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The Determinants of Large-Scale Land Acquisitions (LSLAs) in Sub-Saharan Africa (SSA): A Case Study

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Abstract: The determinants of large-scale land acquisitions (LSLAs) are, in most cases, outside the traditional sales–buying land market, as they are often rented lands for long periods of time or exploitation licenses. Sub-Saharan Africa is among the most affected regions by this phenomenon for reasons related to its land policy, and includes 37% of the total LSLAs cases. The paper develops an econometric model based on a logarithmic OLS regression to identify the determinants of LSLAs in sub-Saharan Africa. As suggested by the literature, this analysis poses the total agricultural area acquired by country as dependent variable. Results show that investors prefer a country offering a sufficiently free trade economic context with a good level of agricultural productivity, thus allowing an easy investment process. Moreover, a country with a formal recognition of land rights is preferred, to have guarantees on their investment. The availability of water is also one of the main LSLAs drivers, as a natural limit of agricultural investments.

Keywords: Large Scale Land Acquisitions (LSLAs); landgrabbing; sub-Saharan Africa; OLS regression; land deals

1. Introduction

The large-scale land acquisitions (LSLAs) issue has become very relevant, especially after the food crisis of 2007–2008 when the need of fertile lands for food production became evident [1]. In fact, the fear of a political instability condition because of dependence on volatile food imports generated a big part of the immediate demand for land in that period [2]. The issue is part of a broader framework of natural resource management including not only land, but also water, landscape, biodiversity, and more generally environmental wealth. The goal of the study is to investigate the main drivers of LSLAs in one of the most affected areas of the world by this phenomenon, that is, sub-Saharan Africa (SSA).

LSLAs are, in most cases, outside the traditional sales–buying land market, as they are often rented lands for long periods of time or exploitation licenses. For some authors [3,4] the LSLAs indicate a convergent crisis linked to the copresence of different drivers, such as the disruption of traditional roles in the international trade of commodities—food, feed, fuel, and flex—and the formation of a new equilibrium, following the role assumed by the BRICS (Brazil, Russia, India, China, Sudafrica) since the 80s/90s. LSLAs, on the one hand, are considered as opportunities for openness, technological exchange, and greater economic efficiency of agricultural systems historically characterized by isolation and subsistence; on the other hand, the theme of land grabbing has now risen and is often perceived as a new form of neocolonialism [5–7]. Others point to the irony of potentially large food exports from countries that may depend on food aid [1].

The area involved in LSLAs at a global level is 50,534 million ha, with over 1500 deals for the sale or use of land, even if uniformly distributed [8]. The most widespread crops are oil palm, jathropa, sugar cane, rubber, and corn. So, for the most part they are "commodities exchanges" destined to the

global market, with marked regional differences (e.g., oil palm in Southeast Asia or valuable timber in Central Africa). Investor countries mainly make investments related to their main needs (e.g., food for Saudi or Korean investments, biofuels for African, or fuel-flex for European ones). The investor–target relationship is equally important to understand the dynamics of the phenomenon. The top five target countries (DRC, Papua New Guinea, Russia, Indonesia, and Brazil) are considerable size countries, with relatively low population density and considerable land and water availability [8]. On the other hand, the top five investor countries have fair economic strength (USA, Malaysia, Singapore, UK, and Brazil) and high population density compared to the available resources. Sub-Saharan Africa is among the most affected regions by the phenomenon also for reasons related to the land policy [9], and includes 37% of the total LSLA cases. So far, studies on LSLAs have been infrequent, either because there is insufficient data on these trades or because the phenomenon is quite new. To date, the only available data platform is Land Matrix (The description of Land Matrix database is included in the Methodology section, thanks to which relatively solid estimates can be done. In any case, the risk is to underestimate LSLAs, because many acquisitions are not documented or included in the database, because for example the "small" size (Only acquisition >200 hectares are included in Land Matrix.) [8,10]. The risk, however, can involve a possible overestimation: the cases of documented failures and information gaps on the effective operation of the investments are considerable [8]. Literature concerning LSLAs mainly focuses on the determinants of Foreign Direct Investments (FDI) in developing countries [10–12] considering both the number of deals as dependent variable [1,13] and the size of the contracts [12] using bilateral gravity models and unilateral regressions. The major results regard the negative relationship between FDI and institution quality of the host country [1,11] and the positive relationship between host's natural resource availability and FDI [11,14]. However, Giovannetti and Ticci (2016) [12] found that countries with a high institutional quality are more likely to attract biofuel land deals, and this finding is partly in contrast with results of the before-cited studies. A low level of land tenure rights is usually found to be a characteristic of the target countries [12]. According to Carter et al. (2017) [15], countries that are objective of LSLAs have specific characteristics: (i) The potential of return for investments; (ii) suitable land for agriculture; (iii) access for investors; and (iv) security of investment. Following this conceptual framework to identify the determinants of LSLAs in sub-Saharan Africa, the paper develops an econometric model based on a logarithmic OLS regression. As suggested in the literature [15,16], this analysis poses the total agricultural area acquired by country as dependent variable.

