LAND TENURE AND SOCIOECONOMIC INTERACTIONS

James Ssemambo, James O. Bukenya and Maribel Mojica*

Abstract

The study analyzed the determinants of land tenure insecurity in Uganda using survey data collected by the International Food Policy Research Institute (IFPRI) during the Policies for Improved Land Management Project in Uganda, 1999-2001. The survey included a sample of 1322 farm households randomly selected and interviewed using a formal questionnaire. The analysis revealed that tenure category, number of households in the village involved in disputes outside the village, and the number of households in the village who lost land as a result of a dispute over land were significant factors affecting tenure insecurity.

---

*Graduate Research Assistant, Assistant Professor and Research Associate, respectively in the Department of Agribusiness, Alabama A&M University, Normal, Alabama 35762.

Introduction

Uganda was known as a major food source in Africa because of its good soil, dependable rainfall and relatively high agricultural production. Over time however, the country's agricultural sector has been characterized as low-input, semi-subsistence agriculture (Place and Otsuka, 2002). One of the concerns is the issue of land tenure in the country. The country is confronted by land tenure conflicts of various types. For example, civil wars have resulted in increased threats to and conflicts over natural resources. The traditional rivalry between farmers and pastoralists has been fuelled at times by biased government policies. A common perception is that the prevailing land tenure institutions are discouraging farmers and inhibiting them from making major agricultural investments. The question of the appropriate tenure policy has remained unresolved, although the 1995 Land Constitution and the 1999 Land Act emphasized security of tenure by Uganda's smallholders, protection of women and other vulnerable groups from irresponsible land sales, and promotion of investment and smooth operation of the market.

Numerous land redistribution policies and socio-economic interactions through the years have left many Ugandans landless and many in disputes. This paper therefore aims to examine the factors affecting tenure insecurity in Uganda. The paper relates tenure insecurity to demographic characteristics and social interactions. The paper in organized as follows. First, a brief review of the land tenure systems in Uganda followed by a definition of tenure insecurity and social interactions in section three. Data and econometric model are presented in sections four and five. The last two sections present the result and conclusions.

Land Tenure Systems in Uganda

The promulgation of the 1995 Constitution of Uganda brought with it very significant changes. The radical title to land was vested in the citizens of Uganda, the Land Reform Decree was abolished and the systems of land tenure that were in existence before independence re-instated. These were stated as customary tenure, mailo tenure, freehold tenure and leasehold tenure:

1) Freehold tenure involves holding of registered land in which the holder has full ownership rights. Land is held in perpetuity subject to statutory and common law qualifications.

2) Leasehold tenure involves holding land for a given period of time specified on commencement (validity) on such terms as may be agreed upon by lesser and lessee and may include sublease.

3) *Mailo* land tenure involves holding registered land in perpetuity. This system has its roots in the 1900 Buganda Agreement between Buganda and the British. In the central Ugandan region of Buganda, the clan system was undermined with introduction of the *mailo* system, but *mailo* land is still subject to clan and lineage head approval. The Busuulu and Envujjo Law of 1928 made it difficult for landlords to evict tenants and set a rent ceiling. The law increased insecurity of tenure for *mailo* owners by recognizing some of the secondary rights of tenants as primary rights, while extinguishing many primary rights of the owners. The 1975 Reform Decree, then gave mailo owners more powers to evict the tenant upon issuing a six-month notice. Thus there was a shift in legal control over mailo land, now in favor of the State and the owner. Although many mailo owners still perceived themselves as owners of the land, those with tenants have rarely taken steps of evicting them.

4) Customary tenure is a system of land tenure regulated by customary rules often administered by clan leaders. The customary system predominates in Uganda. Within this system there can be both individual and communal land ownership, but the land is not generally titled or registered. Since 1966, tenure security in this land area has been low and unpredictable (Place and Otsuka, 2002).

Tenure Insecurity and Social Interactions

Tenure insecurity is defined as the perceived probability or likelihood of losing ownership of a part or the whole of one's land without his/her consent (Sjaastad and Bromley 1997, Alemu 1999). The strength of this perception may have a bearing on how farmers manage their land and this in turn has an effect on agricultural production and sustenance of the people who directly depend on it. A lot of authors have stated that tenure insecurity discourages farm operations and land investments.

Kisamba-mugerwa (1989), found that there was a considerable uncertainty as to future land rights within mailo land. They also found out that on land occupied by tenants, it was the owner who especially felt insecure about long-term land rights, because of possible government land tenure reform. Some studies addressed the effect of differences in tenure systems and tenure security on agricultural investment while studies to determine the causes of tenure insecurity which may identify the root cause of the problem is lacking.

