



**Land Institutions in Zambia: Evolution and the Determinants of
the Extent of Land Titling**

by

Paul C. Samboko

Working Paper 122

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Indaba Agricultural Policy Research Institute (IAPRI)

Lusaka, Zambia

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The Indaba Agricultural Policy Research Institute is a non-profit company limited by guarantee and collaboratively works with public and private stakeholders. IAPRI exists to carry out agricultural policy research and outreach, serving the agricultural sector in Zambia so as to contribute to sustainable pro-poor agricultural development.

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EXECUTIVE SUMMARY

In recent times, rapidly growing populations across Africa have been shown to lead to increased land pressures, evolving land institutions, inefficient land use, and increased land concentration. Further, land sales and rental markets have emerged and there are elite land captures (see Jayne, Chamberlin, and Heady 2014; Binswanger, Deininger, and Feder 1995; Chamberlin and Ricker-Gilbert 2016). However, there are concerns that the current trends may disenfranchise the rural poor, trapping them into poverty.

Given the importance of land as a productive asset for many developing countries, tracking the evolution of land rights is crucial for ensuring that there is no disenfranchisement of the poor and vulnerable and for improving the process of land documentation.

This study sought to update the facts on the geography of land institutions in Zambia and identify the correlates of the intensity of land titling. Specifically, tracking (i) the rate and extent of conversion of land rights from customary to leasehold tenure and (ii) the extent of rural land documentation through chief certificates; also, assess the impact of land titling on crop incomes.

To achieve the study objectives, the Rural Agricultural Livelihoods Surveys (RALS) 2015, and the supplemental survey of 2001 were used. The two were complemented by community level data collected alongside the 2015 RALS. These are nationally representative dataset on rural smallholder farmers with the samples drawn from all districts in Zambia.

A combination of descriptive and econometric analyses was used. For the econometric analysis, the Tobit regression model was used.

Key Findings

In line with theory, results indicate increasing conversions of land under customary tenure to leasehold tenure. This is common in the peri-urban areas close to the large cities. Since 2001, the number of households with title to land has increased from 3.2% to 4.1%.

The share of land title has increased by 2.1 percentage points and is now at 9.8%. The intensity of land titling follows increases in population density, with Lusaka, Luapula, and Southern Provinces recording the highest shares of land under title.

The intensity of titling is highest among female-headed households with 9.5% of their land under title, catching up with their male counterparts who appear to have marketed off most of their titled land. However, the share of male-headed households having title to at least one plot still remains higher than that of females (i.e., 5.5% compared to 4.3%).

There is 106,848 hectares of farmland that is still in the process of being converted to leasehold tenure (representing about 1.88% of smallholder farmland)—this is predominantly in Lusaka, Luapula, and Copperbelt Provinces.

A first attempt at assessing how much land is documented under chief certificates shows that 10.4% of smallholder land is documented under a chief's certificate, representing 644,495 hectares. Where the chief's certificate is common in Central and Copperbelt Provinces, the share exceeds the national average, while it is less so in Northwestern and Southern Provinces (at less than 1%). Generally, this form of land documentation dominates in the northern half of the country.

When land institutions are analyzed by the degree of land scarcity as measured by the median landholding quintile, results indicate that land titling is dominant in highly constrained areas;

the chief's certificate is predominant in areas with the least land constraint and in those with the highest land constraint. Untitled customary land is dominant in areas with moderate land constraints.

The econometric estimates indicate that the share of land under title is higher in land-constrained areas. Other positive correlates of the share of land titled include the presence of large-scale farms between 20 and 50 hectares, the size of landholdings per capita, education of household head, and the level of wealth. However, the largest influence on the share of land under title comes from increasing landlessness and the heads level of education.

