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The Status of Rural Land Tenure Security in Dejen Woreda, North-West Ethiopia

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Abstract
This study was carried out with the objective of examining the status of rural land tenure security in Dejen woreda, north-west Ethiopia. Using simple random sampling technique, 360 households were selected. Qualitative and quantitative data emanated from both primary and secondary sources using questionnaire, interview, and focus group discussion. While qualitative data were analyzed using. narrative and interpretative methods, quantitative data were analyzed using descriptive and inferential statistics. The study found out that most of the rural community believes that rural land is not owned by private farmers rather they perceive that land is under joint ownership which is even vague for them. As a result, an overwhelming majority of the respondents preferred private ownership of rural land. Similarly, land redistribution is found to have a stronger support from the rural community, especially the newly emerging rural households. The bargaining power of the rural community to decide on their land holdings is also minimal. Land holders are not included in the land valuation committee when their land is to be taken. Hence, the amount of compensation for their lost land is decided by another external body and the amount is very small. On the other hand, the land registration and certification programs are found to have some positive effects on the farming community. However, a significant portion of the community is still not satisfied by the role of the land certificate in securing land rights. The study has also found that sex of the respondent, expectation of land redistribution, access to credit service, number of plots, application of tree planting, application of terracing and land certificate have significant roles in determining farmers' sense of land tenure security. Taking the aforementioned findings of the study together, it is possible to state that the community in the study area has a problem of land tenure security. Therefore, the study recommended that the government shall make a policy shift from state ownership of rural land to private ownership modality.
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1. Introduction

Just like most parts of Africa, land tenure in Ethiopia has been the subject of debate among farmers, policy makers, researchers and the public at large (Crewett., Bogale & Korf, 2008; Rahmato, 2004). Historically, in Ethiopia, land was viewed not only as a source of livelihood to the majority of the population, but also as a source of political and economic power to all groups who aspire to hold political power (Yigremew, 2000, 2003; EEA, 2002; Rahmato, 2004). Hence, it is a common trend in Ethiopia that land tenure system changes with regime change which resulted in the persistence of land tenure insecurity.

Until the 1974 revolution, Ethiopia had one of the most complex land tenure systems in the world (Gebeyehu, 2011). During the imperial regime, the dominant forms of land ownership were *rist, gult* and *madeira*. In the *"rist"* system, all descendants of an individual founder were granted access to land (usufruct right). The "*rist"* system was hereditary, inalienable, and inviolable (Ahmed et al., 2002). *Gult* rights were given to the ruling elites and the church as a reward for loyal services they exacted to their lord and to religious institutions as endowments (ibid). Jemma (2004) noted that the *rist* and *gult* systems are mostly similar but one distinction between them is that the latter is not a right on land rather a right to collect tribute from land. On the other hand, *Maderia* was a tract of agricultural land granted mainly to political allies (Ahmed et al., 2002).

Following the dawn fall of the imperial regime in 1974, the *Derg* transferred ownership rights on all lands to the state without any compensation, abolished tenancy, ordered all commercial lands to remain under state control and granted each peasant family the so-called "Possession rights" to a plot of land not exceeding ten hectares (Zerga, 2016). The military *Derg* regime redistributed the previously privatized land to the farming households with the aim of achieving an equitable allocation of usufructuary rights. But such redistribution is reported to have impacts of undermining farmers' secure ownership of land and natural resources (Ege, 2017; Crewett, Bogale, & Korf, 2008; Rahmato, 2004).

State ownership of land persisted in Ethiopia even after the regime change in 1991. More importantly, the state ownership of land has been put as an article in the current constitution of the country. These days, the farming

community in Ethiopia has only use right on the land. If, for example, the land possessed by a household is needed by the government for some purpose, the farmer must hand over the land as per the article statement in the constitution. Like the previous regimes, unfortunately, it is indicated in various literatures that the current land tenure system of Ethiopia has led to widespread tenure insecurity which resulted in the hesitation of land users to apply sustainable land management practices on the land they owned (Ege, 2017; Crewett, Bogale, & Korf, 2008; Rahmato, 2004). From his recent studies in Amhara region, Tekie (2000) found that there is insecurity problem in the current rural land tenure system. He noted that "… the government is faced with only one imperative policy option: a movement away from the existing insecure tenure system towards a more stable and secured one" (P.103).

