ESTIMATING THE PREMIUM FOR TITLED AGRICULTURAL LAND IN UGANDA

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ABSTRACT

The study investigates the value for titled agricultural land in Uganda using data on 9,045 parcels of land from the 2005/2006 Uganda National Household Survey. Data were analyzed using regression techniques. The results showed a positively significant premium for leasehold title as opposed to other forms of titled agricultural land in Uganda; that traditional determinants of land value such as current use, soil quality, presence of perennials and proximity to the homestead are not significant for agricultural land in Uganda; and that per hectare price of agricultural land in peri-urban locations was significantly higher than in rural areas by about Ushs 1.7 million. There is also an overlap in land ownership rights for mailo land where two people have claims to the same piece of land, the mailo title holder and the kibanja tenant. It was concluded that the current land policy should promote the leasehold system in peri-urban areas, since this type of tenure opens land to a wide range of users and use-options. The land policy also needs to address the double ownership structure under the mailo tenure which constrains its marketability and transferability.

Key words: Land tenure, premium, Uganda, regression analysis, mailo land.

Introduction

Land is an important consumption good, a popular vehicle for wealth holding, and highly acceptable collateral for securing loans (Randall, 1987). The value of land is a measure of wealth in the agricultural sector and is considered a major determinant of net worth. Therefore, a shift in land value affects a farmer's net worth and credit-worthiness (Tsoodle et al., 2003). An accurate assessment of the value of agricultural land is essential because many individuals and institutions rely on the estimates to guide investment, tax, and other decisions. Also, viable agricultural land is finite and heterogeneous, making pricing competitive and involving many potential buyers other than agricultural producers. Land is also one of the primary sources of property tax revenues which makes both private and public parties interested in its value.

Land has enormous socio-economic significance as a key productive asset and

source of livelihood in Uganda (Deininger et al., 2006). The Government of Uganda (GoU) has widely recognized the centrality of land in sustainable development, and tenure security is now increasingly stressed as a prerequisite for better natural resource management and sustainable development. The management and control of land is regulated by the Land Act of 1998 which recognizes four tenure systems, namely; Customary, Mailo, Freehold and Leasehold tenure systems. The Act recognizes different titles to land, namely; certificate of title for land owned in freehold, leasehold and mailo; certificate of occupancy for bonafide occupants on mailo land; and customary certificates for customary land owners.

In 2007, however, the GoU tabled a bill of proposed amendments to the Land Act 1998 with the underlying objective of increasing security of tenure. This new strand of land policy is oriented towards the establishment of a uniform system of land tenure based on freehold tenure. According to the bill, the government is to facilitate leasehold enfranchisement and phase out customary tenure. The proposal is that freehold titles whether under the form of certificates of ownership or of duly registered titles replace occupation under customary law. However, the solution to the landlord/tenant relations on mailo land is left to market forces (Bazaara, 1992). These proposed amendments have spurred active debates on many land issues in Uganda following the tabling of the land bill in parliament in February 2008. Central to these debates is the need to understand whether titling land increases its value and if so by how much. Uganda presents a unique case of overlapping land ownership rights for mailo land where two people have claims to the same piece of land – the mailo title holder and the kibanja tenant. Tenure is characterised by a multiplicity of influences: legal; socio-cultural; ecological/climatic; socio-economic; the formal, semi-formal and informal institutional arrangements. Also, most of the land in the countryside is still held under customary tenure.

Theoretically, the value of land is determined by its production possibilities, which are negatively related to spatial factors such as location and is positively related to productivity factors such as the inherent soil quality, water availability and land-specific investments (Alston et al., 1996). Generally, land prices are driven by a host of demand, supply and institutional factors, which include competing uses for land, agricultural productivity, hedging against inflation or amenity values (William et al., 2000). Supply factors play a role by determining the quantity of land put up for sale and demand factors that include population density, agricultural productivity and the nature of property rights to the land. This renders Uganda a good case study to analyse how institutional factors such as land titles manifest themselves in a sub-Saharan Africa context with a unique set of land tenure systems and land use rights.

