

Factors Affecting Land Rent for Large-Scale Agricultural Investment in Gamo Lowlands, Ethiopia

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Research Article

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Abstract

The paper examines factors affecting land rent in agricultural investment in the Gamo district, Ethiopia. The study considered all the 57 registered investors engaged in large-scale agriculture in the Gamo district. A multiple regression model was used to identify the factors affecting land rental price. The study revealed that the irrigation access of the investment site, categories of agriculture, annual operating cost of the investment, cluster of investment site and distance of investment site from district centre (Arbaminch) were significantly influencing the agricultural land rent. The study suggested that policy makers should focus on issues which impeded the performance of the rental market to contribute to further efficient large-scale agricultural investment including accessing road access and enhancing irrigation access. The study further suggests that the district should focus on producing the fruit and vegetable category of agriculture to make efficient use of the rental market and benefit from the comparative advantage. The study also has an implication in encouraging investors by awarding longer lease periods, which motivates investors to contribute significant initial capital and use the land efficiently by paying a reasonable rent.

1. Introduction

The triple crisis of food, energy, and finance in the period of 2007–2008 fostered an environment in which agriculture and agricultural commodities attracted significant investment interest world wide (Cochrane & Legault, 2020). Since then, tens of millions of hectares of agricultural land have been leased in the Global South (Cotula, 2012). Based on the land matrix database, 51.70 million hectares of land deal was concluded with 18.7 million hectares of land proposed and 11.3 million hectares of land failed to the initiative globally till 2020. This amount is greater than the size of Spain, Portugal, the Netherlands, Belgium, Switzerland, and Ireland combined (Cochrane & Legault, 2020). In addition, this land is suitable for crop production of which only 36% of the Earth's land surface is suitable for this purpose (FAO, 2003). Ethiopia is one of the largest countries in Africa, both in terms of land area (1.1 million km²) and population (about 120 million). Ethiopian economy is based mainly on agriculture, which employs 85 percent of the labor force and accounts for a little over 50 percent of the GDP and about 90 percent of export revenue. In Ethiopia, access to land is important in which the livelihood of the majority of the population depends on agricultural production (Demeke, 1999). Land in Ethiopia is owned by the government (FDRE, 1995) and is managed by either a rural or urban tenure system. Urban land operates on a leasehold system, which can be bought and sold (FDRE, 2011). On the other hand, rural land is held through usufruct rights and cannot be bought or sold, but is transferred to eligible heirs (FDRE, 2005). Regional land use and administration provisions allow rural land holders to leasing-out of their land. Thus, investors, seeking land for investment, can obtain land through the lease system either from the government or land holders.

The government of Ethiopia has been promoting large-scale agricultural investments (LSAI) to accelerate agricultural modernization and improve local people's food security (Guyalo, Alemu, & Degaga, 2022). The incorporation of agricultural commercialization as a development strategy in 2005 brought an influx LSAI. As a result, Ethiopia has been one of the largest recipients of investment in agricultural land (Abesha, Assefa, & Petrova, 2022). Since then the government has awarded millions of hectares of land to investors (Degife & Mauser, 2017). From 2005 to 2012 alone one million hectares (ha) of land has transferred for large scale agricultural investments (Keeley, Seide, Eid, & Kidewa, 2014). The objective of the LSAI in Ethiopia is to enhance foreign earnings, production of crops needed for agro-industry such as cotton and sugarcane, employment opportunities, infrastructure, technology transfer, and enhanced energy security. LSAI has also the potential to generate significant revenue for the government from fees, taxes, and rent which can be used to fund national and regional development activities (Keeley et al., 2014).

Empirical studies in Ethiopia revealed that land lease rental prices are mostly low as little as USD 2 per ha, per annum in some regions (Anseeuw, Alden Wily, Cotula, & Taylor, 2012). For example, Karaturi and Saudi star companies leased large tracts of land with ETB 20 (USD 1.16) and ETB 30 (USD 1.75) per hectare, respectively (Stebek, 2011). Cochrane and Legault (2020) analyzed 71 publications from Web of Science and Google Scholar concerning the Ethiopian LSAI. These publications in general discovered that the LSAI process abuses human rights and created environmental, cultural, and socio-economic impacts. A recent study by Abesha et al. (2022) identified that the provision of land for investors has been made without proper consultation of local administration and communities. Another study by Agegnehu (2023) found that urban land laws are weak in the protection of local land use rights in the process of LSAI. A study by Adam, Agegnehu, Dessie, and Minale (2023) discovered that the practice of LSAI in Ethiopia significantly deviate from the principles of responsible land governance. Cochrane and Legault (2020) discussed that there is massive land acquisition by investors for LSAI and investors took land beyond their investment operation capacity with strategic land holding because of cheap land rent. The massive agricultural land acquisition with cheap price supposed to benefit investors on the existing agricultural investment. However, the factors determining land rent were not empirically analyzed in the previous studies. As a result it was not possible to review the empirical findings related to the factors. Therefore, this study examined factors affecting land rent for large scale agricultural investment in Gamo district, Ethiopia.

