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The Impacts of Extensive Agricultural Investment on Local Livelihood Income in Western Ethiopia

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Abstract. In western Ethiopia, large-scale agricultural investment has been growing, but its effects on local livelihood incomes have received less attention. This study investigates the impact of extensive agricultural investment on local livelihood incomes in Sibu Sire District, western Ethiopia. A total of 180 households were selected using simple random sampling. Descriptive statistics such as t-test, ANOVA, and Chi-square test were employed for data analysis. The results showed that there was a significant difference in household livelihood income prior-investment expansion among the three groups (F2, 178 = 17.41; P = 0.001), whereas there was no significant difference among the 3 groups post-investment expansion (F2, 177 = 0.9; P = 0.9). There was also no significant difference in social service provision among the groups. Regarding technology transmission, the respondents revealed that there was no significant difference among the groups. The study found that insiders (84.4%), outsiders (91.7%), and the control group (100.0%) had not introduced new technology. Moreover, crops and animal production by insiders and outsiders decreased compared to the control group. Therefore, the study suggests that the government needs to improve investment policy and make interventions to improve local socio-economic conditions in the area.

Keywords: agricultural investment, Ethiopia, impact, income, livelihood

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1. Introduction

Ethiopia boasts abundant potential resources for agricultural land, with approximately 70% of the nation's 111.5 million hectares of land deemed suitable for cultivating both annual and perennial crops [1]. Ethiopia's economic growth relies heavily on the agricultural sector, with crop and livestock production constituting approximately 65% and 25% of the agricultural GDP. The enhancement of management techniques, improved inputs, and expansion of irrigation farming have contributed to boosting agricultural output [2]. Due to its significant contribution to the GDP, exports, and employment, agriculture accounts for around fifty percent of Ethiopia's GDP and accounts for 85% of all jobs [3]. Nevertheless, several issues plague the agricultural industry,

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including degraded soil, shrinking holding sizes, fragmented agricultural land size, inadequate agricultural inputs, high population growth, inadequate infrastructural servises, and insufficient market connections [4]. Additionally, substantial limitations like restricted financial and technological access are hindering potential growth. Moreover, ineffective market systems and underdeveloped research and extension services are posing further challenges [2]. With an average farm size of 0.81 hectares, each household has a small farm. Large-scale land transactions for agricultural investment may involve more than 2000 hectares [5], more than 500 hectares [6], or between 1,000 and 500,000 hectares. These transactions may be made through acquisitions or long-term contracts with durations ranging from fifty to ninety-nine years [7]. But, what constitutes extensive farming differs from one country to others based on locality such as the size of agricultural land.

In the 1960s and early 1970s, Ethiopia saw a period of early success with small- and medium-sized modern farms owned by agricultural entrepreneurs and experts. However, since 1975, these farms have struggled to replicate the success of state-owned farms [8]. Due to the belief that land is abundant, labor costs are low, and land rentals are inexpensive, investors from different countries including China, and India have recently shown strong interest in acquiring land in Africa. They also faced limited access to domestic resources, especially water and land, and sought outside solutions to fulfill their need for rapid economic growth. Many African nations had sold extensive farm land to investors hoping that the large-scale capital inflows would lead to rapid agricultural development and serve as a crucial tool in addressing persistent rural poverty at the end of 2009 [9].

To modernize its agricultural sector, Ethiopia is among the top five SSA nations that encourage or accept investment in large-scale farming [5]. The government established the Agricultural Investment Support Directorate in 2008 to actively promote and ease farmland transfers to investors [10]. This is demonstrated by the huge increase in FDI inflows into the nation for agriculture [11]. But while some investments have had favorable results, some have produced negative results, and the majority show a combination of both positive and negative effects. Agricultural revolutions that depend on intensive, untenable agribusiness as opposed to a broad modernization of sustainable agriculture typically exhibit an output boom in the early stage [8]. Furthermore, significant sources of income for the rural population, such as gathering fuel wood, grazing land, and medicinal plants, are underappreciated. These circumstances have their disadvantages and may lead to conflicts in the investment sector, negatively impacting the nation's social, economic, and environmental aspects [12]. Nevertheless, due to a variety of socioeconomic, political, and environmental factors, the effects of large-scale land acquisitions differ from one location to another and from one nation to another [13].

