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Large-scale agricultural land investments and local institutions in Africa: The Nigerian case

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ABSTRACT

Africa has become the most targeted continent for large-scale agricultural land investments (LALIs) with over 60% of the global figure. Some efforts have been made to investigate the determinants of LALIs at the global level; however, scare evidence abounds regarding the characteristics of target communities in a given country particularly in Nigeria, one of the top 20 recipients of LALIs globally. This study contributes by showing how community characteristics influence the likelihood of receiving LALIs and the aspects of such community characteristics that matter. Utilising community-level data in Nigeria and estimating with probit model, some findings are made. Unexpectedly, the indicators of local institutions in the communities do not exert significant influence on the likelihood of LALIs occurrence. This supposes that the local institutions are rather overwhelmed by the state. How the local institutions can be integrated for LALIs are suggested.

Introduction

The issue of large-scale agricultural land investments (LALIs) in Africa has been attributed to the supposed availability of cheap land coupled with weak land governance. This, *inter alia*, has made Africa the most targeted region with over 60% of global foreign land deals (Brüntrup, 2011; Deininger et al., 2011; Osabuohien et al., 2013). Deininger et al. (2011) observed that out of 464 land projects, 203 included area information that summed up to 56.6 million hectares (ha) cutting across projects in 81 countries; 48% of these projects covered 39.7 million ha, representing about two-third were in Sub-Saharan Africa (SSA). Similarly, out of the 1217 publicly reported land deals, 62% of them covering a total area of 56.2 million ha are in Africa (Anseeuw et al., 2012a).

LALIs can be described as the purchase or lease of land by individuals and entities outside their country of origin. Some refer to LALIs as 'land grabbing' to depict its negative side (Cotula et al., 2009; FIAN, 2010; Brüntrup, 2011). FIAN (2010: p. 8) defined it as the "taking possession of and/or controlling a scale of land for commercial/industrial agricultural production that is disproportionate in size in comparison to the average land holding in a region". The major reasons for the increasing recent reports of LALIs include: boom for bio-fuel policies across the world; rising food prices (crisis) in the world market; and the global financial crisis of 2007/2008 that caused investors to seek alternative sources of investment with a view to reducing the effects of financial market volatility. Others are: the increasing oil price and the sale of certificate for reducing emissions (Cotula et al., 2009; Deininger et al., 2011; Cotula, 2012).

Some research efforts have been made to investigate the determinants of LALIs at the global level. These studies have identified a number of main *drivers* of LALIs including: global financial crises, bio-fuel policies, rising food prices, and so on (Cotula et al., 2009; Arezki et al., 2011; Brüntrup, 2011; Deininger et al., 2011; Anseeuw et al., 2012a). Nevertheless, little is known regarding the characteristics of target communities in a given country. The characteristics of the target localities (e.g. the availability of land, current land use patterns and population densities), can shape the socio-economic outcomes of LALIs. This can result to "land grabs" with negative implications for affected local populations or positive impact on the socio-economic development of the host communities (Nolte, 2014).

This study provides empirical evidence on the community-level determinants of LALIs in Nigeria, an important receptor of LALIs.[1]

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[1] The domestic land acquisitions are also important; however, this study is mainly concerned with foreign aspect as information regarding domestic acquisitions is scarcely available.

Thus, the main research questions are: despite the same land policy across the States in Nigeria (*as enshrined in the Land Use Act*), why do LALIs vary substantially across communities; and how do local institutions at the community-level influence LALIs in Nigeria? The next section is the conceptual framework followed by description of data and the method of analysis. The results, main findings and conclusion follow subsequently.

Large-scale agricultural land investments and institutions

The occurrence of large-scale agricultural land investments (LALIs) can be related to the nature of institutional framework as land deals, in particular, and land governance, in general, will depend to a considerable extent on the prevailing institutional quality in a country. The issue of legal and institutional framework associated with LALIs is important given the increasing role of institutions in managing economic activities and decision making process. The nature of institutional framework in a country can create choices that can affect transactions and production costs. It plays out in the formulation of policies in an economy that will be relevant for securing property rights and general shaping of relationships among economic agents (North, 1991; Williamson, 2000; Acemoglu and Johnson, 2005; Nye, 2011; Osabouhien and Efobi, 2013).

The negotiation process and the level of consultations in land deals will be determined, to a large extent, by those in authority in the host countries, which can be in alliance with the local community leaders or not. Sometimes, the position to be eventually chosen in the negotiation process will be influenced by the extent of *returns* that the prospective investors can anticipate as well as the officials representing the State (Government).[2] It is not very surprising that land investors tend to focus mainly on countries that have a weak institutional framework to maximise their returns on investments (Arezki et al., 2011; Deininger et al., 2011; Oxfam, 2013). In this light, Nolte (2014) using evidence from Zambia posits that LALIs can exhibit different aspects of *land grabs* and *development opportunities*, depending on how the actors (host communities and investors) *play the game*. The rule of the game as referred by the author relates to land governance including the formal rules, informal norms, and the process of enforcement of rules in land administration.

Anseeuw et al. (2012b) observe how the quality of governance (an aspect of institutions) can lead to adverse implications stemming from LALIs. In this perspective, weak democratisation, poor accountability and transparency will contribute to the power of political elites capturing and allocating acreage of lands 'at will'. The existence of weak legal system (e.g. poor legal structure) will result in poor property right protection and dispossession of land holdings. This study presents a conceptual framework depicting the role of institutions in determining LALIs as illustrated in Fig. 1.

It is worth noting that institutions can be categorised into traditional (or informal) and formal. This is in congruence with North (1991, 2005)'s categorisation of formal and informal institutions with formal characterised by written-down and well-documented principles that guide the affairs of a society. While the traditional (simply called local institutions here) entail unwritten moral codes, values and conducts that influences how a people (e.g. community, association) is organised (North, 2005; Osabouhien and Efobi, 2013).