Land rent refers to the payment of a tribute to the land owner for the use of geographical space or natural resources in specific places (Jäger, 2009). Land rent in this paper is used in new urban economics which is based on von Thünen's and Alonso's theories (Alonso, 1964; Von Thünen, 1966). Most empirical researches in the literature focused on the price of agricultural land rather than on renting agricultural land. According to the capitalization theory, the price of land is equal to the present value of the expected returns from the rented land (Akerson, 2009; Mařík, 2011). Accordingly, the market price of land and the rent can be expressed by $P = (R - T) / i$, where P is the market price of the land, R is the land rent, T is the land tax and i is the capitalization rate (Clark, Fulton, & Scott Jr, 1993; Štřeleček, Lososova, & Zdeněk, 2010). Currently in Ethiopia there is no rural land tax, thus, the price of land is the present value of land rent. The factors affecting land price /rent were investigated by several authors else where in the literature. A study by Czyżewski, Przekota, and Poczta-Wajda (2017) in Polish market found that distance from the city center has the greatest influence on land prices. Another study by Sklenicka, Molnarova, Pixova, and Salek (2013) in the Czech Republic showed that the most influential factor is the distance from the settlement. Other significant factors include, the distance from the capital city, the accessibility of the land and the land fertility. Huang, Miller, Sherrick, and Gomez (2006) in Illinois in USA found that soil productivity, population density, per capita income, land size and the distance from city centre were a significant variables that influence land price/rent. A study conducted by Takáč, Lazíková, Rumanovská, Bandlerová, and Lazíková (2020) in Slovakia market identified size of farm land, distance from district city,

production area, and production costs were major factors affecting farm land rent. Takáč et al. (2020) and Ramirez (2009) also identified categories of agriculture are the significant variables that affect agricultural land rent. Koomen and Buurman (2002) also found that irrigation access influences agricultural land rent. Another study by Kocur-Bera (2016) in polosh market discovered location of land relative to rural settlements, soil quality, land fragmentation, forest cover and location of farms are the key determinants of agricultural property prices. Nilsson and Johansson (2013) found that locational factors, such as regional variations in the quality and structure of the local agricultural sector, agricultural support payments and the density and structure of other activities in the local economy influence agricultural land rent. In addition the expected returns from both the agricultural and potential use of land, direct income support to farmers influences agricultural land rent as well.

The rest of the article is structured as follows. Part two summarizes the methods and materials used. Part three presents the findings of the study. The last part illustrates conclusions and policy recommendations.

2. Materials and Methods

2.1. The Study Area

The study was carried out in the Gamo district, which is part of the former Southern Nations Nationalities and Peoples of Ethiopia (SNNP). This region is currently dissolved and reorganized in to four regional states. In the Gamo district, there is active land lease market with a high demand for agricultural investment land by investors. The study area covers five clusters which include Arbaminch, Daramalo, Kamba, Kucha, and Mirab Abaya clusters. Arbaminch and Mirab Abaya clusters are located around Arbaminch (center of Gamo district) while Kamba, Daramalo, and Kucha clusters are located at a distance of 179, 220, and 284 km respectively from Arbaminch town. The town is located 505 km away from Addis Ababa, the capital city of Ethiopia (see Fig. 1).

2.2 Research Approach and Design

To examine the significant factors affecting land contract rental price for agricultural investment a mixed research approach was used. A mixed research approach is employed because of its ability to describe comprehensively by combining both quantitative and qualitative designs in one aspect (Creswell, 2014). This research was conducted based on a cross-sectional research design. This is done to ensure that one effectively addresses the research problem and it is relatively cheap and less time-consuming. In addition, it allows the collection of data from large groups at the same time (Kothari, 2004). Single year (2022) data set was collected and used to examine the model. Data were collected in one round and cross-checked from both survey and interview sources.

2.3. Population and Sampling

This study considered registered investors in the five clusters in the Gamo district. There were 57 certified investors actively participating in agricultural investment in the study area at the time of data collection. All these investors participated in the land rental market to acquire agricultural investment land. They leased the investment land from either the government (communal land, which was open for grazing and firewood collection) or from private land users. Since the number of investors in the district was manageable, data from all of the 57 investors were collected. This was due to the high possibility of obtaining complete, accurate, and correct data from all investors. To triangulate the survey response 4 experts from the Gamo district investment office and 5 investors from each clusters were purposively selected and interviewed.