Social interactions in the communities such as disputes over land have been the root cause of civil wars and revolutions, much so because land has been the primary means of generating livelihood for the overwhelming majority of rural population in these countries (Deininger and Feder 1998).Furthermore, the way land tenure is instituted and the consequent perceptions and expectations of the land holders may directly affect the way

farms are managed (Firmin-Sellers and Sellers 1999; Maxwell and Wiebe 1999; Sjaastad and Bromley 1997; Gavian and Ehui 1999; Alemu 1999) and this may have efficiency as well as sustainability consequences.

Data

To analyze the determinants of land tenure insecurity in Uganda, we draw on data from the International Food Policy Research Institute (IFPRI). The survey data were collected during the Policies for Improved Land Management Project in Uganda, 1999-2001. In all, one hundred villages were selected across the country and the questionnaires were administered to 107 communities, the lowest administrative units in Uganda called Local Council 1 or LC1. The study region covered most of Uganda, including more densely populated in the southwest, central, eastern and parts of the north, representing seven of the nine major farming systems of the country.

Within the study region, communities were selected using a stratified random sample, with the stratification based on population density and development domains defined by the different agro-ecological and market access zones. Topics in the village survey included livelihood strategies, land use, land tenure and land markets, labor, wage rates and credit, crop production, commercialization and management, livestock management and commercialization, tree product and commercialization. The survey also collected information on the respondents' demographic characteristics.

Table 1 presents the variables included in the analysis and their descriptive statistics. The model used a dummy independent variable, tenure insecurity (SECURITY), coded as 0 when the household feels tenure secure and 1, otherwise. The majority (76 percent) of the respondents stated that

they were tenure insecure. Tenure category (TENCAT) was represented as: 1 = freehold, 2 = leasehold, 3 = mailo, and 4 = customary. Involvement in land disputes in the village (DISPVILL) was coded 1 when the respondent experienced or is involved in a land dispute in the village and 0, otherwise. The number of households involved in disputes in the village (HHDSINV) was treated as a continuous variable. Respondents' involvement in disputes outside the village (DISPOUTV) was coded 1 when the household had an involvement in disputes outside the village and 0, otherwise. The number of households in the village involved in disputes outside the village (HHDINVOV) was used as a continuous variable. If the respondent did lose land as a result of disputes, LOSEACC was represented by 1 and 0, otherwise. The number of households who lost access to land (HHDLACC) was used as a continuous variable. Gender was coded as 1 for males and 0 for females. Respondents' age was a continuous variable while HHDHEAD was coded as 1 if the respondent is a household head and 0 otherwise.

---------- **Table 1 about here** -------------

Model

A logit model was used to examine the relationship between tenure insecurity and respondents' demographic characteristics as well as social interactions. Specifically, the model was used to estimate the likelihood of a household being tenure insecure.

The perception of tenure insecurity and the factors affecting it are modeled as,

$$N = \beta X + e, \tag{1}$$

where $N = 1$ if the household feels tenure insecure, and 0 otherwise, X is an array of factors that may cause or are associated with tenure insecurity, β is a vector of parameters, and e, a vector of error

terms. Assuming that the disturbances are normally distributed, the relationship between tenure

insecurity and the various factors used as independent variables was specified as:

$$N = \beta_0 + \beta_1 TENCAT + \beta_2 DISPVILL + \beta_3 HHDSINV + \beta_4 DISPOUTV + \beta_5 HHDINVOC \qquad (2)$$
$$+ B_6 LOSEACC + \beta_7 HHDLACC + \beta_8 SEX + \beta_9 AGE + \beta_{10} HHDHEAD + \varepsilon$$

where,

N = Perception of tenure insecurity of a household (dependent variable). If a household feels tenure

insecure, the variable takes the value of 1, and 0 otherwise. B_0 through β_{10} are unknown parameters to

be estimated, and ε is the error term.

The probability of a household being tenure insecure was examined using the equation:

$$P_i = E\,(Y = 1 \mid X_i) = \beta_0 + \Sigma\,\beta_i\,X_i \qquad (3)$$

Where, P_i is the probability that Y equals 1 for a given value of X_i. X_i (i = 1, 2, 3…n) represents

the explanatory variables. β_0 represents intercept and β_i represents coefficients to be estimated.