However, the existence of informal modes of property rights enforcement can also modify the value of a formal title. Many studies relating to land tenure and land rights formalization have mostly been undertaken in developed countries and in Asia with different land tenure and ownership systems. Elad et al. (1994) and Vitaliano and Hill (1994) treated land as a differentiated factor of production and implicit prices of constituent characteristics are identified using the Hedonic method of Rosen (1974). Land values are the observed prices for traded parcels and explanatory variables include characteristics such as size, buyer and seller characteristics. Terry et al. (1982) showed that bordering roads, year sold, soil capability class, grain yield and percent cropland had the greatest influence on sale price. Reinsborough (2003) included socio-economic variables such as income per capita, and population density as explanatory variables. The socio-economic variables were meant to reflect the potential of the land for alternate uses. A similar study in Uganda on tenure system and the value of agricultural land revealed that farm size; rent

and freehold land tenure are the key determinants of agricultural land values in rural Uganda (Bashaasha et al., 2008). However, this study did not establish the extent a land title influences the price of agricultural land, and whether there exists a premium for titled land compared to untitled land in Uganda.

The present study analyses other important dimensions (largely locational; rural/peri-urban and regional) not examined by Bashaasha et al. (2008) on tenure system and quantifies the effect of different titles and other land ownership arrangements on agricultural land values in Uganda. The research hypotheses are: (i) institutional factors such as land titles are important determinants of agricultural land prices in Uganda; (ii) there is a significant premium for agricultural land with title/certificate relative to that without; (iii) the premium for agricultural land with a freehold title is significantly higher than that for other titles/certificates.

Methodology

Data and Sources

Data were obtained from the Agricultural Module of the 2005/2006 Uganda National Household Survey (UNHS III) which was conducted by the Uganda Bureau of Statistics (UBOS). The Bureau covered a total of 7,417 households, of which 5,877 were agricultural households across all the districts, in the Central, Eastern, Northern and Western regions of Uganda. Data were collected at household and land parcel levels for two seasons beginning with the second season of 2004 (July – December 2004) and the first season of 2005 (January – June 2005). For each household, parcel level data were obtained for every parcel of land owned by the household resulting in a total of 9,232 parcel level observations. However, owing to the presence of outliers and invalid observations; 9,004 parcel observations were used in the regression analysis to estimate the determinants of agricultural land value. Data were collected on how much a parcel of land sells (with investments), and on the soil type or quality of parcels. Owner perceptions of the quality and worth of land, rather than net revenue or actual sale values were used as a proxy variable for the current market price of agricultural land. The market price therefore refers to agricultural land value under current market conditions. Although early studies in developed countries also used such data to explore the value of agricultural land, there are issues related to whether perceptions provide an accurate measure of market value. Farmers' suspicion about the interviewers' motives may have caused them to withhold or deliberately distort their responses. Measurement errors on the dependent variable are therefore likely. However, they are not necessarily a cause for concern as the study uses a large data set and econometrics. While there is no way of confirming the validity of the data, the study noted that Roka and Palmquist (1997) found some evidence that self-reported agricultural land values closely approximate market data.

Model Specification and Analysis

The theory of land rents is well articulated by the Ricardian and Thünen approaches. Ricardo (1815) was the first to observe that land rents reflect the net value of farmland. Ricardo's approach attempts to explain land rents and land use patterns as resulting from differential land productivity. Farm value consequently reflects the present value of future net productivity. Von Thünen's approach on the other hand emphasizes land rents based on the organizing principle of distance from some crucial location, a central market, in his particular case. Locational rent, a term used by von Thünen in his argument, is to be understood as the equivalent to land value.

The present study draws on the Ricardian theoretical model of land rents to guide the selection of proxy measures for the value of agricultural land. The study uses the Ricardian approach to estimate the importance of land

titles and other variables in determining farmland value. According to Ricardo (1815), land values are the expected present value of future rents. The value of agricultural land (Y) consequently reflects the present value of future net productivity. This principle is captured in equations 1 and 2 as follows:

$$Y = \int_0^{\infty} Ae^{-rt}dt \quad \ldots\ldots(1)$$

$$Y = \left[\sum P_i Q_i(W,X,F,Z) - \sum RX\right] e^{-rt}dt \quad \ldots\ldots(2)$$

Where A is the net revenue per hectare, Pi is the market price of crop i, Qi is the output of crop i, W is water availability, X is a vector of purchased inputs other than land, F is a vector of land tenure and institutional variables including land titling, Z is a vector of soil variables that capture the physical characteristics of the land such as the soil quality. R is a vector of purchased input prices, t is time, and r is the discount rate (Mendelsohn et al., 1994).

