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Land Rental Transactions in Ethiopian Peri-Urban Areas: Sex and Other Factors for Land Rent Transactions

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Abstract: The continuous reduction in peri-urban agricultural land due to spatial urban expansion forces subsistence farmers to seek arable land through different land access strategies. Among these, land rental transactions are crucial for accessing arable land across different regions. This study aimed to examine factors affecting land rental transactions in the peri-urban areas of the East Gojjam Administrative Zone in Ethiopia. Data were collected from 353 household heads of peri-urban areas, who were affected by expropriation. A total of 350 valid responses were analyzed using descriptive and inferential statistics and an econometrics model. The results indicated that 58% of the respondents participated in both renting and renting out land, which underlines the importance of land rental transactions in the peri-urban areas. Specifically, 60% of female-headed households were engaged in land rental transactions, with 14% renting in and 46% renting out land. In contrast, 38% of the male-headed respondents rented land, while only 19% rented out land. The model result identified sex, landholding size, number of oxen, participation in off-farm activities, and extension service as significant determinant variables for renting land. Households made land rental agreements both orally and in written documents, with oral agreements being more prevalent. Transaction dues were conducted through sharecropping and fixed rents, with sharecropping being the most common method. Thus, land rental transactions play pivotal roles to support the livelihoods of peri-urban subsistence farmers.

Keywords: land rental; land scarcity; peri-urban; rent; rent out; impacts; gender

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1. Introduction

Rapid spatial urban expansion in Ethiopia is forcing municipalities to expropriate large tracts of land for urban development purposes from peri-urban regions, leading to acute agricultural land shortages for subsistence farmers in the urban fringe [1–3]. Consequently, farmers' landholdings are shrinking over time. Despite the challenges, the peri-urban poor are still striving to sustain their livelihood from the accustomed farming operations. This scenario is strongly urging farmers to use land rental transactions as a main strategy to have access to land. Land rental transactions are one of the flexible land transfer mechanisms used by farmers for a determined period since they address short- and medium-term desires of farmers with low transaction costs [4]. Previous research by [5] highlighted that affected farmers use most of the compensation money for renting arable land. Thus, land rental transaction/leasing of land seems to be pivotal for accessing agricultural land, in rural areas in general and in peri-urban regions in particular.

The transfer of real property rights can be carried out by various applications, such as sale, inheritance, gift, and lease, determined by constitutional and statutory legislation of the nations. These transaction strategies can be used to transfer land either permanently

or for specified periods of time. Sale, gift, and inheritance are considered as methods to transfer land rights permanently, whereas rent/lease is predominately applied to transfer land rights for a limited duration determined by the agreement of the transacting parties [6]. Freehold property rights, which are ownership rights, usually provide access to use, control, and transfer of the land with rights of disposal, while possession rights normally allow use and control of land for a specified period without disposal rights [7]. Depending on national legislation and the agreement between contracting parties, leasehold rights can be transferred to third parties for specified periods by means of sublease.

According to the theory of the 19th-century economist Ricardo, the basic reason for land rent is the fertility of the soil. Ricardo (1817) stated, "Rent is the portion of the produce of the earth which is paid to the landlord for the use of the original and indestructible powers of the soil". According to this theory, rent is a payment for the use of the fertile land. Thus, in Ricardo's theory, the fertility of the soil was the main driving factor for land rent. However, modern-time scientists have criticized this theory and described other factors, for instance, accentuating the scarcity of land as one of the main driving factors for land rental transactions [8]. In a study conducted in three African countries (Ethiopia, Malawi, and Tanzania), it has been documented that land scarcity is the main reason for farmers to rent land [9]. In another study, conducted in Bangladesh, Rahman [10] noted that farmers with land shortages are the most likely to participate in renting land. Kellerman [3] has described that urbanization has caused continuous transformation of agricultural land in the urban fringe to urban land use types. The unceasing urban sprawl in Ethiopia is transforming many acres of agricultural land to urban land use types, creating agricultural land scarcity in peri-urban areas [1,5]. Urban municipalities are continually expropriating peri-urban agricultural land to cater land required for urban development. In addition to its influence on the peri-urban poor's livelihood sustenance, it is also becoming one reason for peri-urban land tenure disputes [11]. Land rental transactions, such as fixed land rents and sharecropping, significantly reduce production inefficiencies, especially in developing countries, as those who are unable to cultivate their land properly can rent out their land to interested farmers [12,13]. Rahman [10] emphasized that those who rent out land are mostly women and poor farmers. Tikabo et al. [14] also noted that poor households often earn their family income by renting out of their land.

A study of Ayala et al. [15] shows that most female-headed households rent out their parcels to family members, even at unfair prices. However, if the land is recorded and certified, these female-headed households will rent out their parcels with good prices [11]. In addition, as documented in an investigation conducted in the Tigray region of Ethiopia, land certification increased the confidence levels of female-headed households to rent out their parcels with negotiation and without frustration caused by rival disputes [16]. Some studies conducted in Ethiopia have shown that due to still existing traditional and informal land rights, most female farmers do not plough their fields [17]. In addition, female-headed households rent out their land to male-headed households due to a lack of draft animals [12,16]. These studies are in line with the findings of the study in the East Gojjam Zone of the Amhara National Regional State of Ethiopia [18].

Most rental contracts are oral agreements and not official written contracts [19]. As household heads become older, they usually rent out their land more often [20]. Old-aged households and farmers with a high level of education are more likely to rent out their farmland, while famers with excess labor are more interested in the renting of land [21]. Holden, Deininger, and Ghebru [22] also noted that most old-aged households and female-headed headed households are more likely to rent out their land. In Ethiopia, the government and people of Ethiopia own land. But in such situations, land rental markets are increasing [19,22]. The land rental markets therefore depend not only on the ownership of land but also on situations when farmers are granted unlimited land use rights. The latter also creates favorable conditions for land rental markets [23].