The formal institution regarding land deals in Nigeria is documented in the land policy captioned the Land Use Act of 1978. The Act entrusts on the government (at the States) the custodian right to issue certificates of occupancy for land holders within their territories (Mabogunje, 2010; Adeniyi, 2011). Thus, it can be said to be the same across the 36 States in Nigeria and the Federal Capital Territory-Abuja. As can be seen in Fig. 1, the government through its agencies (the Land Committee and ministries related to land) working within the embodiment of the legal rules of the country and in accordance to the Land Use Act have direct contact with the potential land investors. The outcomes that emanate from the contact based on the negotiations and the agreement to be reached will depend on both the quality of the rules and those of the public officers.

The local institutions comprise the community leaders who can act on behalf of the members of the community. The community leaders can be seen as the embodiment and custodian of the customs, beliefs, norms and values in the community and this can vary across communities. For example, in some communities, the head of the community is the oldest man, while in some (where the hereditary system operates) the first son of the King and Chief takes over after the death of the father. The focus here is on informal institutions, which has not received much emphasise in extant works. Thus, variations in different communities within and between States in Nigeria will then be considered under the purview of local institutional system in addition to other community factors. If the community leaders are *powerful* and not self-seeking they can defend the interest of the members of the community.[3] This will be based on the electoral strength, which may be a good bargaining power for voting during elections. Hence, it is not unusual to see political aspirants holding meetings with community leaders to solicit for their votes and those of the households in the community. It is the same power that could be utilised by the community leaders to influence the negotiations for LALIs.

In the event of LALIs, the investors can opt for a given location of land after getting some clearance from the State Government. The members of the community that occupy the land may not have the capacity (technical, information, resources) for the negotiation process and can rely on their community leaders. These community leaders convey the desires of the members to the potential investors. They can also act on the bidding of the State Government like in the case of Kwara State (Ariyo and Mortimore, 2012). Thus, there is a weak connection between the local institutions and potential investors as denoted by thin-dashed arrow in Fig. 1. In many developing countries, land titles are poorly defined (Goldstein and Udry, 2008; Bromley, 2009). Many in the communities do not own titles for their land and as result the discretion and negotiation of the Government and investor *hold sway* as the Land Use Act has empowered the State Government.

Unlike the formal institutions, how the local institutions interact with LALIs is not clear in the literature. Local institutions do not have much legal power and recognition regarding contending with the power of the state on issues that matter to the community. In Fig. 1, this is represented by the curved-thin arrow with question mark. Similarly, the kind of contact between traditional leaders and potential land investors is not clear. Other community features such

[2] Corruption can influence the process as some public officials can be *bought over* to play down on the *due process*. In large-scale land deals, environmental impact assessment is supposed to be carried out, but when the public officers are corrupt; this requirement can be undermined or shabbily done. How corruption occurs and matters for LALIs is sufficient for another research.

[3] There is the possibility of community leaders getting corrupt. In this case, there will be inadequate community consultation, which will weaken the local institutions.

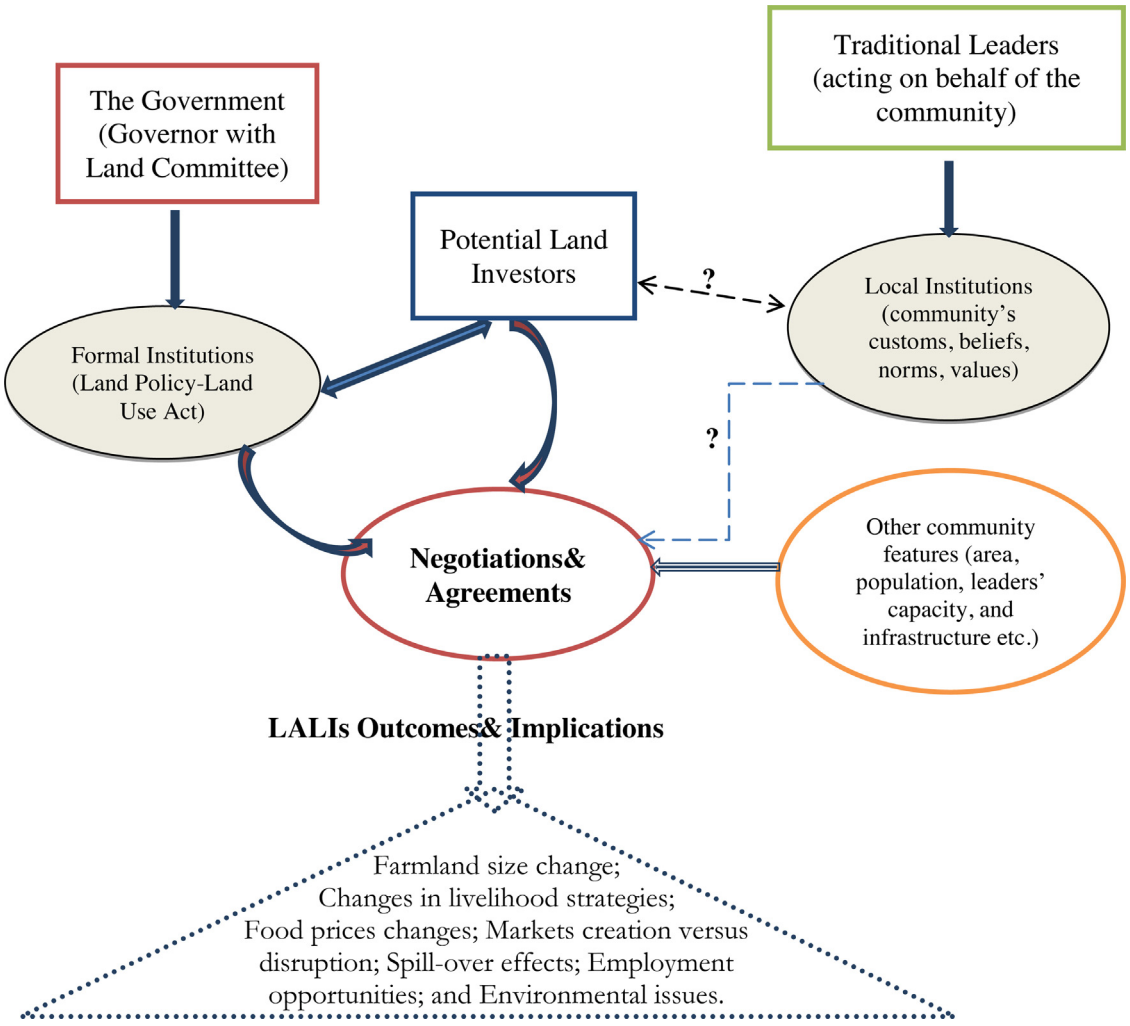

Fig. 1. The conceptual framework.