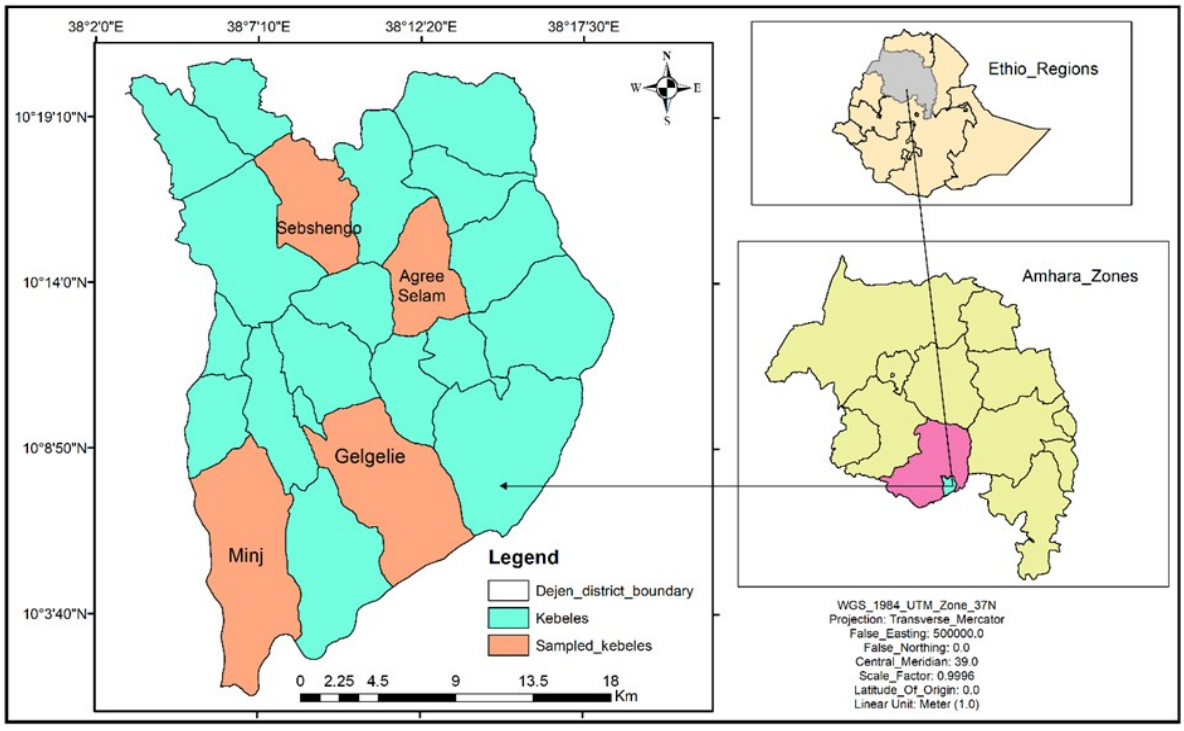
However, the current government of Ethiopia has implemented a land registration and. certification program in the four major regions of the country (Amhara, Oromia, SNNP and Tigray) with the aim of improving land tenure security. By taking all policy and implementation measures in to account, the major objective of this study was, therefore, to assess the current status of land tenure security in Dejen woreda, north-west Ethiopia.

2. Materials And Methods

2.1. Study Area Description

Dejen Woreda[1] is one of the 17 Woredas in East Gojjam administrative zone, Amhara Regional State. It is located in the North-Western part of Ethiopia, about 230 km away from Addis Ababa and 250 km away from Bahir Dar, the regional capital. Astronomically, Dejen Woreda lies between 10° 01' 00" N – 10° 21' 00" N latitude and 38° 03' 00" E – 38° 19' 30" E longitude. It is bordered by Awabel Woreda in the West; Debay-Tilatgin and Enemay Woredas in the North; Shebel-Berenta Woreda in the East and Oromia regional state in the South (Figure 1). Dejen Woreda covers a total surface area of about 570.9 km^2 which makes it relatively a smaller Woreda in East Gojjam administrative zone. The woreda is almost encircled by the deep gorge of Abay (Blue Nile) river and its tributaries such as Bechet and Suha. Administratively, Dejen Woreda is currently divided in to 19 rural and 2 urban kebeles (Figure 2).

Figure 1: Location map of Dejen woreda – the study area.



