LARGE-SCALE AGRICULTURAL INVESTMENTS AND FEMALE EMPLOYMENT IN NIGERIAN COMMUNITIES

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MIASA Working Paper No. 2022(1)

University of Ghana, Accra
April 2022

Edited by the

Merian Institute for Advanced Studies in Africa (MIASA)

MIASA Fellowship Programme 2022

WP Coordination: Agnes Schneider-Musah

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Large-scale Agricultural Investments and Female Employment in Nigerian Communities

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Abstract

This study examines how large-scale agricultural investments (LSAIs) affect employment outcomes of female-headed households in Nigeria. It focuses on wage income and labour allocations to agricultural activities for households in communities with LSAIs in comparison with households in communities without LSAIs. It engages Wave 4 (2018/2019) of the Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) dataset using the Propensity Score Matching (PSM) technique. The results show a positive relationship with the household agricultural wage income but a negative relationship with the labour allocation to agricultural activities. Furthermore, the results indicate that households in communities with LSAIs receive higher wages and spend fewer hours in agricultural activities. Also, though female-headed households spend more hours on agricultural activities than the male-headed households, they earn less. Therefore, the study submits some recommendations on how to reduce the possible adverse effects of LSAIs and optimise its positive impact, especially for females in rural communities where most of such investments occur.

Keywords: Agricultural Investments; Employment; Labour Allocation; Wage Income
JEL Code: E22, E24, P36

Résumé

Cette étude examine comment les investissements agricoles à grande échelle (LSAI) affectent les résultats en matière d'emploi des ménages féminins au Nigeria. Elle se concentre sur les revenus salariaux et l'attribution des coûts de main-d'œuvre aux activités agricoles pour les ménages des communautés avec LSAI par rapport aux ménages des communautés sans LSAI. Elle s'intéresse également à la quatrième phase (2018/2019) de l'étude sur la mesure des niveaux de vie - Enquêtes intégrées sur l'agriculture (LSMS-ISA) en utilisant la technique d'Appariement sur le score de propension (PSM). Les résultats montrent une relation positive avec le revenu salarial agricole des ménages, mais une relation négative avec l'attribution des coûts de main-d'œuvre aux activités agricoles. En outre, les résultats indiquent que les ménages des communautés disposant de LSAI reçoivent des salaires plus élevés et consacrent moins d'heures aux activités agricoles. De plus, bien que les ménages dirigés par une femme consacrent plus d'heures aux activités agricoles que les ménages dirigés par un homme, ils gagnent moins. Par conséquent, l'étude présente des recommandations sur la manière de réduire les éventuels effets négatifs des LSAI et d'optimiser leur impact positif, en particulier pour les femmes des communautés rurales où la plupart de ces investissements ont lieu.

Mots-clés: Investissements agricoles; Emploi; Allocation des coûts de main-d'œuvre; Revenu salarial; Code JEL: E22, E24, P36

Acknowledgement
The research paper draws from the first author's postgraduate project under the supervision of the second author. Also, the second author acknowledges the support from the Federal Ministry of Education and Research, Germany through MIASA [REF: 01UK1824A] for a short research stay in Accra where the initial draft was presented.

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1. Introduction

For the last two decades, there has been an increase in the size of Large-Scale Agricultural Investments (LSAIs) across the world (Yengoh et al. 2016; Kumeh and Omulo 2019). This is due to an increase in food prices caused by a boom in global biofuel policy as well as the 2007/2008 global financial crisis, which led investors to seek alternative means of investment, with the aim of cushioning the financial shock (Yengoh et al. 2016; Kumeh and Omulo 2019). Africa has been the most targeted region for LSAIs, with Nigeria as one of the top 20 destinations in the world, and one of the first 10 in Africa (Osabuohien et al. 2019; Ahmed, Abubakari and Gasparatos 2019; Nyantakyi-Frimpong and Kerr 2017; Land Matrix Global Observatory – LMGO 2020).

The intentions behind the LSAIs in Africa include the acquisition of land for cultivating food crops, biofuels, non-food agricultural commodities, unspecified agricultural cultivation, livestock rearing, renewable energy, mining activities, forest logging, timber plantation, and carbon sequestration. The promised benefits of these LSAIs include contribution to economic development and poverty reduction by creating job opportunities, developing the rural areas and providing social amenities in the communities where they are situated (Osabuohien et al. 2019). However, there are negative consequences from the presence of these LSAIs, including loss of ancestral lands, agricultural activities, food insecurity and employment concerns, thereby aggravating rural poverty (Cotula 2012; Holden and Pagel 2013; Motupo, Chiweshe and Mubaya 2015; Osabuohien et al. 2015; Osabuohien et al. 2019; Osabuohien et al. 2020).

The reason for focusing on women in Nigeria is that women's involvement in small-scale food production is the bedrock of rural livelihood. Essentially, women are significant players in Africa's rural agricultural sector, where the majority of the LSAIs are located (Tandon and Wegerif 2013; World Bank 2015; International Labour Office 2016; Mwisha-Kasiwa 2018; FAO 2020). On average, women constitute about 40% of the agricultural labour force in developing countries; about 20% in Latin America and above 50% in Africa and Asia (Obayelu and Chime 2020). They work as peasant farmers, paid and unpaid workers on family farms, or as operators of on or off-farm enterprises. They undertake most of the unpaid care and domestic jobs in rural areas, supporting the present and future generation of rural workers within their households and communities (FAO 2020). Women are disproportionately responsible for unpaid care and housework. Women spend approximately two and half times more hours on house activities and unpaid care than men (OECD Development Centre 2014; ILO 2018). Women provide many services in their homes and communities such as preparing food for the family, and taking care of their children, the elderly and the sick.

If unpaid care work is taken into consideration, it yields about 10% to 39% of GDP (ILO 2018) and about 50% of GDP in sub-Saharan Africa (Otieno 2015). More than half of all food

grown globally is produced by female farmers, and about 1.6 billion women rely on agriculture for their livelihood. Many are now at risk from the massive rise in LSAIs that endanger the food supply of impoverished people (Tandon and Wegerif 2013). Consequently, the presence of LSAIs can negatively impact women. However, this is yet to be well established in extant studies.

Against this background, this study contributes to extant literature by assessing the employment effects of LSAIs on female-headed households as compared to male-headed households in rural communities with LSAIs alongside similar households in communities without LSAIs in Nigeria. The study is structured into five sections. Following this introductory section is the review of related literature; section three encapsulates the methodology adopted in the study; results are presented and interpreted in section four, and the study concludes with section five.

2. Insights from Extant Literature

Large-scale Agricultural Investment (LSAI) refers to an act of buying land and users' rights, whether short- or long-term, through leasing (FAO 2012; Osabuohien 2014; 2020). Sometimes, LSAI is referred to as "land grabbing", to depict its negative effects, or as large-scale land acquisition (Osabuohien et al. 2020). LSAIs are investments that exceed 1,000 hectares (Cotula et al. 2009). It is difficult to attribute a widely accepted definition of the phenomenon, as it occurs distinctively based on the main drivers, their size and the outcomes of different regions of the investment site (Murphy et al. 2017; Kumeh et al. 2019).