Land Policy in SSA

The land policy of a state is strongly connected to the internal organization of property rights. According to Dell'Angelo et al. (2017) [7], three categories of land investment can be identified in LSLAs, considering on one hand the legal title of the expropriated land and on the other its company scale: (i) The acquisition of large commercial companies; (ii) that of land belonging to small private companies; and (iii) the expropriation of common lands. In SSA community forms of land use survive, resulting in a low level of "official registration" and legal protection. Common lands guarantee food security to 1.5 billion people, of which 370 million are indigenous peoples, but only 1/5 has legal recognition [17]. It is estimated that in the SSA the condition of common lands without recognition concerns 70% of the surfaces [18]. However, among the African states there are differences: in some of them, for example, the land ownership is always public. Some social and legal issues regarding land ownership remain unresolved: the recognition of "acquired rights of occupation" on the common lands of ethnic minorities and the discrimination of women in the property rights recognition in many patriarchal societies. Moreover, the resilience of small communities for food, water, energy supply, etc., as well as for the agrosystem in general, are deeply connected to land rights issue [19]. In addition, in the SSA the relationship between land and institutions is often ambiguous. In fact, both in countries where most of the land is owned by the state (e.g., Tanzania, Senegal, and Mali), and in those in which there is a private predominance (e.g., Ghana) the authorities exercise a supervision and control role.

In the first case the owner state grants the rights of use, exchangeable, or transferable, to the owners or the communities, while in the second they are the same local authorities, therefore not "state" but private individuals who deal with the management and distribution of lands. This dualism causes many problems of management, social justice, and law.

In many areas the presence of a property right is not enough and therefore land conflicts arise; common is the fear of losing the inheritance right if the land is not cultivated. In other cases, the conflict concerns the dispute between traditional rights and new state rights introduced by land reforms. Regarding the relationship between registration of property rights and a decline in conflictuality, there are cases of positive correlations [20] and negative [21]. On the other hand, it is shown that in Ethiopia, after land redistribution, land security has increased. Concerning the propensity to invest some studies across the SSA support the thesis for which property rights lead to major land investments [22], but there are also publications of opposite opinion [23], which underline the local context influence.

2. Methodology

2.1. Conceptual Framework and Econometric Model

The aim of the analysis is to estimate some LSLAs determinants in sub-Saharan African countries. The dependent variable represents the land deals size grouped for country. LSLAs determinants have been divided into four components, according to Carter et al. (2017) [15], that classify target countries' characteristics: (i) the potential of return for investments, (ii) suitable resources for agriculture, (iii) access for investors, (iv) security of investment. The independent variables tested in this analysis have been grouped in the components suggested by Carter et al. (2017) [15], except for the group "potential of return for investments", as it is scarcely significant for the sample of sub-Saharan countries and for the scarcity of available data. Among independent variables, some control variables were used, to verify the stability of the model, that is, the amount of rural on total population (RUR), the population density (POP), and the official language LANG). The chosen variables are reported in Table 1.