Implications for Policy

These results mean that development planning needs to consider accelerating implementation of plans for urban expansion. Further, there is need to ensure land does not get concentrated in the hands of the few well-off households; results thus far suggest titling is among more educated and well-off households. The high share of land under chief's certificates compared to title indicates a need to strengthen or enhance the land documentation efforts currently underway in rural areas. However, care should be taken that this form of documentation does not contribute to a security of tenure that facilitates rapid sales of land to urban settlers, as is the case for land under title in the peri-urban areas. Finally, areas with a large presence of farms in the range of 20 to 50 hectares should be priority for land documentation or titling exercise by the state and other agencies.

The fact that households in land-constrained areas are being pushed to title land suggests an urgent need for infrastructural developments in these areas to ease up the land constraint.

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ACRONYMS AND ABBREVIATIONS

CSO	Central Statistical Office
FSRP	Food Security Research Project
IAPRI	Indaba Agricultural Policy Research Institute
Km	Kilometer
MAL	Ministry of Agriculture and Livestock
MLNREP	Ministry of Lands, Natural Resources, and Environmental Protection
RALS	Rural Agricultural Livelihoods Survey
Ha	Hectares
SS	Supplemental Survey
ZMW	Zambian Kwacha

1. INTRODUCTION

The evolutionary theory of land rights predicts changes in the structure of land institutions in response to an increase in the scarcity value of land, which is triggered by population pressures and increasing market integration. The theory allows for prediction of how property rights evolve in response to population growth and increased market integration (Boserup 1965; Feder and Feeney 1991; Platteau 1996). An unmatched exposition of the process of land rights evolution is one by Ester Boserup (1965). She highlights that from what starts as territorial rights to hunt and gather land rights gradually move towards individualization as population pressures increase. There is a move towards formal property rights recognized by the state. The changes in the structure of property rights then facilitate the emergence of land sales and rental markets with efficiency gains and other benefits expected as land is transferred to more efficient uses and users (Feder and Feeney 1991; Binswanger, Deininger, and Feder 1995; Chamberlin and Ricker-Gilbert 2016; Jin and Jayne 2013). More secure property rights are also seen as a key ingredient for investments, accessing funds for agricultural finance. This is then assumed to impact positively on the rate and extent of agricultural growth and its contribution to overcoming the challenges of poverty and food and nutrition insecurity in primarily agrarian societies.

However, despite expected theoretical gains from the emergence of land markets, the evidence thus far across southern African countries is worrying. There is growing land concentration, often with inefficient use mostly among the well off in southern Africa (Hichaambwa, Chamberlin, and Sitko 2014; Jayne, Chamberlin, and Heady 2014; Binswanger, Deininger, and Feder 1995). The land is being acquired for speculative reasons among non-agricultural households who have the financial muscle and ability to navigate the complex process of acquiring title deeds to land (Sitko, Chamberlain, and Hichaambwa 2015). These trends, if left unchecked and matched with appropriate policies or programs that deter the perpetuation of land concentration and elite land captures are likely to stifle smallholder agricultural growth prospects as land constraints grow. With serious repercussions for agriculture growth's contribution to positive development outcomes. Of particular interest is how the evolution of rights to land impacts the poor. Where this is not monitored and matched with appropriate courses of action by government, disenfranchisement of the poor can occur, with expected adverse impacts on future growth prospects. The interest in evolving land rights for development-related discussions comes timely as most African countries are predicted to undergo rapid population growths, with growth positive even beyond 2050 (United Nations 2015).

Historically, people in Zambia have settled across the line of rail in line with infrastructure development that followed copper and agricultural areas during the colonial days (Sitko, Chamberlain, and Hichaambwa 2015). Fast forward to now—land pressures are mounting due to rapidly growing populations, with people reluctant to move to other areas due to a lag in public investments in these land-surplus areas. These trends have accelerated the evolution of land rights and the emergence of land rental and sales markets particularly in areas close to the metropolitan cities (*ibid*). In some areas, chiefs who are the custodians of customary land have been left with little to no land as most of it has been converted to leasehold tenure (e.g., Mungule area 20Km from Lusaka). This is not the case in other peri-urban areas with chiefs restricting the conversion of customary land to leasehold tenure (Tembo and Mutakwa 2016; Sommerville 2017). Customary land is estimated to have reduced from 94% of the land at independence to around 60%, indicating an increasing conversion to leasehold tenure. The acquisition of title to land mainly follows historical legacies, resettlements, and new large-scale agricultural establishments (Honig and Mulenga 2015). A detailed discussion on Zambia's land tenure forms is provided for in section 1.2.