2.4. Data Sources, Types and Methods of Data Collection

Both quantitative and qualitative data were collected from primary and secondary sources using Key informant interviews (KII), field observation, and document review. Primary data sources were officers working in the Gamo district investment office while secondary data were collected from the existing data set from the district investment office. In addition, prior written materials, documents, published as well as unpublished papers, and annual and semi-annual reports were used. The quantitative data were collected from the LSAI data set from the Gamo district investment office. To substantiate the data collected from the data set, KII was used. It was employed to get additional data from officials and experts of the Gamo zone investment office. Field observations were also conducted to observe the operational status of the investment activities in which additional primary data were collected, cross-checked, and confirmed. Moreover, original land lease documents were reviewed and all necessary data were collected.

2.5. Variables and Model Specification

From the review of relevant literature and practical field observation, nine explanatory variables that are supposed to affect land rent were selected (see Table 1)

Table 1
Land rent and explanatory variables supposed to influence land rent

Variable	Description	Variable type	Value
Dependent variable			
$Y_1 = RV$	Rent paid per hectare	Continuous	Measured in Ethiopian Birr
Explanatory Variables			
$X_1 = DIS$	Distance of the investment site from the center (Arbaminch town)	Continuous	Measured in kilometer
$X_2 = DHW$	Distance from highway route	Continuous	Measured in kilometer
$X_3 = IRR$	Permanent irrigation access	Dummy	Take a value of 1 if the response is yes, 0 otherwise
$X_4 = CAG$	Category of agriculture	Categorical	Vegetable & fruit, cereal, livestock and mixed
$X_5 = SIZE$	Size of the investment land	Continuous	Measured in hectare
$X_6 = KAP$	Investment capital per hectare	Continuous	Measured in Ethiopian Birr
$X_7 = COST$	Annual cost of investment per hectare	Continuous	Measured in Ethiopian Birr
$X_8 = LEASE$	Lease period	Continuous	Measured in years
Source: Relevant literature and own observation			

The Multiple Linear Regression model is given by:

$$LR = \alpha + 1DIS + 2DHW + 3IRR + 4CAG + 5SIZE + 6KAP + 7COST + 8LEAS + Ei \dots \dots \dots (1)$$

After estimating the significant factors affecting land rent, surplus value (SV) is determined by using the theory of distribution of surplus value, surplus by applying the following formula.

$$SV = Profit + Rent \dots \dots \dots (2)$$

Also from Eq. (2) profit from agricultural investment is given by:

$$Profit = SV - Rent \dots \dots \dots (3)$$

3. Findings and Discussion

3.1 Sample Characteristics

Table 2 presents the distribution of investors by category. The study sample comprised of 57 investors, out of which 35% are private investors, 33% are private limited companies, 12% are local farmers, and 20% are other categories.

Table 2
Distribution of Investors by Category (n = 57)

Investor Category	Frequency	Percentage (%)
Private Investors	20	35
Private Limited Companies	19	33
Local Farmers	7	12
Other Investor Categories	11	20
Total	57	100
Source: Survey: 2025		

Table 3 presents the distribution of agricultural investment sites across the five clusters included in the study area. The results indicate that investment sites are unevenly distributed among the clusters. The Arbaminch cluster hosts the largest proportion of investment sites, accounting for 40%. The Daramalo cluster contains 23% of the investment sites, making it the second most important investment location. The West Abaya cluster follows with 19% of the sites. The Kamba and Kucha clusters account for relatively smaller shares, representing 11% and 7% of the investment sites, respectively.

Table 3
Distribution of Agricultural Investment Sites by
Cluster (n = 57)

Cluster	Frequency	Percentage (%)
Arbaminch	23	40.0
Daramalo	13	23.0
Mirab Abaya	11	19.0
Kamba	6	11.0
Kucha	4	7.0
Total	57	100.0
Source: Survey: 2025		

3.2 Descriptive Statistics

Table 4
Summary of Descriptive Statistics of Agricultural Investment Sites (n = 57)

Variable	Minimum	Maximum	Mean	Standard Deviation
Distance from Arbaminch town (km)	7.0	284.0	97.1	88.3
Distance from highway (km)	0.0	53.0	7.5	11.1
Investment capital per hectare (ETB)	15,706	6,220,000	805,600	1,295,270
Annual operating cost per hectare (ETB)	100,000	289,000	211,570	44,432
Size of investment land (ha)	1.0	2,000.0	146.4	356.1
Lease period (years)	35	50	45.4	5.4
Source: Survey,2025				

Table 4 presents the main characteristics of agricultural investment sites in the study area. The average distance of investment sites from Arbaminch town, the major market center, is approximately 97 km, although distances vary considerably, ranging from 7 km to 284 km. These sites are relatively close to the highway connecting Addis Ababa to Jinka passing through Arbaminch. Arbaminch and West Abaya sites are located at the boundary of the highway while Kamba cluster is the furthest site located 53 km far from the highway.