as the area, population, infrastructure, and the leaders' capacity can have some roles to play in influencing LALIs.[4]

Taking a swift leap into history will provide some useful insights into how the undermining of the local institutions on the issue of land acquisition, project development and execution can lead to consequences such as abandoned projects and below expectations delivery of development project. Baldwin (1957) and Kohnert (1979, 1986) give some lessons from Nigeria using the Niger Agricultural Development Project in Mokwa District (Niger State). The scheme had resettlement plans (just like LALIs should have, among others). Despite the large investment of funds, the scheme failed in many respects chiefly due to the fact that the implementers (*forces from above*) did not take into cognisance the concerns of the host communities (*voices from below*).

The successor of the Niger Agricultural Development Project, the Mokwa Cattle Ranch, a development project based on bilateral arrangements between the Nigerian and German Governments, was established in 1964 and handed over to Niger State Government in 1974. It failed and the ranch finally closed in 2004 after many years of ailment (Okaiyeto and Abubakar, 2006). Some of the causes of the failure were the obsolescence of plants and machineries as well as negative macroeconomic shocks. Another factor, possibly most crucial, was poor managerial capacities, as the management that took over from the Germans was appointed by the government without due consideration to qualifications and to the felt needs of the local communities.

The World Bank assisted to recover the project area through large-scale agricultural development schemes (maize farming) within the Bida Agricultural Development Project. It was designed to benefit about 60,000 farmers that are located in the southern parts of Niger State, which failed again (World Bank, 1988). In fact, the first concern was the understanding of the real constraints limiting farmers' production. The major reason of failure was the hubris of Western development experts and their transfer of technology approach that disregarded local conditions as well as the needs, views, resources and agricultural practice of local farmers at the grassroots.

The main insight from this short historical perspective is that neglecting the peculiarities and significance of local institutions will not deliver the expected outcomes from LALIs.[5]. In other words,

[4] Other factors such as quality of land (soil fertility, ability to mechanise), closeness to markets are also relevant; however, information on them is not available in the data.

[5] As highlighted in the triangle with broken lines at the end of Fig. 1, the list of the LALIs outcomes and implications include: effects on the size of farmlands; changes in livelihood strategies; effects on food prices; markets creation versus diversion; spill-over effects in terms of technological transfer; employment opportunities; and environmental issues. The nature and extent of these implications will depend on

LALIs that will follow the integration of local institutions will have better outcomes as the community will not see the investors as total aliens or government *stooges*. In essence, it will be in the interest of not only the host communities but also of the government and the investors. This is important as frequent conflicts between the host communities and the land investors are commonly reported. In many cases, the government used the temporary tool of armed forces to quell the crises, which resurface after a short time. In few other cases investors have abandoned their project due to persistent conflicts. Instances of conflicts relating to land deals have been reported in Cambodia, Honduras, Mozambique (Oxfam, 2012), Côte d'Ivoire, Democratic Republic of Congo, Kenya, Uganda (Van Der Zwan, 2013), and so on.

Data and method of analysis

The data

The study engages quantitative data using two main sources, namely: the Land Matrix and the Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS_ISA). The Land Matrix gives information on the locations (Local Government Areas-LGAs) in Nigeria where LALIs occur. The new version (Beta Version 2) of the Land Matrix Database was launched 10th June, 2013 (Land Matrix, 2013). The Land Matrix dataset documents potential and enacted land transactions and deals across the world with information on the location of LALIs as well as the intended size and contract size. Details on the investors, origin, destination, activities and total deals are also included on Land Matrix Database (Land Matrix, 2013). The recent paper by Anseeuw et al. (2013) gives a handy summary of the data covered and scope of Land Matrix, which sheds some light to the concerns raised on the reliability of the data (Scoones et al., 2013; Oya, 2013).

The LSMS_ISA was conducted by the World Bank in collaboration with Nigeria's National Bureau of Statistics.[6] The dataset from LSMS_ISA covers the 36 States in Nigeria including Abuja.[7] The data are classified into three groups: agriculture, households and community for the two waves of the survey (post-planting and post-harvest). For the purpose of this study, the community-level data is utilised involving the merging of both the post-planting and post-harvest data as the variables of interest are in either of the two. The post-planting interview was carried out August–October, 2010, while the post-harvest was conducted February–April, 2011. There are 500 Enumeration Areas (EAs) sampled from the total of 774 LGAs in Nigeria covering the urban and rural areas in the 36 States of Nigeria plus Abuja. An EA is a component of the LGA. Nigeria runs three tiers of government: Federal, States and Local. The data is aggregated at the LGA-level as information on LALIs from Land Matrix provides location at LGA. This is also besides the fact that LGA is the tier of government that is believed to be closest to the grassroots. In all, there are over 400 LGAs in the study. Thus, for the purpose of this study a community is almost synonymous as LGA.[8] The good thing about the LSMS_ISA data is that information about the location (LGA and EA) is unique in both the post-planting and post-harvest data files. The response to the community questionnaire is provided in a kind of key informant interview done in groups with each group comprising at least five persons (e.g. community leaders) that have sufficient knowledge of the community.

The empirical model

The empirical model is formulated with a view to providing evidence on factors that determine the occurrence of LALIs in a community. This is given the understanding that studies (e.g. Arezki et al., 2011; Cotula, 2012; Oxfam, 2013) have noted at the global level that availability of land and weak institutions are the main drivers of LALIs in developing countries. The interest of this study is on within country factors. In other words, given that LALI is good, what factors will make community i to attract it, and if LALIs suggests cost to the community what factors will make community i not to be targeted or to resist it. Thus, the model to underscore how community characteristics influence the likelihood of LALIs is formulated as:

$$Pr(LALI_i = 1) = \Phi(\alpha_0 + \alpha_1 X_i + \alpha_2 Z_i + e_i) \quad (1)$$

LALI: The occurrence of LALIs in community i or not. The data from Land Matrix is used to construct this variable by categorisation of the communities.