Source: CSA, processed using GIS

Topographically, Dejen Woreda is characterized by varying relief with altitudes ranging from about 1000 m.a.s.l. at the Abay gorge to 2650 m.a.s.l. in the northern limit. As a result, there is a pronounced relief difference among the dega, woina-dega and kola [2] climatic zones. Most of the lands in the dega and woina-dega zones are flat plateaus. But areas lying in the kola climatic zone are characterized by extreme relief variations. Just like many other parts of Ethiopia, the climate of Dejen Woreda is, therefore, greatly affected by altitude though other factors

[1] Woreda is lower administrative unit next to zone

[2] Kolla, Woina Dega and Dega agro-ecological zones lies between 500-1500, 1500-2300 and 2300-3200 mean above sea level, respectively (Hurni, 1998)

such as latitude and cloud cover do have their own influence. As a result of great variations in relief features, three vertically stratified temperature zones are found in the Woreda (kola, woina-dega and dega). While woina-dega climate covers 48% of the total area, kola and dega climates constitutes 39% & 13% of the woreda landmass, respectively. The average temperature and total annual rainfall of the district range between 20°c and 24°C and 800 mm and 1200 mm, respectively (Dejen woreda agriculture office, 2018).

2.2. Source and Type of Data

In this study, both qualitative and quantitative data are utilized. For both data types, therefore, primary and secondary data sources were consulted. Sampled household heads in the study kebeles, land administration committee members and development agents in the sample kebeles, woreda level agriculture and land administration experts, land-related documents at woreda and higher levels, and policies & proclamations at the regional and national levels were important sources of data for this study.

2.3. Sample Size and Sampling Technique

Generally, this study followed multi-stage sampling procedures. First, one woreda namely Dejen was purposively selected among 17 woredas in East Gojam administrative zone. Then, Kebele administrations in the woreda were grouped in to three agro-ecological zones: *kola*, *woina-dega* and *dega*. Second, a total of four kebeles namely *Minj, Gelgelie, Sebshengo* and *Hagereselam* (the first 2 kebeles with *kola* and the next 2 kebeles with *woina-dega* climate) are selected as representatives of the lowland and highland parts of the woreda. Third, respondent households were selected from each sample kebele using probability sampling techniques.
Sample size determination formula developed by Cochran (1977) was used to estimate the sample size from the population and presented as follows.

i) For the infinite population, the formula used is;

$$n_0 = \frac{z^2 pq}{e^2} \quad \text{..... 1}$$

Where, n_0 Is sample size, z is the selected value of desired confidence level, p is the estimated proportion of an attribute that is present in the population, q=1-p and e, thedesired level of precision.

ii) From the finite population, the sample size is estimated as follows;

$$n = \frac{n_0}{1+\frac{(n_0-1)}{N}} \quad \text{..... 2}$$

Here, n_0 is Cochran's sample size recommendation, N is the population size, and n is the new, adjusted sample size.
By using the above formula, the total number of respondents in this study was found to be 360 household heads. Proportional to their total household size, 86, 100, 90 and 84 household heads were selected as sample units from *Sebshengo, Agere-selam, Gelgelie* and *Minj* kebeles, respectively.

2.4. Data Collection Tools

Both primary and secondary data sources were used for this study. While secondary sources of data were extracted from policy documents, performance reports, and research papers through document reviewing, this research has also utilized questionnaire, interview, and focus group discussion to collect primary data.

- *Survey Questionnaire* - to obtain relevant data from 360 household heads, structured survey questionnaire was prepared. In the survey questionnaire, carefully formulated items are included which can capture information from the sample households on socio-economic issues and land tenure security issues. The items of the questionnaire were mostly close-ended.
- *Key Informant Interview*: key informant interview was employed using semi-structured guiding questions. Key informants who have rich knowledge and expertise on the issue under investigation as well as institutions involved directly or indirectly in the land administration process were considered as interviewees. Interview with key informants included 40 individuals: 4 development agents (1 from each sample kebele), 2 woreda Environmental Protection, Land Administration and Use Authority (EPLAUA) experts, 2 woreda agriculture & rural development experts, 8 Kebele Land Administration Committee (KLAC) members (2 from each sample kebele) and 24 household heads (6 from each sample kebele).
- *Focus Group Discussion (FGD):* Totally, 12 FGDs (3 in each sample kebele) were conducted with KLAC members and household heads in the sample kebeles. Each FGD had 5 - 8 participant members. Separate group discussions were also held with each sex (male and female) and age (youth and adult) categories so as to freely catch their feelings.

2.5. Method of Data Analysis

Data gathered from different sources using different tools have been analyzed using qualitative and quantitative

methods. To analyze qualitative data, the research employed narrative analysis and interpretive analysis methods. On the other hand, both descriptive and inferential statistics were utilized to analyze quantitative data. While such descriptive statistics as mean, percentage, frequency and standard deviation were used, the study has also employed inferential statistics like chi-square test and binary logistic regressions. For quantitative data processing and analysis, Statistical Package for Social Sciences (SPSS) software version 25 was utilized.