In Ethiopia's peri-urban areas, farmers are increasingly losing their land through expropriation, and so the transformation of peri-urban land to urban land use types is

increasing at an alarming rate [1,5], resulting in a severe scarcity of arable land. Most farmers are accustomed to agricultural operations, and as documented in some studies, they do not engage in other alternative income-generating businesses [5,24]. Even if most of them are interested in engaging in agricultural activities, arable land is decreasing from year to year [5,24]. The main challenge is how to obtain land for agricultural purposes in peri-urban areas.

The major aim of this study was the identification of important socio-economic and institutional variables affecting farmers' decisions to rent land. In general, Ethiopian land rental transactions are not well investigated. While some research has investigated if land rental transactions are valuable for youths' access to land or not [19], there is a lack of studies on land rental transactions with regard to peri-urban areas, where most farmers are victims of expropriation, and landholdings shrink from time to time because of urban expansion. This study seeks to fill this gap by exploring research questions on rental participation, gender differences, socio-economic factors, documentation practices, and payment methods in land rental transactions. The findings will be valuable for policy makers and practitioners engaged in sustaining livelihoods in peri-urban regions.

2. Real Property Transactions and Its Legal Basis in Ethiopia

Real property transactions are procedures for the temporary or permanent transfer of land from one property owner to another [7]. The distinction between ownership and possession of property rights is crucial. Possession grants the right to use land, but not the power to sell it, mortgage it, or transfer it to others. Ownership, on the other hand, encompasses all rights, including the right of transferring alienation [7]. The owner of the land has an unrestricted right to use the land for the purpose he wishes on the basis of land use regulations, the right to make decisions on the use of the land, and the right to alienate or mortgage the land. In contrast, the possessors of the land are restricted in their right to transfer land by sale and/or mortgage. However, both the owner and the possessor of the land have a right to transfer land through rental transactions. Leasehold right is a landholding right for a specific period of time agreed upon between the lessor and the lessee [25]. In leasing arrangements, the vendor/lessor is the landowner, who is renting out the land, and the vendee/lessee is the tenant, who is renting the land. The transaction between the vendee and the vendor is according to their agreement based on the legislation of the nation. If the land is transferred from the lessee to a third party, this is referred to as subletting/subleasing.

Land rental transactions play a significant role in compensating income loss due to farm downsizing as a result of expropriation [26,27]. Although the situation in peri-urban areas seems to be intense due to continuous scarcity of land due to expropriation, some studies have also documented a significant role of land rental transactions in rural areas, especially for youth to access land and for farmers with small landholdings [9,19]. Even if land rental transaction can be mainly in the form of fixed rent or sharecropping, experiences vary greatly from country to country. For instance, in Côte d'Ivoire, most rental transactions are being carried out with cash payments [28], while in the northern part of Ethiopia, sharecropping is the dominant form of land rental contract [19]. Some studies documented that securing land rights stimulates land rental markets. In China, for instance, land rental markets were negligible before authoritatively securing land rights, and with land security the rental markets were stimulated [13,29]. An older study, conducted in western Sudan, documented that also indigenous institutions are capable of securing land rental transactions [30]. Although such traditional scenarios secure land transactions with low costs, authoritative land registration and certification are essential in guaranteeing the security of land rental transactions [15].

Land rental transactions in different countries are hindered by many factors. In China, for example, the lack of land tenure security was the main hindrance factor for land rental transactions [21], while in Rwanda it was documented that "household characteristics, land endowment, and transaction costs" were the most essential factors for land rental transactions [31]. In Ethiopian jurisdiction, the farmers have landholding rights, i.e., the right to use land in perpetuity [32]. The Ethiopian landholding right also enables farmers to transfer their land for a definite period through rent. Paragraph 1 of article 8 of the Ethiopian Federal Democratic Republic Rural Land Administration and Use Proclamation No 456/2005 [33] states that farmers may lease their property for a specified period of time to others based on mutual agreement.

The basis of land rent in Amhara National Regional State (ANRS) of Ethiopia depends on the Federal Rural Land Administration and Land Use proclamation. In ANRS Proclamation No 46/2000 [34] and in its subsequent revised proclamations (Proclamation No 133/2006 [35] and Proclamation No 252/2017 [36]), the rent of land is clearly described. According to the latest proclamation, rent is defined as "a system in which any farmer causes the use of his rural landholding or right of use to be transferred to another person through contract for a limited period of time receiving either in kind or in cash benefit". This legal document also clearly states that any kind of land rental agreement has to be in written form specifying the size, the period, the payment amount, and the payment method. The amount of rent can be determined by negotiation between the parties. The proclamation also states that as with individual holdings, jointly held land can also be rented, whereby the contractual agreement has to be signed by all joint landholders. The proclamation also allows the transfer of the rented land to third parties within the rent period. In this case, the contractual agreement must include the admissibility of the transfer to third parties. If the contractual agreement is up to three years, it has to be recorded in the kebele (the lowest administrative organization in Ethiopia, which is similar to a municipality) land administration office; if it is more than three years, it has to be documented in the wereda (the lower administrative organization above the kebele in Ethiopia, which is similar to a district) land administration office. In the preceding ANRS rural land administration and use proclamations, the maximum permitted rent period was up to 25 years. However, in the revised proclamation (Proclamation No 252/2017 [36]), it is determined to ten years for annual crops, while it is up to 30 years for perennial crops. However, the possibility of an extension or renewal is permissible as long as the two parties agree to continue. If the vendee causes damage to the rented parcel, the vendor has the right to terminate the contract.

3. Materials and Methods

3.1. Study Area

The research was conducted in the East Gojjam Administrative Zone of Amhara National Regional State (ANRS) in Ethiopia. The peri-urban areas of Debre Markos city (the administrative zone capital of East Gojjam) and Bichena town (capital of Enemay wereda) were selected for the sample study (see Figure 1).

Since Debre Markos is a large city and Bichena a medium-sized town, it was assumed that these two cities were representative of other cities in the administrative zone. The two cities also could be considered representative of the Amhara region, as the urban areas develop more or less with similar scenarios in the regions.