There have been very few attempts, according to several studies, to look at the effects of large-scale land transfers on Ethiopia's economy, society, and environment. The effects of extensive investments in agriculture in Sub-Saharan Africa and the advantages it provides for the impoverished have not been well demonstrated by empirical research up to this point [7]. The conditions under which Ethiopian land leased to both domestic and foreign investors will be utilized are not well understood. Impact studies have become less attention, even though larger farms have been the subject of more research [3]. Furthermore, not much is known about how land agreements have affected the standard of living in the implemented region and the nation as a whole [12]. Research by Dauvergne [14], Rahmato [15], and Shete [16] suggested that large-scale farming may cause changes in land usage that have detrimental consequences on the ecosystem. Still, they did not provide an exact number for these effects. No detailed studies have been conducted to extensive investments impact of agriculture on local socio-economic factors. As a result, natural resources have been degraded and received insufficient attention, leading to changes in households' local livelihoods income.

Research from other nations, including Ethiopia, has highlighted the hazards that large-scale commercial farming poses to the environment and the local populace, arguing that the returns on investment do not outweigh the disadvantages. Currently, there is scant evidence indicating that LSLAs contribute to any of the expected societal benefits associated with the country's programs, such as technology transfer, increased crop yields, employment generation, and infrastructure development. However, others contend that the country's agricultural investment projects have more detrimental effects than beneficial ones for society [16]. Nonetheless, while applying for land, investors typically mention the anticipated positive impacts associated with the intended enterprises. Tremendous magnitude, the importance of exports and foreign revenue drives agriculture, which sometimes disregards the need for Local livelihood income improvement. Consequently, agricultural investment projects have been criticized for not meeting the legal and informal conditions necessary to meet the country's demand for improved livelihoods. Therefore, this study examined the socioeconomic effects of LSAI in the research region, focusing on the previously mentioned gap.

2. Materials and Methods

2.1. Description of the Study Area

The study was carried out in the Sibu Sire district, which is located in the Oromia Regional State. The district is one of 17 in the East Wollega Zone and is bordered by Bonaya Boshe, Wama Hagalo, Guto Wayu, Gudaya Bila, and Gobu Sayo. The district was selected deliberately because of the extensive agricultural investment that has been made there and the claimed effects of this investment on the socioeconomic status of the surrounding community. The district’s agroecology includes highland (dega), mid-highland (weynadega), and lowland (kola) zones, with an average

altitude of 2,160 meters, ranging from 1,300 to 3,020 meters above sea level. Several perennial rivers flow through the district, including Aleltu, Chekorsa, and Jalele. Modern small-scale irrigation projects such as Burka Indiris, Bikiltu Gindo, Laku, Jalalle, and Laga Chokorsa are being implemented alongside traditional methods. Small-scale irrigation has emerged as a new income source, according to the Woreda Agricultural Office.

The district's total estimated population was 102,228, with 50,717 men and 51,511 women and 10.02% lived in urban areas. Sibu Sire covers an area of 1,132.51 square kilometers, with greater than 86.4 km^2 population density[17]. The district mostly contains sandy loam, silt loam, clay loam, and clay soil textures. Three separate geographical zones in varying proportions make up the district: the lowland (18.27%), which makes up just a very minor section of the woreda; the midland (74.2%); and the highland (7.53%).

The elevation above sea level varies from 1360 to 2500 meters. The mean annual temperature and yearly rainfall in the area are 24 to 25.5°C and 1015 to 1050 mm, respectively [18]. There are normally two distinct rainy seasons in the region: a lengthy one that lasts from June to September and peaks in July and August, and a brief one that lasts from April to May [19]. The total area of natural forest in the Woreda is 1,336 hec [19]. Some of the major tree species found in the Woreda include *Cordia africana, Ficus sycomorus, and Acacia* species [20].

The Ethiopian government, along with international organizations like the World Bank, promotes the transfer of large-scale land to investors and the transition to large-scale agriculture as crucial steps for modernizing agriculture and enhancing productive efficiency. This approach is believed to boost food production and stimulate economic growth [21, 22]. The primary motivation behind this shift is to generate export revenue and earn foreign currency, which benefits economic growth. However, critics argue that these large-scale agricultural investments and the incentives provided by the government come at the expense of smallholder farmers, who are the main contributors to the country's food supply (ibid). Research indicates that a total of about 1,205,000 hectares of land have been transferred for large-scale agriculture. Of this, 49,000 hectares were allocated to domestic investors, while the remaining 1,156,000 hectares, making up approximately 96% of the large-scale farms, were allocated to foreign investors.

