Debnath et al. 2018; Gutu 2016; Mukthar et al. 2018; Naudé 2010; Shonchoya 2011; Wondimagegnhu and Zeleke 2017; Xing 2009), except for a study by Kosec et al. (2017). Such shortcomings include failure to disaggregate migration and livelihood choice decisions into different types of migration and employment decisions, failure to account for possible differential impact of the individual characteristics of youth, such as age, gender and educational level, and a lack of robust measure of land access – one that is less prone to issues of estimation bias.

This study, thus, aims to bridge such knowledge gap by addressing the above conceptual and methodological shortcomings in the existing literature in order to better understand why and how land access matters as part of the spatial and occupation mobility decisions of youth in Nigeria. Most importantly, we account for social and economic transformation factors to investigate how mere land access may not sufficiently explain the linkage between migration or employment decisions and land access, as witnessed by the inconclusive evidence in the existing literature. For this purpose, we take advantage of the Nigeria LSMS-ISA panel surveys conducted in 2012/13 and 2015/16. We conducted a series of differential analyses to understand how youth migration and employment decision are influenced by land access by considering social and economic mediating factors, such as development of agricultural input, output and land markets, levels of urbanization, and levels of population growth and population density. We are not aware of any study that investigates such differential effects of land access on migration and employment decisions, with a study in Ethiopia by Kosec et al. (2018) one notable exception.

Overall, the findings show that there is a significant level of youth migration and non-agricultural employment in the non-agricultural sector in Nigeria – 25.3 percent and 23.2 percent of youth in the sample are reported to be migrants and involved in the non-agricultural sector, respectively. Overall, the size of expected land inheritance is significantly and negatively associated with long distance migration and migration to urban areas, while a similar influence of land access is negligible when a broader definition of migration is adopted and when migration is deemed as temporary. A similar analysis of the influence of land access on youth employment choices provides strong evidence that the larger the size of land expected to be inherited, the lower the likelihood the youth will be involved in non-agricultural activities and a higher chance they will of stay in agriculture or in the dual sector.

A more disaggregated analysis by considering individual characteristics of the youth shows that the associations are stronger for older youth, i.e., those aged 24 to 35 years, and those that are less educated. We find no difference when comparisons are made by gender. Further comparisons taking into account the cost of migration and opportunity cost of employment in agriculture, based on comparisons by level of agricultural modernization and commercialization, show that youth in areas with high level of agricultural commercialization and modernization seem to be more responsive to land access in making migration and employment decisions than youth residing in less commercialized areas. Such a finding suggests that merely providing access to land may not be a sufficient binding condition to influence youth migration and employment decisions. This could explain partially why the literature is still inconclusive about this evidence, unless complementing factors, such as access to modern farm implements or better market integration, are fulfilled. Similar to earlier findings (e.g. Chinsinga and Chasukwa 2012; Deininger et al. 2011; Holden et al. 2009a), this is also indicative of how national policy actions that focus on facilitating farmland access for youth may not succeed in achieving the desired outcomes of avoiding unrewarding migration decisions by the youth unless such policy interventions are complemented by measures to modernize the farming sector with better market integration.

The results from the differential analysis also show that rural-to-urban migration and the likelihood of involvement in the dual economy is more elastic to the size of expected land inheritance for less educated youth as compared to more educated youth. Stated otherwise, less educated youth are more responsive in their decision to delay migration to urban areas the larger the area of land they expect to inherit, while similar responsiveness is not witnessed among more educated youth. Similarly, the agricultural ladder hypothesis in Nigeria seems to be more explained by less educated youth. Compared to more educated youth, they show more responsiveness to land access in their decision to get involved in the dual economy. Finally, from a policy perspective, this result may also suggest that providing land access to youth, for example, by establishing youth land banks, will guarantee more success in avoiding unrewarding spatial and occupational mobility decisions of less educated youth, while having a minimal impact on those with relatively higher education.

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