The first group "access for investors" includes variables related to the host countries accessibility to investors. The hypothesis is that LSLA are more likely to occur where investors acquire and develop easily the land subject of deal. For example, legal regimes will impact LSLA likelihood [15,24]. In our hypothesis GDP, SLR, TAX, and TIME should have a negative influence on the land purchase. In fact, the literature supports the thesis that the lower the GDP (GDP) the higher the land purchased [11] and the same relationship has been observed for legal rights (SLR) by some authors [13]. Moreover, we supposed that the total taxation amount (TAX) on commercial profits as well as the increasing of the days required to export (TIME), could negatively influence foreign investments. The "suitable resources" group includes variables related to the availability of natural resources in a country (AGR and WAT). In fact, the hypothesis is that the greater a resource's availability, the more LSLAs occur, as tested in the literature with land suitability in a country [1], or the presence of available water [7] considered a key driver for land demand. On the contrary, the protected areas (PRO) in the target country should be detrimental to land purchases in the country itself.

The "security of investments" variables in relation with the idea that LSLAs occur in countries with a good security level, so that investors do not risk losing their investment due to insecurity of the target country. The relationships between land purchase and property rights (PRI) and land purchase and government integrity (GOI) indexes, in some cases have been found to be positive but some authors found them negatively related [1]. Expected to be positively related to the dependent is the Gini index (GINI), which measures the level of inequality in the wealth distribution of a country.

Table 1. Description of variables.

Variable	Description	Classification	Measure Unit	Source (Year)
LAND	Size of land deal	*dependent*	ha	Land Matrix (2016)
GDP	Gross domestic product pro capite	1-access for investors	$	World Bank (2015)
SRL	Strength of legal rights index	1-access for investors	0–100 (0 = low; 100 = high)	Heritage Foundation (2017)
TAX	Percentage of total taxation on commercial profits	1-access for investors	%	World Bank (2015)
TIME	Days required to export	1-access for investors	days	World Bank (2015)
FOODEX	Percentage of food export on total export	1-access for investors	%	World Bank (2015)
AW	Added value for agricultural worker	1-access for investors	$	World Bank (2015)
AGR	Percentage of agricultural surface on total surface	2-suitable resources	%	World Bank (2015)
WAT	Water availability pro capite	2-suitable resources	m^3	Faostat (2017)
PRO	Percentage of protected areas on total areas	2-suitable resources	%	World Bank (2015)
GINI	Gini index measures inequality in the distribution of wealth in a country	3-security of investment	0–100 (0 = low; 100 = high)	UN Human Development Index (2015)
PRI	Property rights index measures the strength of property tenure in a country	3-security of investment	0–100 (0 = low; 100 = high)	Heritage Foundation (2017)
GOI	Government integrity index measures the degree of institutions honesty in a country	3-security of investment	0–100 (0 = low; 100 = high)	Heritage Foundation (2017)
RUR	Percentage of rural population on total population	4-control variable	%	World Bank (2015)
POP	Population density	4-control variable	in/m^2	Indexmundi, Population Data (2017)
LANG	Official language	4-control variable	0–1 (0 = inglese, 1 = altro)	CEPII GeoDist database (2018)

Because of the dependent variable values do not follow a normal distribution, we use a log-linear ordinary least squares (OLS) model that is the logarithm of the dependent variable, but we assume a normal distribution for the independent variables.

The following specification has been applied.

$$\ln(yi) = ai + bx'i + ui \quad (1)$$

where yi = dependent variable, xi = independent variables, ui = error term.

The subscript i indicates that the parameter y, x is allowed to vary across individuals (i = 1, . . . , n). βx_i represents the vector of independent and control variables coefficients. A correlation analysis (Tables 2–4) has been done for assessing the existence of high correlation among the variables. A correlation higher than 0.6 has been taken as threshold to consider those variables in further analysis. Finally, an OLS regression analysis has been implemented on each group of variables (1, 2, and 3). Starting from the control variables, gradually the others have been added to evaluate the effect of each one on the regression. Tests based on R^2 are used to gauge the goodness-of-fit of the models and to compare the performance of nested models. As a base model to compare results against, it has been presented before the outcome with only the control variables: this model is called "CONTROL model" and represents the effect of the control variables on the dependent variable (Table 3). Models GROUP1-full, GROUP2-full, and GROUP3-full show the results of controls plus independent variables on the dependent variable. GROUP1-full is the model including the independent variables of the "access for investors" group, GROUP2-full includes the "suitable resources", and GROUP3-full includes the variables of "security of investments" group.