2.6. Model Specification

As mentioned in the method of data analysis section, this study employed binary logistic regression to evaluate the roles of major determinant factors on land tenure security. In the binary logistic regression model, feeling of land tenure security is measured as a dummy dependent variable (1=secured, 0=otherwise). The explanatory variables included in the model have varied natures which are mixtures of continuous, ordinal and categorical items (detailed description of the explanatory variables is presented in Table 1). In sum, the binary logistic regression model in this study is composed of the major factors that affect farmers' feelings of land tenure security in the study area. Hence, the binary logistic regression model is specified as follows:

$$In(Y) = In\left(\frac{Y}{1-Y}\right) = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + ... + \beta nXn + \mathcal{E} \quad ..... \quad 3$$

Where, Y = The predicted probability of the event (sense of land tenure security), which is coded with 1= sense of tenure security; and 0=otherwise

$1 - Y$ = The predicted probability of the other decision (sense of land tenure insecurity)

β_0 = Constant

βn = Coefficients of explanatory variables

Xn = Predictor variables

ε = Error term.

2.7. Working Hypothesis and Variable Specification

Land holders' sense of land tenure security is the result of various factors. Hence, it is hypothesized that farmers' sense of land tenure security in the study area are affected by various socio-economic, institutional, political and physical factors. From literature and experience, the following variables were identified which are expected to have the power to explain the relationship between sense of land tenure security and each explanatory variable pertaining to sample households. Details of variables that are included in the model are indicated in the following specification table (Table 1).

Table 1: Variables included in the logistic regression model

Variables	Variable Descriptions	Nature of Variables	Expected Signs
❖ **Dependent**			
• Land tenure security	Respondents` sense of land tenure security	Categorical	
❖ **Independent**			
• Sex of respondent	Sex of the respondent	Categorical	+/-
• Age of respondent	Age of the respondent	Continuous	+
• Credit service	Access to credit service	Categorical	+
• Education level	Education level of the respondent	Categorical	+
• Farm size	Amount of farm land owned	Continuous	-
• Plot number	Number of plots owned by the respondent	Continuous	-
• 1996/7 land redistribution	Feeling on the 1996/97 land redistribution	Categorical	-
• Future land redistribution	Expectation on future land redistribution	Categorical	-
• Land certificate	Holding land use certificate	Categorical	+
• Non-farm activity	Participation in non-farm activities	Categorical	-
• Application of tree planting	Farmers' participation in tree planting	Categorical	+
• Application of terracing	Farmers' engagement in terracing	Categorical	+

Source: Literature reviewed

3. Results and Discussion

3.1. Descriptive Results

As Table 2 clearly indicates, nearly equal number of samples were selected from *kola* and *woina-dega* agro-ecological zones which indicate the presence of comparable number of households in *kola* and *woina-dega* zones. On the other hand, one can see a great disparity in the number of male and female participants in the study. This is, however, not surprising as the total number of female-headed households in the study area is far smaller in number than the male-headed households. With regard to education, 31.9% of the participants are illiterate who

are totally unable to read and write at least in their local language (Amharic). While 35.3% of the participants were able to read and write, the rest had learned some grade 176. levels (32.8%).

Table 2: Descriptive statistics of categorical variables

Category	Response	Frequency	Percent
• Sex	Male	268	74.4
	Female	92	25.6
	Total	360	100.0
• Level of education	Illiterate	115	31.9
	Read & write	127	35.3
	Grade level	118	32.8
	Total	360	100.0
• Agro-ecology	*Kola*	174	48.3
	Woina-dega	186	51.7
	Total	360	100.0
• Credit service	Yes	332	92.2
	No	28	7.8
	Total	360	100.0
• Participation in non-farm activities	Yes	247	68.6
	No	113	31.4
	Total	360	100.0

Source: Field survey, 2021

The study has also examined sample households' access to credit service which is expected to have connections with their feelings of land tenure security. Unexpectedly, 92.2% of the participants witnessed that they have access to credit services mostly from non-formal financial institutions (Table 2). In this regard, key informants and group discussants have confirmed that the major source of credit for most of the rural households in the study area is Amhara Credit and Saving Institution (ACSI). Asked why most farmers are attached with the aforementioned informal financial institution, it is reported by group discussants that getting credit from formal government and private banks is unlikely for the rural households since most of the farmers are unable to fulfill the collateral criteria of these banks.