In sub-Saharan Africa (SSA) and Southern Asia, about 60% of all working women are engaged in agriculture (World Bank 2014; FAO 2015). In Nigeria, the contribution of women to agriculture is about 60% to 79% of the labour force, especially as it relates to the production of food (FAO and ECOWAS Commission, 2018). Although only 14% of rural women own the land that they cultivate, some of the factors that hinder the recognition of their inputs include the customs and taboos that make them subject to male authority; economists' failure to place value on women's unpaid domestic production; land tenure system issues, and also their own failure to meet essential collateral security requirements from banks (Mtsor and Idisi 2014; Jayachandran 2015). Rural women often find themselves in vulnerable employment situations. Focusing on women's employment is important considering their role in the society and the high rates of unemployment for women (Osabuohien, 2020). In 2017, the global rate of unemployment for men was 5.5% while that of women stood at 6.2%, all of which is projected to remain relatively unchanged from 2018 through 2021 (ILO 2018).

Studies indicate that when women possess land and security rights, it decreases the risk of domestic violence for some women (United Nations 2013). Panda and Agarwal (2005) discovered that when women own land or houses, it reduces the likelihood of physical or psychological violence. When women own land, they gain bargaining power through ownership of these assets, which in turn improves their fall-back position. Deere and Doss (2006) also revealed that land ownership by women improves their agricultural productivity, resulting in higher income, overall economic development and wellbeing.

Recent studies have demonstrated how land dispossession destabilises the rights of women, worsens their reproductive burden and diminishes their work prospects (Tsikata and Yaro 2014 [Ghana]; Levien 2017; Li 2017; Nyantakyi-Frimpong et al. 2017). Osabuohien et al. (2019) investigated the impact of LSAIs on female labour outcomes in Tanzania. The study relied on the Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA) survey, and was complemented by two case studies of two communities in Tanzania. The results of the study showed that LSAIs have a limited effect on farm wages and have a negative relationship with the welfare of female-headed households in communities where LSAIs are located. In Kilombero District, Tanzania, Dancer and Sulle (2015) investigated the gender effect of the commercialisation of agriculture on sugarcane production. The study findings revealed that if the gendered effect of commercialisation of agriculture were addressed, it would help reduce the vulnerability of women in Tanzania.

The study by Mutopo, Chiweshe and Mubaya (2015) examines how large-scale land acquisitions affect women in Zimbabwe. The study reveals that females are less favoured than their male counterparts in Zimbabwe due to factors such as the women's low educational level and a labour structure that favours men over women. Also, Agarwal (2015) examines how LSAIs have adverse effects on women due to displacement from their lands of tribal inheritance. Li (2017) examines the intergenerational displacement caused by land grabbing for oil-palm production in Indonesia. The study finds that land grabbing causes a triple displacement impact. First, women's access to land is reduced. Second, when women have limited access to land, they cannot be involved in their farming occupation. Third, the skills that they have acquired, and which can be employed in other farm-related activities will depreciate over time and become inadequate for the new jobs they will be offered in the communities where land is grabbed.

The study by Herrmann (2017) evaluates how LSAIs impact household welfare in Tanzania. Findings from the study show a positive impact on household welfare. Utilising a case/control method, the study by Bottazzi et al. (2018) investigates the LSAI's effect on local livelihoods in northern Sierra Leone. The results show that farmers in the LSAI areas experienced lower yields, reduction in agricultural area for food production and increased spending on external labour. On the other hand, LSAI-impacted villages saw a rise in overall monetary income, an improvement in food and water quality, and increased spending on food consumption. Nevertheless, for landowners, the rise in financial income was higher than for renters, and access to wage labour benefitted men over women. This suggests that LSAI has the tendency to increase local inequalities.

The reviewed literature shows that there is limited empirical evidence examining the implications of LSAIs on employment creation, particularly when considering gender dimensions in LSAIs' host communities using quantitative techniques, especially in Nigeria. That is, there is dearth of empirical research works consider gender dimensions using quantitative techniques in Nigeria. The degree to which LSAIs keep their promises is highly contentious and under-explored, especially for women who find themselves in disadvantaged positions and are highly vulnerable to socioeconomic shocks. Thus, this paper provides new empirical evidence on the implications of

LSAIs for employment creation by focusing on disaggregated data across gender dimensions in the host communities.

3. Methodology

3.1 Data Source

The study relies on data from the Living Standards Measurement Study-Integrated Surveys on Agriculture (LSMS-ISA). The data comes from the World Bank in conjunction with Nigeria's National Bureau of Statistics. The LSMS-ISA data for Nigeria covers the 36 States of Nigeria and the Federal Capital Territory, Abuja. The data is grouped into community, households, and agriculture modules for the two segments (i.e., post-planting and post-harvest) of the survey. This study engages Wave 4 (2018/2019) of the LSMS-ISA dataset using the Propensity Score Matching (PSM) estimation technique.

3.2 Measurement of Variables

The first step that was taken in analysing the data was tracking where LSAIs occurred by engaging both the Land Matrix Global Observatory (LMGO 2020) and the locations in LSMS-ISA (2018/2019) data. The LMGO data helped to identify the communities where LSAI occurred when the LSMS-ISA data was gathered in 2018-2019. These communities were then placed into categories with the communities that were known to host LSAIs being coded as "1" while communities where LSAIs had not occurred were coded as "0". In the matching process, only the LSAIs that had been identified and were currently operational were taken into account.

Outcome Variable: There are two outcome variables of interest in this study and they include household agricultural wages and labour allocation to agricultural activities. The outcome variables capture the different ways through which LSAIs can influence female employment. For household agricultural wages, the estimate is based on the total monthly wage the household earns from agricultural activities. The second outcome variable is measured as the total average hours spent by households on agricultural activities.

Control Variables: These include the households' social-demographic characteristics such as age, gender, and level of education. Other main control variables are health, right to land, household size, household assets, and access to land. Access to land relates to whether households cultivate a plot of land or own farmlands.

3.3 Estimation Techniques

The study employs quantitative data from LSMS-ISA (2018/2019), which is analysed using PSM and probit regression techniques. The key benefit of this research approach is its ability to compare groups of households with a similar distribution of features in LSAI communities and non-LSAI communities.

The analysis captures the influence of LSAIs on households in communities with LSAIs (the treatment group) controlling for household characteristics. Therefore, the treatment effect is measured as the difference of the mean outcomes. The matching method compares the impact of the presence of LSAIs on the main outcomes of a household with those of matched non-participants, that is, those households that are situated in communities where LSAIs have not occurred. The matches are selected based on the similarities in observed characteristics of the households. The household characteristics that are used in this study include age, gender, state of origin, education, health, right to land (if the household owns a plot of land), whether the household cultivates the land, household members (number of individuals in the household), household assets, and household location. Rosembaum and Rubin (1983) introduced the PSM as a reliable and effective method that can be used to generate the equivalent non-participant data.

As earlier mentioned, the study applied the probit regression and the PSM model. The PSM is a method of statistical matching that aims to measure the effect of a treatment which considers the covariates that anticipate receiving treatment (Rosenbaum and Rubin 1983). The PSM enables one to design and analyse a non-randomised study to make it look like or mimic part of a randomised controlled trial (Austin 2011). PSM was introduced by Rosembaum and Robin (1983). As seen in Osabohien et al. (2020), this method addresses selection bias and moves towards more causal estimates.