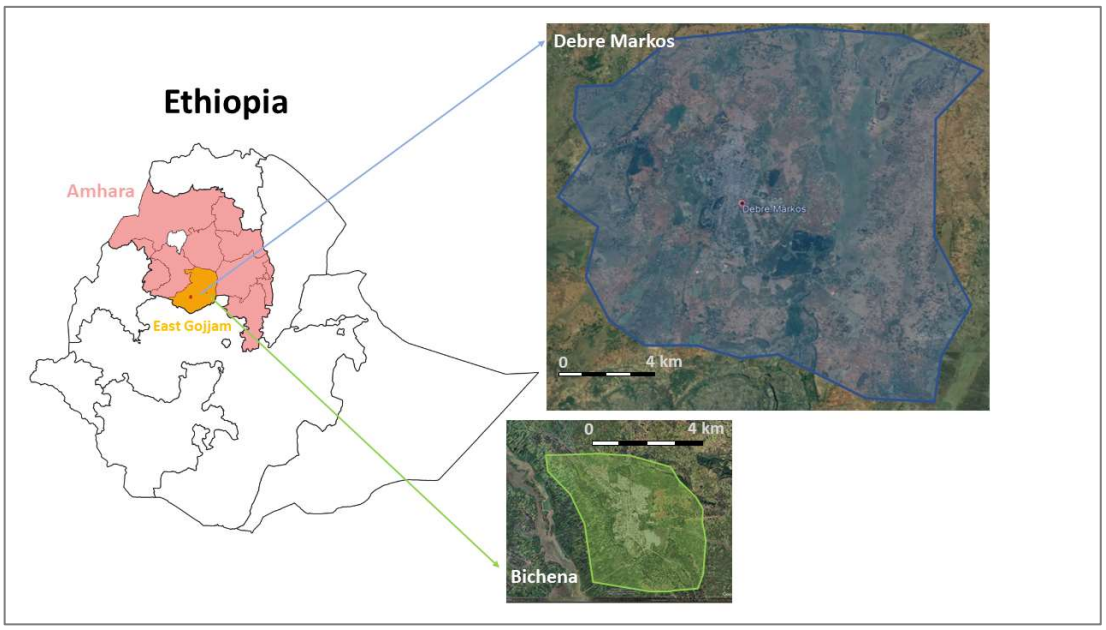

Figure 1. Study area of Debre Markos City (blue area) and Bichena Town (green area). Source: Ethiopian boundaries—openAFRICA; Orthoimages—Google.maps.

3.2. Research Design

"Research approaches are plans and the procedures for research that span the steps from broad assumptions to detailed methods of data collection, analysis and interpretation" [37]. The three basic research approaches are quantitative, qualitative, and mixed methods of research. For this study, the mixed methods research approach was applied, which incorporated elements from both quantitative and qualitative research approaches for data collection and interpretation [37]. The multifaceted nature of the peri-urban areas required a holistic framework for data collection. The main research designs in mixed methods are "convergent parallel design, explanatory sequential design, exploratory sequential design, embedded design, transformative design, and multiphase design" [38]. The most commonly used convergent parallel design was employed in this study.

3.3. Data Collection

Evaluating possible data collection methods and selecting the appropriate ones before launching the project enables one to systematically design a research study [39]. Accordingly, the data collection and analysis methods were selected after addressing the research questions and assessing the potentially available data sources and their ontological and epistemological feasibility. The primarily data generating techniques employed in this research were surveys (face-to-face interviews using questionnaires), focus group discussions, observations, and document archival and government statistics.

Surveys are the most commonly employed data collection technique in many fields, especially in the social-science-related disciplines. They are widely used in understanding the "beliefs, opinions, characteristics, and past or present behavior" of the study households [40]. They are a system of data collection and analysis from a sample of individuals through their responses to the questions. Surveys can be used for descriptive, exploratory, and explanatory purposes [41].

The techniques of data collection in survey research can be "mail and self-administered questionnaires, web surveys, telephone interviews, and face-to-face interviews" [40]. This research used face-to-face interviews to collect data from the affected peri-urban respondents. The enumerator directly asked each respondent and recorded the responses. This has many advantages as, for instance, face-to-face interviews stimulate a higher response rate and enable the proper management of longer and more complex questionnaires and

open-ended questions. The process can also be controlled by the interviewer, and the respondents can be able to understand the questions in a better way [40].

The field data were collected from November 2022 to April 2023. A structured questionnaire based on the theoretical foundation and the literature review was employed for the field interviews. To obtain information on the socio-economic situation of households, the following parameters were surveyed through interviews with household heads: sex, marital status, age, access to mobile phones, water, electricity, and toilet facilities. It was crucial to determine whether households affected by expropriation intended to rent additional land to commensurate for lost production areas or preferred to rent out their land for income generation. Additionally, to understand potential differences in land rental behavior between male- and female-headed households, the sex of the household heads was considered.

To identify factors influencing land rent decisions among expropriated households in peri-urban regions, eight variables were considered based on the relevant literature review [1,5,11] and consultations with land administration experts and local farmers: sex, age, education, landholding, labor adult equivalents, oxen ownership, off-farm activities, and access to extension services.

Finally, the questionnaire contained questions to obtain knowledge on the payment methods for land leasing and the nature of renting agreements. This information was essential for assessing the effectiveness of Ethiopia's current land administration system in securing agreed-upon land rents.

Before the start of the field data collection, the pre-testing of the questionnaire and revising it were conducted according to field setting scenarios. Eight persons with college diplomas and above were employed for data collection. The interviewers received basic training on the objectives of the research, data collection techniques, and communication skills. The training also gave them the necessary clarity on each research question. In addition, close follow-up by the researchers was carried out, especially during peak data collection periods. In order to complement the study with qualitative data, focus group discussions (FGDs) and direct field observations were employed as primary data collection techniques for the study. Knowledge toward the discipline and experience were the basic parameters in order to select participants for FGD. Two group discussions were carried out (one in each area). The total numbers of FGD participants was 21 (11 in Bichena and 10 in Debre Markos land offices). The participants of the FGD were experts and leaders with responsibilities of managing land.