X_i: Set of community characteristics. These include indicators of modern infrastructure (measured as the availability of modern means of transportation (*transpdum*), local institutions proxied by presence non-state actors (*NSAs)*; activities of non-state actors (*meetfreq*); information on women access to land (*womenaces*).[9] Other variables include: the educational attainment of the community leaders (*educ_post*). These variables are obtained from LSMS_ISA.

Z_i: Other control variables such as the total area of the community (*area*) in square kilometre ('000 sq km) and population of the community in thousand persons (*popu*); *area* and *popu* are continuous variables and are obtained from the Nigeria's National Population Commission (NPC). Given the security issues that has *rocked* the Nigerian state in recent years, a continuous variable for security captured by the average number of violent death in the communities between 2006 and 2011 (*security_avg*) sourced from Nigeria Watch (2012) was added to investigate if it matters for LALIs or not. The type of vegetation and geographical location proxied by the amount of rainfall in 2011 (*rainfall*) was also examined. This is obtained from United Nations Institute for Training and Research – UNITAR (2011).

Definition of variables and expected signs

LALI: The dependent variable that indicates the occurrence of LALIs in a community. It is a categorical variable that takes 1 for community '*i*' that has LALI, and 0 if not.

factors like terms of the agreement, the kind of activities engaged by the investors, and so on, which can be taken up in another study.

[6] The dataset, structured questionnaires, manuals and codebook are available online (http://go.worldbank.org/7WAX56IJP0). Besides Nigeria, other African countries covered by the LSMS_ISA include: Ethiopia, Malawi, Mali, Niger, Tanzania, and Uganda.

[7] Political sensitivity of data such as controversy on politically biased population censuses in Nigeria may be raised (e.g. Devarajan, 2013). However, the LSMS_ISA is less tensed and will not attract such political interest like census because census figures can be used to influence resource allocations amongst the tiers of government.

[8] It may not be totally representative of the communities in Nigeria due to diverse ethnic inclination; it however, provides useful insights on the characteristics of Nigerian communities.

[9] Another indicator of local institutions that would have been of interest is the connection between the community leaders and the State Government (Governor) or from the same ethnic and religious background. However, such information is not available. An index for local institutions was created using Principal Component Analysis (PCA) by adding whether the community is able to determine independently the rule of access and use of its communal resource or not and the recognition of communal resource by the traditional authorities to *NSAs* and *meetfreq*.

Transpdum: The proxy for availability of modern means of transportation in the community. This was constructed from the means of transportation that is mostly used in the community. The dichotomisation was made by classifying presence of modern commercial transportation inclusive of bus or minibus, taxi and boat as 1 and 0, if otherwise.[10] The expectation is that better means of transportation should reduce cost of transportation (including time) and production. Thus, positive sign is expected.

NSAs: Is an indication of the presence of Non-state actors and community organisations such as village development committee, agricultural cooperative, savings and credit cooperatives, and other non-governmental organisations-NGOs. When these NSAs are available, it is denoted as 1, and 0 if otherwise. *NSAs* have been known to play role in sensitising communities on *rumours* of LALIs before the deals are concluded (Grain, 2013). In the case of Malawi, Jumbe and Angelsen (2006) have observed that village-level organisations can help in managing resource and assist in reducing natural resource degradation. Therefore, negative sign is expected.

Meetfreq: Captures the frequency of meeting of the largest NSAs as the presence may not matter much but their activities. It was constructed by denoting weekly, monthly and quarterly meetings as 1, and 0 if only once or twice a year. Just like *NSAs, Meetfreq* is expected to be negative. *NSAs* and *Meetfreq* are used alternatively as informed by a correlation test (not reported).[11]

Womenaces: Measures the extent to which women in the community have access to land, which is an indication of land accessibility as women in most Nigerian society usually do not have land access given the patrilineal system to property inheritance including land. Peters (2013) commenting on the land policy of Malawi notes reasons for incessant unequal inheritance by male and female children as due to difference in defining *types of women* and *gendered statuses of women*. This variable is categorised as 1 if women have access to land for cultivation, and 0 if otherwise. Negative sign is expected just like *NSAs* and *Meetfreq*.

Educ_post: Measures the level of educational attainment in the community represented by community leaders. It derived by taking 1 if the community leaders have at least post-primary education and above; and 0 if less than post-primary education. Given that education empowers people, it should be expected that communities with more educated leaders will demand adequate compensation regarding LALIs, which means more sunk cost to investors. Thus, negative sign is expected.

Area: Is the size of the community land mass (in '000 sq km). From the resource-seeking argument (Deininger et al., 2011; Cotula, 2012), communities with large expanse of land will likely be targeted by LALIs; hence, positive sign is expected.

Population: Is the population of the community in thousand persons. The expected sign is negative as they will mount domestic pressure on the use of land. However, if population is seen as means of providing labour for agricultural activities (in rural areas), the sign can be positive. The sign is not clear a priori.

Density: Population density derived by dividing population by area (mainly introduced for robustness check). Negative sign is expected as sparsely populated community will have less pressure on land.

Security_avg: Shows the possible security challenge in a community as measured by the average number of violent death in the communities between 2006 and 2011. The expected sign is negative on the premise that security challenges will affect LALIs inversely.

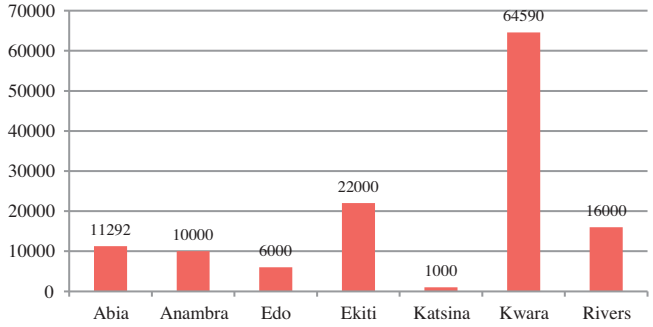

Fig. 2. Reported land deals (intended size in hectares – ha) in Nigeria.