The first step in the PSM is the estimation of propensity scores. To achieve this, the probit regression of the treatment condition on the vector of covariates is used based on similar characteristics. Therefore, the implicit form of the model is specified in equation [1]

$$HWLA_{ijk} = f(LSAI_{ijk}, \boldsymbol{T}_{ijk}) \qquad [1]$$

Where $HWLA$ represents the two outcome variables in this study, which are household's wage (income from agricultural activities) and labour hours (hours the household spent on farm activities); subscript i represents a household in the community (male or female); j (j = 1, 2) means household gender (male or female), k (j = 1, 2) stands for two sectors in which the household operates (either urban or rural); $LSAI$ means large-scale agricultural investment; j (j = 0, 1; meaning community with (1) and community without [0] large-scale agricultural investment. Apart from information on LSAI which is from the LMGO (2020), data on other variables are sourced from LSMS-ISA. $\boldsymbol{T}$ is a vector of household characteristics such as marital status, educational qualifications, state of origin and age, among others. This can be prespecified in its explicit form as shown in equation [2]

$$HWLA_{ijk} = ß + \gamma LSAI_{ijk} + \alpha_1 T_{1ijk} + \cdots + \alpha_n T_{nijk} + u_{ijk} \qquad [2]$$

In equation [2]: $E\left(u_{ijk} \backslash LSAI_{ijk}, T_{1ijk}, \ldots, T_{nijk}\right) = 0$, representing the conditional mean of zero assumption of the ordinary least squares (OLS). That is, the expected estimates of the outcome variable should be in a linear form given the control variables:

$$\left(HWLA_{ijk}\right) = ß + \gamma LSAI_{ijk} + \alpha_1 T_{1ijk} + \cdots + \alpha_n T_{nijk} \quad [3]$$

The tendency (f) that LSAI may take place is named "occurrence" and it is depicted as $f_{ijk} \rightarrow HWLA_{ijk} = 1(f_{ijk} = \text{fr}\ (HWLA_{ijk} = 1)$ while the tendency that LSAI may not occur is termed "non-occurrence" and expressed as $1 - f_{ijk} \rightarrow HWLA = 0(1 - f_{ijk} = \text{fr}\ (HWLA_{ijk} = 0)$. Hence, $HWLA_{ijk}$ is in line with the Bernoulli probability distribution. In other words, the probability that LSAI and other covariates will impact a household's agricultural wage income and agricultural labour hours is depicted thus in equation [4]:

$$f\left(HWLA_{ijk} = 1 | LSAI_{ijk}, Z_{ijk}\right) = ß + \gamma LSAI_{ijk} + \alpha_1 T_{1ijk} + \cdots + \alpha_n T_{nijk} \quad [4]$$

Where the reaction probability is linear in parameters: γ, $T_1\ and\ T_n$ capture the difference in the tendency of occurrence when $LSAI_{ijk}$ and T_{ijk} vary, all things being equal.
Equation [2] can be estimated by the chosen regression analysis to show the impact of the occurrence or non-occurrence of $LSAI$ on household agricultural wage income and labour hours. That is, $\hat{\gamma}$ measures the predicted change in the probability of success when $LSAI_{ijk}$ increases by a 1%, ceteris paribus.

4. Empirical Results and Discussion

This section presents the results from the empirical analysis. It covers both descriptive and econometric analyses.

4.1 Results from Kernel Density Plots

The study uses the kernel density plots to examine the agricultural wage income and labour allocations by households' activities. It compares the trends for the households where LSAIs occur with the households where they do not occur.

The kernel density plot for how much households earn averagely per month is shown in Figure 1. The agricultural wage income density plot of households in communities where LSAIs occurred is tilted to the right, while the households in communities where LSAIs have not occurred is tilted to the left. It means that the households in communities with the presence of LSAIs receive more earnings than households in communities without the presence of LSAIs. In effect, the households in communities without LSAIs, on average, earn about N31,982 as wages monthly while the households in communities with LSAIs earn an average of N34,923 per month.

The kernel density plot of the labour allocations of agricultural activities of households is shown in Figure 2. There is not much noticeable difference between these two households except after the peak where it was slightly lower in communities with LSAIs. The results show that households in communities with LSAIs spend less of their time on agricultural activities. This means that households in communities with LSAIs have the tendency to allocate less time to agricultural activities compared to households in communities without LSAIs.

The kernel density plots' results with respect to the household agricultural wage income and agricultural labour allocations imply that while households in communities with LSAIs have the possibility of devoting or spending less of their time on agricultural activities, they have more household agricultural wage income when compared to the agricultural wage income that households in communities without LSAIs obtain from agricultural activities.

Households located in communities with LSAIs appear to obtain more agricultural wage income from working with LSAIs. They may spend less time on investors' agricultural activities leaving them with more time to spend on other non-farm activities that could generate revenue.

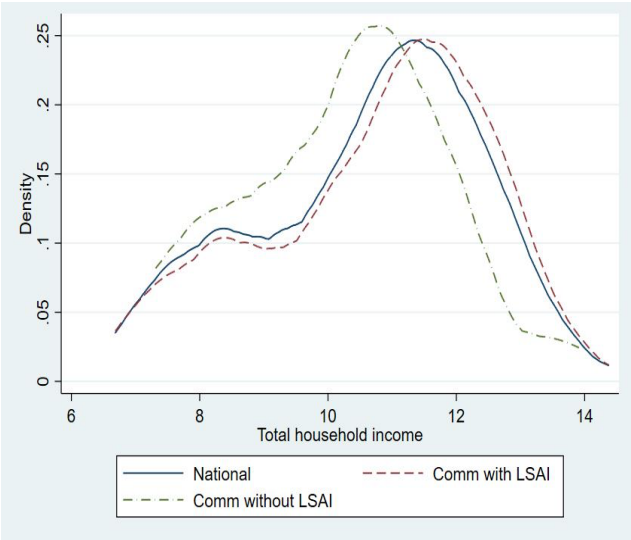

Figure 1: Household Wage Income Kernel Density

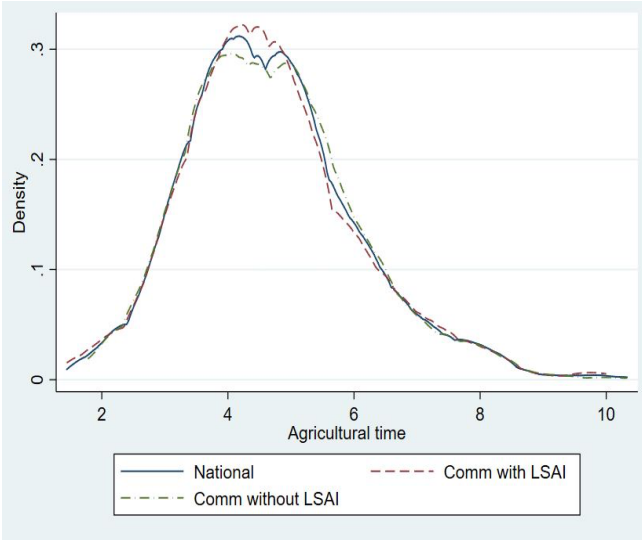

Figure 2: Household Agricultural Employment Kernel Density

Source: The Authors

The analysis also shows the gender dimension of household income and agricultural labour allocations as displayed in Figures 3 and 4, respectively. Considering the household income by gender of the household head, the density plot of male-headed household in communities without LSAIs is rightward sloped in comparison to that of the female-headed households that tilts to the left. The implication of this finding is that in communities without LSAIs, male-headed households earn more than female-headed ones.1