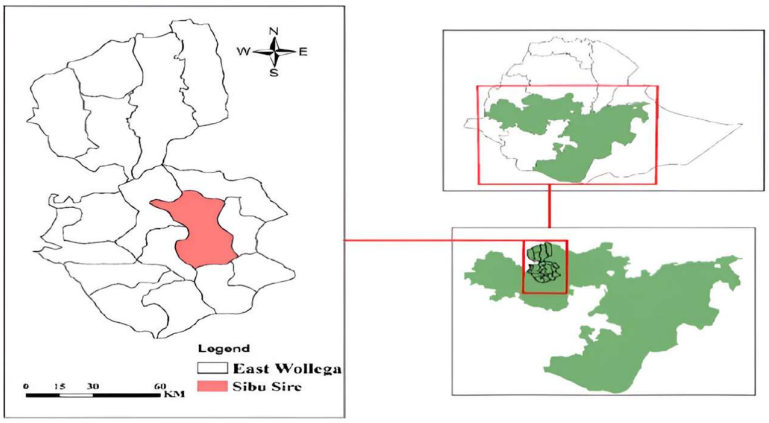

Figure 1. Map of the Study Area, Sibu Sire District, Located in Oromia Regional State, Ethiopia

2.2. Sampling Procedures

The district was selected deliberately because of the extensive agricultural investment that has been made there and the claimed effects of this investment on the socioeconomic status of the surrounding community. Because a sizable portion of the invested land area is located in these two kebeles (Jarso wama and Wali galte), three groups were purposefully selected within each kebele: the area outside the investment, the area around the investment, and the control group. The three groups—control, outsider, and insider—were categorized based on how close the studied land was. Insiders are those who live very near the invested land boundary (less than 4 km) and are thought to be heavily influenced by LSAI. Non-treatment groups are those who are found at greater than or equal to seven km and less than ten km from the extensive investment area boundary. These were approximations of the distances to facilitate judgment. Some more information about how the effects of LSAI land development can be gained from comparing the responses of the various groups. The classification of families into three groups in this study was predicated on the assumption that they offer crucial data or proof for a deeper comprehension of the effects of LSAI on the local population. The Sample size was determined based on the Yemane formula, Out of the whole population from the two villages [23].

$$n = \frac{N}{1+\mathrm{N}(e^2)} \tag{1}$$

While n represents the amount of sample, N represents the sampling frame of the population, and e represents the number of error terms.

$$\mathrm{n} = \frac{772}{1} + 772(0.1)^2 = \approx 90; \text{ for Jaarsoo Waamaa Village} \tag{2}$$

$$\mathrm{n} = \frac{956}{1} + 956(0.1)^2 = \approx 90; \text{ for Walii Galtee Village} \tag{3}$$

Based on the formula 180 sample farmer households were selected from the two kebeles. The predetermined sample size was randomly chosen for data collection and distributed evenly among the three stratified groups (control, outsider, and insider), resulting in sixty households per group

(180/3 = 60). Even though the extents of the strata differ, it could be more actual to allocate the sample equally [24].

Following this, two focus group discussions (FGD) that contained five members were held, each representing a range of household types [25]. Following Keremane [26], fifteen key informant interviews (KII) were conducted with specialists in agricultural development, investment, and land administration, as well as development officers at the village level, village leaders, local elders, and company managers. KII was chosen for the interview based on their first-hand familiarity with the issue of interest and their willingness to share ideas and information freely.

2.3. Data Collection

The household survey questionnaire collected primary data from rural households. A preliminary survey refined the questionnaire, and it was then used to gather information on the effects of Large-Scale Agricultural Investments (LSAI) on various aspects. We surveyed 190 households using a structured questionnaire and supplemented our data collection with focus group discussions (FGD) and key informant interviews (KII). Additionally, we observed the invested land sites to assess compliance with agreements and environmental standards. Secondary data included evidence from published materials related to the study.

2.4. Data Analysis

In our analysis using SPSS version 23.0, we performed descriptive analyses including Tukey HSD, t-test, chi-square, and ANOVA for various variables. The Tukey HSD test is employed when the interaction among three or more variables is statistically significant, surpassing a simple sum or product of the individual degrees of significance [27].

$$\text{HSD} = \frac{\boldsymbol{Xm - Xn}}{\sqrt{\boldsymbol{XSw/Y}}} \tag{4}$$

where: Xm – Xn represents the mean difference between two variables (assume that, Xm is greater than Xn); Xsw represents the square of the mean within the group, and Y represents the group number.

Two methods were used to analyze the income and livestock production variables. Using their income comparison and livestock number in each group as an independent sample, the first step involved identifying the household as either an insider, outsider, or control based on how close they were to the investment area. This method used a one-way ANOVA to determine the effects of the investment on family income and the number of livestock nearby in the investment region relative to the far-from-the-investment household (control group). Comparing the respondent's income and livestock numbers in the same categories as the relevant sample allows for the second classification of households in the area. t-test was used to determine the variation in livestock numbers and household income in the same group pre and post the expansion of the investment.

