

## The Equity Effect of Small Holders Agricultural Land Tenancy Market in Amhara Region, Ethiopia

By

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### Abstract

*In the situation when agricultural land sale is prohibited and there is not frequent land reallocation, the land tenancy market is expected to be the main means for getting land for land less youth. On the other hand, because female landlords face higher transaction costs in the land rental markets and have larger difficulties in searching more efficient tenants, the productivity on land of female landlord is lower than the productivity on land of male landlord. Consequently, equity effect of the land lease market is a very important issue. The main objective of this study is to investigate the equity effect of the agricultural land lease market in Amhara region. Structured questionnaires were prepared and administered to collect primary data from the respondent. Multiple sampling techniques were used to select representative samples from the target population. The sample size was determined by using Yamene (1967) minimum sample size determination formula. Descriptive statistics, chi-square test and t-test were employed for analysis. The result revealed that the mean size of land obtained from the government and total land is significantly higher for older respondents. However, the average size of rented-in land is significantly higher for young respondents. This result proved that the land market helps young farmers get access to land. The survey also revealed that there is no significant difference in output across gender. This may be because women owner rent their land to relatives and female land owners rent-out their land for long years compared to male land owners.*

**Key words:** *Equity, Gender bias, Land less Youth, Land Tenancy Market, Productivity*

## INTRODUCTION

Creating productive employment opportunities for youths is the major concern for most developing countries in the world. The majority of youths in Ethiopia live in rural areas where farming is still the main livelihood of the people. The absence of frequent and regular land redistribution and constitutional prohibition of land sale make many rural youths landless. The main way for youths to get land freely is through inheritance. However, on the one hand due large family size some parents are unable to provide their descendent with enough agricultural land and the farm size get smaller and smaller over generation. On the other hand, there is neither commercial farm nor big industrial sector that can provide enough employment opportunity (Bezu and Holden, 2014). Thus, lack of access to land combined with the lack of alternative non-farm employment opportunities creates very serious trouble to youth. In this situation, the role that the land rental market is expected to play in the reallocation of land from land rich to land poor or landless households an important issue for researchers and policy makers (Holden and Otsuka, 2014). Consequently, variation of land lease market efficiency across different gender becomes another important issue that needs critical evaluation. Evidence indicates that there is systematic productivity difference between land of female landlords and land of male landlords. Because female landlords face higher transaction costs in the land rental markets and have larger difficulties in searching and finding more efficient tenants, the productivity on land of female landlord is lower than the productivity on land of male landlord (Holden and Bezabih, 2006). This ultimately affects the ultimate objective behind equal distribution of land across gender.

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Many empirical studies signify that plots controlled by women have lower yields than plots controlled by men. This is partially because men are able to mobilize labor and other factors of production for their plots than women do. The result of the study by Udry, et al. (1995) is consistent with this. The OLS regression result of this study proved that productivity of plots controlled by women is lower than productivity plots controlled by men. The researchers point out that the yield differences might reflect differences in the intensity with which inputs are applied on men's and women's plots. In Ethiopia too, Holden et al. (2001) found systematic lower productivity on owner-operated land of female-headed households than that of male-headed households.

Similarly, the benefit from the land lease market is also biased against women. Productivity of land rented out by female landlords is lower than productivity of land rented out by male landlords. Holden and Bezabih (2006) tried to identify the rationale behind this difference. They found significantly higher level of inefficiency linked to contracts of female landlords with in-law tenants. The researchers indicated that this may be due to the high eviction costs of tenure insecure female landlords who therefore are less able to freely screen and select the better tenants. Female landlords face higher tenure insecurity and have lower bargaining power. This leads to poorer screening and selection ability, poorer quality tenants and lower resource rents.

The purpose of this study is to investigate the effect of land lease market on gender equity. The study used efficiency difference of sharecropped land across gender as indicator of gender equity. It further explores how the land policy affects youths and how the lease market benefit landless youths. The study also identifies the methods that women owners use to solve the moral hazard problem (due to asymmetric information).