In communities with LSAI, the kernel density plot of the male-headed household is also rightward sloped, which implies that in communities where LSAIs are located, the male-headed households receive higher household income compared to the female-headed households. The

[1]It could be argued that female-headed households can be heterogeneous because the path to female headship could vary across communities. Additionally, some females in male-headed households can make decisions. While it is essential, our analysis is not able to categorise the various differences for female headship, which is outside the focus of this paper. One way to handle it would be through qualitative analysis that can be taken up in further studies.

result can be substantiated, given the situation in Nigeria where there is a general belief that males perform more rigorous task than females; hence, males tend to get paid more. Also, there is the issue of gender disparity in income received, where males tend to receive more in wages than female. From the results, in communities without the presence of LSAIs the male-headed households earn N36,601.62 compared to the female-headed households who earn N14,019.14. In communities with LSAIs, the male-headed households earn N36,027.68 in comparison to their female counterparts who earn N27,882.49.

The kernel density plot for labour allocation to agricultural activities by gender is displayed in Figure 4. The density plot of male-headed households in communities without LSAIs is rightward sloped compared to that of the female-headed households. This shows that in the communities without LSAIs, the male-headed households spend more time on agricultural activities compared to their female counterparts. This might be because males have access to land and own their farmlands which they cultivate and on which they perform other agricultural activities.

In Nigeria, for example, in most communities, inheritances are not given to females due to traditional beliefs. Thus, the women do not inherit assets, and often also do not have access to land despite being the ones working on the land and providing food. They spend less time on the farm and also engage in non-farm activities. In communities with LSAIs, the males spend less time on agricultural activities while the females spend more time. The results from these gendered kernel density plots imply that while men spend fewer hours on agricultural activities in communities with LSAIs and more in communities without LSAIs, they earn more than their female counterparts.

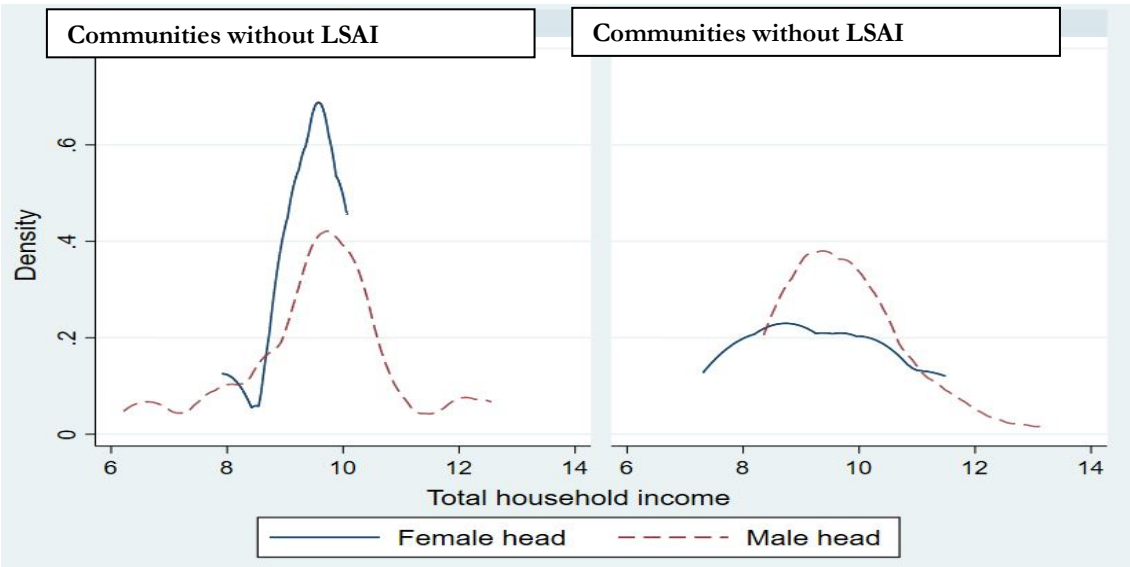

Figure 3: Kernel Density Plot of Household Agricultural Wage Income of Household Heads across Gender

Source: The Authors

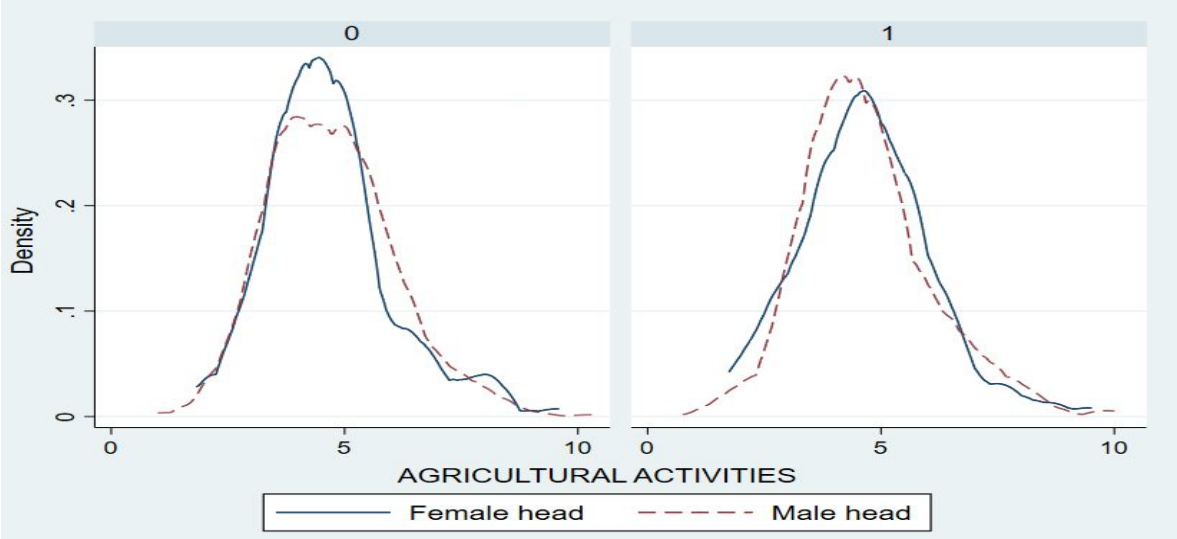

Figure 4: Kernel Density Plot of Labour Allocation of Household Heads across Gender
Source: The Authors

4.2 Descriptive Statistics

The descriptive statistics present information on the household characteristics, which include the following: the location of the household – whether rural or urban; age, educational qualifications, number of household members, household assets, and access to land (that is, whether households cultivate a plot of land or own farmlands). This study compares the characteristics of households in communities with LSAIs with those in communities without LSAIs. These are displayed in Table 1. The selections of the variables are based on extant studies on the determinants of the presence of LSAIs in a country (Arezki et al. 2013) and in communities (Osabuohien 2014; Osabuohien et al. 2019).