Investment capital per hectare shows substantial variation among investors. The average capital investment is ETB 805,600 per hectare, with investments ranging from ETB 15,706 to ETB 6.22 million per hectare. The maximum capital was invested for sericulture production in the Arbaminch cluster while the minimum capital was invested for cereal production in the Kamba cluster. Similarly, annual operating costs range from ETB 100,000 to ETB 289,000 per hectare, with an average of ETB 211,570 per hectare. The minimum annual operating cost of investment was recorded in the Arbaminch cluster for vegetables & fruit while the maximum annual operating cost of investment was recorded in the Daramalo cluster for cereal production.

The size of agricultural investment land also varies widely. The smallest investment covers only 1 hectare, while the largest extends to 2,000 hectares. On average, investors hold approximately 146 hectares of land. The minimum size of investment land is located in the Kucha cluster. On the other hand, the maximum size of investment land is located in the Daramalo cluster.

The agricultural investment lands were obtained through lease with the maximum lease period of 50 years and minimum lease period of 35 years. The maximum lease contract is registered for vegetable & fruit categories of agriculture while the minimum lease period contract was for cereal production.

The study revealed that irrigation access is a prominent feature of agricultural investment in the study area. The results indicate that the majority of investment sites (64.9%) have permanent irrigation access, while 35.1% rely on seasonal irrigation sources. This suggests that most agricultural investments in the study area are located in areas with relatively reliable water availability throughout the year. The predominance of permanent irrigation access may enhance the potential for continuous agricultural production and support investment in high-value crops such as vegetables and fruits (see Fig. 2).

The result of the qualitative response confirmed the survey result. According to key informants, Gamo district agricultural investment office transferred huge hectares of land for LSAI. All the transferred lands have irrigation accesses either permanent or temporary. To them, there are huge hectares of agricultural investment lands waiting for newly coming investors who have enough capital to create jobs and use and transfer improved agricultural technology. Most sites of these investment lands have permanent irrigation access and all these sites have full potential of underground water. They also explained that in addition to underground water, many sites have surface water such as lakes (Lake Abaya and Chamo), rivers (Kulufo, Shosha, Zage, Masta, Maze, and Dime or Hamassa) and one of oldest irrigation channels (Shela Deda) and other newly established irrigation channels (Maze-masta).

In the study area, there were different categories of agriculture. A site may be suitable for one or more categories of agriculture but not for all categories of agriculture because of climatic variation. Among 57 agricultural investment sites, 38.6% were covered by vegetables & fruits while 29.8% by cereals. Others which constitute 19.3% were used for livestock rearing and the remaining were mixed use (see Fig. 3). The vegetable & fruit category of agriculture covers

the highest share compared to other categories (cereal, livestock, and mixed) of agriculture invested in the study area. This shows Gamo lowlands are more suitable for vegetable & fruit investment than any other categories of agriculture which is also confirmed by the key informant experts and officers.

4.2 Multiple Regression Model/Econometric Analysis

The main objective of this section is to identify the statistically significant variables that influence land rent for the large scale agricultural investment. The multiple regression model assumptions were checked to produce unbiased estimates of the parameters. Accordingly, the model satisfies all the multiple regression model assumptions which include the normality test, test for multicollinearity, test of homoscedasticity, and linearity test. The result of the multiple linear regression analysis for the determinants of land rent from agricultural investment is presented in Table 5. Among the eight hypothesized explanatory variables, distance of investment site from the district center (Arbaminch town), irrigation access of the investment site, categories of agriculture, annual operating cost of the investment, and lease period of the investment site significantly influences land rent in large scale agricultural investment.

a). Distance of investment site from Arbaminich town (t = - 2.53, p = 0.013)