Equation 1 states that the value of agricultural land equals the summation of discounted agricultural rents. Agricultural rents, A, are the annual net returns to crop, forage, and other farm-related activities on a parcel of land. The farmer is assumed to choose X to maximize net revenues given the characteristics of the farm and market prices. Equation 2 is a reduced form model that examines how a set of exogenous variables such as land tenure, land titling and others affect agricultural land value, and it gives the reduced-form expression for the price of agricultural land presented in equation 3.

$Y = b0 + b1W + b2F + b3Z + e$ .....(3)

Equation 3 is the basis for the econometric model that was estimated in this study with all variables as earlier defined and e as the error term. Based on land value theory and results from previous studies on agricultural land values, the selected explanatory variables (x1 to x13) included in the empirical model are specified in equation 4.

$y = \alpha + \beta1x1 + \beta2x2 + \beta3x3 + \beta4x4 + \beta5x5 + \beta6x6 + \beta7x7 + \beta8x8 + \beta9x9 + \beta10x10 + \beta11x11 + \beta12x12 + \beta13x13$ .....(4)

Where;

y = Land value (value of agricultural land in Uganda Shillings per hectare)

x1 = Dummy variable for Eastern region (1 = Eastern, 0 = otherwise)

x2 = Dummy variable for Northern region (1 = Northern, 0 = otherwise)

x3 = Dummy variable for Western region (1 = Western, 0 = otherwise)

x4 = Dummy variable for location of parcel (1 = peri-urban, 0 = rural)

x5 = Dummy variable for freehold title (1 = freehold title and 0 = otherwise)

x6 = Dummy variable for leasehold title (1 = leasehold title and 0 = otherwise)

x7 = Dummy variable for mailo title (1 = mailo title and 0 = otherwise)

x8 = Dummy variable for customary certificate (1 = customary certificate and 0 = otherwise)

x9 = Distance of parcel from homestead (km)

x10 = Dummy variable for primary use of parcel during first and second cropping seasons of 2004/05 crop year (1 = own crops/livestock production, 0 = otherwise)

x11 = Dummy variable for possession of a legal document for the parcel (certificate of title or certificate of customary ownership or of occupancy) (1 = yes, 0 = no)

x12 = Dummy variable for whether parcel has tree plantation/perennials (1 = yes, 0 = no)

x13 = Dummy variable for soil / quality of the parcel of land (1 = good, 0 = otherwise)

α = intercept

$\beta1$ to $\beta13$ = coefficients to be estimated

Multiple Linear Regression techniques using STATA version 9 were used to estimate the land price equation to investigate the determinants of agricultural land values in Uganda. The model specified in equation 4 was estimated by the Ordinary Least Squares (OLS) method and the per-hectare value of an agricultural parcel of land in Uganda Shillings was used as the dependent variable. OLS was preferred for the analysis because it is one of the most commonly

used methods in estimating econometric relationships and it gives fairly satisfactory results about a wide range of relationships (Koutsoyiannis, 1977). Autocorrelation was assumed not to arise in a cross-sectional study and normality of the error term was assumed. The model was tested for multicollinearity using the Variance Inflation Factor (VIF) test. All values of VIF for the explanatory variables were less than 3 and the mean VIF was 1.29, indicating absence of multicollinearity. The explanatory power of the regression model, R2 was 16% probably because of the diversity of the data set collected by UBOS. The cross-sectional data were obtained from a wide range of social, economic, cultural, physical and geographical conditions across the four regions of Uganda. The differences in agricultural land values across the four regions of Uganda were investigated by including three dummy variables in the regression model. This was done to avoid a dummy variable trap or perfect multicollinearity (Gujarati, 2006). The central region was used as the base/reference category. Also differences in premiums for freehold titles, leasehold titles, mailo titles, certificate of occupancy and customary certificates were investigated by including four dummy variables in the regression model to avoid a dummy variable trap or perfect multicollinearity (Gujarati, 2006). Certificate of occupancy was treated as the base category. However, the big size of data set accommodates this challenge.