Table 1 indicates the different group means across all variables apart from the household size. Considering the outcome variables, agricultural wages and time allocated to agricultural activities are different in the two households. The households in communities where LSAIs are located have a higher wage. In essence, they earn wages of about N34,923.24 while those living in communities where LSAIs are not located earn wages of about N31,982.48. This reinforces the observation in the kernel density plot. The households in communities with LSAIs spend less time on agricultural activities while households in communities without LSAIs spend more time on agricultural activities. This is also in line with the kernel density plot.

Disaggregating the Results by Gender

The female-headed households receive higher household income in communities with LSAIs than the female-headed households in communities without LSAIs. This is evident in Table 1. The female-headed households in communities with LSAIs receive about N27,882.49 compared to the female-headed households in communities without LSAIs who receive N14,019.14. For the agricultural labour allocation, the female-headed household in communities with LSAIs spend more time on agricultural activities than those in communities without LSAIs.

The male-headed households receive higher household income both in communities with and without LSAIs than their female counterparts. Also, it is evident that in communities without LSAIs, the male-headed households receive more income than the male-headed households in communities with LSAIs. This may be because male heads own their farmlands and properly cultivate them, and they also have access to loans, inputs, and seedlings. This improves productivity and increases their income compared to when their lands are "grabbed" by investors.

Table 1: Descriptive Statistics of Variables

Variables	Communities without LSAI			Communities with LSAI			Difference a vs d	Difference b vs e	Difference c vs f
	Total Household Head Mean (SD) (a)	Female-headed household Mean (SD) (b)	Male-headed household Mean (SD) (c)	Total Household Head Mean (SD) (d)	Female-headed household Mean (SD) (e)	Male-headed household Mean (SD) (f)			
Sector (Rural=1, Urban =2)	1.002 (0.041)	1.3056 (0.4614)	1.001 (0.037)	1.447 (0.497)	1.450 (0.499)	1.446 (0.497)	-0.045**	-0.1441	-0.445
Number of Household Members	3.298 (2.242)	3.533 (2.560)	3.258 (2.198)	3.038 (2.032)	2.643 (1.495)	3.094 (2.093)	-0.260	0.890	0.165
Age (years)	23.844 (7.548)	23.729 (7.909)	23.87 (7.471)	26.162 (8.104)	26.467 (8.231)	26.108 (8.088)	-2.317	-2.738	-2.238
Household Cultivate Plot (Yes=1, No = 2)	1.404 (0.549)	1.267 (0.458)	1.427	1.466 (0.410)	1.524 (0.5055)	(1.458) (0.499)	-0.062*	0.2571	-0.031**
Household Own farmland (Yes=1, No = 2)	1.8270 (0.3801)	1.733 (0.458)	1.843 (0.366)	1.8592 (0.3483)	1.881 (0.328)	1.856 (0.351)	-0.032**	-0.147	-0.013**

Educational qualification	3.559 (4.020)	4.098 (4.103)	3.551 (4.019)	3.998 (4.773)	3.667 (2.698)	4.057 (5.056)	-0.439	0.431	-0.506
Health	1.832 (0.154)	1.833 (0.167)	1.831 (0.152)	1.809 (0.178)	1.811 (0.181)	1.809 (0.177)	0.022**	0.021**	0.022**
Number of Household Assets	1.423 (0,8998)	1.733 (1.100)	1.371 (0.858)	1.557 (1.825)	1.548 (1.173)	1.5508 (1.900)	-0.134	-0.186	-0.188
Outcome Variables									
Wages in Naira (per month)	31,982.48 (58646.69)	14,019.14 (7035.88)	36,601.62 (65044.94)	34,923.24 (70092.37)	27,882.49 (36,384.41)	36,027.68 (74192.31)	-0.183	0.007***	-0.198
Labour Allocation in Hours (Agric.)	4.695 (1.356)	4.641 (1.3669)	4.707 (1.354)	4.671 (1.396)	4.664 (1.397)	4.673 (1.397)	-0.023**	-0.023**	0.034**

Note: *. **, *** indicate level of significance at 10%, 5% and 1%, respectively

Source: The Authors

4.3 Results from Econometric Analysis

4.3.1 The probit model and balancing tests

The probit regression model is used in balancing the differences in the observable characteristics which may occur between the households in communities with LSAIs and those in communities without LSAIs. The result of the probit model is presented in Table 2 and this study employed its use to obtain the propensity scores.

For all the households, the size of the household, age of the household head, whether a household is cultivating land or not or whether the household owns or cultivates farm plots are displayed in the first column.

Table 2: Probit Model for Generating the Propensity Scores

Variables	Total Household Head	Female-Headed Households	Male-Headed Households
Educational qualification	0.074***	0.073**	0.073**
	(0.007)	(0.057)	(0.076)
Health	1.332***	1.116*	1.731***
	(0.002)	(0.079)	(0.006)
Household size	-0.032	-0.180	-0.050
	(0.395)	(0.729)	(0.364)
Age	0.015	0.055	0.027*
	(0.124)	(0.707)	(0.069)
HH_cultivateplot	0.331**	0.182	0.486
	(0.033)	(0.428)	(0.026)
HH_ownfarmland	0.000	0.182	0.165
	(0.999)	(0.821)	(0.611)
HH_asset	0.0264	0.009	0.045
	(0.722)	(0.940)	(0.677)
Sector	-1.378***	-1.421***	-1.326***
	(0.000)	(0.001)	(0.003)
Constant	0.8443	0.8343	-1.725
LR chi2	59.33	27.16	35.70
P-value	0.000	0.007	0.000
Pseudo R2	0.1365	0.1195	0.172
Log likelihood	-187.628	-100.023	-87.755

Note: Probability values are in parentheses, ***p < 0.01, **p < 0.05, *p < 0.10

Source: The Authors

The signs of the coefficients are positive for educational qualifications, health, age, whether households cultivate plots or not or whether households own the farm, and the number of household assets, while the signs of the coefficient are negative for household size and locality. The Z test statistics, educational qualification, health, and whether households cultivate a plot or not are greater than 2, with probability values less than 0.05.

For all households, educational qualifications and health are found to be significantly associated with the employment of females. For the total household, the coefficient of education and health are significant. The higher the level of education and the better their health, the higher the likelihood of being located in a community with LSAI.

4.3.2 Matching quality

Figure 5 and Table 3 show the results from balancing quality checks. The histogram of the predicted propensity scores is described in Figure 5. This figure shows that the propensity scores are within the common range and have relatively equal distributions, which imply that the treatment and the control groups can be compared and also that most of the sampled households are included in the common support areas.

After the comparison, the disparity in observable characteristics for the matching procedure is then balanced and a related counter-factual outcome is extracted. In Figure 5, these variations are stated as matched and unmatched for both the total sample and the female-headed members sub-sample, and also the kernel matching algorithm and the five nearest neighbour matching communities with LSAIs and communities without LSAIs. It is obvious from the nearest neighbour and kernel matching process, that the differences in the observable characteristics before the matching procedure are significantly reduced. This can be seen from the non-significant value of the Likelihood Ratio (LR) test. It is also observable for both the kernel matching and nearest neighbour matching process that the mean and median absolute biases are reduced significantly. The matching quality of the female headed household subsample in communities with LSAIs and communities without LSAIs are displayed in Table 3. The reduction in the difference in the observable characteristics that exist among these two groups in both the nearest neighbour matching and kernel matching algorithm is evident.