3.4. Sampling Techniques and Sample Size Determination

For the face-to-face interviews, in both of the two study areas, the sample frames were peri-urban households affected by expropriation due to urban expansion during the previous ten years. All respondents were heads of households. The sample frame included both male-headed and female-headed households according to the incidence of expropriations during that period. In male-headed households the husband leads the family either with the support of his wife or alone in cases of divorce, while a female-headed household is one where the woman is widowed, divorced, or single but leads a family. In the first step, the lists of households affected by expropriation were recorded, taking information from the relevant institutions. In the second step, respondents were selected randomly from the sample frame by applying the random sampling algorithm of Microsoft Excel.

The sample size of affected households was determined by the equation of Cochran [42]:

$$n_0 = \frac{(t)^2 \times (p)(q)}{(d)^2}$$

$$n_0 = \frac{(1.96)^2 \times (0.5)(0.5)}{(0.05)^2} = 384$$

where

n_0 = the desired sample size when unknown population;
t = the value for selected alpha level of 0.025 in each tail = 1.96;
(p)(q) = the estimate of variance = 0.25;
d = the acceptable margin of error for the proportion being estimated = 0.05.

Since initially, it was difficult to obtain the list of the affected households, accordingly, it was proposed to contact about 384 respondents from both study areas.

In the course of the study, however, the number of the affected households was determined to be 2267, so that the sample size was corrected accordingly:

$$n = \frac{n_0}{1 + \frac{(n_{0-1})}{N}}$$

$$n = \frac{384}{1 + \frac{(384-1)}{2267}} = 329$$

where

n = the desired sample size for the known population;
N = the total number of enlisted households.

Thus, in both of the study areas, it was determined to select about 329 household-heads. Finally, in total, 353 respondents were randomly selected and then interviewed. About 350 were used for data analysis as three questionnaires had to be rejected due to incompleteness of data. The number of respondents from each peri-urban area was determined proportionately to the total number of affected households.

3.5. Data Analysis

The collected data were coded and analyzed using the Statistical Package for Social Science Software (SPSS, version 27, IBM, United States). Descriptive statistics (mean, standard deviation, and percentage) and statistical tests (independent sample *t*-test and chi-square test) in this study were used to compare non-renting and renting groups with respect to selected socio-economic explanatory variables. The inferential statistics (*t*-test and chi-square test) and relevant econometric model were applied to analyze the collected data. The independent sample *t*-test can be used to see whether the difference between two group means is significant or not. The independent sample *t*-test compares scores on the same variable but for two different groups of cases. Thus, for this study, an independent sample *t*-test was used to determine whether there was statistical evidence for the population means of continuous socio-economic explanatory variables. A chi-square test was used to test a hypothesis regarding the distribution of a dummy or categorical variable between the two groups.

For this particular study, a logit model was selected over discriminant and linear probability models. The dependent variable was a dummy variable that assumed a value of zero or one, depending on whether a farmer rented land or not. The logit model was a good approximation to the cumulative normal distribution. From a mathematical point of view, it was also comparatively simple and provided a meaningful interpretation. The binomial logistic regression distribution function of Aldrich and Nelson's model [43] was used to analyze the survey data. The model was treated against potential variables assumed to affect the decision. The parameters of the model were estimated using the iterative maximum likelihood estimation (MLE) procedure.

A logistic regression model was applied to determine the socio-economic and institutional variables that affected farmers' decisions to rent land. Multicollinearity or the relationship between the potential explanatory variables was tested using a technique of variance inflation factor (VIF). The functional form of the binary logistic regression model was defined as

$$P_{\mathrm{i}} = \frac{1}{1 + e^{-z_i}}$$

where Pi is the probability of being engaged or decides for the ith farmer, and Z_i is a function of n explanatory variables (X_i), and is expressed as

$$Z_i = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \ldots + \beta_m X_m$$

β_0 is the intercept, and β_i are the slope parameters in the model. The slope tells how the log-odds in favor of land rent change as the independent variables change. Since the conditional distribution of the outcome variable follows a binomial distribution with a probability given by the conditional mean P_i, the interpretation of the coefficient will be understandable if the logistic model can be rewritten in terms of the odds and log of the odds [44]. The odds to be used can be defined as the ratio of the probability that a farmer will rent (P_i) to the probability that he/she will not ($1 - P_i$).

But

$$1 - P_i = \frac{1}{1 + e^{z_i}}$$

Therefore,

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{z_i}$$

And

$$\frac{P_i}{1 - P_i} = \frac{1 + e^{z_i}}{1 + e^{-z_i}} = e^{\beta_0 + (\sum_{i=1}^{n} \beta_i X_i)}$$

Taking the natural logarithm of the odds ratio of the equation, it will result in what is known as the logistic model, as indicated below:

$$\ln\left[\frac{P_i}{1 - P_i}\right] = ln\left[e^{\beta_0 + (\sum_{i=1}^{n} \beta_i X_i)}\right] = Z_i$$

If the disturbance term Ui is considered, the logistic model becomes

$$\mathrm{Zi} = \beta o + \sum_{i=1}^{n} \beta_i X_i + \cup_i$$

where β_0 is the intercept, and β_i are the slope parameters in the model. The slope tells how the log-odds in favor of the decision to rent land change as the independent variables change.

4. Results

4.1. Socio-Ecomonic Aspects

In the study, data were collected from 353 randomly selected respondents using standard questionnaires. Of these, 350 were used for data analysis, while 3 were excluded due to the incompleteness of their responses. Table 1 shows that about 39% of the respondents were females, whereas 61% were males. With respect to the age group, about 7%, 58%, and 35% of the respondents lay in the up to 30 years, between 30 and 60 years, and above 60 years of age categories, respectively. The majority of the respondents (about 59%) were married, whereas about 16%, 18%, and 7% of the respondents were widowed, divorced, and single households, respectively. Even though the number of married was higher, the number of uncoupled households was also not small (41%). From the uncoupled households, the majority were females.

Table 1. Socio-economic data of respondents.