3. Results and Discussion

3.1. Extensive Agricultural Investment Impacts on Livelihood Income

There was existence of LSAI impacts local farmers' income livelihood at different degrees between the control and treatment (insiders and outsiders) group due to the negative impact of the investment before and after its expansion on the income of insiders and outsiders shown changes in crop production (especially sorghum) and livestock production (Figure 2). The annual mean income of the treatment group before LSAI was lost after its implementation, leading to their income dropping below that of the control group. This shows how local people, especially those directly involved in agricultural production, are affected by large-scale agricultural investments in a complicated and sometimes negative way.

Insiders and outsiders had higher incomes than the control group before the implementation of the intervention (IE). However, after the intervention, insiders and outsiders had lower incomes than the control group due to changes in the production of agricultural output and Livestock. Sorghum was the dominant crop for insiders and outsiders before the intervention. Most insiders and outsiders had higher yields from sorghum compared to the control group before the intervention. However, after the intervention, only a few insiders and outsiders were able to produce this crop due to bird damage caused by the sugarcane plantations of Raj Agro Industries.

Furthermore, the damage of a decrease in the number and productivity of animals due to land being given to investors was another factor contributing to the decrease in income for the treatment households post-intervention. The result of a one-way ANOVA showed a significant difference in household income pre-intervention among them ($F2, 177.01 = 17.41$; $P = 0.001$), nevertheless, there is no significant difference among them post-intervention ($F2, 177.001 = 0.940$; $P = 0.9$).

Subsequently, Tukey's HSD was conducted to analyze the mean difference among the groups. The result showed that the mean income of households with the investment area pre-intervention was found to be 33,528.001 Ethiopian Birr and was significant at ($p = 0.001$) which is greater compared to the income of the control pre-intervention (mean = 20,364.01 Ethiopian Birr). Similarly, outsider income before the intervention (mean = 28923 ETB) was significantly ($p = 0.001$) higher than control income before the intervention (mean = 20364 ETB). When we compare the mean income of households within and outside of the investment area after the intervention was found to be insignificant ($p = 0.99$). But, the mean income of households living within the investment area was greater than that of those found outside of the investment area pre-intervention.

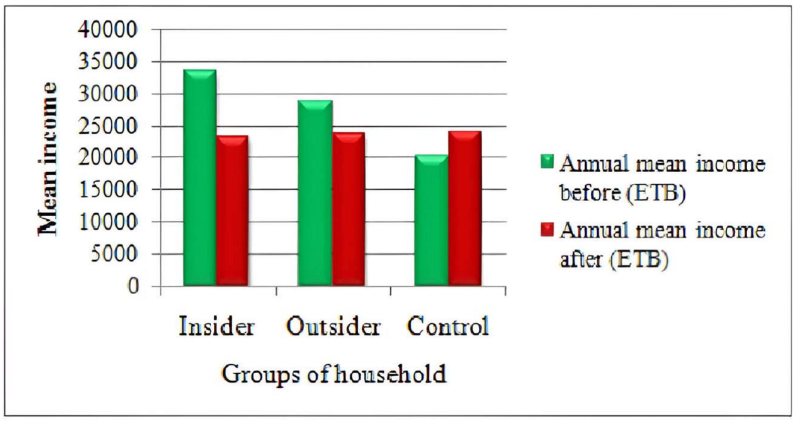

Figure 2. Yearly Average Income Changes Caused by the Negative Effects of the Investment Both Before and After its Expansion

According to the t-test result there is significance in income of household respondents with in the treatment and control group prior and after the expansion of the investment (Table 1). Overall, the results showed that the control groups' income post-investment expansion was higher than that of prior to the Investment expansion, which could be attributed to other factors or agricultural input. However, after IE, the income of both groups was lower than it was prior to IE, demonstrating a significant impact of LSAI on nearby residents. The annual mean income of insiders and outsiders was lower than that of the control group before and after the investment expansion. Generally, we concluded that the treatment group (insiders and outsiders) was more affected by the expansion of Agricultural Investment. This finding was similar to the study of Bekele [28].