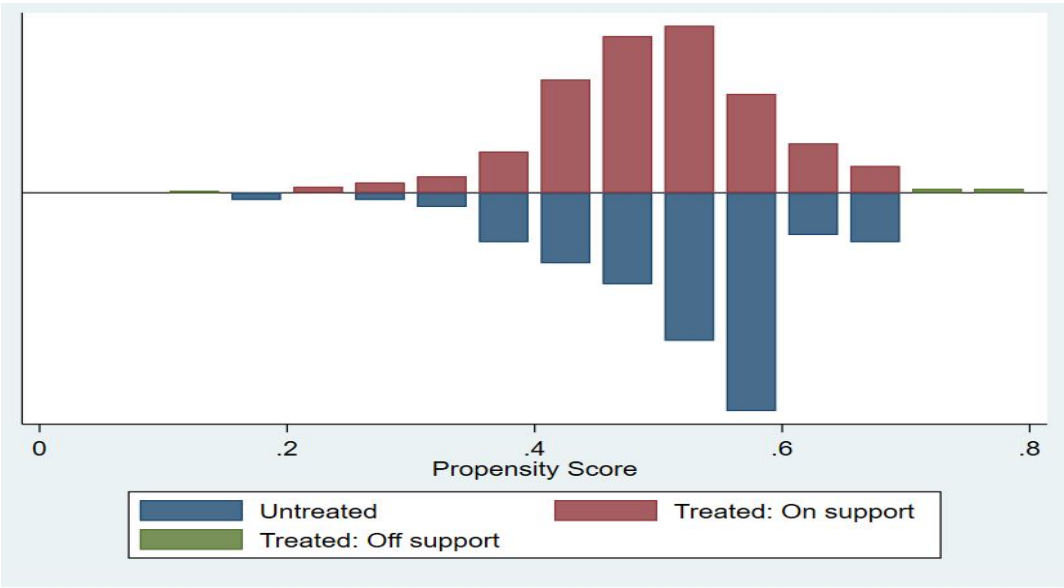

Figure 5: Propensity score distribution and common support
Source: The Authors

Table 3: Matching Quality

Matching Algorithms	Outcome	Sample	Total Sample	LR Chi2	P>Chi2	Mean Bias	Median Bias
5 Nearest Neighbour Matching (NNM)	Total Household Wage	Unmatched	0.366	47.36	0.000	45.2	37.8
		Matched	0.3880	52.44	0.000	45.5	40.8
	Household Labour Allocation	Unmatched	0.138	57.57	0.000	24.6	15.4
		Matched	0.149	121.90	0.000	23.8	14.5
Kernel Matching (KM)	Total Household Wage	Unmatched	0.366	47.36	0.000	45.2	37.8
		Matched	0.384	53.30	0.000	45.1	39.2
	Household Labour Allocation	Unmatched	0.138	57.57	0.000	24.6	15.4
		Matched	0.163	133.96	0.000	24.5	15.1
Female Sub-Sample							
5 Nearest Neighbour Matching (NNM)	Total Household Wage	Unmatched	0.368	26.07	0.001	42.8	32.8
		Matched	0.374	28.29	0.000	40.5	27.9
	Household Labour Allocation	Unmatched	0.125	27.56	0.001	19.6	8.7
		Matched	0.177	72.15	0.000	24.2	18.7
Kernel Matching (KM)	Total Household Wage	Unmatched	0.368	26.07	0.001	42.8	32.8
		Matched	0.357	27.02	0.001	40.9	25.7
	Household Labour Allocation	Unmatched	0.125	27.56	0.001	19.6	8.7
		Matched	0.165	67.32	0.000	22.2	16.4

Source: The Authors

4.3.3 The Propensity Score Matching Results

Table 4 reports the estimation results of the average treatment effect (ATT) for the different outcome variables across the matching algorithms.

Table 4: Estimated Average Treatment Effect

	OLS	% difference	NNM	% difference	KM	% difference
Total Household						
Household wages	31,055.71** (0.046)	70.24%	23,625.32** (0.024)	64.66%	23,610.47* (0.064)	60.17%
Time allocation	-0.78*** (0.000)	-9.02%	-1.86*** (0.005)	-12.89%	-0.78*** (0.001)	-9.81%
Female-headed Household						
Household wages	47,564.94 (0.108)	82.35%	32.642.76 (0.217)	72%	25,568.60 (0.305)	69.97%
Time allocation	1.89*** (0.007)	2.07%	1.65** (0.029)	1.45%	2.34** (0.017)	3.08%

Note: Probability values are in parentheses; ***p < 0.01, **p < 0.05, *p < 0.10.
OLS: Ordinary Least Squares; NNM: 5 Nearest Neighbour Matching; KM: Kernel Matching
Source: The Authors

The results in Table 4 are compared with the OLS for robustness and sensitivity checks. The estimated average treatment effect for household agricultural wage is positive and significant. The findings indicate that the location of households in communities with LSAIs accounts for between a 60% and 70% increase in their total household wages. The existence of LSAIs, however, is significantly related to the time the households devote to agricultural activities, and the ATT was negative for all the matching techniques. Therefore, this means that there is a decrease in the number of hours per day allocated to households for agricultural activities. The reduction ranges from 9% to 12%. This result is in line with Herrmann et al. (2016) who found a similar result. However, Osabuohien et al. (2019) found a significant reduction in total household wages for Tanzania. The female-headed household sub-sample shows a different result while household wage income has a positive average difference when the presence of LSAIs is considered. The increase in wages ranges from 69.72% to 82.35% across the different matching algorithms. While the time spent on agricultural activities has a positive average difference, the increase is between 2% and 3% for the different matching algorithms. Thus, the presence of LSAIs is associated with positive changes for female-headed household in terms of the time allocated to agricultural activities.

4.3.4 Sensitivity and Robustness Checks

The researchers re-estimated the propensity scores by applying direct nearest neighbour matching before calculating the propensity score equation in order to verify the robustness of the ATT. This approach calculates the ATT on the outcome variables by using direct nearest neighbour matching with one match per treatment. In this study, treatment means the household in communities with LSAIs. The reason this is done is to analyse whether the ATT results will change. If they do not change, it implies that they are reliable.

Table 5.: Sensitivity Check using Direct Nearest Neighbour Matching

		Wages	Labour Input
	Matched Pairs	ATT (Sig)	ATT (Sig)
Total Sample	1	14060.19 (0.457)	-1.056 (0.001)
Female-headed households	1	20974.80 (0.251)	2.123 (0.011)

Note: Probability values are in parentheses; ***p < 0.01, **p < 0.05, *p < 0.10; ATT: Average Treatment on the Treatment Effect.

Source: The Authors

The results in Table 5 show that the sign of the ATT coefficients for the outcome variables are the same for both the total sample and the female-headed house sub-sample in line with Table 4. For instance, there is N14,060.19 increase in the total household wages and 1.06 hours devoted to agricultural activities while the female-headed household wages remain positive and labour input in terms of hours spent on agricultural activities increases significantly.