Rainfall: Gives an indication on the type of vegetation and geographical location. This is proxied by the amount of rainfall in 2011. Typically the vegetation cover in Nigeria, which is determined by rainfall distribution falls into two broad belts of vegetation types (forest and savannah). A breakdown of vegetation types in Nigeria starting from the coastal region to the north include: saline water swamp, freshwater swamp, tropical evergreen rainforest, guinea savannah, the mountain vegetation, sudan savannah, and sahel savannah. It is expected that locations with reasonable amount of rainfall will be more suitable for agricultural activities, and as such a positive sign is expected.

The model is estimated using logistic regression technique based on probit model as the dependent variable is a categorical. All the sampled communities are first estimated and estimation using sub-sample for only rural communities is carried out to take into account the distinctive feature of rural communities.

Empirical evidences and discussion

The extent of large-scale agricultural land investments-LALIs in Nigeria

In the Beta Version 2 of the Land Matrix, there is distinction between concluded deals (indicating contract size) and reported deals (with intended size). The distinction does not matter much for the current paper because emphasis is on how community characteristics influence the likelihood of a community receiving LALIs or not. In this wise, the tendency for such to occur or not in a given location is of essence – the display of interest and demand for land in a community (Anseeuw et al., 2013).

An examination of the land deals as presented in Fig. 2 bring to the fore that LALI in Nigeria concentrates in few very States. This is an indication of enormous variation regarding the LALIs in African countries like Nigeria. It might also have resulted from the fact that these are the States where such LALI occurrence is widely reported and documented due to the *secrecy* that shrouds LALIs (Anseeuw et al., 2013; Oya, 2013). For instance, in all the deals reported for Nigeria, to the best knowledge of this researcher, only the one that occurred in Shonga (*Tsonga in Nupe* dialect) of Kwara State have received academic commentary (e.g. Mustapha, 2011; Ariyo and Mortimore, 2011, 2012; Olawepo, 2012). This attention stemmed from the wide media report regarding the negotiation and acquisition process as the Kwara State Government (led by the then Governor 'Bukola Saraki) was interestedly involved.

The variation may also result from the fact that only the States where the basic information criteria of the Land Matrix are fulfilled. Aside from that, in the respective States concentration is also observed. For instance in Kwara State, there are about 15 reported

[10] In the dataset (LSMS_ISA) the reported means of transportation include: walking, mule/donkey, bicycle, car/motorcycle, bus/mini-bus, taxi, and boat; and one or more of them are used in Nigerian communities.

[11] The correlation test also confirms that there is no issue of multi-collinearrity among the independent variables. The issue of endogeneity like getting valid instruments for the indicators of local institutions and lagging the variables can be done in follow-up study particularly when examining the implications of LALIs, which will be possible when more versions (*waves*) of LSMS_ISA for Nigeria become available.

deals across communities while two are reported in Ekiti State. In the public interface of the Land Matrix, there are 23 deals reported for Nigeria based on the criteria (e.g. minimum of 200 ha). However, in the internal database there are 44 reported deals with some having smaller size such as 20 and 50 ha in Patigi and Edu LGAs, respectively of Kwara State.[12]

In addition, the land deals in Land Matrix comprise investment across various sectors such as agriculture, mining and industry as main intentions of the investors.[13] About 90% of the cases in Nigeria are intended for agricultural purpose, comprising: food crops, livestock, and non-food agricultural crops-agrofuels. This study focused only on those that are related to agricultural sector as it has been seen to be essential for developing countries (Oya, 2009). The above choice is also based on the understanding that more than 70% of the population especially in the rural areas is employed in the agricultural sector in Nigeria (National Bureau of Statistics, 2010; Olawepo, 2012). The basic summary from this sub-section is that despite the fact that only LALIs in Kwara State is publicised, there are intentions, negotiations and operations of LALIs occurring in other locations in Nigeria. Another is that the LALIs tend to concentrate in a handful of States in Nigeria.

Summary statistics of selected variables

This sub-section presents basic summary statistics on the main variables in the empirical model. The mean and the standard deviation across all the sampled communities as well as only communities with LALIs and those without LALIs are presented and brief comparisons made between them. These are reported in Table 1 and Table A1 (in the Appendix).

The mean values indicate that the existence of some observable differences between communities that have experienced the occurrence of LALIs and those that do not. Using how far it takes on the average to access the location of social amenities (such as banks, police station, post-primary education centre, hospital), communities with LALIs have lower values, indicating better infrastructure. In effect, the distance in communities without LALIs is almost double those with LALIs (see Table A1). This is in alignment with common wisdom as better infrastructure will reduce cost of transporting farm inputs to location and farm produce to market. A similar analogy is the fact that both cost of land and labour are cheaper in communities with LALIs. Whereas it costs 73,940 naira to purchase an acre of land and 3670 naira to hire labourers to work on an acre of land in communities with LALIs, it costs 361,640 naira and 3916 naira in communities without LALIs. The possible connotation of this is that LALIs will likely occur more in communities that have cheaper land as well as cheaper labour.

As can be observed in Table 1, the size of the area and population in communities with LALIs tend to be higher than those without LALI. In communities with LALIs the average size is about 1911 sq km with an average population of 224,240 persons but communities without LALI have average size of 1174 sq km and population of 200,660 persons. The value for density informs that LALIs communities have lower population density with the average of 981 persons per sq km compared to those of non-LALIs with the average value of 1046 persons per sq km. This seems to suggest the possible resource (land and labour-population) seeking tendency of LALIs. A glance at other variables reveals that though communities with LALIs tend to have little more existence of NSAs but it has less women access to land than those communities without LALIs. The amount of rainfall was higher in communities that have LALIs presence with the value of 235.00 mm than that of communities without LALIs with the value of 214.95 mm.

Regression results

The regression results were carried out both for the entire sample and for rural communities sub-sample but only results for the rural communities are presented and discussed. This was informed by the understanding that land may be more available in rural areas for LALIs than urban areas due to other competing uses (e.g. residential and industrial purposes).