Table 2. Large-scale land acquisitions (LSLAs) surfaces of the sample countries.

Country	LSLAs Surface (ha)
Angola (AGO)	112,500
Benin (BEN)	45,000
Botswana (BWA)	25,074
Burkina Faso (BFA)	202,644
Cameroon (CMR)	369,007
Central African Republic (CAF)	5317
Democratic Republic of Congo (COD)	7,054,831
Ethiopia (ETH)	990,096
Gabon (GAB)	690,481
Gambia (GMB)	30,000
Ghana (GHA)	952,052
Guinea (GIN)	201,504
Guinea Bissau (GNB)	1214
Ivory Coast (CIV)	198,101
Kenya (KEN)	201,887
Liberia (LBR)	767,076
Madagascar (MDG)	588,322
Malawi (MWY)	141,811
Mali (MLI)	193,286
Mauritania (MRT)	5200
Mozambico (MOZ)	2,521,160
Namibia (NAM)	28,620
Nigeria (NGA)	265,422
Republic of Congo (COG)	2,303,379
Rwanda (RWA)	21,130
Sao Tomè (STP)	5000
Senegal (SEN)	263,229
Sierra Leone (SLE)	753,499
Sudan (SDN)	636,914

Table 2. *Cont.*

Country	LSLAs Surface (ha)
Swaziland (SWZ)	51,919
Tanzania (TZA)	251,890
Uganda (UGA)	892,40
Zambia (ZMB)	505,804
Zimbabwe (ZWE)	312,677

Table 3. Descriptive statistics of the variables.

Variable	Obs (*n*)	Average	St.dev	Min	Max
LAND Size of land deal	34	611,331.90	1,278,463.3	1214	7,054,831
GDP Gross domestic product pro capite	34	1577.41	1692.5	348.38	7388,98
SLR Strength of legal rights index	34	5.24	2.19	0	10
TAX Percentage of total taxation on commercial profits	34	42.79	12.54	18.6	73.30
TIME Days required to export	34	29.23	10.92	12	53
FOODEX Percentage of food export on total export	27	37.17	27.33	0.14	93.25
AW Added value for agricultural worker	33	1336.46	1648.16	260.92	8578.82
AGR Percentage of agricultural surface on total surface	34	46.89	18.39	8.15	77.73
WAT Water availability pro capite	34	19,971.26	42,031.13	692	217,915
PRO Percentage of protected areas on total areas	34	17.26	10.52	1.38	37.86
GINI Gini index measures inequality in the distribution of wealth in a country	33	43.34	8.03	30.82	60.97
PRI Property rights index measures the strength of property tenure in a country	34	38.47	10.63	12.60	64.36
GOI Government integrity index measures the degree of institutions honesty in a country	34	30.66	9.49	12.20	57.60
RUR Percentage of rural population on total population	34	57.3	15.54	12,84	83,89
POP Population density	34	78.34	87.07	2,6	448
LANG Official language	34	-	-	0	1

Table 4. Correlation among variables of the "access for investors" group.

	LAND	GDP	SLR	TAX	TIME	FOODEX	AW	RUR	POP	LANG
LAND	1.00									
GDP	−0.14	1.00								
SLR	−0.27	−0.01	1.00							
TAX	−0.06	−0.39	−0.04	1.00						
TIME	0.15	−0.11	0.03	0.08	1.00					
FOODEX	−0.22	−0.37	−0.27	−0.13	−0.16	1.00				
AW	−0.07	0.38	0.09	−0.12	−0.20	−0.26	1.00			
RUR	−0.04	−0.40	0.09	−0.29	0.16	0.26	−0.27	1.00		
POP	−0.24	−0.23	0.40	−0.19	−0.28	0.31	0.12	0.19	1.00	
LANG	0.20	−0.35	−0.36	0.67	0.03	−0.04	−0.22	−0.33	−0.24	1.00

2.2. Data and Case Study

The database has been created by collecting data from different sources. The size of land deals (ha) has been downloaded from Land Matrix (2017) [25]. Land Matrix is an independent initiative about the LSLAs, collects data on a global scale, through national observatories, coordinated by academic institutions and local NGOs. The collected agreements must cover a change in the rights of use and control or possession of the land through sale, rent, or concession. In addition, it must have occurred after the year 2000 and regard a contracted surface >200 ha. Although with some limitations, Land Matrix is reputed to be a reliable source [11–13]. The independent variables come from several sources as shown in Table 1. We use World Bank databases, Heritage Foundation database, HD index database, Indexmundi Population Data, Faostat database, and CEPII GeoDist database.