Engagement in non-farm income generating activities is another variable considered in this study which has something to do with farmers' sense of land tenure security. As Table 2 depicts, 68.6% of the sample households have participated in any one type of non-farm income generating activity in their kebeles or out of their residence sites. From this, it is possible to deduce that most farmers use their time and energy to earn incomes from non-farm activities which are mostly available at urban centers. Hence, engagement on such activities require abandoning one's residence for a considerable period of time which has its own implications on land tenure security. Participant farmers of this study reported that the more they move far from their residence area for non-farm activity and the longer time they stay there, the more feeling of land tenure insecurity they develop.

As indicated in various literatures, sense of land tenure security has strong association with age of a farmer. For this reason, age of sample household heads was considered as a variable in this study. As the data clearly show, there is a range of 56 years between the older and younger ages of the sample household heads. With this range, the average age of the participants is 47.18 years with a standard deviation of 12.22 years (Table 3). Another variable expected to have association with sense of land tenure security and hence considered in this study is family size. While the maximum family size of a participant household was 9 persons, the minimum is found to be 2 persons. However, the average family size of the sample households in the study area is 5.19 which is greater than the regional and national average of the rural population (4.5 and 5.07 respectively) (CSA, 2007). This indicates that the study area is one of the most densely populated woredas in Amhara region. Higher agricultural density has also its own implications on households' sense of land tenure security which is indicated in the next sections.

Table 3: Descriptive statistics of continuous variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Age of the household head	360	20	76	47.18	12.219
Household head's family size	360	2	9	5.19	1.336
Farmer's land holding size (ha)	360	.50	3.50	1.5515	.65676
Number of plots hold by the farmer	360	1	8	3.16	1.226
Valid N (listwise)	360				

Source: Field survey, 2021

In the life of the rural households, land holding size is the most basic and crucial issue as their livelihood is directly dependent on it. Farmers' sense of land tenure security is also highly associated with their land holding

size. Because the agricultural population density is very high, the average size of land holding for the sample households is found to be only 1.55 hectares with a standard deviation of 0.66 hectares which is in fact a little beat larger than the national average (1.02 ha) (EEA, 2002). The study revealed that there is a great disparity in land holding size among the sample households. While the largest holding size is 3.5 hectares, the smallest holding is found to be 0.5 hectares. This implies that there is unfair possession of farming land among the farming communities which is perceived by the community as the basic cause of land tenure insecurity in the study area. With the average holding size of about 1.55 hectares, the mean number of plots owned by the sample households reaches 3.16 which is about 0.49 hectares for each plot if divided equally. In addition, the number of plots hold by sample households ranges from 1 to 8 (Table 3). Number of plots is also reported by group discussants to have negative association with feeling of land tenure security.

3.2. Farmers attitude towards land holding systems

Sample respondents were asked their opinion regarding ownership of rural land. As Table 4 indicates, more than half (56.9%) of the participants believe that rural land is jointly owned by the government and farmers. Even though most interviewed farmers were unable to define what is meant by joint ownership of rural land, they simply reply what they are told by the local authorities. But it is only the smallest number (21.1%) of the respondents who really believe that land is their own property. This feeling is a clear indication that farmers in the study area have land tenure insecurity. They were also asked about their interest as to who shall own rural land in the future. In this regard, an overwhelming majority (92.5%) of the respondents wished rural land to be owned by the farmers themselves. On this issue, participants in the focus group discussion also mentioned the current state ownership modality of rural land as follows: “we are feeling as if we are administering someone else property. We don’t consider our land as our own property just like our cows and oxen. So, our right on the land is limited. We cannot use it for mortgage or sell it when needed”.

Table 4: Percentage response to land ownership related questions (N=360)

Issues related to rural land ownership:	Responses		
	Government	Farmers	Both
• Currently, who is the owner of rural land?	21.9	21.1	56.9
• Who shall own rural land in the future?	7.5	92.5	-

Source: Field survey, 2021.

A policy or program is said to be successful and expected to achieve its objectives if it satisfies the beneficiaries or end users. Hence, the success of the land registration and certification program implemented in Dejen woreda, Amhara region, before a decade can be evaluated taking the response of farmers, beneficiaries, in to account. Because, the success or failure of land registration and certification has strong implications on sense of land tenure security. As the result of this study showed, most farmers have a positive attitude towards the certificate they hold. About 56% of the sample respondents believe that land certificates have secured their tenure right though nearly 44% are against this idea (Table 5). However, there is a significant difference of feeling between male and female respondents pertaining to the role of the land certificate they hold in improving farmers’ sense of land tenure security [$X^2(1) = 78.46$, $p<0.00$]. The support for the land certificate is higher from female farmers than male farmers. Respondents were also asked to share their opinion whether they have a fear that land might be taken away by the government or not. While 33% of the respondents have the fear that they may lose their land by the government, the majority (nearly 67%) are confident that the government cannot take their land. Moreover, there is a statistically significant difference between male and female respondents about their fear regarding loss of their holdings [$X^2 (1) = 5.844$, $p<0.05$]. From these figures, it is possible to understand that the land certificate could not create a sense of security in the minds of all certificate holders. This is due, as per key informants’ opinion, to the occurrence of frequent cases in which farmers have lost their lands in the presence of the certificates.