As reported in Table 2, the estimation in Column A is used as the baseline model involving the area, population and an indicator for infrastructure (*transpdum*) as the main independent variables. In Table A2 (in the Appendix), population density was used instead of the disaggregated component of area and population with a view to accessing if the population density in a community matters in influencing LALIs.

The indication of infrastructure had the expected positive sign in the specifications of Table 2, suggesting that LALIs will likely go to areas with better infrastructure but the variable was not significant at 10%. This may mean that there is not much difference in rural areas in terms of infrastructure, which implies that infrastructure does not play significant role for a community attracting LALIs or not particularly those that are related to agricultural investments. Another important finding is that area of the community exerts consistent positive and significant influence on the likelihood of LALIs occurring in a community. This confirms the resource seeking argument that communities with large size will be more likely to attract LALI. It also supports basic intuition that communities that have large area will have more acreage of land that can be leased or purchased for the purpose of LALIs.

On the other hand, population of the community has negative sign in all the specifications and is equally significant. The reason for the negative sign can emanate from the intuition that communities with large population already have domestic pressure for land and as a result may not likely attract LALIs. Thus, one can state that the greater the population density of the communities, the less likely it will be *juicy* for the attraction of LALIs. Putting this differently, the smaller the population density of a community, the more likely it will play recipient to LALIs, ceteris paribus. Using the case of Nupeland in Northern Nigeria, Kohnert (1979) has made a related argument.

The above argument becomes clearer when one takes a glance at Table A2 (in the Appendix) where population density is used in the specifications directly. The coefficient of population density had consistent negative signs in all the regressions and significant in a number of them. The connotation of this finding is that population density of a community influences the attraction of LALIs inversely. This is not far from reality as communities with high population density will have domestic pressures for land, which will make LALIs unattractive as the domestic pressure can create room for resistance to LALIs. Ansoms (2010) have mentioned a similar observation using the case of local populations in rural Rwanda.

One rather surprising finding from the results is that the variable security came with positive sign in all the specifications contrary to the expected negative sign. Though it does not have much significant influence, the results suggest that the security level of Nigeria's communities do not significantly influence the attraction of LALIs. This may also be the fact that LALIs in Nigeria do not occur much in some security *challenged* areas of Niger Delta and some Northern

[12] I thank the GIGA partner of the Land Matrix for supplying data from the internal database during my fellowship period.

[13] Apart from the 'White Zimbabwean farmers', others are from Belgium, China, France, India, Italy, Republic of Korea, Saudi Arabia, Singapore, Syria, United Sates of America, and Vietnam.

Table 1
Summary statistics of variables in LALIs and Non-LALI communities in Nigeria.

Name	Description	All		With LALIs		Without LALIs	
		Mean	S.D.	Mean	S.D.	Mean	S.D.
Transpdum	Presence of modern means of transportation; yes = 1, 0 if otherwise	0.5459	0.4874	0.5333	0.5164	0.5426	0.4880
Nsas	Existence of NSAs; yes = 1, 0 if otherwise	0.2971	0.4575	0.4499	0.5071	0.2932	0.4558
Meetfreq	If NSAs meet more than twice a year = 1, 0 if otherwise	0.2126	0.3961	0.3333	0.4499	0.2080	0.3938
Womenaces	Women access to land tenure, yes = 1, 0 if otherwise	0.3309	0.4567	0.2333	0.3716	0.3346	0.4595
Educ_post	Post primary education and above = 1, 0 if otherwise	0.3937	0.4892	0.4667	0.5164	0.3910	0.4886
Area*	Area of the community ('000 sq km)	1.201	1.413	1.911	2.825	1.174	1.330
Popu*	Population of the community ('000 persons)	201.52	113.67	224.24	121.97	200.66	113.42
Density*	Population density (persons per sq km)	1043.00	3418.51	980.47	1480.77	1045.37	3471.62
Security_avg*	Average annual number of violent deaths	12.57	28.46	29.79	43.66	11.92	27.59
Rainfall*	The amount of rainfall (in mm)	215.48	85.55	235.00	49.17	214.95	86.32
Observations (no. of communities)		413		15		399	

Source: Author's computation
Note: Only the means and standard deviation (S.D.) are presented. The mean values are the means of the medians. The mean and S.D. for the dependent variable (*LALIs*), which are only applicable for 'All' are 0.0362 and 0.1871, respectively.
* These are continuous variables.

States where there is aggression on the issue of resource and political power control. Another reason may be that the attacks by *Boko Haram* were not rampant at the time the survey was conducted.

In specification C of Table 2 and C1 of Table A2, the amount of rainfall had the expected positive sign and was also significant. This denotes that communities that have greater proportion of rainfall will be more likely to attract LALIs. It can also be understood from the premise that communities with reasonable amount of rainfall will be more suitable for agricultural activities as it will suggest less demand for alternative source of water.[14]

A skip to the another variable in Table 2 – the level of educational attainment implicate the fact that communities with better information proxied educational level of their leaders (*educ_post*) will be less likely to attract the LALIs. This is based on its negative and significant coefficient. Thus, in communities where the leaders have more educational attainment, there will be more awareness on the issue of LALIs and such communities and will likely demand more (from the investors and State Governments); hence, the likelihood that such communities will be targeted for LALIs will be lower, ceteris paribus

For the indicators of local institutions, only women access to land had the expected negative sign. Others like the presence and activities of NSAs had positive signs but none of them was significant.[15] This finding underscores that local institutions do not play influential role regarding LALIs. It may not be far from the 'realities on the ground' as in most cases the local institutions can be *shadowed* by the State (Oya, 2013). This helps to suggest the need to strengthen local institutions such as providing mechanisms where the potential communities that LALIs is intending to occur can be represented in the negotiation process right from the outset. Some countries like Zambia and Uganda have started this with the formation of the Zambian Land Alliance (http://www.zla.org.zm/) and Ugandan Land Alliance (http://ulaug.org/). Such alliance can play important roles in helping the local communities to be informed of the intention of LALIs and how they can negotiate crucial issues like compensations, resettlement and among others (Nolte, 2014).