Table 1. T-test Results Comparing Household Income Among Treatment (Insiders and Outsiders) and Control Groups Before and After the Expansion of Large-Scale Agricultural Investment

Name of the Groups	Yearly Average Income (ETB)		T-test	Degree of Freedom	p
	Prior IE	Post IE			
Treatment in the area	33528	23308	5.093	59	.000
Treatment outside of the area	28923	23797	5.447	59	.000
Control	20364	24046	-5.094	59	.000

Note: Treatment in the investment area and outside of the investment area are both treatment groups, IE represents Investment establishment, and ETB = Ethiopian birr

3.2. Extensive Investment Expansion Impacts on Local Community

Based on Figure 3, the treatment group found in the investment area was estimated to be more than 83%, whereas the treatment group found outside the investment area was greater than 86%. Furthermore, about 94.0% of household respondents in the control replied that there are no social services were provided due to the establishment of the investment in their area. The distribution of the responses regarding the social services did not differ statistically significantly between the groups, according to chi-square analysis ($X = 3.24$; degree of freedom = 2; $p > 0.050$). The

Ethiopian Ministry of Agriculture stated objectives and positive effects were determined to be devoid of proof that they had been made. To construct social assets and facilities including schools, health facilities, and clean water supplies, as well as to facilitate knowledge transfer, the ministry's strategy and policy on extensive agriculture expansion contend that foreign direct investment boosts the societies living near the investments. A contract does not, however, require the investors to give the communities these social services. Instead, certain infrastructure—like the project's need for energy and roads—is built by the government [1].

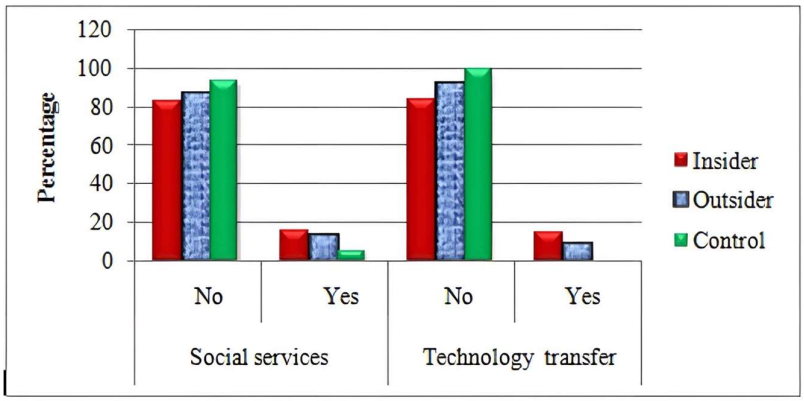

Figure 3. Households' Perceptions of Technology Transfer and Community Services

According to Figure 3, participants confirmed that advances in technology had not been brought by control (100.0 %), outsiders (91.7%), or insiders (84.4%). The majority of farmers, however, were redirecting and using water for irrigation before the corporation provided them with canal water, so they were not thinking about knowledge transfer. These farmers outlined their belief that the construction of the canal waterway had a detrimental effect because it had taken some of their land. A small number of responders in the outside group received a low-cost, enhanced corn variety for just one year. Other research, however, suggested that big investors may not always increase home markets for financial services, agricultural outputs, and inputs—likely the most significant barriers to smallholder income development [29]. There were no technological transfers from the organization available to the control groups. However, they did receive various enhanced crop varieties from the district and used their traditional water diversion system for irrigation. Our research showed that, on average, 92% of all groups that investors did not provide with novel technologies responded. This is almost identical to the research by Atlaw et al. [30], where 96% of the respondents claimed that the investment project had not exposed them to new farming methods.

Apart from conducting interviews with individual households, in-depth key informant interviews regarding social services and technology transfer were carried out with various relevant organizations. For instance, the assistant manager of the agriculture section described how Raj Agro Industry provided social services like ambulance service in an emergency (particularly during childbirth), permitting residents to drink the company's drinking water and using canal

water for irrigation, maintaining an 11-kilometer road from Sibu Sire town to the company, supporting the construction of a 10-kilometer road for Dicho Abba Garmama Kebele, and independently constructing a 5-kilometer road for Jaarsoo waamaa village (part of Gunoo Dambii Diimaa Village). The investment organization has transported tree seedlings during planting programs and other materials for government institutions. Similarly, the company annually donated a total of 1000 Ethiopian birr to various religious institutions, as well as sporadically to specific schools. We discussed this issue with seven relevant specialists from the Sibu Sire District and interviewed eight local key informants (KIIs) to verify the information. While the responses from the KIIs varied, the majority stated that most of the services mentioned were not available. Additionally, we conducted two focus groups, each with five participants from different household backgrounds. Although most participants mentioned that some of the services mentioned by the leader were not available to them, there were differing viewpoints expressed by individuals.