Sub-Saharan Africa constitutes the sample, following the territorial subdivision indicated in the Land Matrix database, i.e., considering the countries of West, Central, Eastern, and Southern Africa, for a total of 34 countries, shown in Figures 1 and 2 and Table 1. Countries without LSLAs (Togo, Equatorial Guinea, and Burundi) and small and touristic-oriented islands (Cape Verde, Mauritius, and Seychelles) were excluded from the sample. As can be noted in Figure 2, the sample includes countries different for the LSLAs size and for the number of deals. For example, Mozambico (MOZ) and Ethiopia (ETI) show a very high number of deals of small size. At the contrary, Democratic Republic of Congo (COD) has the highest amount of surface employed in LSLAs but a small number of deals, meaning that the country is affected by land acquisitions through few contracts that include very large agricultural areas.

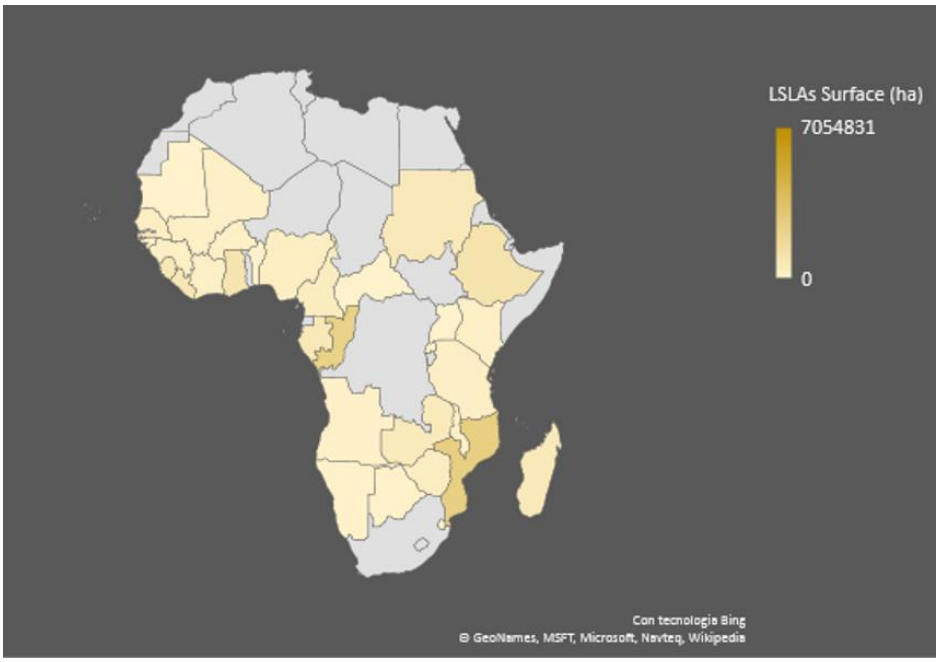

Figure 1. LSLA surfaces of the sample countries in ha.