Variables	Valid	Frequency	Percent
Sex	Female	136	38.9
	Male	214	61.1
Marital Status	Single	23	6.6
	Married	207	59.1
	Divorce	64	18.3
	Widow	56	16.0
Age	Up to 30	26	7.4
	30–60	201	57.5
	Above 60	123	35.1
Mobile	No	103	29.4
	Yes	247	70.6
Water	No	72	20.6
	Yes	278	79.4
Electricity	No	146	41.7
	Yes	204	58.3
Toilet	No	22	6.3
	Yes	328	93.7

Source: Field data from the respondents (n = 350).

Regarding the use of different facilities, 71% of the respondents reported that they did have their own mobile cell phones. Due to the locational advantage of the peri-urban zone, the majority of them used cell phones to contact each other. Moreover, about 79%, 58%, and 94% of the respondents replied that they obtained pure potable water supply and electrical power and had their own toilet, respectively. This showed that the service seemed good, which was the result of their vicinity to the city.

4.2. Land Rental Transactions

As seen in Table 2, about 58% of the total respondents had participated in land rental transactions. Thus, the majority of the respondents had participated in land rental transactions, either by the renting (renting-in) or renting out of land. However, 146 respondents (42%) did not participate in land rental transactions.

Table 2. Land rental transactions.

Respondents	Rent(-In) Transactions		Rent-Out Transactions		No Transactions		Total	
	N	%	N	%	N	%	N	%
Female	19	18.8	63	61.2	54	37.0	136	61.1
Male	82	81.2	40	38.8	92	63.0	214	38.9
Total	101	100.0	103	100.0	146	100.0	350	100.0

Source: Field data from the respondents (n = 350).

Out of the sample households participating in land rental transactions, about 49% had participated in the renting of land, whereas the remaining 51% participated in the renting out of land.

4.3. Driving Forces for the Renting of Land

The analysis of the socio-economic and institutional variables for renting land was conducted by using a logistic regression model. The following eight explanatory variables were expected to affect the decision to rent land and included in the model to identify the driving forces of land rent transactions: sex (male/female), age in years, education (literate/illiterate), landholding size in ha, total labor adult equivalent, number of oxen, off-farm activities (yes/no), and extension services (yes/no). The problem of multicollinearity

or association among potential explanatory variables was tested using the variance inflation factor (VIF) technique. The degree of association between each dummy/discrete variable was assessed using the contingency coefficient with the result that variables could be considered for further analysis. The chi-square value of a likelihood ratio was significant at less than 1% level of significance. This confirmed the joint significance of the explanatory variables included in the model and showed the existence of useful information in the estimated binary logit model. The maximum likelihood econometric estimation method was used to analyze the coefficients of the explanatory variables. The dependent variable was a dummy variable (1, if a household was participating in land rent; 0, otherwise). The binary logistic regression model (Table 3) revealed that five variables significantly influenced the decision to rent land (sex, landholding size, number of oxen, off-farm activities, and extension services) at a 10% significant level.

Table 3. Maximum likelihood estimates of binary logical model on the decision to rent land.

Explanatory Variables	Estimated Coefficient	Std.Dev.	Z	df	P > Z	Odds Ratio
Sex	1.366	0.377	13.094	1	0.000 ***	3.919
Age	0.002	0.011	0.029	1	0.866	1.002
Education	−0.565	0.346	2.664	1	0.103	0.568
Landholding	−1.638	0.383	18.282	1	0.000 ***	0.194
Labor adult equiv.	0.061	0.076	0.649	1	0.420	1.063
Oxen	0.854	0.141	36.883	1	0.000 ***	2.350
Off-farm	−0.559	0.312	3.200	1	0.074 *	0.572
Extension	0.558	0.310	3.237	1	0.072 *	1.747
Constant	−2.073	0.693	8.934	1	0.003 **	0.126
2 log likelihood = 310.253					Pseudo R2 = 0.385	
Wald chi-square = 15.867					Number of obs = 350	

***, **, * significant at 1%, 5%, and 10% levels of significance. Source: SPSS output from the field survey data.

The sex of the households had a positive significant influence on the decision to rent land at a 1% level of significance. The probability to decide to rent land for male-headed respondents was better than that for their female counterparts. The odds ratio for sex (3.92) indicated that under constant assumption, which meant keeping the influences of other factors constant, the weighted log odds ratio in favor of renting land increased by 3.92 for male-headed household respondents as compared with female-headed household respondents. The currently available landholding had a significant influence at less than 1% probability level and affected negatively the decision by households to rent land. Farmers having more land were less likely to rent land than those who had less land. The weighted log-odds ratio was in favor of renting land; ceteris paribus, it decreased by a factor of 0.19 as the landholding size increased by one hectare.

The test results of the study showed that the number of oxen of the household influenced the decision to rent land positively and significantly at a 1% probability level. The participants of the focus group discussion also affirmed that most female-headed households participated in renting out land, whereas most male-headed households who had their own oxen participated in renting land. In the group discussion, the participants described some pitfalls hindering the protection of female-headed households' land rights. These included a lack of parcel boundary demarcation, a lack of timely updating of the land registration documents, and sometimes a lack of judiciary bodies to consider the landholding certificate in their decisions. Engagement in off-farm activities was another factor, which affected negatively and significantly the decision by households to rent land at less than 10% level of significance. Extension service provides the necessary information to acquire new skills and knowledge related to agriculture in general. The delivery of technical support to farmers through extension services had its own influence in the renting of land. Whenever farmers received appropriate extension service, the likelihood to rent land increased.

Univariate tests examined the presence of differences in the group mean with respect to the hypothesized social, economic, and institutional factors. Those respondents who rented land and those who did not rent land were significantly different in two of the four hypothesized continuous variables (Table 4).

Table 4. Mean and *t*-test values of continuous variables.