4.3.5 The Impact of Large-scale Agricultural Investments at the Individual Level: Further Evidence

In this study, the estimations are based on the household level in terms of female-headed households. Nonetheless, this study takes a step further to consider the impact of LSAIs at the individual level. Here, the ATT was re-estimated taking into consideration individual females in communities with and without LSAIs. This estimation intends to show the impact of individual females who are not the head of household.

Table 6: Estimated Average Treatment Effect for Entire Female Sample

	OLS	% difference	NNM	% difference	KM	% difference
Total Household						
Household wages	64002.27*** (0.006)	80.02%	40670.20** (0.023)	72.33%	25568.60** (0.035)	69.97%
Time allocation	0.75*** (0.006)	0.89%	0.837*** (0.012)	0.99%	2.339*** (0.013)	3.09%

Note: Probability values are in parentheses, ***p < 0.01, **p < 0.05, *p < 0.10

Source: The Authors

The table presented in Table 6 is similar to the results reported in Table 4. That is, there is no difference between the OLS, NNM and KM in Table 6 and those from Table 4 in terms of the signs and significance of the coefficients of the ATT. Women will experience higher wages in communities with LSAIs in Nigerian communities and their labour hours input in the agricultural sector in communities with LSAIs will also increase.

5. Conclusion

The findings in this study show that LSAIs impact positively on the household agricultural wage income. The study finds that households with LSAIs have higher agricultural wages in comparison to households in communities without LSAIs. The results show that female-headed households are better off living in communities with LSAIs than in communities without LSAIs. The estimation shows a positive and significant agricultural wage income effect for the entire sample while for the female-headed households, a positive but non-significant effect was revealed. For the entire sample and the female-headed households, the analysis reveals a negative effect on agricultural labour hour input. From the findings in this study, households in communities with LSAIs spend less time on agricultural activities compared to households in communities without LSAIs. Households that work for LSAIs may spend less time in investors' agricultural activities with the result that they still have time that they spend on other non-farm activities that could generate revenue.

It is evident from the findings that even though female-headed households spend more time than their male counterparts, they receive less wages than the male-headed households. This can be validated given the situation in Nigeria where there is a general belief that males perform more rigorous tasks than females and thus tend to get paid more. Furthermore, the study finds that the female-headed households in communities with LSAIs earn more than female-headed households in communities without LSAIs, which implies that female-headed households in communities with LSAIs are better-off than those living in communities without LSAIs. The empirical results presented in this study lead us to some policy recommendations. One of the benefits of LSAIs is the generation of employment. As is evident in this study, such employment brings about an increase in household income but can these jobs be sustained? There are cases where the numbers of jobs available have reduced over time and, in most cases, they have been lower than what the investors had promised. Also, there are challenges regarding the types of jobs given, because managerial positions are mostly occupied by professionals who may not come from these communities. The investors tend to employ people outside the communities into such positions.

The authors submit, therefore, that binding agreements should be entered into, stipulating that individuals in communities where LSAIs are located will be employed with good conditions and payment terms, and that incentives and compensation will be given to households whose lands have been engaged. Local stakeholders should also be involved in this project. The presence of LSAIs could generate large numbers of jobs, but if there are no formal agreements between the LSAIs and the rural dwellers, they could lose their jobs at any time or LSAIs may prefer to hire people outside the communities who have better skills. Therefore, the government or the communities should provide schemes of service and regulations or contractual agreements that are binding. This will properly protect these small-scale farmers and also guide both parties on the employment and payment terms as well as address issues with dispossession and low wages.

As a suggestion for future research, it will be necessary to complement the findings in this study by using more than Waves of LSMS_ISA so that other impact evaluation techniques, notably difference-in-difference (DiD), can be engaged. Also, it will be worthwhile to engage in fieldwork using qualitative and quantitative data in communities where LSAIs operate with a view to underscoring the kind of employment provisions available for females.

References

Agarwal, Sheetal (2015), Missing Gender Concerns in Development-Induced Displacement and Resettlement: The Case of India, in: Evans Osabuohien (ed.) *Handbook of Research on In-Country Determinants and Implications of Foreign Land Acquisitions*, Hershey, PA: IGI Global, pp. 112-129.

Ahmed, Abubakari, Zaid Abubakari and Alexandros Gasparatos (2019), Labelling large-scale land acquisitions as land grabs: Procedural and distributional considerations from two cases in Ghana, in: *Geoforum*, 105, pp.191-205.

Arezki, Rabah, Klaus Deininger and Harris Selod (2013s), What drives the global 'land rush'? in: *The World Bank Economic Review*, 29, 2, pp. 207-233.

Austin, Peter C. (2011), An introduction to propensity score methods for reducing the effects of confounding in observational studies, in: *Multivariate Behavioral Research*, 46, 3, pp.399-424.

Bottazzi, Patrick et al. (2018), Evaluating the livelihood impacts of a large-scale agricultural investment: Lessons from the case of a biofuel production company in northern Sierra Leone, in: *Land Use Policy*, 73, pp. 128-137.

Cotula, Lorenzo et al. (2009), Land grab or development opportunity? agricultural investment and international land deals in Africa, London/ Rome: *IIED, FAO and IFAD*, online: www.ifad.org/pub/land/land_grab.pdf. (Accessed: 21.01.2021)

Cotula, Lorenzo (2012), The international political economy of the global land rush: A critical appraisal of trends, scale, geography and drivers, in: The Journal of Peasant Studies, 39, 3-4, pp. 649-680.

Dancer, Helen, and Emmanuel Sulle (2015), Gender implications of agricultural commercialisation: The case of sugarcane production in Kilombero District, Tanzania. *FAC Working Paper 118*, Brighton, UK: Future Agricultures Consortium, online: http://www.future-agricultures.org/publications/working-papers-document/gender-implications-of-agricultural-commercialisation-the-case-of-sugarcane-production-in-kilombero-district-tanzania/ (Accessed: 21.01.2021)

Deere, Carmen Diana and Cheryl R. Doss (2006), The gender asset gap: What do we know and why does it matter? in: *Feminist economics*, 12, 1-2, pp.1-50.

FAO (2020). Gendered impacts of covid-19 and equitable policy responses in agriculture, food security and nutrition. Rome, Italy: Food and Agriculture Organization of the United States. Retrieved from https://reliefweb.int/sites/reliefweb.int/files/resources/CA9198EN.pdf

FAO and ECOWAS Commission (2018), National Gender Profile of Agriculture and Rural Livelihoods: Nigeria, Abuja: *Country Gender Assessment Series*, online: http://www.fao.org/3/i8639en/I8639EN.pdf (Accessed: 21.01.2021)

FAO (2015), Gender and Land Statistics: Recent developments in FAO's Gender and Land Rights Database (Rome: FAO, online: http://www.fao.org/3/a-i4862e.pdf (Accessed: 21.01.2021)

FAO, IFAD, IMF, OECD, UNCTAD, WFP, the World Bank, the WTO, IFPRI and the UN HLTF (2011), Price volatility in food and agricultural markets: policy responses. Rome: *FAO*, online: http://www.amis-

outlook.org/fileadmin/templates/AMIS/documents/Interagency_Report_to_the_G20_on_Food_Price_Volatility.pdf

FAO (2012), Invisible Guardians – Women manage livestock diversity. *FAO Animal Production and Health Paper* No. 174. Rome, Italy: FAO.