3.3. Employment Opportunity

Table 2, presents secondary data that indicates an increase in the mean monthly compensation for both temporary and permanent employees from 2009-2018. However, there was no consistent trend in the number of temporary and permanent employees. In particular, the number of temporary workers fell between 2009 and 2012, rose between 2013 and 2017, and fell again in 2018. The reason for this is that a significant portion of the labor performed by the organization is seasonal and varies from year to year; for instance, a large number of short-term employees during the planting and harvesting of the sugarcane plant. Similarly, Rahmato [15], stated that major agricultural investment projects that have been operating in the country have given locals the opportunity to work in temporary and seasonal jobs.

A portion of manual work was replaced by machines, and the number of temporary employees was reduced whenever workers asked for pay increases. This showed that there was little job stability and security for workers. In comparison to local labor, the average daily wage for temporary employees was significantly lower, as confirmed by the data from the households. The wage rate per day in the area was 49.40 Ethiopian Birr plus lunch, although the average wage rate at the company was higher (minimum and maximum). However, according to secondary data from the corporate bureau, in January 2018, the average daily wage rate was 49.40 Ethiopian Birr. The permanent staff argued that their pay was significantly lower than that of workers in a state sugar factory who had similar positions. While the advantages of employment in reducing poverty and improving livelihoods have been extensively debated, our research indicates that in the case of large-scale agricultural growth in Ethiopia, it is not as effective in practice as it may seem [16]. Studies conducted by [30-32], have shown that foreign direct investment constitutes a very small portion of the country's agricultural labor force.

Table 2. Number of job opportunity offered by the investment PLC

Year	Employees number		Average salary per month (ETB)	
	Permanent	**Temporal**	**Permanent**	**Temporal**
2009	57	651	1101	207
2010	73	557	1141	233
2011	65	486	1418	359
2012	67	451	1579	401
2013	63	492	1731	456
2014	85	658	1976	727
2015	88	769	2001	755
2016	158	799	2221	1039
2017	138	906	2474	1431
2018	114	389	2781	1481

3.4. Extensive Investment Impacts on Agricultural Output

House respondents replied that Sorghum production prior to the Investment expansion as by (94.8%) insiders, (89%) outsiders, and while that the control group is 72%. Yet, following a few years of investment expansion, the proportion of households growing this crop decreased, as shown by insiders (3.3%), outsiders (6.7%), and control (31%). (Table 3). More specifically, after IE, this crop's output was significantly lower both inside and outside the control group, suggesting that LSAI had a stronger effect on close households. At the outset of the study, we did presume, though, that the control group was not affected by investments and that their crop production was affected. The results of the Chi-square test showed a significant difference in sorghum yields among the groups before and after Investment Expansion (X-square = 5.44; degree of freedom = 2; P = 0.047 and 22.15; degree of freedom = 2; P = 0.0010). However, there was no difference in productivity for maize, noug, teff, and finger millet between the groups before and after Investment Expansion, indicating that these crops were grown without any impact from Investment Expansion (Figure 3).