### General Objectives of the Study

The general objective of the study is to investigate equity<sup>4</sup> effect of the land lease market in Amhara region.

#### Specific Objectives of the Study

The specific objectives of this study are:

- To identify methods that women owners use to solve the moral hazard problem
- To assess the effect of the land leasing market to women
- To look the effects of the land market to landless youths

## METHODOLOGY

#### Description of the Study Area

According to the Federal Democratic Republic of Ethiopia administrative structure, there are nine regional states and two city administrations in Ethiopia. The Amhara National Regional State (ANRS) is one of the nine regional states of Ethiopia and it is the second largest regional states in the country. The total estimated area of the Amhara region was 170,752 square kilometers. The region shares borders with Tigray region in the North, Afar and Oromia regions in the East, Oromia region in the South, and Benishangul region and the Republic of Sudan in the West. The region is divided in to 10 administrative zones and 114 *Woredas* (Tesfahun et al., n.d.). Based on 2007 census, the region has the total population size of 17,221,976 and the number of households was 3,849,140 (CSA, 2007). The population of the region constitutes about 23 per cent of the total population of the country and in terms of area it contributes around 15 per cent. Nearly 90 per cent of the population of the region resides in rural areas and agriculture is their main source of livelihood (BoFED, 2009/2010).

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<sup>4</sup> It indicates the efficiency and land distribution effect of land lease market across gender and age respectively.

The average land holding per household is about 1.3 ha. The average farmland holding is significantly higher among male-headed households than their female counterparts. About 89 percent of the plots are cultivated by their owners while the remaining 11 percent of the plots are cultivated through temporary rent, mostly sharecropping. Study indicates that males tended to rent in more while females tended to rent out more (Benin et al., 2006).

#### Sampling and Data Collection Methods

This study used both probability and non probability sampling techniques to draw a sample which is representative of the population. The relevant population of this study is rural households of Amhara region. The first step of the sampling process was stratifying the study area into administrative zones. The second step was selecting one district/site from South Gondar (S/Gondar), Central Gondar (C/Gondar) and North Gondar (N/Gondar) Zone of Amhara region using convenient sampling method. Finally, respondents who are living in the selected districts/sites were sampled based on stratified random sampling method. The stratification was made to get sample from different groups of respondents so as to address each objective of the study.

Yamene (1967) minimum sample size determination formula was used to determine the sample size. According to his formula:  $n = \frac{N}{1 + Ne^2}$ , where  $n$  refers to sample size,  $N$  refers to total household number and  $e$  refers to level of significance. The total number of rural households is about 3,464,226 and level of significance is 5 per cent. Then, the minimum sample size ( $n$ ) =  $\frac{3464226}{1 + 3464226 * 0.05^2} = 400$ . Therefore data was collected from 400 respondents.

Household survey was the source of cross-sectional primary data. Structured questionnaires were prepared and administered to collect primary data from the respondent (households). The data collectors were made familiar with the questionnaires before starting the survey. Focus Group Discussion (FGD) was also another important source of qualitative data for this study.

#### Method of Analysis

The study uses both descriptive statistics and econometric models. The econometric model that the study used is stochastic frontier analysis. T-test is used to study the efficiency and output difference across gender and the contribution of the land tenancy market to landless youth. In addition, the study also employed descriptive statistics like mean, mode and median.

The empirical model of SFA is specified as follows:

$$\ln Y_i = \beta_0 + \beta_1 \ln X_1 + \beta_2 \ln X_2 + \dots + \beta_k \ln X_k + v_i - u_i$$

Where  $Y_i$  is an output and  $X_i$  are inputs. The study considered land size, amount of dap-fertilizer, amount of uria-fertilizer, number of labor used and number of plowing as independent variables.

## RESULT AND DISCUSSION

To collect cross-sectional primary data from farm households, 400 structured questionnaires were distributed in three districts. Enumerators were trained and assigned to manage the survey. Out of 400 questionnaires 350 were completed and returned with few missing values. Hence, the analysis is done with these observations. Descriptive statistics t-test and chi-square are used to analyze the data and answer the research objectives.