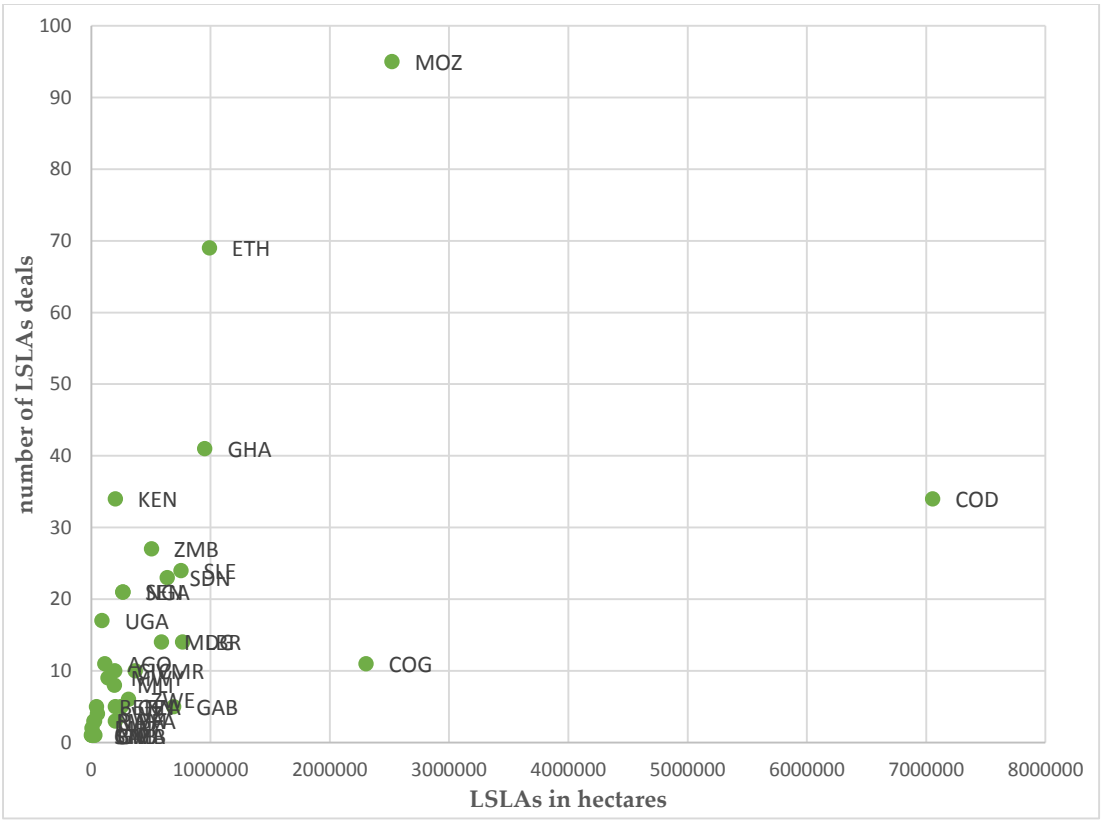

Figure 2. Scatter plot of LSLA surfaces (ha) and number of deals (number).

3. Results

In general, as shown in the Table 3, the sample includes countries with medium–low legal protection and quality of political–judicial institutions, and with high inequalities but where the primary sector still has a considerable economic weight. In these countries the LSLAs phenomenon occurs by involving large areas.

The sample shows different values from country to country, but there are similarities. Regarding the economic freedom degree, there is a small group of states (Botswana, Namibia, Rwanda, Uganda, and Ivory Coast) relatively open and dynamic economically, with reduced tax pressure and discrete legal protection. Most countries, however, are hostile to an open economy and have low legal protections. The whole sample on average includes countries with a low legal protection and quality of the political–judicial institutions, in which the primary sector still has a considerable impact on the economic, employment, commercial, and territorial levels. LSLAs are based on large surfaces (in most cases for hundreds of thousands of ha).

Moreover, a correlation analysis has been done to verify the existence of high correlation among independent and control variables (see Tables 4–6). A correlation higher than 0.60 has been taken as threshold to consider those variables in further analysis. As a base model to compare our results against, we first present the outcome with only the control variables (CONTROL Model).

The overall full models with all the explanatory variables (GROUP1-full model, GROUP2-full model, and GROUP3-full model) increased compared to the baseline models (Table 7). The R^2 test shows that all the full models improved against any base model. In other words, the introduction of the explanatory terms is important in explaining our dependent variables. In addition, the coefficients and signs of the control variables remained stable across the different models, showing robust results and that multicollinearity is not a problem in these regressions. We used the *reg* command to estimate the log-linear regression models, with the robust standard error (*robust*) in Stata 14.

Table 5. Correlation among variables of the "suitable land" group.

	LAND	AGR	WAT	PRO	RUR	POP	LANG
LAND	1.00						
AGR	−0.34	1.00					
WAT	0.26	−0.36	1.00				
PRO	−0.03	−0.12	0.23	1.00			
RUR	−0.04	0.30	−0.51	−0.14	1.00		
POP	−0.17	0.55	−0.25	−0.18	0.22	1.00	
LANG	0.20	−0.30	0.23	−0.04	−0.37	−0.24	1.00

Table 6. Correlation among variables of the "security of investment" group.