Equation 3 can be represented as:

$$P_i = E(Y = 1 \mid X_i)\,\frac{1}{1 + e^{-(\beta_o + \Sigma \beta_i X_i)}} \qquad (4)$$

Where, e is the base of the natural logarithm; approximately 2.718. For simplification, equation

4 can be written as:

$$P_i = \frac{1}{1 + e^{-Z_i}} \qquad (5)$$

Where,

$Z_i = \beta_0 + \Sigma\beta_i X_i$. Z_i is a linear combination of $(\beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \ldots \beta_n X_n)$ and ranges from

$-\infty$ to $+\infty$; P_i ranges between 0 and 1. If P_i in Equation 5 represents the probability of a household

being tenure insecure, then (1 - Pi) represents the probability of a household being tenure secured, hence,

$$1 - P_i = \frac{1}{1 + e^{-Zi}} \tag{6}$$

Combining equations 5 and 6, we derive:

$$\frac{Pi}{1 - Pi} = \frac{1 + e^{Zi}}{1 + e^{-Zi}} = e^{Zi} \tag{7}$$

where $\dfrac{P_i}{1 - P_i}$ is the odds ratio of being tenure insecure, which is the ratio of the probability that a household is tenure insecure.

Equation 7 is the conditional probability that Y is equal to 1 given X_i. This was denoted as P (Y = 1 | X_i). Conversely, the quantity Y = 1 - P_i gives the conditional probability that Y is equal to zero given X, P (Y = 0 | X_i). By taking the natural log of equation 6.0, the result will be:

$$L_I = \ln\left(\frac{P_i}{1 - P_i}\right) = Z_i = \beta_0 + \sum \beta_i X_i \tag{8}$$

where L is the natural log of the odds being tenure insecure. The model is that natural log of the odds equal to the constant (β_0) plus the product of the estimated coefficients β_i and X_i.

The change in probability was calculated as:

$$\Delta P_i = \beta_i P_i (1 - P_i) \tag{9}$$

where P_i = is the estimated probability of a household being tenure insecure in each observation; and β_i is the estimated coefficient. The change in probability (ΔP_i), therefore, is a function of the

probability of a household being tenure insecure (P_i) multiplied by the probability of being tenure secured (1- P_i) and the estimated coefficient (β_i) considering other variables constant.

Results and Discussions

Table 2 presents the logit estimation of the tenure insecurity model. The estimated results were interpreted using the change in probability (Equation 9). The results show that tenant category is a significant factor affecting tenure insecurity in Uganda. The coefficient exhibits a positive sign, as expected, which shows that the movement of tenure category from freehold land to customary land is in the same direction as tenure insecurity. This means that tenure insecurity increases as tenure category moves from freehold to customary. The change in probability suggests that as a household moves from one tenure category to the next category, the household is 10 percent more likely to feel tenure insecure.

Another significant variable affecting tenure insecurity determined by the model is the number of households in the village involved in disputes outside the village *(HHDINVOV)*. As hypothesized, the parameter estimated showed a negative relationship between tenure insecurity and having a land dispute outside the village. This can be explained by the reason that the level of tenure insecurity are independent between villages, that an individual is relatively secure when involved in a dispute in another village as the disputes don't directly affect his status in the village where he is. Land disputes and tenure insecurity in this scenario are dealt with separately from one village to another. The change in probability indicates that as the number of households in the village involved in disputes outside the village increases, the lower the likelihood (4.6 %) that the households will be tenure insecure. This analysis is in relation to testing the level of tenure insecurity with households involved in disputes inside the village.

The number of households who lost access to any land as a result of a dispute over land rights was determined to be a significant factor determining tenure security. The positive sign of *HHDLACC* indicates

that if the household did lose land in the past, they are more tenure insecure for fear of losing more land, as the cause/s of losing land in the past can be possible causes of losing another land in the future. The change in probability shows that as the number of households who lost land increases, the likelihood of being tenure insecure increases by 4.7 percent.

--------- Table 2 about here ------

Other variables including land dispute involvement in the village, number of households involved in disputes in the village, dispute involvement from outside the village, losing land as a result of disputes, respondents' age, gender, and being a household head were tested but were found to be insignificant. Although the R^2 (Nagelkerke) is low, 0.101, a low R^2 is acceptable in logit regression (Hosmer and Lemeshow, 2000). The model predicted a 77 percent of the responses.