#### Profiles of Respondents

The demographic profiles of the samples have been presented in Table-1. The result indicates that the average age of the respondent was about 45 years. The mean family size of the households was about 6 and their average labor force size was about 3.5. The average farming experience was 25 years.

The survey result also indicates that average size of cultivated own land (gift from family and government) during the survey year was about 3.3 Temad<sup>5</sup>. About 1.7 Temads of the land were sharecropped and about 0.7 Temad was obtained by fixed rent agreement. This indicates that the agricultural land tenancy market is dominated by sharecropped agreement. Compared to the three sources of access to land mentioned here sharecropping is the second important source of access to land (See Table-1).

For the sake of management, categorical variables are summarized separately at Table-2. The study explored that about 98 percent of the respondents were male. It indicates that household management is highly dominated by male. About 95 percent of the households were married and the remaining 5 percent were single, widowed and divorced. The study further investigated educational status of household heads. It is found that 44 percent of the household heads were illiterate, 39 percent could read and write (informal education), and only 17 percent of the household heads attended forma education. The data further reveled that about 61 percent of the respondents had no access to credit for the last three years and farming was the only source of income for 85 percent of the sample farm households (See Table-2).

### Land Tenancy Market and Landless Youth

Due to lack of frequent land redistribution, many youth are either land less or have insufficient size of land. Therefore, land rental market is expected to play an important role in the reallocation of land from land rich to land landless households. Hence, studding the benefit of the land tenancy market to land less youth was one of the objectives of this research. The study investigated how the tenancy market has been helping land less farmers and farmers with small size of plot. In the survey, respondents were asked to reveal the main source of land access to youth. Most respondents stated that, the land tenancy market is the main source of getting farming land for youth. Figure-1 shows the contribution of the land tenancy market in creating access to land for land less farmers. Respondent also described that inheritance from family is the second important source of land. They placed government as the last source of land for youth.

For the purpose of triangulation, the study used Focus Group Discussion (FGD) as another important source of information. In the discussion, about 10 individuals were participated. Both male and female; owner and tenant; youth and elder were participants of the FGD. In the Focus Group Discussion, the researchers asked a young tenant that what they would do if the government prohibited the agricultural land tenancy market. One of the participants replied that they would go to other areas to sale their labor (he side “*ባንዱ ሀገር ነው ስቀል እምቤድ*”), and many participants share this idea. This is an indicator of the role that the land market plays to the lives of youth farmers.

### Figure. 1. Sources of Land for Youth

In addition to the FGD and descriptive statistics mentioned above, the study also used t-test. To see the land distribution across age groups and the benefit of the land market to youth, the study classified respondents in to two groups based on their age; and the difference in the mean size of total land and land from each source across age categories was estimated. The result is depicted on Table-3. Based on the survey result, government was the main source of land for respondents whose age is above 35, whereas the land market is the second source of land for them. On the other hand, for young respondents whose age is les or equal to 35, the land market becomes their main source of access to land followed by gift. Government is the last source of land for youth. This result is perfectly consistent with the result discussed above (Figure-3).

The result on the same table indicates that, compared to young respondents, the mean size of total land is higher for older respondents and the difference is significant at one percent level of significance. Furthermore, it is found that the average size of land obtained from the government is higher for respondents whose age is higher than 35 (Group 0) and the difference is significant at one percent level. This shows the existence of land

distribution inequality across age groups. On the other hand the average size of rented-in land is higher for young respondents compared to their counterpart and the difference is significant at one percent level. This revealed that even if there is unequal distribution of land across age by the government, the land market helps young farmers get access to land and reduces concentration of land on the hands of elder farmers.

The findings of the some previous studies support this result. For example, the study of Deininger *et al.* (2003) in Ethiopia revealed that that land rental markets in Ethiopia work better than administrative mechanisms to reallocate land among producers. Contrary to the expectation of the researchers that land markets might lead to accumulation of land in the hands of the rich and powerful, greater rental market would provide benefits to poor and creates opportunities of using their labor endowment.