In Nigeria, such organised mechanism is not yet in existence apart from the farmers' association whose leaders do not have sufficient knowledge of LALIs issues. Education of non-state actors (e.g. NGOs) in this regard through the formation of system for issues involving LALIs will be a right stem in the right direction towards ensuring better outcomes from LALIs. Grain at the global level is doing this in some bit but there is extent it can do given their limited staff strengthen and coverage (Grain, 2013). The creation of Nigeria's Land Alliance (it can be another name what matters is the activities) at National, State and LGAs will be essential in ensuring that the LALIs occurrence does not lead to 'land grab' but portrayal of development opportunities just as government and investors have often canvassed.

The results could also help to form a departure from the thinking that local institutions always resist the issue of LALIs, rather from the positive sign it could play a supportive role if properly *nexused* and integrated in the process of negotiation and consultation regarding LALIs. Involving local institutions in LALIs will foster stronger relationship and the issues of rancour and use of forces from the government to suppress the voices of the communities will not be essential. In summary, appreciating and involving local institutions will be essential in the transformation of the agricultural sector for productivity and progress of the developing counties within the purview of LALIs.

Some robustness checks were carried out as reported in Table A3 (in the Appendix). This is to check if domestic cost of land and labour play any significant influence for LALIs in a community.

[14] This is interpreted with some element of caution as the variable was only available at the State level not LGAs; however, within a State there is not much variation in vegetation covers.
[15] Even when principal component index, *PCA_r* was done using principal component analysis in the last Column of Tables 2 and A2, the non-significance did not change.

Table 2
Results from probit regression in rural communities.

Variable	Dependent variable: the likelihood of LALIs Occurring							
	A	B	C	D	E	F	G	H
Transpdum	0.1609	0.1681	0.1283	0.0486	0.0034	0.0124	0.0302	0.1505
	(.687)	(.677)	(.794)	(.902)	(.993)	(.976)	(.944)	(.711)
Area	0.2547[a]	0.2635[a]	0.1613	0.2820[a]	0.2876[a]	0.3018[a]	0.3493[b]	0.3089[a]
	(.004)	(.005)	(.189)	(.010)	(.010)	(.006)	(.024)	(.002)
Popu	−0.0053[a]	−0.0063[a]	−0.0067[a]	−0.007[b]	−0.0071[b]	−0.0071[b]	−0.0083[b]	−0.0072[b]
	(.003)	(.009)	(.091)	(.024)	(.024)	(.019)	(.019)	(.010)
Security_avg		0.0108	0.0216[c]	0.0118	0.0123	0.0126	0.0118	0.0101
		(.110)	(.072)	(.127)	(.121)	(.108)	(.150)	(.162)
Rainfall			0.0016[b]					
			(.058)					
Nsa				0.3720				
				(.436)				
Meetfreq					0.5677	0.5520	0.5739	
					(.261)	(.266)	(.267)	
Womenaces						−0.2876	−0.2884	
						(.395)	(.422)	
Educ_post							−0.6555[b]	−0.6340[b]
							(.015)	(.019)
PCA_r								0.0226
								(.734)
Constant	−1.6985[a]	−1.658[a]	−1.6901[a]	−1.6404[a]	−1.6425[a]	−1.5627[a]	−1.2942[a]	−1.4176[a]
	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)	(.000)
Pseudo R^2	0.1507	0.1704	0.1078	0.1807	0.1922	0.1995	0.2304	0.2028
Log pseudo likelihood	−28.01	−27.36	−17.55	−27.02	−26.64	−26.40	−25.38	−26.29
Obs.	290	290	203	290	290	290	290	290

Source: Author's computation.
Notes: *P*-values are in parenthesis. Superscript a, b, and c denotes significant at 1, 5 and 10% respectively. All the equations corrected for robust standard errors. Marginal effects were examined in all the specifications but not reported for space. *PCA_r* (an index for local institutions) was derived using principal component analysis by incorporating the ability of the community to determine independently the rule of access and use of its communal resource and the recognition of communal resource to *NSAs* and *meetfreq*.

The results in specifications I and II, reveal that domestic cost of land and labour had negative sign denoting that communities with both lower cost of land and labour will attract LALIs but such tendency was not significant. In other words, both domestic cost of land do not paly meaningful role on the likelihood of LALIs being in a community. In addition, another functional form of the regressions were made using the logarithmic transformation of the key non-categorical variables (area and population) as well as their possible interactions with some local institutional variables (*NSAs* and *Meetfreq*) to examine if there could be significant changes to the results. As could be observed from the specifications III–VIII of Table A3, there was not noticeable changes to the pattern of the main results that were earlier reported in Table 2. The implication of this is that the results do not have significant functional bias and as such are reliable.

Summary and conclusion

The study made efforts in unravelling how community characteristics can influence the likelihood of receiving large-scale agricultural land investments (LALIs) and the aspects of community features that are vital. This is an important contribution to existing literature. It is particularly of interest as not much empirical evidences have used Nigeria, one of the top 20 destinations of LALIs globally. In sum, the community characteristics that explain variation in the LALIs across the rural communities in Nigeria include the size of the community (area), its population (and by extension, population density), and educational level of the community leaders as well as amount of rainfall accounting for vegetation cover. Factors like local cost of land and labour, infrastructure and security situation do not play significant role in affecting the likelihood of LALIs being attracted to a community. In effect, it could be stated that communities with large area, low population, high amount of rainfall and where the leaders have low educational attainment will more likely receive LALIs in Nigeria.

It is quite surprising to observe that the indicators of local institutions in the communities do not exert significant influence on the likelihood of LALIs occurrence in Nigeria. This might be anchored on the power relations involving LALIs where the *force* from the State as empowered by the Land Use Act and possibly working with the potential investors can undermine local institutions within the communities and thus the communities cannot but comply, at least in the short-run. In this line of envisaging, formation of non-state actors to help educate, enlighten and work with local communities is recommended. The Late President Umaru Musa Yar'Adua made efforts to set-up Presidential Technical Committee on Land Reform (PTCLR) to review some of the clauses on the Land Use Act. However, his demise (May 2010) and subsequent change of government has not helped as the key recommendation from the Committee (transforming it into a standing commission) is still awaiting debate at the National Assembly.[16]

Issues for further research to complement this study include: examining similar community-level characteristics in other African countries that are also major recipients of LALIs to compare with the results of this study. It will also be of interest to take a look at the other LALIs in other States of Nigeria besides Kwara State and do in-depth case study using qualitative data to complement this quantitative data approach. This will help to investigate the implications of LALIs in the communities and the households in such communities.