According to the new urban economists which is based on von Thünen’s and Alonso’s theory of land rent land can be described as a function of distance from the central market (Alonso, 1964; Von Thünen, 1966). These theories suggest that as distance from the market center increases as land rent decreases and transportation increases. The result of this study support this theory i.e., the distance of agricultural investment sites from the district center (Arbaminich) significantly affects agricultural land rent. Accordingly if the agricultural investment site is far from Arbaminich town by one kilometer, the land rent is decreased by 0.124 ETB assume other things remain the same. Key informant officials described that the amount of rent is relatively large in those clusters that are near to Arbaminch town (Arbaminich and Mirab Abaya clusters). On the other hand, investment sites from other clusters (such as kamba, daramalo and kucha) have smaller rental price than the two clusters. Because of this investors choose clusters that are near to the district center. The key informant investors also explain that all investment sites in the five clusters were easily accessible by car transport which indicates that transportation cost is not a main constraint. However, investors need those clusters that are near to Arbaminch town. Key informants added investment sites near to Arbaminich town have zero distance to highway road connecting Addis Ababa with Jinka, which passes through Arbaminch town. This study confirms the result by prior empirical findings including Sklenicka et al. (2013), Czyżewski et al. (2017), Huang et al. (2006) and Takáč et al. (2020).

Table 5

Multiple Linear Regression Results for Determinants of Land Rent from Large-Scale Agricultural Investment

Variable	Description	Coefficient (β)	Std. Error	t-value	p-value	Expected Sign
Constant	Intercept	162,330.71	32,370.55	5.01	< 0.001	
IRR	Irrigation access (1 = permanent, 0 = seasonal)	0.774	0.180	4.30	< 0.001	+
COST	Annual operating cost per hectare (ETB)	-0.422	0.105	-4.02	< 0.001	-
DIS	Distance from Arbaminch town (km)	-0.124	0.049	-2.53	0.013	-
CAT	Category of agriculture (vegetables & fruits = 1, otherwise = 0)	0.071	0.029	2.45	0.016	+
LEASE	Lease period (years)	0.021	0.125	2.63	0.010	+

Source: Survey, 2025

$$\text{Land Rent} = 162,330.71 + 0.774 \text{ IRR} - 0.422 \text{ COST} - 0.124 \text{ DIS} + 0.071 \text{ CAT} + 0.021 \text{ LEASE} + \text{Error}$$

Where, IRR- irrigation access of the investment site

CAT- category of agriculture

COST- operating annual cost of investment per hectare

DIS - distance from the district center (Arbaminich)

LEASE- lease period of investment site

b) Irrigation Access of investment site (t = 4.30, p < 0.001)

Agricultural productivity depends the supply of water to farmland (Ramirez, 2009). Irrigation access, the main category of natural composition, is the primary factor that determines land rent (Bellofiore & Fineschi, 2009). Agricultural investors were less commonly leasing agricultural land without access to water. Gamo district is endowed with natural resources particularly water access. All the study sites have either permanent or seasonal irrigation accesses. It is argued that agricultural investment land with better access to permanent irrigation is more likely to generate better income from agricultural investment compared with seasonal irrigation accesses. Because of this land owners required more rent. Concerning this, the regression result revealed that land rent from agricultural investment is influenced positively and significantly by investment sites with better access to permanent irrigation. To interpret the coefficient, exposing the investment land with permanent irrigation access would increase the land rent from agricultural investment by 0.774 ETB compared to agricultural land having seasonal irrigation access. This result is consistent with prior empirical findings (Koomen & Buurman, 2002; Ramirez, 2009; Takáč et al., 2020)..

c) Annual operating cost of agricultural investment ($t = -4.02$, $p < 0.001$)

The annual operating cost of agricultural investment is the total cost paid for labor, machines, logistics, management, energy and other miscellaneous costs except the rent paid for the investment land. The study revealed that land rent from agricultural investment is inversely and significantly influenced by the annual operating cost of agricultural investment. Accordingly, a 1 ETB increase in annual agricultural investment operating expense, decreases the land rent by 0.442 ETB. The inverse relationship between operating cost and land rent is logical in the sense that investors anticipate the future annual operating cost before undertaking rental contract. If the annual operating cost including labor cost is cheap they can afford high rent and viceversa. The result is consistent with studies conducted by Takáč et al. (2020). The inverse relationship between land rent from agricultural investment and cost of agricultural investment suggested that operating annual cost is not used predominantly to optimize income per hectare by applying intensive farming practices. It can be seen as evidence of resource wasting with extensive farming, non-mechanization of farming system, and unimproved seed use. It also suggests the application of traditional farming systems by using unproductive labor and more energy-consuming devices.

d) Categories of Agriculture ($t = 2.45$, $p = 0.016$)