#### **Land Tenancy Market and Gender**

Because female landlords face higher transaction costs in the land rental markets and have larger difficulties in searching and finding more efficient tenants, the productivity on land of female landlord is expected to be lower than the productivity on land of male landlord (Holden and Bezabih, 2006). Hence, exploring the effect of the land market on gender equity with the use of empirical evidence is also an interesting issue for researchers.

This research tried explored the productivity difference of rent-out lands across gender. Based on the survey result, about 59 percent of the respondents perceived that there is no gender bias in productivity. Whereas, the remaining 41 percent of the respondents believed that tenant better manage male owners plots compared to female own plots. Participant of the FGD confirmed that self operating of land gives more benefit compared to the benefit from rent-out land. This result is consistent with the finding of Eden Andualem (2018); his Propensity Score Matching (PSM) result showed that the consumption expenditure of the household who rent-out their land was significantly less than that of households who did not rent-out their land.

Due to lack of other inputs most women are forced to rent out their land. However, most participants of the FGD (including female land owners) also agreed that there is no gender bias in relation to productivity. The study used t-test to investigate mean output per temad difference across gender. Table-4 indicates that the mean output on male owner rented-out land is about 2.2 quintal whereas the average output on female owner rented-out land is about 2.1 quintal. On average output on male owner rented-out land is a bit higher than the output on female owner rented-out land. However, the t-test result shows that this difference is not statistically significant. This finding is not consistent with the prior expectation of the researchers and the theory. This may be because female owners use different strategies to reduce tenants' inefficiency. One reason may be duration of tenancy agreement. Table-4 indicates that the average duration of tenancy for male is 3 years but the duration is about 2.5 for male land owners. This revealed that female land owners rent-out their land for long years compared to male land owners. Another reason may be that male owners rent-out distant plots compared to female owner. This creates an incentive to the tenant to manage the land efficiently.

Another possible reason is the owner-tenant relationship. The Chi-square test indicates that, compared to male, female owner rent-out land to relatives/families and the correlation is statistically significant at 5 percent level of significance (Table-5). Sadoulet *et al.* (1997) found that kinship contracts were more efficient.

In order to investigate the efficiency effect of the land tenancy market across gender, the study employed Stochastic Frontier Analysis (SFA). The study used the log transformation of the Cobb-Douglas production function. First, the study estimated the efficiency level of farmers using SFA. Second, it compared the mean level of efficiency across gender of the land owner.

Table-6 which is depicted in the appendix shows the T-test result of the efficiency level between groups. As it is depicted in the table the mean value of efficiency of male owner rented-out plots is about 0.69. But, the mean efficiency value of female owner rented-out plots is about 0.67. As the T-test result revealed, the difference in

the mean value of efficiency is statistically insignificant event at 10 percent. Hence, it possible to conclude that there is no efficiency difference between male owner rented-out plots and female owner rented-out plots. This result indicated that there is no gender bias in land tenancy market.

## CONCLUSION

In the situation when agricultural land sale is prohibited and there is not frequent land reallocation, the land tenancy market is expected to be the main means for getting land for land less youth. On the other hand, due to lack of labor, most female landowners stick in the tenancy market (Holden and Bezabih, 2006). But, because female landlords face higher transaction costs in the land rental markets and have larger difficulties in searching and finding more efficient tenants, the productivity on land of female landlord is lower than the productivity on land of male landlord (Holden and Bezabih, 2006). Consequently, equity effect of the land lease market is a very important issue.

This study investigated the role that the land tenancy market plays to landless youth with the use of empirical evidences. The result revealed that the mean size of land obtained from the government and total land is significantly higher for older respondents. However, the average size of rented-in land is significantly higher for young respondents. This result proved that the land market helps young farmers get access to land. The effect of the land market on gender equity is another area of interest for researchers. This research tried explored the productivity difference of rent-out lands across gender. Based on the descriptive statistics and FGD result, it is found that that there is go gender bias in relation to productivity. The t-test result also confirmed that there is no significant difference in per-Temad output and efficiency across male and female owners. This may be because women owner rent their land to relatives and female land owners rent-out their land for long years compared to male land owners.