	LAND	GINI	PRI	GOI	RUR	POP	LANG
LAND	1.00						
GINI	−0.06	1.00					
PRI	−0.02	0.45	1.00				
GOI	−0.13	0.33	0.54	1.00			
RUR	−0.07	0.01	0.05	−0.24	1.00		
POP	−0.17	−0.07	0.42	0.23	0.31	1.00	
LANG	0.26	−0.31	−0.39	0.04	−0.40	−0.22	1.00

Control variables do not vary the verse or the significance, so we can consider the model as robust. A significance level of 0.005 is used. The variation of R^2 is given by the addition of explanatory variables and therefore an increase in the prediction of the model.

Table 7. Results of regression analysis.

Variables	Control OBS (34)	Group1-Full OBS (26)	Group2-Full OBS (34)	Group3-Full OBS (33)
GDP Gross domestic product pro capite	–	−0.001 ** (0.00)	–	–
SLR Strength of legal rights index	–	0.200 (0.150)	–	–
TAX Percentage of total taxation on commercial profits	–	−0.110 ** (0.040)	–	–
TIME Days required to export	–	−0.013 (0.037)	–	–
FOODEX Percentage of food export on total export	–	−0.010 (0.130)	–	–
AW Added value for agricultural worker	–	0.001 ** (0.000)	–	–
AGR Percentage of agricultural surface on total surface	–	–	−0.006 (0.032)	–
WAT Water availability pro capite	–	–	0.001 *** (5.18×10^{-6})	–
PRO Percentage of protected areas on total areas	–	–	−0.015 (0.024)	–
GINI Gini index measures inequality in the distribution of wealth in a country	–	–	-	−0.100 * (0.047)
PRI Property rights index measures the strength of property tenure in a country	–	–	-	0.099 *** (0.034)

Table 7. *Cont.*

Variables	Control OBS (34)	Group1-Full OBS (26)	Group2-Full OBS (34)	Group3-Full OBS (33)
GOI Government integrity index measures the degree of institutions honesty in a country	–	–	-	−0.063 * (0.031)
RUR Percentage of rural population on total population	0.016 (0.023)	0.001 (0.036)	0.410 (0.260)	0.12 (0.27)
POP Population density	−0.005 (0.003)	−0.010 *** (0.003)	−0.004 (0.004)	−0.010 *** (0.047)
LANG Official language	−0.029 (0.701)	1.13 (0.87)	−0.390 (0.650)	−0.064 (0.670)
R^2	0.066	0.56	0.20	0.27

Notes: Significance levels are *** $p < 0.005$, ** $p < 0.05$, * $p < 0.5$.

In the GROUP1-full model GDP, TAX, and AW variables result to be significant. According to our hypothesis, GDP shows a negative relation with the dependent, denoting that the lower the GDP of a country, the higher the possibility of LSLAs in that country. Concerning the total taxation on commercial profits (TAX), results confirm our hypothesis: a high taxation on commercial profits discourages investments. This may seem obvious but is important because many developing countries hold low trade taxation to favor investment, but this tax strategy takes away money from the host country, sometimes preventing the country from enriching instead of favoring it. The added value for agricultural worker (AW) variable shows a positive relation with the dependent.

As for the GROUP2-full model, WAT was found to be significant, with a positive sign.

In the GROUP3-full model GINI, PRI, and GOI variables are significant; these three variables represent the "security of investment" group. The Gini index (GINI) measures inequality in the distribution of wealth in a country, and has a negative relation with the dependent variable. Property rights index (PRI) measures the strength of property tenure in a country and shows a positive relation with the large land scale acquirements. From the point of view of land governance, this means that more investments in lands occur where property rights are higher, and this finding is partly in contrast with the results of Arezki et al. (2015) [1].

Government integrity index measures the nation's institutions honesty degree: in this analysis is found to be negatively related to LSLAs phenomenon, confirming some past authors' results [1,13].