The field observation and KIs shows that there were different categories of agriculture in the study area. According to key informant officers of the Gamo district investment office, investors must provide an investment proposal showing their interest and essential events including which category they select to invest in among some identified categories of agriculture. According to key informants the district has a higher potential for vegetable and fruit investment than other categories of agriculture. Among the five clusters, Arbaminch and West Abaya clusters are highly preferable for vegetable and fruit category of agriculture. Next to the vegetable and fruit category, cereal crops are advised to invest in the area. Because of this most investors wrote their investment proposal to engage in vegetable and fruit category of agriculture. On the other hand, few investors want to invest in livestock. Officers justified the reason for less interest by investors in investing in livestock category. Accordingly, livestock needs day-to-day follow up and risk. In recent years, the federal government launched a wheat production program at the national level. In doing so, the government encouraged investors to participate in the program. However, most investors in the study sites were not happy to implement the proposed wheat production because of fewer returns they harvested from the wheat production compared to vegetables and fruit. The regression result confirmed this fact. Hence, investing in vegetables & fruit rather than investing in other categories of agriculture positively and significantly influences the land rent. Investing in vegetable & fruit category of agriculture will increase the land rent from agricultural investment by about 0.71 ETB assume other things remain the same. This shows investment sites rich in vegetables & fruit are more likely to be rented with high price than other (cereals, livestock, and mixed) categories of agriculture in the study area. This is because the study area is in general suitable for vegetables and fruit. The result is also consistent with Takáč et al. (2020) and Ramirez (2009).

e) Lease Period of Investment Land ($t = 2.63$, $p = 0.010$)

Land rent from agricultural investment is positively influenced by the lease period. The result revealed that a one year increase in the lease period of investment land, would increase the unit price of land (land rent) from agricultural investment by about 0.021 ETB. The lease period of investment land has a positive effect and a longer period encourages investors to invest by considering harvesting time. This fact may be an indicator for which the rental market facilitates adjustments in farming or culturing of either permanent plants or seasonal crops. Regardless of taking into account free decision-making to invest in the highest surplus value-generating categories of agriculture, investors are forced to invest in seasonal crops or short-term harvesting categories of agriculture, because of the lease period allowed for their investment land. The longer the lease period allowed, the higher capital will be invested and higher return will be generated from agricultural investment and requests highest land rent (Fairbairn, 2017). This can be a logical justification to ask high rent.

5. Conclusion

By employing multiple regression model, this paper assessed the significant factors that influence agricultural land rent and that best describes how these factors affect land rent. The empirical finding of this study support Von Thünen and Alonso theory of land rent by indicating distance of the farm site influences land rent paid for large scale agricultural investment inversely and significantly. The evidence from the study showed that investment land with better access to permanent irrigation is more likely rented with expensive price compared to agricultural investment sites that have seasonal irrigation accesses. The empirical finding also showed that category of agriculture significantly influences agricultural land rent which indicates investing in vegetables & fruit requires larger land rent from investors compared with investing in other categories of agriculture (cereals, livestock and mixed use crops). This is mainly because of the study site is more favourable for producing vegetable and fruit category of agriculture than others. Moreover, the econometric result found that land rent from agricultural investment is positively and significantly influenced by lease period signifying longer lease period encourages investors to invest by considering harvesting time. Furthermore, annual operating cost of agricultural investment inversely and significantly affect land rent from agricultural investment.

The key implication of this study is that policy attention should focus on issues which impede performance of rental market to contribute to further efficiency in the large scale agricultural investment such as improving road accesss, enhancing irrigation access by using efficient utilization of underground and surface water potentials of the district. The study further suggests that the district should supply most of the prepared land for fruit and vegetable category of agriculture to make efficient use the rental market and benefit from the comparative advantage. The study has also an implication that the government shall encourage investors by awarding longer lease periods, which motivates investors to contribute significant initial capital and use the land efficiently by paying reasonable rent .

Declarations

Clinical trial number

not applicable.

Consent for Publication:

not applicable

Ethical Approval

The study received ethical approval from Bahir Dar University Institute of Land Administration Ethics Committee during its meeting held on 12 October 2024. All research procedures were conducted in accordance with the ethical guidelines and regulations of Bahir Dar University and the principles of the Declaration of Helsinki. Participation in the study was voluntary, and informed consent was obtained from all participants before data collection. The confidentiality and anonymity of the participants were strictly maintained throughout the research process.

Consent to Participate

Informed consent was obtained from all participants included in the study.