A related question was also presented to the sample households to know whether they support land redistribution or not. As Table 5 clearly shows, nearly half of the respondents support future land redistribution while the other half are against it. The rapidly growing number of landless households in the study woreda is in favor of land redistribution. They want land redistribution because they believe that the present holding size is highly skewed due to the 1996/97 unfair land redistribution. However, these respondents have also revealed that the probability of happening land redistribution is almost unlikely. It is only 3.6% of the respondents who expect land redistribution to happen in the near future though there is statistically significant difference between male and female respondents in this regard [$X^2 (1) = 4.631$, $p<0.05$]. So, there seems unmatched condition to exist between farmers’ wishes and their expectations regarding land redistribution. Asked why they don’t expect land redistribution, they replied that the government has a firm stand against land redistribution under the cover of land fragmentation.

As land is a state property under the current land tenure system, the federal and regional laws and proclamations declare that farmers will lose their holdings if the land is needed for investment or public purpose. In

this case, however, a farmer who lose his holdings has the right to claim for fair compensation before losing the land. In line with this, sample respondents were asked to tell their feelings about the amount of compensation received by farmers in their locality. Surprisingly, more than 94% of the respondents believe that the amount of compensation given to those who lost their holdings is not enough and there is no significant difference between male and female respondents regarding the amount of compensation paid for the land loser. Participants in the focus group discussion have also stated the amount of compensation as unfair and far from the current market value. In their opinions, the amount of compensation is so low because payment is given for the value of property developed on land, not for the value of the land itself, as land is declared a state property. The proclamation regarding expropriation of landholdings for public purposes and payment of compensation (Proclamation No. 455/2005) defines compensation as a payment to be made in cash or in kind or in both to a person for his property situated on his expropriated landholding. Therefore, the objects of compensation in this proclamation are all properties developed on the land except the land itself and this highly reduces the amount of compensation payable to the land loser.

Table 5: Percentage response to land-related questions (N=360)

Land-related issues:		Sex					
		Male	Female	Total	X^2	df	P-value
• Do you believe that the land certificate secured your holding right?	Yes	42.5	95.7	56.1			
	No	57.5	4.3	43.9	78.46	1	0.000
• Do you support land redistribution?	Yes	64.9	4.3	49.4			
	No	35.1	95.7	50.6	100.544	1	0.000
• Do you expect land redistribution in the near future?	Yes	4.9	0.0	3.6			
	No	95.1	100.0	96.4	4.631	1	0.031
• Do you fear that land might be taken by the government?	Yes	36.6	22.8	33.1			
	No	63.4	77.2	66.9	5.844	1	0.016
• Do farmers have the right to bargain compensation issues?	Yes	8.6	5.4	7.8			
	No	91.4	94.6	92.2	0.946	1	0.331
• Do you think that the amount of compensation is enough?	Yes	5.6	6.5	5.8			
	No	94.4	93.5	94.2	0.107	1	0.744

Source: Field survey, 2021

Property valuation process is an important step to determine the amount of compensation to be paid for the expropriated land. In principle, the loser and taker of the land should negotiate on the amount of compensation. However, the proclamation about expropriation of landholdings for Public Purposes and Payment of Compensation (Proclamation No. 455/2005) exclusively gives the valuation task to other bodies and excludes the land holders completely. The proclamation states that value of a rural land will be evaluated by valuation committee to be established by the relevant Woreda Administrations. Over this issue, an expert from woreda land administration office pointed out that the land valuation committee usually consists of five members from different sectors such as land administration office, agriculture office, trade & industry office, an elderly local person and one person from another sector. Hence, interviewees and group discussants concluded that excluding the land holder when his land is valuated for compensation purpose is the major source of land tenure insecurity among the farming community.

Sample households were also asked to express their bargaining power in deciding on the amount of compensation when they lose their land. As Table 5 indicates, bout 92% of the respondents replied that farmers are totally excluded from the valuation process and have no bargaining power to decide on the amount of compensation to be paid when land is expropriated for the so-called “public” or “development” purposes. So, the land holders have no choice except receiving the payment decided by external bodies. Over the issue of their bargaining power in deciding the amount of compensation and their participation in evaluating the land, both male and female respondents have almost similar opinion and hence the difference is statistically insignificant ($p>0.05$).