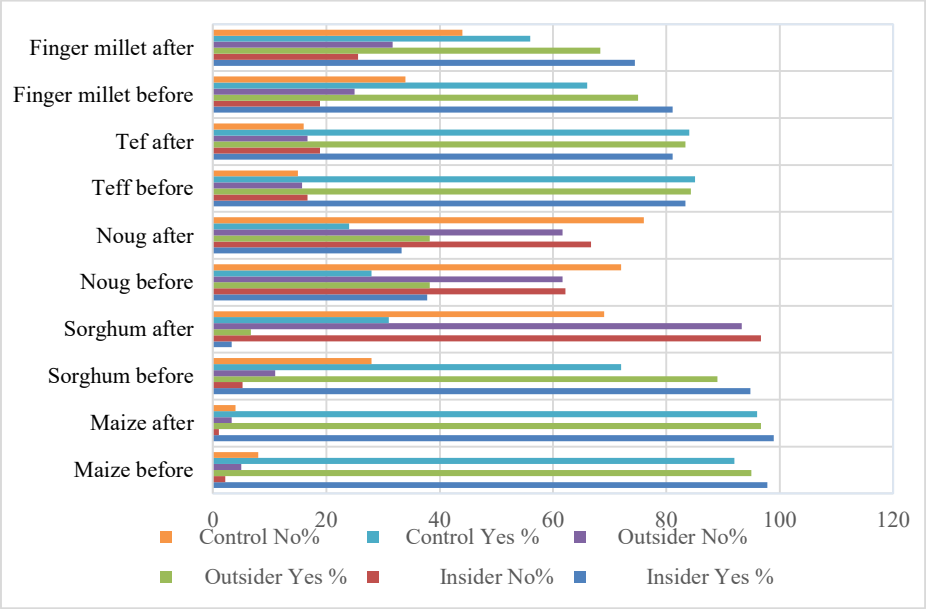

Figure 4. The Status of Crop Production Among the Groups

Regarding why households had stopped growing sorghum, they explained that local birds, known as Girrisa, were causing problems by feeding on the crop, making it difficult to harvest as before. Some argue that the birds were present before the project started, but their numbers increased afterward. Most homes believe the birds came when the Raj Agro Industry. Both sides agree that when the company developed the sugarcane plantation, the bird population increased significantly. The sugarcane plantation has created a favorable environment for bird life.

Figure 5. Occurrence of Migrant Birds (Girrisa) from the Sugarcane Plantation

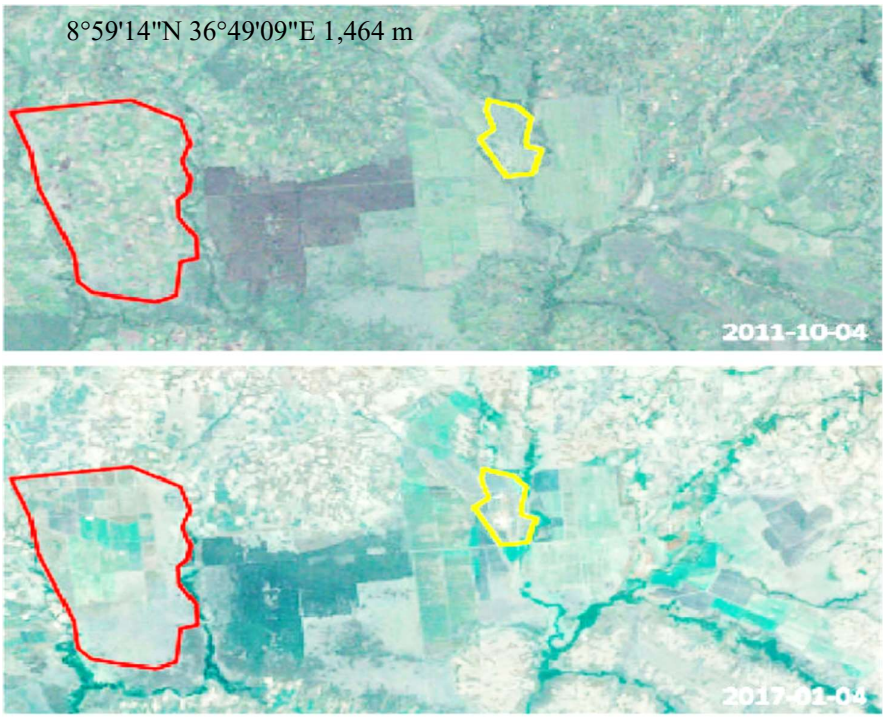

Figure 6. Map Depicting the Agricultural Land Conversion in Sibu Sire following Large-Scale Agricultural Expansion

The conversion of land from community agricultural land to sugarcane plantations and sugar processing factories is represented by yellow polygonal shapes. The red color area indicate that has been converted from smallholder farm plots to sugarcane plantations. These changes in land use correspond to shifts in ownership, transitioning from privately owned and communal to company-owned Large-Scale Agricultural Extensions [33].

3.5. Extensive Agricultural Investment Impacts on Livestock Production

In the study area, one of the primary agricultural methods for fulfilling the basic needs of rural households is livestock production. Before IE, insiders had more livestock than the other two groups combined. This was because insiders had better than the other two groups. However, after IE, the number of livestock owned by insiders declined due to the loss of resources such as grazing land (Figure 7). The One-way ANOVA results showed that there is a significant difference among groups in livestock numbers before the expansion of the investment ($F_{2, 177} = 3.02$; $P = 0.05$). However, there was no significant difference in livestock numbers between groups after IE ($F_{2, 177} = 1.775$; $P = 0.172$). Further analysis using Tukey's HSD result showed that the mean of the livestock household's respondents within the investment area before the expansion of the investment was found to be 28.7 and it was greater than that of the households living outside of the area which is (mean = 23.2) with a p-value of 0.047. In a similar way the mean livestock numbers for households living within the investment area pre-investment expansion was found to be 28.7, were also greater than that of control groups livestock mean numbers (mean = 19.40)

with a p-value of 0.04. The mean number of outsiders and controls were found to be insignificant (P = 0.29).