Conclusions

The paper analyzed the effects of tenure insecurity and socio-economic interactions on farm households in Uganda. The results provide insights on the factors determining tenure insecurity. It can be concluded that there is tenure insecurity in the study area as 76 percent of the respondents stated that they feel insecure about their land tenure. In the model, tenant category was found to be a significant variable affecting tenure insecurity. Increases in the number of households in the village involved in disputes outside the village were also found to increase the likelihood of being tenure insecure. Similarly, the number of households who lost access to any land as a result of a dispute over land rights was found to be a significant factor determining tenure security with a positive relationship.

9

References

Alemu, Tekie. 1999. Land Tenure and Soil Conservation: Evidence from Ethiopia. Ekonomiska Studier (92). Goteborgs Universitet (Kompendiet-Goteborg).

Deininger, Kalus and Gershon Feder. 1998. Land Institutions and Land Markets. A paper prepared as a background for the coming Handbook on Agricultural Economics. World bank, Washington, D.C.

Firmin-Sellers, Kathryn and Patrick Sellers. 1999. Expected Failures and Unexpected Successes of Land Titling in Africa. World Development 27(7), 1115-1128.

Gavian, Sarah and Simeon Ehui. 1999. Measuring the Production Efficiency of Alternative Land Tenure Contracts in a Mixed Crop-Livestock System in Ethiopia. Agricultural Economics, 20, 37-49.

Holden, S. and H. Yohannes (2001). "Land Redistribution, Tenure Insecurity, and Intensity of Production: A Study of Farm Households in Southern Ethiopia." Land Economics. 78(4):573-90.

Hosmer, David and Stanley Lemeshow. 2000. Applied Logistic Regression, 2nd edition. Wiley-Interscience Publication. John Wiley & Sons, Inc. pp 375.

IFPRI. Uganda: Policies for Improved Land Management Dataset, 1999-2001. Accessed February 2005, www.ifpri.org/data/uganda01.htm.

Kisamba-Mugerwa. 1989. Land Tenure and Agricultural Development in Uganda. Land Tenure Center, University of Wisconsin.

Place, Frank and Keijiro Otsuka. 2002. "Land Tenure Systems and their Impacts on Agricultural Investments and Productivity in Uganda." The Journal of Ddevelopment Studies 38 (6):105-128.

Sjaastad, Espen and Daniel Bromley. 1997. Indigenous Land Rights in Sub-Saharan Africa: Appropriation, Security and Investment Demand. World Development 25(4), 549-562.

Table 1. Definition and descriptive statistics of variables

Variables	Description	Mean	Standard Deviation
SECURITY	Does the respondent feel secure? 0-Secure; 1-Insecure	0.7602	0.4271
TENCAT	Tenant category 1-Freehold; 2-Leasehold; 3-Mailo; 4-Customary	1.9750	1.1491
DISPVILL	Respondents involved in land disputes in the village 1-Yes; 0-Otherwise	0.5590	0.4967
HHDSINV	Number of households involved in the dispute in the village Continuous	4.9811	10.0612
DISPOUTV	People involved in disputes from outside the village 1-Yes; 0-Otherwise	0.3472	0.4763
HHDINVOV	Number of households in the village involved in disputes outside of the village Continuous	6.2640	30.2117
LOSEACC	Did anyone lose land following the dispute? 1-Yes; 0-Otherwise	0.1929	0.3947
HHDLACC	How many households lost access? Continuous	0.7451	1.8712
SEX	Sex 1-Male; 0-Female	0.6188	0.4859
AGE	Respondents' age Continuous	37.7678	12.2469
HHDHEAD	Is the respondent a household head? 1-Yes; 0-Otherwise	0.6528	0.4763

Table 2. Probability Estimates for Tenure Insecurity in Uganda

Variable	β Coefficient	Std. Error	Sig. Level	Δ Probability
INTERCEPT	0.0860	0.2633	0.7439	-
TENCAT*	0.4480***	0.0683	0.0000	0.1044
DISPVILL	-0.1995	0.1723	0.2468	-0.0497
HHDSINV	-0.0091	0.0070	0.1897	0.-0.0023
DISPOUTV	-0.2479	0.1820	0.1732	0.0603
HHDINVOV*	-0.0186***	0.0038	0.0000	-0.0046
LOSEACC	0.2541	0.3088	0.4105	-0.0631
HHDLACC*	0.1924***	0.0769	0.0123	0.0472
SEX	0.3314	0.2081	0.1112	0.0793
AGE	0.0080	0.0058	0.1695	0.0019
HHDHEAD	-0.2314	0.2182	0.2888	-0.0575

Model prediction success = 77%

Nagelkerke R-square = 0.151

Log-likelihood = 1364.22

Sample Size = 1322

*denote significance at 1 percent level