3.3. Major factors that determine land tenure security

As per the findings of Burns *et al*. (2007), farmers’ feeling of land tenure security is crucial to engage in long-term land investment, reduce land-related disputes and boost productivity. With the objective of improving farmers’ land tenure security, the Amhara national regional state has implemented a large-scale land registration and certification program in all its woredas including the study area. However, to what extent farmers feel tenure security after holding certificates is a matter of an academic exercise. This study, therefore, has tried to measure the level of land tenure security in the study area by taking the major determinant factors in to consideration.

Of all variables included in the binary logistic regression, the roles of age, level of education, fairness of the 1996/97 land redistribution, land holding size and participation in non-farm activities in predicting farmers’ feeling of land tenure security are found to be statistically insignificant for different reasons (Table 6). From the inherent characteristics of the household head, sex of the household head is found to have a significant contribution to the

feeling of land tenure security. The binary logistic regression result indicated that being a female-headed household, keeping all other variables constant, increases the probability of developing tenure security by the odds of 27.522 which is statistically significant at $p < 0.001$ (Table 6). During interviews, female key informants indicated that they are feeling better tenure security these days because both government and non-government organizations are giving due attention to female farmers, the prevailing rules and regulations are pro-female and the justice bodies are sensitive to cases of female farmers. They said that arbitrary and forceful snatching of females' farmlands by anyone else is highly reduced at the present time.

As widely stated in the literatures, holding a land certificate is found to have a positive and significant association with farmers' feeling of tenure security. Consistent with the literature, the result of this study indicated that holding a land certificate increases the land tenure security of a farmer by the odds of 5.385 keeping all other independent variables constant and the result is statistically significant at $p < 0.05$ (Table 5). This finding is also in line with the objective set by the government prior to implementing the rural land registration and certification program. Asked their opinions, female key informants declared that the land certificate is a very important document which strengthened their feelings of tenure security.

Frequent land redistribution is blamed as one major cause for the land tenure insecurity in Ethiopia (EEA, 2002; Deininger et al. 2003; Knippenberg et al. 2020). Frustrated by the past experiences of frequent land redistribution, expectation of land redistribution in the near future has its own impact on farmers' feeling of land tenure security. As can be seen from Table 6, the logistic regression result showed that expectation of future land redistribution has negative and significant effect on farmers' feeling of land tenure security. Expecting land redistribution in the near future has the likelihood of reducing farmers' feeling of land tenure security by the odds of 0.042 holding all other variables constant which is statistically significant at $p < 0.001$ (Table 13). Similarly, number of plots hold by a household and feeling of land tenure security are negatively associated. Keeping all other independent variables constant, a household head's feeling of land tenure security is likely to reduce by the odds of 0.715 with an increasing number of plots and the result is statistically significant at $p < 0.05$ (Table 6). As per the opinion of key informants, number of plots hold by a household are more visible than holding size and hence the household feels that some of his plots might be taken away and given to the landless. As a result, a household's feeling of land tenure security decreases with increasing number of plots.

Table 6: Determinants of land tenure security (Binomial logistic regression)

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I. for EXP(B) Lower	Upper
Step 1[a]	Sex of the household head (1)	3.315	0.563	34.698	1	0.000	27.522	9.134	82.930
	Age of the household head	-0.013	0.018	0.555	1	0.456	0.987	0.953	1.022
	Household head's Level of education	-0.032	0.216	0.021	1	0.884	0.969	0.635	1.479
	Holding land certificate (1)	1.684	0.831	4.104	1	0.043	5.385	1.056	27.450
	Expectation of land redistribution (1)	-3.168	0.543	34.018	1	0.000	0.042	0.015	0.122
	Access to credit service (1)	0.058	0.021	7.398	1	0.007	1.060	1.016	1.105
	Fairness of the 1996/97 land redist. (1)	0.489	0.595	0.677	1	0.411	1.631	0.508	5.236
	Number of plots hold by the farmer	-0.336	0.170	3.889	1	0.049	0.715	0.512	0.998
	Farmer's land holding size (ha)	0.257	0.303	0.720	1	0.396	1.293	0.714	2.342
	Application of tree planting (1)	1.152	0.523	4.857	1	0.028	3.165	1.136	8.816
	Application of terracing (1)	1.285	0.325	15.609	1	0.000	3.616	1.911	6.841
	Participation in non-farm activities (1)	-0.240	0.325	0.543	1	0.461	0.787	0.416	1.488
	Constant	-3.751	0.687	29.833	1	0.000	0.023		

a. Variable(s) entered on step 1: Sex of the household head, Age of the household head, Household head's Level of education, Land certificate holding, Expectation of land redistribution, Access to credit service, Fairness of the 1996/97 land redistribution, Number of plots hold by the farmer, Farmer's land holding size (ha), Application of tree planting, Application of terracing, Participation in non-farm activities

Source: Field survey, 2021.