Variable	Mean Values (Rent Land)			Total Mean	t-Value
	Yes	No	Mean Difference		
Age	54.68	54.46	0.22	54.52	0.13
Landholding	0.47	0.50	−0.03	0.49	−0.43
Labor availability	4.57	3.41	1.16	3.74	4.81 ***
Oxen	1.94	0.60	1.34	0.99	9.75 ***

*** Significant at 1% significant level. Source: Field data from the respondents (n = 350).

Table 4 presents the descriptive statistics for continuous variables. The average age of the sample households was around 55 years. The mean age of respondents renting land (54.68) was slightly higher than the mean age of those who were not renting land (54.46 years). However, as proved by the *t*-test, this difference was statistically insignificant. The average size of landholding by sample respondents was found to be 0.49 ha (hectare) ranging from 0.01 to 2.75 ha. The mean value of landholding for respondents who rented land was 0.47, whereas for those who did not rent land, it was 0.50. Once again, the independent sample *t*-test result documented an insignificant mean difference. The availability of labor for the sample households ranged from 0.70 to 9.95 in adult person-equivalent, with a mean of 3.74. The mean value of labor availability for renting land was 4.57, while the mean value for those who did not rent was 3.41. The difference between the two groups was statistically significant at a probability level of 1%. The number of oxen was an important economic variable enhancing the decision to rent land. The survey result indicated that about 36% of the sample respondents had two or more than two oxen. The mean value of oxen for the total respondents was found to be 0.99; for those who rented land, it was 1.94, and for those who did not rent land, it was 0.60. The test highlighted a difference between the two groups at a 1% probability level.

Households renting land or not differed in terms of quantitative (e.g., continuous or categoric) variables but also in terms of qualitative (e.g., binary) variables. Table 5 presents the results of the chi-square test for the four binary variables. Of all male respondents, around 38% were involved in renting land, compared with only 18% of female households. The chi-square test for sex distribution showed a statistical significance at the probability level of 1%. Concerning the educational level of sample household heads, about 44.6% of the total respondents were illiterate, while the rest had various educational levels ranging from the ability to read and write up to a college diploma. The chi-square test showed a statistical insignificant difference between illiterate and literate households related to renting land.

Concerning the participation in off-farm activities of the sample households, the survey results indicated that about 47% of the total respondents participated in different off-farm activities, while 53% of the respondents are not carrying out off-farm activities. From the respondents participating in off-farm activities, about 38% have participated in renting-in of land. The majority (about 62%) did not participate in renting-in of land. The chi-square -test shows a significant difference between the two groups.

About 45% of the sample respondents had extension contacts. From these, 42% participated in land rent transactions. However, from the respondents who did not receive extension service, the majority (about 82%) reported not being involved in land rent transactions. The chi-square test for the two groups was found to be statistically significant at a 1% probability level.

Table 5. Dummy variables differentiating those who rent land (n = 350).

Variable	Rent Transaction Responses						Chi-Square
	Yes		No		Total		
	N	%	N	%	N	%	
Sex							
Male	82	38.32	132	61.68	214	61.14	24.010 ***
Female	19	13.97	117	86.03	136	38.96	
Total	101	28.86	249	71.14	350	100	
Education							
Illiterate	42	26.92	114	73.08	156	44.57	0.513
Literate	59	30.41	135	69.59	194	55.43	
Total	101	28.86	249	71.14	350	100	
Off-farm							
Yes	38	23.03	127	76.97	165	47.14	5.163 **
No	63	34.05	122	65.95	185	52.86	
Total	101	28.86	149	71.14	350	100	
Extension							
Yes	66	42.31	90	57.69	156	44.57	24.802 ***
No	35	18.04	159	81.96	194	55.43	
Total	101	28.86	249	71.14	350	100	

***, ** significant at 1% and 5% significant levels. Source: Field data analysis by SPSS from the respondents.

The variable 'age' was used for logistic regression tests (Table 3). This continuous variable was grouped into three categories to determine the land rental transaction situation between different age groups. Table 6 documents the results of the statistical analysis for the age categories. Almost half of the respondents of the first age group (up to 30 years of age) were involved in land rental transactions. However, the second age group (30–60 years of age) was the one with the most land rental transactions. When the land rental transaction data were analyzed, this age group composed about 33% of the total respondents and 56% of those respondents involved in land rental transactions. Concerning respondents above 60 years of age, about 37% and 22% of them participated in land rental transactions relating to the transacting respondents and all respondents.

Table 6. Land rental transactions of different age categories.

Variables	Frequency		% Within		% From Total	
	Yes	No	Yes	No	Yes	No
Up to 30	14	12	6.9	8.2	4.0	3.4
30–60	114	87	55.9	59.6	32.6	24.9
Above 60	76	47	37.2	32.2	21.7	13.4
Total	204	146	100	100	58.3	41.7

Source: Field data analysis by SPSS from the respondents (n = 350).

4.4. Land Rental Transactions Payment Modalities and Agreements

Table 7 shows the results of the investigation of payment modalities of land rental transactions. About 96% of the respondents engaged in land rental transactions used sharecropping as the main strategic arrangement in the land rental transaction. The remaining 4% of transacting participants reported that fixed rent (monetary payment) was the modality for the land rental transaction payment. In addition, in the focus group discussion, the participants described that sharecropping was the dominant strategy in land rental transactions. The majority of those respondents who participated in sharecropping (about 69%) shared equally the outputs. The other respondents replied that the vendee took a higher share of outputs than the vendor. Concerning the share of the inputs, about 89% of the vendees covered the cost of inputs by themselves, whereas 11% of the

transacting respondents replied that the costs of inputs were shared between the vendor and the vendee.

Table 7. Land rental transaction payment modalities and agreements (N = 204).

Variables	Percent (%) of Yes Responses	
	Frequency	Percent Within (%)
Land rental payment modality		
Sharecropping	196	96.1
Monetary	8	3.9
Share of outputs		
Equal share	135	68.9
Higher share for vendee	61	31.1
Share of inputs		
Equal	21	10.7
Covered by the vendee	175	89.3
Land rental agreement		
Oral agreement	94	46.1
Written agreement	97	47.5
Approved by notary office	13	6.4
Registration of rental agreements		
Yes	25	12.3
No	179	87.7
Land rental disputes		
Yes	8	3.9
No	196	96.1
Transacting parties		
Family members/relatives	133	65.2
From others	71	34.8

Source: Analysis of data of respondents carrying out rental transactions (n = 204).