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Appendix.

Table A1
Additional summary statistics of other variables.*

Name	Description	All		With LALIs		Without LALIs	
		Mean [Obs.]	S.D.	Mean [Obs.]	S.D.	Mean [Obs.]	S.D.
Distance*	Distance (km) of social amenities from community centre	17.74 [348]	29.41	8.75 [8]	9.78	17.95 [340]	29.69
Laborcost*	The amount workers are paid by acre† ('000 naira)	3.906 [263]	3.617	3.670 [10]	3.391	3.916 [253]	3.632
Landcost*	Cost of an acre† of land ('000 naira)	352.39 [249]	2128.34	73.94 [8]	173.01	361.64 [241]	2162.70

Source: Author's computation.

Notes: Only the means and standard deviation (S.D.) are presented. The mean values are the means of the medians.

* These other continuous variables are only used as additional information and robustness check. The reason for this is that they are not the main focus and they had missing values as reflected in their observations [Obs.].

† An acre of land is approximately 0.405 hectare. The average exchange rate of 1 USD to Naira was 150 between late 2010 and early 2011 when the LSMS_ISA was conducted.

[16] This was confirmed by a telephone interview with one of the members of the PTCLR June, 2013.

Table A2
Results from Probit Regression in Rural Communities (*with Population Density*).

Variable	Dependent variable: the likelihood of LALIs occurring							
	A1	B1	C1	D1	E1	F1	G1	H1
Transpdum	0.1058 (.775)	0.1149 (.756)	0.0464 (.933)	0.0610 (.861)	0.0093 (.979)	0.0035 (.992)	0.0052 (.988)	0.1117 (.753)
Density	−0.0035[c](.098)	−0.0035(.104)	−0.0048(.160)	−0.0037(.130)	−0.0037(.121)	−0.0039(.106)	−0.0042[c](.079)	−0.0039[c](.077)
Security_avg		0.0074 (.245)	0.0188 (.105)	0.0076 (.253)	0.0079 (.243)	0.0083 (.219)	0.0073 (.274)	0.0064 (.321)
Rainfall			0.0048[a] (.007)					
Ngo				0.1655 (.696)				
Meetfreq					0.3693 (.401)	0.3508 (.414)	0.3248 (.446)	
Womenaces						−0.2287(.461)	−0.1929 (.545)	
Educ_post							−0.3016 (.342)	−0.3538 (.263)
PCA_r								0.0181 (.814)
Constant	−1.699[a] (.000)	−1.518[a](.000)	−2.433[a](.000)	−1.518[a](.000)	−1.524[a](.000)	−1.404[a](.000)	−1.257[a] (.000)	−1.336[a] (.000)
Pseudo R^2	0.0928	0.1028	0.1748	0.1050	0.1128	0.1183	0.1276	−29.156
Log pseudo likelihood	−29.92	−29.59	−16.23	−29.52	−29.26	−29.08	−28.77	−29.00
Obs	290	290	203	290	290	290	290	290

Notes and source: Same as in Table 2.

Table A3
Additional regression results for robustness checks.

Variable	Dependent variable: the likelihood of LALIs occurring							
	I	II	III	IV	V	VI	VII	VIII
Transpdum	0.1912 (.740)	0.1788 (.745)	0.1765 (.651)	0.1746 (.649)	0.0468 (.908)	0.0174 (.966)	0.0373 (.930)	0.0054 (.990)
Area	0.4441[a] (.000)	0.3329[a] (.004)			0.3276[a] (.003)	0.3230[a] (.003)	0.3332[a] (.002)	0.3304[a] (.002)
Popu	−0.0119[a] (.001)	−0.0050[b] (.014)			−0.0080[b] (.013)	−0.0077[b] (.012)	−0.0066[b] (.020)	−0.0063[b] (.026)
Lnarea			0.5223[b] (.033)	0.6200[b] (.016)				
Lnpopu			−0.6576[b] (.044)	−0.7399[b] (.048)				
Security_avg			0.0085 (.195)	0.0074 (.284)				
Educ_post	−0.7180[b] (.031)	−0.4810[c] (.063)		−0.5153[c] (.066)	−0.6900[b] (.014)	−0.6708[b] (.013)	−0.6900[b] (.014)	−0.6914[b] (.013)
Landcost	−0.0057 (.450)							
Laborcost		−0.0094 (.901)						
Pca_r				0.0033 (.965)				
Meetfreq					0.0011 (.998)		1.0400 (.153)	
Womenaces					−0.2524 (.501)	−0.2866 (.455)	−0.2276 (.542)	−0.2547 (.496)
Nsas						−0.0189 (.970)		0.8557 (.194)
Area * meetfreq					0.4113 (0.1110)			
Area * nsa						0.2869 (.195)		
Popu * meefreq							−0.0034 (0.3890)	
Popu * nsa								−0.0033 (0.3020)
Pseudo R^2	0.3785	0.2123	0.1277	0.1519	0.2257	0.2123	0.2119	0.2032
Log Pseudo Likelihood	−12.070	−18.084	−28.772	−27.973	−25.538	−25.982	−25.993	−26.280
Obs.	191	191	290	290	290	290	290	290

Source: Author's computation.
Note: In all the equations the constant term was included but not reported for space. Distance was not included since *transdum* is in the estimation for infrastructure. *P*-values are in parenthesis. Superscripts [a], [b], and [c] denote significant at 1,5 and 10% respectively. All the equations corrected for robust standard errors. Marginal effects were examined in all the specifications but not reported for space. Other robustness checks like the squares of area and population were examined but not much difference was observed; and hence, not reported.

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