Another important variable that effectively predicted land tenure security in the regression model is application of terracing. In most literatures, land tenure security is serving as a cause for the implementation of long-term land management practices like terracing (Deininger et al, 2003; Berhanu, Pender & Ehui, 2003; Deininger et al. 2007). In this study, however, application of terracing is found to have the role of predicting farmers' land tenure security. As it can be seen from Table 6, building terraces on farmlands increases the likelihood of developing tenure security by the odds of 3.616 keeping all other explanatory variables constant. This means that a farmer who built terraces on his plot feels better tenure security than the one who did not. This perception, in fact, has something to

do with the regulation stated in the book of holdings (certificates). It is clearly stated in the certificate that the certificate holder is liable to lose his holdings if he fails to implement essential land management practices. As per the opinion of a key informant, farmers in the study area have used to construct terraces on their holdings with the objective of strengthening their tenure security in addition to protecting soil erosion.

Farmers plant trees mainly for their economic values and protection of land degradation. In the study area, farmers prefer planting exogenic tree species like eucalyptus to indigenous trees for the former have more economic values. Besides, the notion that "planting trees protects land dispossession" is getting acceptance since recent years. consistent with this, a study in Burkina Faso indicated that long-term investment on land like tree planting is 277. undertaken primarily to increase tenure security rather than as a consequence of land tenure security (Brasselle *et al.* 2002) The regression result in this study has also indicated the presence of a cause-and-effect relationship between tree planting and sense of land tenure security. Holding all other independent variables constant, planting trees on farmlands increases the probability of feeling land tenure security by the odds of 3.165 and the result is statistically significant at $p < 0.05$ level. Hence, farmers get at least three benefits from planting trees: land tenure security, economic benefits and land conservation.

4. Conclusion and Recommendation

It is true that existence of land tenure security in a country is the basis for productivity and economic growth. In Ethiopia, however, land tenure security has been challenged by various political, socio-economic and institutional factors and the issue is still unstable. As the results of this study clearly showed, the rural communities are not confident enough about the fate of their land. In the first place, they believe that the owner of rural land in the current system is the state. Such a belief reduces farmers' sense of ownership on the land they are operating. Hence, farmers prefer maximizing productivity in the short run to involving in long-term land investments. Above all, this study found that the rural communities in the study area are claiming for private ownership of rural land.

A large number of the rural household is also in favor of land redistribution. The newly emerging farming households are particularly demanding land redistribution though the legal ground for it seems very narrow. The existence of loud voices for land redistribution, however, is creating a sense of land tenure insecurity among the farming community. The other problematic issue related to rural land is the process of compensation. In the presence of land certificate at hand, farmers are not involved in the valuation process of their land when it is to be expropriated. Some other external bodies organized in a form of committee are deciding on the amount of compensation to be paid for the land holders for the land they are to lose. Consequently, the amount of compensation paid for the farmers is found to be very small and far from the current market value of land. Above all, the exclusion of the land holders from the valuation process is a confirmation that the real owners of the land are not the farmers and hence this situation has created a sense of land tenure insecurity.

The land registration and certification program has been put in place with the objective of improving land tenure security. It is good and has practically brought some sort of improvement on land tenure security. However, it still needs to make the land registration and certification process more inclusive and transparent. Improvements are essential in land demarcation, measurement, geo-referencing, monitoring changes in land interests and updating land registry. Moreover, the protective power of the land certificate needs to be enhanced on legal basis by which farmers' land can be guaranteed from any form of expropriation and land-related problem.

The study also recommended that the government should think of some sort of policy shift from state ownership of rural land to private ownership which will highly improve the sense of land tenure security among the farming community. As a result of the rapidly growing farming community, on the other hand, there seems imbalance to exist between demand and supply of cultivable land in the study area. Clearly speaking, the number of the farming community is becoming beyond the carrying capacity of the cultivable land. Hence, the government at all levels should expand off-farm income generating activities in which the newly emerging population can engage which then relaxes the pressure on cultivable land and thereby improves land tenure security.

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