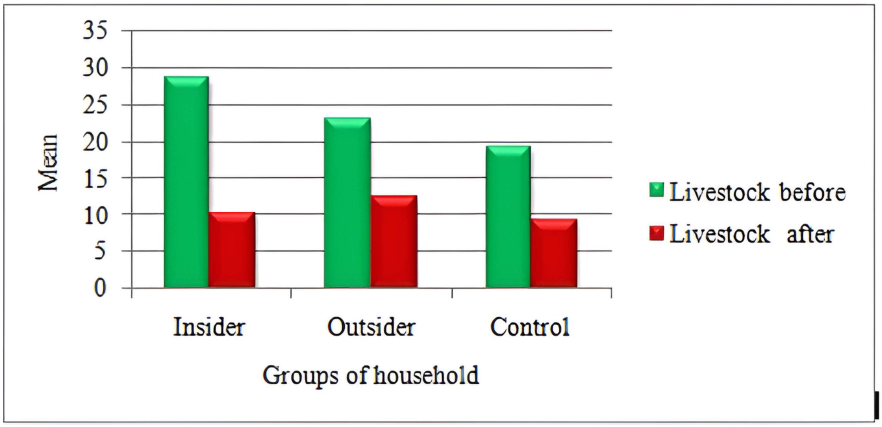

Figure 7. The Status of Mean Livestock Quantity Before and After Investment Launch

The results of the paired samples t-test showed that the quantity of cattle within the insider (t = 7.03; degree of freedom = 59.0; P = 0.001), outsider (t = 6.20; degree of freedom = 59; P = 0.001), and control (t = 6.1; degree of freedom = 59; P = 0.001) groups differed statistically significantly pre and post investment expansion. The reasons or variables for the difference in livestock number production before and after IE differed, even though they exist within all groupings. Different factors influence livestock numbers, such as traditional agriculture, automated agriculture, and other factors (such as diseases, climate concerns, etc.) (Table 4). Agricultural mechanization involves using investment-driven methods and high-tech equipment to produce food for the market on a large scale. In contrast, traditional agriculture is practiced by local farmers and involves minimal technology, smaller production areas, and food production for non-commercial purposes. This difference has contributed to the decline in cattle output in the area

Table 3. Determinants of Livestock Production Quantity in Percent

Factors	Insider	Outsider	Control
Mechanized agriculture	47.8	16.7	0
Traditional agriculture	38.9	61.7	74
Others	13.3	21.7	26

The table above shows that mechanized agriculture had a bigger impact on households near the investment region compared to other factors. Investments that utilize mechanical agriculture occupy large areas for production, which restricts local people's access to resources such as grazing land. As a result, the land allocated to the Raj Agro Industry has a negative effect on local livestock production and the means of subsistence for the residents. According to Jiru [12], 20% of households believed that prohibiting cattle from grazing on land that had been given to Karuturi Agro Product Plc would jeopardize their ability to earn a living. Similarly, Bekele [28] reported that households experienced a 45% decrease in cattle numbers following the company's

involvement. When the area was under government control, locals used the remaining forests and grasslands for their livestock. Although grass still grew in many areas on privately owned land, locals were completely prohibited from using it once the land was transferred. Farmers face penalties ranging from 50 to 100 ETB per animal if their cattle cross the company's farm border.

The local farmers were affected by a strict rule imposed by the business. The rule prohibited them from using grass and required them to keep their cattle away all year round, leading to a decrease in their livelihood income and livestock numbers. The production of cattle-related products such as butter, milk, and fattening also declined, with insiders accounting for 67.8% of the decrease, compared to 60% for outsiders and 58% for the control group.

4. Conclusion and Policy Implication

The study revealed a lack of oversight in investment projects' operations, allowing investors to operate freely with few restrictions. While large-scale agricultural investment (LSAI) is crucial for growth, smallholders face obstacles, including losing property, which leads to economic hardship, loss of identity, and uneasiness. Although the government has sound goals and policies for promoting LSAI, most have not been implemented, resulting in insufficient evidence of government policy expectations from investment projects. The study identified decreased income, unsecured wage payments, lost resources, diminished crop and animal diversity, and reduced product output due to LSAI impacts. To address these problems, the government should implement environmentally friendly strategies and practical policies for effective LSAI expansion, ensuring the ability to meet local expectations before land transfers to investors. National and international policies, regulations, and incentives should encourage local farmers, and efforts should be made to enhance grower opportunities and provide fair compensation options for local villagers. Additionally, investors should engage in community development activities, and good governance, along with continuous monitoring and evaluation of investment project activities, are crucial for positive outcomes and reducing investment-related problems.

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