For the investigation of land rental agreements, response categories were predefined into oral agreements, written agreements, and agreements with the support of the notary service. As presented in Table 7, about 46% of the respondents conducted their rental agreements orally, and 47% drew up a written documentation of their rental agreements. Only 6% of the transacting respondents stated that the land rental agreement was elaborated with the support of a notary service. Only 12% of the transacting parties registered their rental agreement documents at the wereda (district) land administration office: a majority (about 88%) did not register the rental agreements. In such scenarios, forfeit of agreement and disputes were expected, but only a few respondents participating in land rental transaction (about 4%) ended up in land rental conflicts. Table 7 shows that about 65% of the land rental transactions were between family members and/or relatives.

5. Discussion

In general, the number of female-headed households (single, divorced, or widowed) was relatively low compared with married households in the farming community. However, in peri-urban areas, female-headed households constituted a significant proportion, with approximately 39% of respondents being female. Furthermore, the representation of age categories of respondents was good compared with the proportion of each age group in the community. Therefore, it could be concluded that the study households represented all age and sex groups.

The results of the study showed that the current available landholding size had a significant influence on the households' decision to rent land. Whenever farmers lost their land by different means, for instance, expropriation in the case of the study areas, and accordingly when the size of their landholding diminished, they were more likely to search for other land to rent in order to maintain the family income. The results coincide with

the findings of different authors that scarcity of the current available arable land is one of the basic factors for farmers to rent land [9,26,27]. Due to the scarcity of land because of expropriation, most male-headed households in peri-urban areas rely on renting land. They rent land both within their kebele and in the neighboring kebeles to ensure their family's food security. Land rental markets thus play a crucial role in safeguarding food security.

In peri-urban areas, many respondents engaged in land rental transactions to commensurate the income lost due to diminishing of their landholding size [45]. Those capable of cultivating additional land were renting land, while those unable to exercise agricultural practices due to different reasons (e.g., sickness or old age) preferred to rent out their land. Female-headed households and resource-poor male-headed households often rented out their land. The reason for this was not that the household had surplus land but was due to the lack of labor and farm capital to run the farm by themselves. Land rental transactions for female-headed households were not age dependent, since all age groups participated in land rental transactions, mostly in renting out land. In the study areas, farmers were accustomed to plowing their land by using draft animals, especially oxen. In general, the number of oxen of the household influenced the decision to rent land positively and significantly. Since agriculture in developing countries is labor intensive, additional labor forces usually play an important role in agricultural activities. Therefore, if there was extra labor within a family, many households rented additional land to maximize their income and improve their livelihood. The availability of extra-family labor and draft animals, especially oxen, was a significant factor in renting land. Those households having family labor [9,12] and other farm capital assets, such as oxen [10,19], participated in renting land. However, there are some studies conducted in China which stated that labor is not a significant factor when agricultural operations are supported by technologies [13,29]. Technologies, which support agricultural operations, minimize the required labor force, and accordingly, agricultural productivity is not restricted. In such scenarios, extra-family labor might not significantly influence land rental transactions.

In the Ethiopian community, the youth are members of society facing a severe shortage of arable land. Most of them did not obtain land through land reform. They obtain land either as a gift or by inheritance from their parents, who are usually subsistence farmers with fragmented landholdings. A farmer subdivides a parcel and transfers it to his son and/or daughter. If the parcel is too small for subdivision (less than 0.25 ha, which is the minimum land size according to Proclamation No. 252/2017 [36]), the entire parcel might be gifted. When parents pass away, the children inherit the land and use it equally. Again, the young farmers obtain only a fragmented piece of the parcel. Due to the shortage of land, youth often search for rentable land nearby or even in neighboring kebeles. Land rental transactions are thus crucial for rural youth to have access to land. A study conducted in the Tigray region of Ethiopia confirms this, highlighting that markets play a significant role for the male youth in particular to have access to arable land [19]. Similar findings come from studies in other countries, like China, where land rental markets empower the youth to obtain access to land and cultivate crops for their livelihood [46]. However, focus group discussions reveal that youth in peri-urban areas have additional options. Their proximity to towns offers better access to daily labor opportunities. The age group from 30 to 60 years includes active household groups with large family sizes, who want to maximize their family income by renting land in order to sustain the family's livelihood or to compensate for the reduced family income due to expropriation.

Holden et al. [22] found that most old-aged households typically rent out land. However, this study also identified a significant number of old-aged male-headed respondents that rent land. Experts in the focus group discussion attributed this phenomenon to the unique characteristics of peri-urban areas, where shortages of land force most farmers to seek rentable land. Additionally, peri-urban areas offer better locational advantages to hire labor forces for agricultural practices from cities. Consequently, old-aged farmers in these areas are accustomed to hiring labor forces during peak agricultural seasons. The size of a household's labor force is believed to influence the decision to rent land. Households with

a large-sized labor force can effectively manage agricultural activities, which pushes them to rent additional land for cultivation. Since males traditionally do most farm work, it is costly for female farmers to hire labor to cover the required work. Therefore, female-headed households mostly prefer to rent out their land [22]. Off-farm activities provide another source of income for small farmers. The income generated from these activities can bridge the gap between the farm income and their consumption needs. This leads the farmers to engage in off-farm activities rather than searching for additional land for cultivation. Access to extension services is crucial for farmers to enhance their knowledge and skills in farming practices. Farmers in the study areas were expected to have access to extension services through assigned development agents in their kebeles, attending field days and trainings. Both the quantitative survey and qualitative focus group discussions revealed that expanded expertise and competencies in agricultural practices increased the farmers' willingness to rent land.