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## Appendix

Table-1 Profile of Respondents (Continuous Variables)

Variable Name	Mean	Std. Err.
Age	45.55238	.6091498
Family size	5.850794	.115522
Labor force size	3.52381	.0880352
Farm experience	25.49524	.6489825
Government land	2.369206	.1532548
Gift land	.902381	.0820302
Rented in land	.7103175	.0647358
Sharecropped land	1.703968	.0867779

Source: Researchers' Survey of 2019

Table-2 Profile of Respondents (Categorical variables)

Variable Name	Frequency (%)	
Sex	Male	97.71
	Female	2.29
Marital Status	Single	2.86
	Married	94.54
	Widowed and Divorced	2.58
Level of Education	Illiterate	43.71
	Informal education	39.14
	Formal education	17.14
Access to credit	Yes	60.86
	No	39.14
Non-farm income	Yes	14.86
	No	85.14

Source: Researchers' Survey of 2019

Table-3 Mean Size of Land from Different Sources (in-Temad).

Age group	From government	Gift	From Land Market	Total land
Group 1 (Age<=35)	.7905797	1.184932	2.544776	2.142857
Group 0 (Age>35)	2.720803	.8928571	2.453532	3.724813
P-value	0.0000	0.1952	0.0000	0.0000

Source: Researchers' survey of 2019

Table-4 Difference of Sharecropped Land across Gender

Group	Obs	Mean output	Std. Err.	Std. Dev.	T-test
Female	64	2.113542	.1434037	1.14723	0.3203
Male	139	2.170778	.1017033	1.199064	
Group	Obs	Mean distance	Std. Err.	Std. Dev.	
Female	91	24.53846	1.862312	17.76533	1.2867*
Male	177	27.80791	1.549697	20.61738	
Group	Obs	Mean duration	Std. Err.	Std. Dev.	
Female	90	3.222222	.3721845	3.530852	1.648*
Male	114	2.508772	.2480308	2.648244	

\*\*\*, \*\*, \* are significant at 1%, 5% and 10% level

Source: Researchers' survey of 2019

Table-5 Owner-Tenant relation across Gender

Owner and tenant have relation	Sex of land owner	Total	P-value	
	Female	Male		
No	28 38.8	62 51.2	90 90.0	0.002***
Yes	62 51.2	57 67.8	119 119.0	

Source: Researchers' survey of 2019

Table-6 The Mean Value of Efficiency

Group	Obs	Mean	Std.	Err.	Std.	Dev.	T-value
Female	72	.6704032	.0193327	.1640434	.6318549	.7089515	t = -1.2130
Male	161	.6934302	.0093063	.118084	.6750511	.7118093	
Combined	233	.6863146	.008781	.1340358	.6690139	.7036152	
Diff		-.023027	.0189836		-.0604301	.0143762	

Source: Researchers' survey of 2019

Table-7 Stochastic Frontier Analysis

Lnoutput_teff	Coef.	Std.	Err.	P-value
Inlandsize	.2653267	.0191667		0.000
Indapfertilizer	.0703616	.0410693		0.087
Inuriafertilizer	.1024248	.0386602		0.008
Intotallabor	.0238079	.0272232		0.382
Innoofplowing	.1722057	.0753178		0.022
_cons	.23781	.1656274		0.151
/Insig2v	-2.482923	.1977723		0.000
/Insig2u	-1.168696	.1872829		0.000
Likelihood-ratio test of sigma_u=0: Prob>chibar= 0.000				
Model Summary	Stoc. Frontier normal/half-normal model Number of obs =373			
	Wald chi2(5)=322.07			
	Loglikelihood=-219.34776 Prob >chi2 =0.0000			