FAO (2014), Impacts of foreign agricultural investment in developing countries: evidence from case studies, Rome: *FAO*, online: http://www.fao.org/3/a-i3900e.pdf (Accessed: 21.01.2021)

Herrmann, Raoul T. (2017), Large-Scale Agricultural Investments and Smallholder Welfare: A Comparison of Wage Labor and Outgrower Channels in Tanzania, in: *World Development*, 90, pp. 294–310.

Holden, Joseph, and Margarethe Pagel (2013), Transnational land acquisitions – What are the drivers, levels, and destinations, of recent transnational land acquisitions? *Economic and Private Sector Professional Evidence and Applied Knowledge Services.*

ILO. (2009). Guide to the new millennium.

International Labour Office (2016), *Women at work: trends 2016. International Labour Office* - Geneva: ILO.

International Labour Organization (ILO) (2018), Women and Men in the informal economy: A statistical picture (third edition), Geneva: *ILO*, online: https://www.ilo.org/global/topics/employment-promotion/informal-economy/publications/WCMS_711798/lang--en/index.htm (Accessed: 21.01.2021)

Jayachandran, Seema (2015), The Roots of Gender Inequality in Developing Countries, in: *Annual Review of Economics*, 7, 1, pp. 63–88.

Kumeh, Eric Mensah, and Omulo, Godfrey (2019), Youth's access to agricultural land in Sub-Saharan Africa: A missing link in the global land grabbing discourse, in: *Land Use Policy*, 89, p. 104210.

Land Matrix Global Observatory-LMGO (2020), *Welcome to Land Matrix Public Database on Land Deals*, online: http://www.landmatrix.org/ (accessed 5 March 2020).

Levien, Michael (2017), Gender and land dispossession: a comparative analysis, in: *The Journal of Peasant Studies*, 44, 6, pp. 1111–1134.

Li, Tania Murray (2017), Intergenerational displacement in Indonesia's oil palm plantation zone, in: *The Journal of Peasant Studies*, 44, 6, pp. 1158-1176.

Mtsor, Yemisi Grace and Park D. Idisi (2014), Gender in equality and women participation in agricultural development in Nigeria, in: *Merit Research Journal of Education and Review*, 2, 11, pp. 296-301.

Murphy, Susan, Padraig Carmody and Julius Okawakol (2017), When rights collide: land grabbing, force and injustice in Uganda, in: *The Journal of Peasant Studies*, 44, 3, pp. 677-696.

Mutopo, Patience, Manase Kudzai Chiweshe and Chipo Plaxedes Mubaya (2015), Large-scale land acquisitions, livelihoods, and gender configurations in Zimbabwe, in: Osabuohien, Evans (ed.), *Handbook of research on in-country determinants and implications of foreign land acquisitions*, Hershey, PA: IGI Global, pp. 130-144.

Mwisha-Kasiwa, Janvier (2018), Household economic well-being and child health in the Democratic Republic of Congo, in: *Journal of African Development*, 20, 1, pp. 48-58.

Nyantakyi-Frimpong, Hanson and Rachel Bezner Kerr (2017), Land grabbing, social differentiation, intensified migration and food security in northern Ghana, in: *The Journal of Peasant Studies*, 44, 2, pp. 421-444.

Obayelu, Oluwakemi Adeola and Amaka Christiana Chime (2020), Dimensions and drivers of women's empowerment in rural Nigeria, in: *International Journal of Social Economics*, 47, 3, pp. 315-333.

OECD Development Centre (2014), *Unpaid Care Work: The missing link in the analysis of gender gaps in labour outcomes*, online: https://www.oecd.org/dev/development-gender/Unpaid_care_work.pdf (Accessed: 21.01.2021)

Osabohien, Romanus et al. (2020), Household access to agricultural credit and agricultural production in Nigeria: A propensity score matching model, in: *South African Journal of Economic and Management Sciences*, 23, 1, pp. 1-11.

Osabuohien, Evans (2020), Guest Editorial: Labour issues in Africa's agricultural and rural transformation, in: *African Journal of Economic and Management Studies*, 11, 2, pp. 185-191.

Osabuohien, Evans et al. (2015), Agents and implications of foreign land deals in East African Community: the case of Uganda, in: Evans Osabuohien (ed.), *Handbook of Research on In-Country Determinants and Implications of Foreign Land Acquisitions*, Hershey, PA: IGI Global, pp. 263-286.

Osabuohien, Evans (2014), Large-scale Agricultural Land Investments and Local Institutions in Africa: The Nigerian Case, in:. *Land Use Policy*, 39, pp. 155-165.

Osabuohien, Evans et al. (2019), Female labor outcomes and large-scale agricultural land investments: Macro-micro evidence from Tanzania, in: *Land Use Policy*, 82, pp. 716–728.

Osabuohien, Evans et al. (2020), Large-scale Land Investments and Households' Livelihood in Nigeria: Empirical Insights from Quantitative Analysis, in: Evans Osabuohien (ed.) *The Palgrave Handbook of Agricultural and Rural Development in Africa*. Geneva: Palgrave Macmillan.

Otieno, Mary (2015), Unpaid Care Work and Gender Dynamics in Africa: Hurdles and Opportunities for Future Public Policy Frameworks, in: *African Women's Journal*, 15 (ix), pp. 15-21.

Panda, Pradeep and Bina Agarwal (2005), Marital violence, human development and women's property status in India, in:. *World Development*, 33, 5, pp. 823-850.

Rosenbaum, Paul R. and Donald B. (1983), The central role of the propensity score in observational studies for causal effects, in: *Biometrika*, 70, 1, pp. 41-55.

Speller, William Robert et al. (2017), The impact of larger-scale agricultural investments on local communities: Updated voices from the field, Agriculture Global Practice Discussion Paper No. 12., Washington, DC: *World Bank*, online: http://documents.worldbank.org/curated/en/982221493042400267/The-impact-of-larger-scale-agricultural-investments-on-local-communities-updated-voices-from-the-field (Accessed: 21.01.2021)

Tandon, Nidhi and MarcWegerif (2013), Promises, Power, and Poverty: Corporate land deals and rural women in Africa, *170 Oxfam Briefing Paper*, Oxfam International.

Tsikata, Dzodzi and Joseph Awetori Yaro (2014), When a good business model is not enough: Land transactions and gendered livelihood prospects in rural Ghana in: *Feminist economics*, 20, 1, pp. 202-226.

United Nations. Office of the High Commissioner for Human Rights, & Women, U. N. (2013), *Realizing Women's Rights to Land and Other Productive Resources.* UN.

World Bank Group (2015), Women, business and the law 2016: Getting to equal. Washington DC: *World Bank*, online: http://documents.worldbank.org/curated/en/455971467992805787/Women-business-and-the-law-2016-getting-to-equal

Yengoh, Genesis Tamang, Karin, Frederick Ato Armah and Barry Ness (2016), Factors of vulnerability: How large-scale land acquisitions take advantage of local and national weaknesses in Sierra Leone, in: *Land Use Policy*, 50, pp. 328-340.