4. Discussion

We are able to draw a number of conclusions from our results. Concerning GDP, the fact that it shows a negative relationship with the dependent confirms our hypothesis and this is quite documented in literature, although in some cases this variable is found to be not significant. More in detail, land acquisitions have privileged land abundant and low-income countries [1,10,13,26]. A high taxation on commercial profits (TAX) discourages investments: this may seem obvious but is important because many developing countries hold low trade taxation to favor investment, but this tax strategy takes away money from the host country, which sometimes prevents a country from becoming wealthier. The AW variable and the dependent has a positive relationship: it is a signal of a more intensive agriculture country, therefore probably more profitable, "attractive" condition by investors in LSLAs [27].

As for the GROUP2-full model WAT is significant and with a positive sign. The non-substitutability of water resources as well as lands and their growing scarcity leads to the fact that in LSLAs, the choice of production country is largely driven by resource-seeking factors [11]. Moreover, since the irrigation areas are much more productive and with higher yields, in fact only 20% of the agricultural areas in the world are irrigated, but it guarantees 40% of the total production [28]; the potential irrigable areas attract LSLAs [29–31].

In the GROUP3-full model the Gini index measures a country inequality in the wealth distribution and is negatively related to LAND. This means that the more the LSLAs, the less the inequality in the wealth distribution of the nation's residents. This can result because firstly, more equality in the income condition allows more political stability in the country, giving trust to investors [11]. Secondly, several sub-Saharan African countries show a low-income profile with a relative homogeneity in income level due to a widespread poverty. The positive relation between PRI, the Property Rights in a country, and the dependent, could be explained according to Conigliani et al. (2018, pp. 3) [12] "the long-term horizon of some agricultural production cycles, particularly for perennials, is likely to make investors reluctant to tie up large resources in an environment where weak governance increases dangers of conflict with local users or of opportunistic government behavior and creeping expropriation". The Government Integrity Index (GOI) is negatively related to LAND. This denotes a preferred land investment in countries where governments are easily corruptible; this is not unexpected especially in SSA where government corruption is quite widespread. Effectively this result can be partly in contrast to PRI result, because corruption tend to be a potential risk for investors and not a favorable condition (Carter et al., 2017) [15]. Nevertheless, as occurs for the GINI variable, we have to consider diffuse corruption in all the SSA countries leading to a possible trend in investing in countries with a high GOI, perhaps because they also have other important requirements for LSLAs, for example the availability of land and water. For example, the DRC case reflects these characteristics, that is low GOI and a good asset of natural resources.

5. Conclusions

In recent years the LSLAs issue has become increasingly important, especially in developing countries, such as SSA. Several research in literature try to understand the leading determinants of LSLAs phenomenon in the world and but only few of these focus on SSA. The innovation of this work is in focusing the analysis on SSA adopting the variables classification of Carter et al. (2017) [15] crossing different databases and using a log-linear OLS regression. The limitations of our work are mainly linked to structural characteristics of the database, because of its limitation in the registration of large land scale deals (as explained in the 2nd paragraph) and in the use of a univariate regression, without considering the investors countries. The issue of LSLAs deserves to be further investigated for an evident complexity, also for the different dynamics of the world LSLAs areas, but we can already point out some of the main results.

The emerging "preferred country model" for land investment in some ways confirms the variables considered significant in the literature, but also adds new information especially in relation to SSA context. In fact, considering the significant variables, investors prefer a country offering a sufficiently free trade economic context (TAX) with a good level of agricultural productivity, thus allowing an easy investment process. At the same time, LSLAs are inversely proportional to the GDP of the host country, which favors the poorest countries (GDP). At the same time the variables related to the "security of investments" indicate a greater propensity to invest where a greater property rights protection and a limited wealth inequality exist (PRI). This means that investors prefer a country with a formal recognition of land rights to have guarantees for their investment. On the other hand, they prefer countries with greater government corruptibility, but this probably depends on the area of study, the SSA, which counts many countries with a high rate of government corruption. The availability of water (WAT) is also decisive, becoming a natural resource that, like the land, risks becoming the object of uncontrolled selling: the "watergrabbing".

The next step of the research could be a broader analysis in terms of study area and the actors, considering both host and investor countries, taking into consideration other factors related to the availability of natural resources, for example, or even to land governance, aiming at a more predicted model.

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