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Author Contribution

DDD- Conceptualization, Methodology, Data Collection, Report writing HBA- Conceptualization, Methodology, Manuscript Preparation

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Data Availability

The data used for this study can be found with a reasonable request from the corresponding author

Availability of Data

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

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Figures

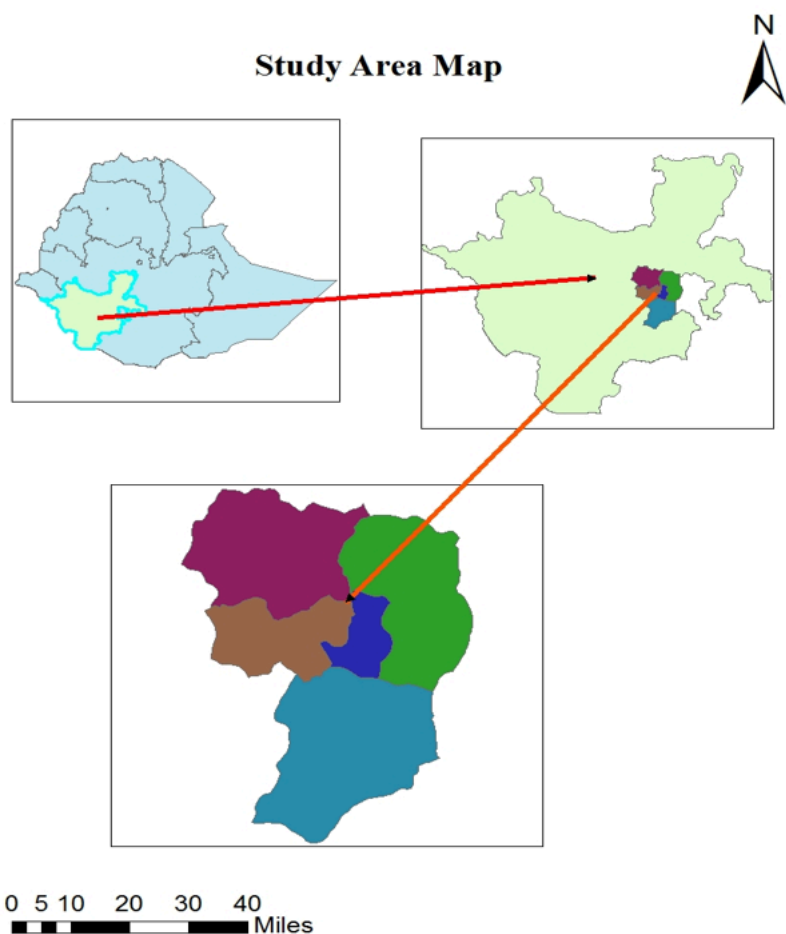


Figure 1

Location map of the study area

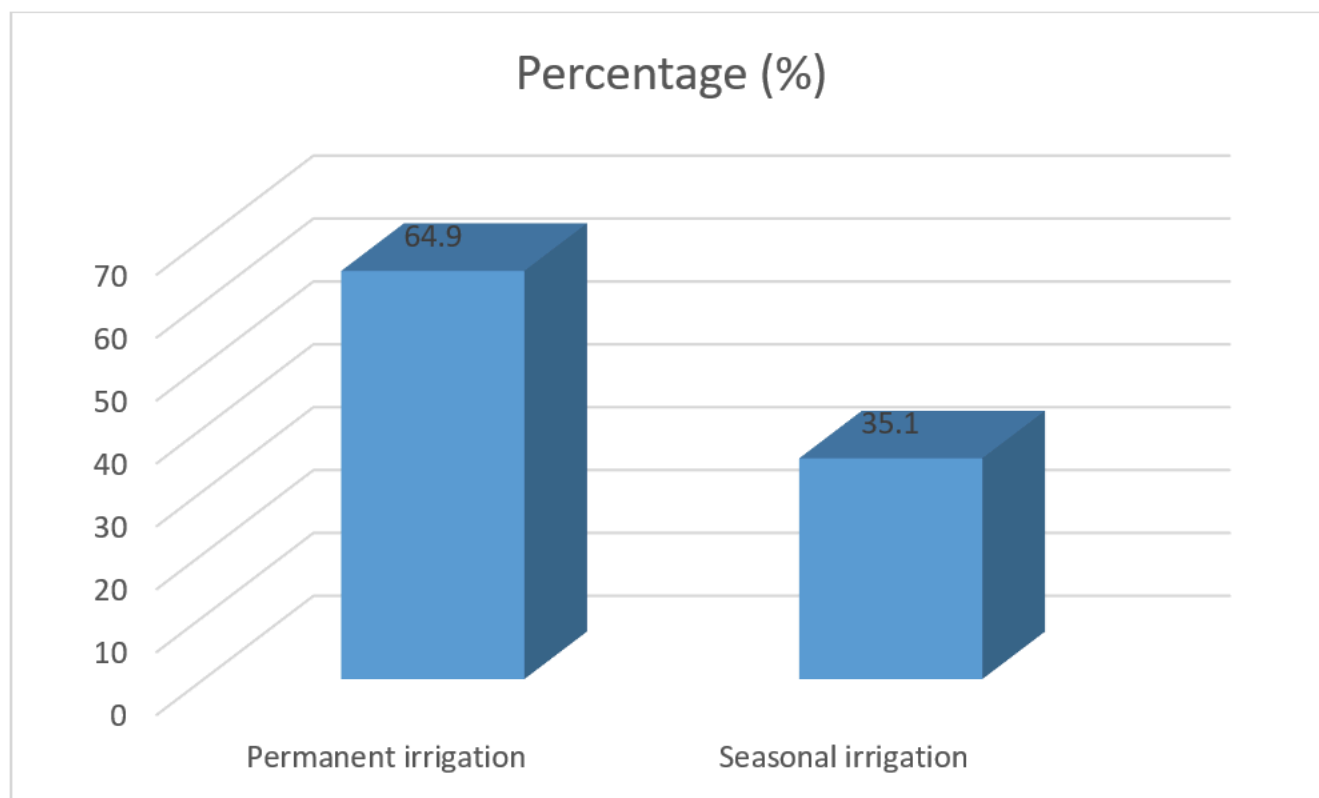


Figure 2

Irrigation access of agricultural investment land

Source: Survey result

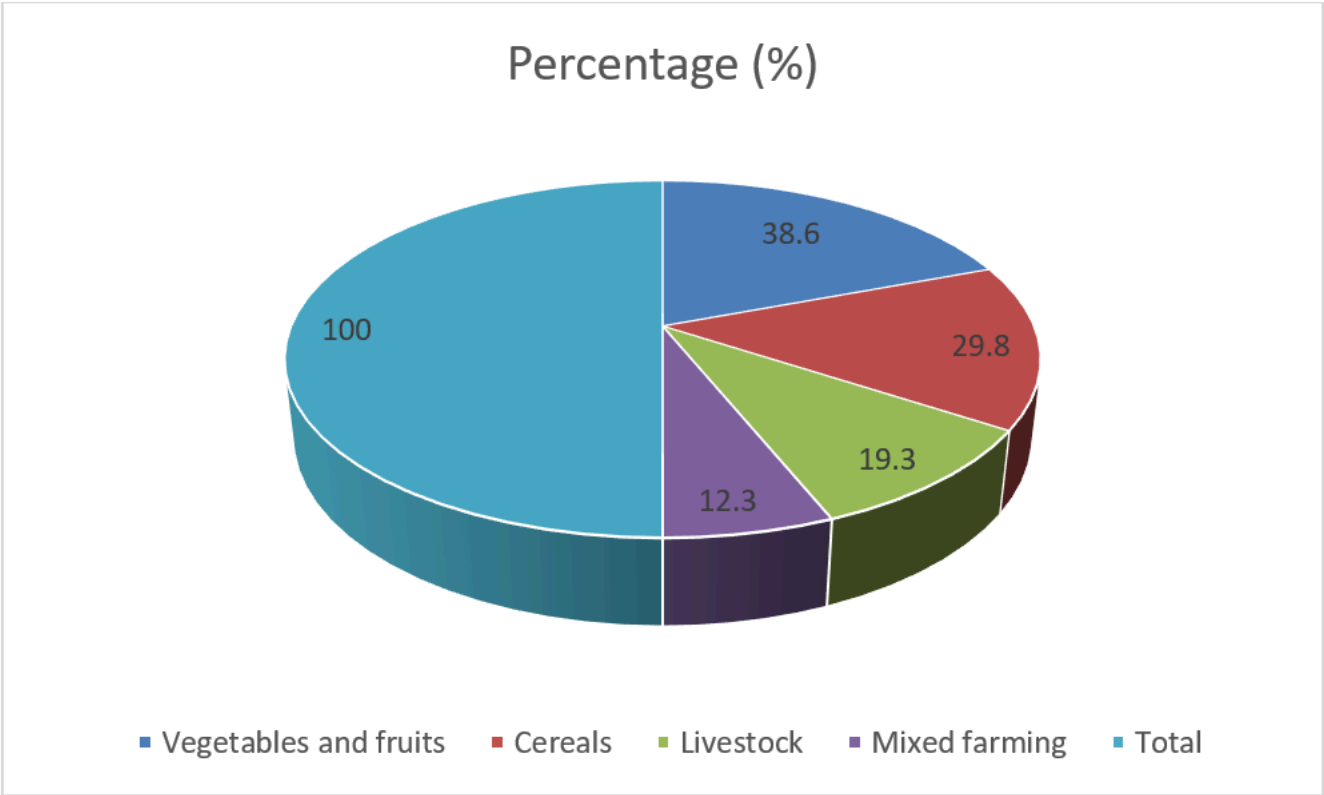


Figure 3

Distribution of Agricultural Investment Sites by Agricultural Category

Source: Survey, 2025