Results and Discussion

Results show that the dummy variables for Eastern and Northern regions were both negative and significant at 1% level, while the dummy for the Western region was not significant (Table 1). This implies that the mean per hectare price of agricultural land in the Eastern and Northern regions were significantly lower as compared to that in the Central region. Compared to the Central region, the mean per hectare price of agricultural land was lower by about Ushs 686 thousand in the Eastern region and Ushs 1.07 million in the Northern region. However, there was no significant difference in the per hectare price of agricultural land in the Western region compared to the Central region. The differences in agricultural land prices between the Central and the Eastern and Northern regions could be attributed to urbanization, and differences in land tenure that were historically introduced by the British colonial government in the 19th century. The higher price for agricultural land in the Central region compared to the Eastern and Northern regions suggests a high demand for land in this region probably because the land market is more developed and the tenure system is more formalised in this region. Agricultural land owners in the Central region are therefore more likely to have better access to market information and to land through the purchase market unlike those in the Eastern and Northern regions.

The Central region as opposed to the Eastern and Northern regions has a high prevalence of registered/individualized land ownership systems which were introduced by the British colonial government in the 19th century as earlier mentioned in the literature reviewed. This individualization of land, possibly spurred the early development of a land market in the Central region explaining the higher agricultural land values. Tukahirwa (2002) confirms that the colonial state intervention produced conditions and legal mechanisms for the emergence of land markets in the Central region. For these reasons, the economic and cultural pillars in Central Uganda are fundamentally built and hinge on land as an economic factor and as a cultural embodiment. However, outside Buganda, the colonial state assumed control over unappropriated land by declaring it crown lands, thus leaving the tenure system in many rural areas in the Eastern, Northern and some parts of the Western regions untouched.

The dominance of customary tenure in the Eastern and Northern regions may also have

contributed to the lower agricultural land values in these regions compared to the Central by hindering the development of land markets. This is because a land sale is quite complicated for owners of customary land because they need the family and clan approval. According to Pender et al. (2003), although owners of customary land generally have secure rights to use, lease and bequeath land, the sales are subject to approval of clan leaders and family members. More generally, a piece of land could be sold but only with the explicit approval of the village elders (or the lineage heads) that ensures that no member of the local community (the lineage) wants to acquire the land before authorizing the sale. On the other hand, mailo land which is dominant in the Central region is easier to sell. Even mailo tenants only need approval of the actual land owners (mailo title holders) to sell the land. According to Baland et al. (2007), the possibility of mailo tenants selling their occupancy rights is subject to very limited rights of refusal by the landlord. These results support findings of studies (Deininger and Ayalew, 2007; Deininger and Mpuga, 2003) that land values were higher in Central Uganda compared to the other three regions. Baland et al. (2007) in a study on land markets in Uganda concluded that land-sale markets in the Central region have been active for a long time, since the average date of acquisition of purchased parcels was 1975 (more than 20 years before the time of their survey). Moreover, according to this study, farmers tended to purchase land at an early age, as the mean age at the time of acquisition was only 27 years.

Results further showed that location of agricultural land in the peri-urban area as opposed to the rural area positively and significantly (at 1% level) increased its value. The price of agricultural land per hectare in peri-urban locations was significantly higher than that in the rural area by about Ushs 1.7 million. This difference was probably because agricultural lands in peri-urban areas face very high competition from other urban uses. There is high competition in peri-urban areas to convert agricultural land to more profitable alternative uses such as settlement, industry and other non-agricultural uses, thereby bidding up the price of agricultural land. These results probably indicate that there is some pressure on agricultural land in the peri-urban areas. For instance the Uganda Human Development Report (2007) showed that Uganda's urban population had risen from 6.7% in 1989 to 15.4% in 2006. The same report revealed that population density per square km was 2,095 in the urban areas as opposed to 118 in the rural areas of Uganda. This high population puts pressure on available land in peri-urban areas thereby bidding up even the price of agricultural land. The results corroborate findings by other researchers in the United States and Europe. Vining et al. (1977) found that urban expansion was predominantly on land that was ideal for agriculture. Scharlach and Schuh (1962) found that increasing non-farm demand for farmland near larger urban areas led to bidding up of land values in such areas. Shonkwiler and Reynolds (1986) found that conversion from agriculture use to urban commercial use explained most (71%) of the variation in land sale price. Broomhall (1995) found that farmland prices near urban areas were sensitive to macro-economic factors such as population probably because land is sometimes used as a "store of value" by potential investors and when ordinary instruments indicate an unstable economy, land is a haven for many investors seeking high, stable rates of return. Blank et al. (2004) asserts that no commodity can generate enough revenue to adequately compete with expanding urban development. Results also showed that leasehold title positively and significantly ($p<0.01$) influenced the price of agricultural land as compared to certificate of occupancy. Therefore, the mean price of agricultural land with leasehold title was significantly higher than that with a certificate of occupancy by about Ushs 13.8 million. This suggests that leasehold titles that offer greater tenure security to agricultural land owners are valued by the

land markets hence, accepting the hypothesis that the institutional factor of leasehold title is an important determinant of the value of agricultural land in Uganda. According to Pender et al. (2003), leasehold land is easier to market and transfer and the holders generally have long-term leases usually from the state.