In order to reduce land rental transaction disputes, it has been enacted in Amhara National Regional State Preceding Land Administration and Use Proclamations, as well as in the amended Land Administration and Use Proclamation No 252/2017 [36], that land rental agreements should be in written forms. The transacting parties also should sign them in the presence of witnesses. It is a legal requirement that these land rental transaction agreement documents should be recorded in the wereda and kebele land administration and land use offices. However, as identified in this study, the vendor and vendee make agreements very often orally without any written documents. This applies not only to contracts with family members, where trust might seem to negate the need for written documentation, but also to agreements with unrelated partners. While such oral agreements could lead to future disputes, the study surprisingly documented a few such conflicts.

Focus group discussions revealed that trust, established within the society over time through religious and cultural taboos, is a key reason why farmers often rely on oral agreements for land rental transactions. If a vendee violates such a verbal agreement, other vendors within the community refuse to trust him, and he will be sanctioned socially for other transactions. In addition, the land registration and certification program implemented in Ethiopia in the recent decades has strengthened confidence in the vendor's property right and thus reduced the fear of losing the land rights. These align with the findings in China, where land registration and certification programs increased rental transactions [47,48]. As noted above, from the total recorded land rental transactions of the respondents participating in land rental transactions, about 65% are rental agreements between family members and/or relatives. Those households renting out their land for most of the time rent their land typically to their children. Households without children often rent out the land to their relatives or to persons with whom they have close contact. It is an accustomed practice to undertake land rental transactions between family members with oral agreements. Once again, the reason is the trust.

The findings of this study provide evidence that most of the written land rental agreements were not recorded at the concerned land administration and land use offices. The experts in the focus group discussions cite two reasons for this. The first reason is the trust between the vendees and the vendors, while the second is the costs levied for the registration of the transactions. In most cases, the landholders who are renting out land set dues. The dues for land rental transactions are mainly in two forms. These are sharecropping and fixed rents. The mainly preferred transaction agreement method in the study areas is sharecropping (about 86%). This result is in line with other studies [12,13,19].

In the group discussion conducted in Bichena peri-urban areas, discussants described that "weled-agid" is an accustomed practice of land rental transactions dues around Enemay district. When a farmer needs money for purchasing agricultural inputs and for other expenses, he and/or she makes an agreement with another person who is willing to lend money in exchange with usufruct right to the land until the loan is repaid. Farmers exercise such traditional rights due to lack of support to mortgage their land.

In sharecropping transactions, some vendors share the cost of agricultural inputs, especially fertilizer and improved seeds, and split the output equally. However, most vendors prefer not to share input costs. Instead, they agree with the vendees to take three shares of the output, while keeping two shares. The larger and more fertile the rented land, the more advantageous this type of sharing is for the vendee. If the land is large and fertile, the related higher productivity of the land will cover even the cost of the inputs. However, it becomes challenging when the land is small and its fertility low. As described by the experts in the group discussion, all these factors are carefully considered during contractual agreements, especially with vendees who are not family members. Family members, on the other hand, may enter land rental agreements with less scrutiny.

6. Conclusions

In peri-urban areas, subsistence farmers are particular victims of loss of arable land due to rapid urban expansion. Municipal master plans often designate vast acres of arable land to urban territory, and accordingly, they are transforming even fertile agricultural land into urban land use types. Land rental transactions are important to commensurate income losses caused by the ongoing reduction of landholdings in peri-urban areas. Several factors, including shortages of arable land, availability of draft animals, household demographics, off-farm activities, and delivery of extension services, have influenced the demand for land rent transactions. Considering the crucial role of land rent transactions for family food security, and rent-out transactions for farm efficiency, it is important to prioritize rental transactions in peri-urban areas.

Principally, it was expected that farmers should explore other alternative business strategies to compensate the income loss as consequences of continual diminishing of arable land. However, the study found that most farmers continue agricultural activities by renting arable land in both peri-urban regions and adjacent rural areas. When analyzing the vendor and vendee scenarios between female-headed and male-headed households, most female-headed households are identified as vendors. Thus, it is crucial to safeguard in particular the land rights of female-headed households by ensuring the land certification process transparent, objective, efficient, and effective. Landholding certificates must be updated continuously to accurately reflect on-the-ground conditions. Additionally, judiciary bodies should reference these certificates when adjudicating land rental litigation cases. It is also essential to upgrade first-level landholding certificates to second-level landholding certificates by precise delineation of parcel boundaries by applying cadastral surveying, with a particular focus on peri-urban land tenure "hot spot" regions.

Secure land rights will expand opportunities for rent-out transactions, a practice increasingly adopted by female-headed households. The additional income generated from leasing land can significantly improve the well-being of these households.

As proved by the results of the survey and by the findings of the focus group discussions, currently, land rental markets are playing significant roles in mitigating peri-urban arable land scarcity and income loss. Therefore, the government has to create a favorable environment for renting transactions by reducing transactional costs and providing appropriate support to the farmers affected by the expropriation. Peri-urban farmers also have to receive appropriate advisory services for the extensification of agriculture and adequate support for off-farm activities.

The peri-urban subsistence poor should not focus on and waste time searching for rentable land, since most farmers are victims of expropriation, and accordingly, there is diminishing arable land in peri-urban areas. Therefore, it is essential to give due attention and strong technical and financial support to the affected peri-urban farmers to maximize their income from their remaining landholdings. Peri-urban farmers have locational advantages since they are near the cities and can receive a good income if they receive appropriate support to be engaged in high-value cash crops and other agricultural production within the available smallholdings.

There should be policy support for the farmers in order to have access to credit as collateral of their land rights certificate. As observed in Enemay wereda, farmers who need money for their agricultural practices borrow from another person renting out their land as collateral.

This study has been conducted in a peri-urban interface. However, it is essential to conduct a comparative study between rural and peri-urban areas to see the similarities and differences between these two regions. In addition, it is also essential to have a detailed study on the "weled-agid" land rental transactions situation, which is observed around the Enemay wereda farming community. This study was conducted in the East Gojjam Administrative Zone of Amhara National Regional State (ANRS). To gain a more comprehensive understanding of land rental transaction dynamics in Ethiopia, further studies are recommended in other parts of ANRS, as well as in other regions of the country. Given the relative consistency of land rental transactions across different regions in Ethiopia, this study can be used as an input for Ethiopian policy makers.

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