When compared to a certificate of occupancy, the effect on the value of agricultural land was positive for freehold and mailo title but negative for a customary certificate, although they were not significant. This result was unexpected because agricultural land held in freehold is owned in perpetuity as an intergenerational asset. It is perceived to offer agricultural land owners greater tenure security, and is the major goal of the Uganda Land Act 1998. On the other hand, the overlapping ownership structure under mailo tenure seems to place constraints on the marketability and transfer of agricultural land with a certificate of occupancy which services to discount its market value. Although mailo tenure is a special type of freehold where land can be held in perpetuity as an intergenerational asset, the double layered ownership structure where two people have claims to the land – the mailo title holder, and the Kibanja tenant ensures that neither party can sell or mortgage the land without the consent of the other party. The owners of customary land generally have secure rights to use, lease and bequeath land; however, the sales are subject to approval of clan leaders and family members. This aspect makes the sale of land more complicated for owners of customary land.

Summary and Conclusions

Results revealed that locational factors (regional and peri-urban), and leasehold title were the major determinants of the value of agricultural land in Uganda. This implies that there was a high demand for land in the peri-urban areas probably because other investment alternatives are available to agricultural producers and this leads to high agricultural land prices in these areas. This reflects a higher economic value for leasehold title compared to other forms of titles and confirms that registered agricultural land owners generally have more secure tenure than lawful or bonafide occupants on registered land which is reflected in the land prices. The double ownership structure under mailo tenure where both the registered mailo owner and the statutory tenant have claims over the same piece of land serves to discount the value of mailo land.

The study recommended that the current land policy should promote the leasehold system in upcoming cities/ or urbanising areas, since it opens land to a wide range of users and use-options to encourage allocation of land to the best alternative uses. This is especially urgent in the Eastern and Northern regions. The land policy should also address the double ownership structure under mailo tenure which constrains its marketability and transferability, and probably services to discount its price. This can be done possibly by facilitating arrangements for single ownership of land such that either the landlord willingly sells off his ownership rights to the tenant; or the tenant accepts compensation to leave the land; or alternatively the two parties could agree to share the land. There is also a possibility that the state purchases the land from the landlord and releases it to the sitting kibanja holders. Further research is recommended to explore the benefits of freehold title since it is viewed as the tenure system of the future. More research is also needed on the impact of converting one form of land tenure to another, for instance, on the conversion of customary land to freehold, since customary is the dominant tenure system in Uganda.

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Table 2: Regression results of the determinants of the value of agricultural land in Uganda

Explanatory variables	Coefficients	StdError	t-value	p-value
Parcel in Eastern region (1=Eastern, 0=Otherwise)	-686 173	173 824	-3.950	0.000
Parcel in Northern region (1=Eastern, 0= Otherwise)	-1 074 821	186 921	-5.750	0.000
Parcel in Western region (1=Eastern, 0= Otherwise)	-253 671	173 377	-1.460	0.143
Location (1=peri-urban, 0=rural)	1 690 901	184 907	9.140	0.000
Parcel has freehold title (1=freehold title, 0= Otherwise)	176 217	1 170 569	0.150	0.880
Parcel has leasehold title (1=leasehold title, 0= Otherwise)	13 800 000	3 749 711	3.670	0.000
Parcel has mailo title (1=mailo title, 0= Otherwise)	1 381	822 076	0.002	0.999
Parcel has customary certificate (1=customary certificate, 0= Otherwise)	-477 522	553 826	-0.860	0.389
Parcel has title/certificate	-370 259	315 774	-1.170	0.241
Primary use of parcel	-29 000	182 967	-0.160	0.874
Soil quality (1=good, 0=otherwise)	-5 208	92 237	-0.060	0.955
Distance of parcel from homestead	-13 385	9 924	-1.350	0.177
Parcel has trees/perennials	169 145	113 082	1.500	0.135
Intercept	1 530 198	258 648	5.920	0.000

N = 9,045; F-Statistic 11.31; 0.000 Significant at p=0.01