While a clear understanding of title conversion rates, status of customary land, land markets, and their impacts is well understood in Zambia (Sitko, Chamberlain, and Hichaambwa 2015; Honig and Mulenga 2015), the extent to which land is being converted from customary to leasehold tenure is unclear. There has been no documentation of partially converted farms, which are predominantly for urban settlements in areas near the metropolis, or the extent to which traditional leaders are contributing to the documentation of land parcels in their chiefdoms. One would be interested in finding out if conversions are mainly for residential settlements or for farm activities, especially given the evidence that expected outcomes of efficiency and equity are not being realized with potential to slow down agriculture's contribution to development outcomes (Binswanger, Deininger, and Feder 1995; Hichaambwa, Chamberlin, and Sitko 2014; Heady and Jayne 2014; Jayne, Chamberlin, and Heady (2014).

In this paper, we update the facts on the geography of land institutions in Zambia and identify factors explaining the intensity of land titling. Specifically, we track: (i) the rate and extent of conversion of land rights from customary to leasehold tenure, and (ii) the extent of rural land documentation through chief certificates. We also identify the correlates of the intensity of land titling.

This is important and timely given anticipated rapid population growth in Africa (Zambia inclusive) and the need to (i) deter the aggregation of land in the hands of a few people while ensuring that titling facilitates the evolution of land rental markets, efficiency gains and (ii) improve the process of systematic land documentation.

2. ZAMBIA'S LAND TENURE SYSTEM

All land in Zambia is owned by the state with the Republican president as the custodian. However, two forms of land tenure exist, namely, leasehold and customary tenure. The dual system of land holding reflects the country's history of the colonial settlement on present-day state land and the indirect rule of natives and tax collection on customary land. The characteristics of the land tenure systems are summarized in Table 1 below.

The rest of the paper is structured as follows: Section 2 discusses the evolutionary theory of land rights, while Section 3 presents research methods and data sources. In Section 4, the study findings are presented. A conclusion and the study's main implications are thereafter presented.

Table 1. Characteristics of Zambia's Land Tenure Forms

	Land Tenure Form	
	Customary	Leasehold
Ownership security	Generally provided by the chief, security of ownership depends on prevailing practices in an area. Land may be transferred within the family. However, the state can re-allocate any such land for development purposes. Recently, the customary land is being increasingly converted to leasehold tenure by individuals (mostly urban elites).	State guaranteed right of ownership and security of tenure
Duration of ownership	Dependent on several factors, state demands, family practices, chief directives, and	10, 14, 30, and 99-year land leases subject to adherence to requirements such as taxes and land developments.
Right to transfer ownership	Conversion requires chief's consent and approval by the district council and commissioner of lands	Can be transferred by the legal owner or their legal representative.
Value of land	Assumed to have no market value due to its communal nature. However, prices depend on an informal black market.	Depends on prevailing market prices and owner's judgement.
Certificate of title	Not issued on customary land, but chief's in some areas provide certificate's of occupancy that recognize the occupant as the rightful owner of a parcel.	A certificate of title is issued by the registrar of lands and deeds as proof that the said person/group has been legal rights to a piece of land in accordance with the lease agreement.
How titles are accessed	N/A	<ul style="list-style-type: none"> ▪ Can be determined by government entities for state land, resettlement areas, farming blocks and settlement areas. ▪ Through the conversion of customary land to leasehold tenure. This requires chiefs and local council consent. 1995 Lands Act provides for such land conversions.
Estimated size of land (% of land-mass)	40 million hectares or 54% of the land-mass	

Sources: MLNREP 2016; Sitko, Chamberlain, and Hichaambwa 2015.

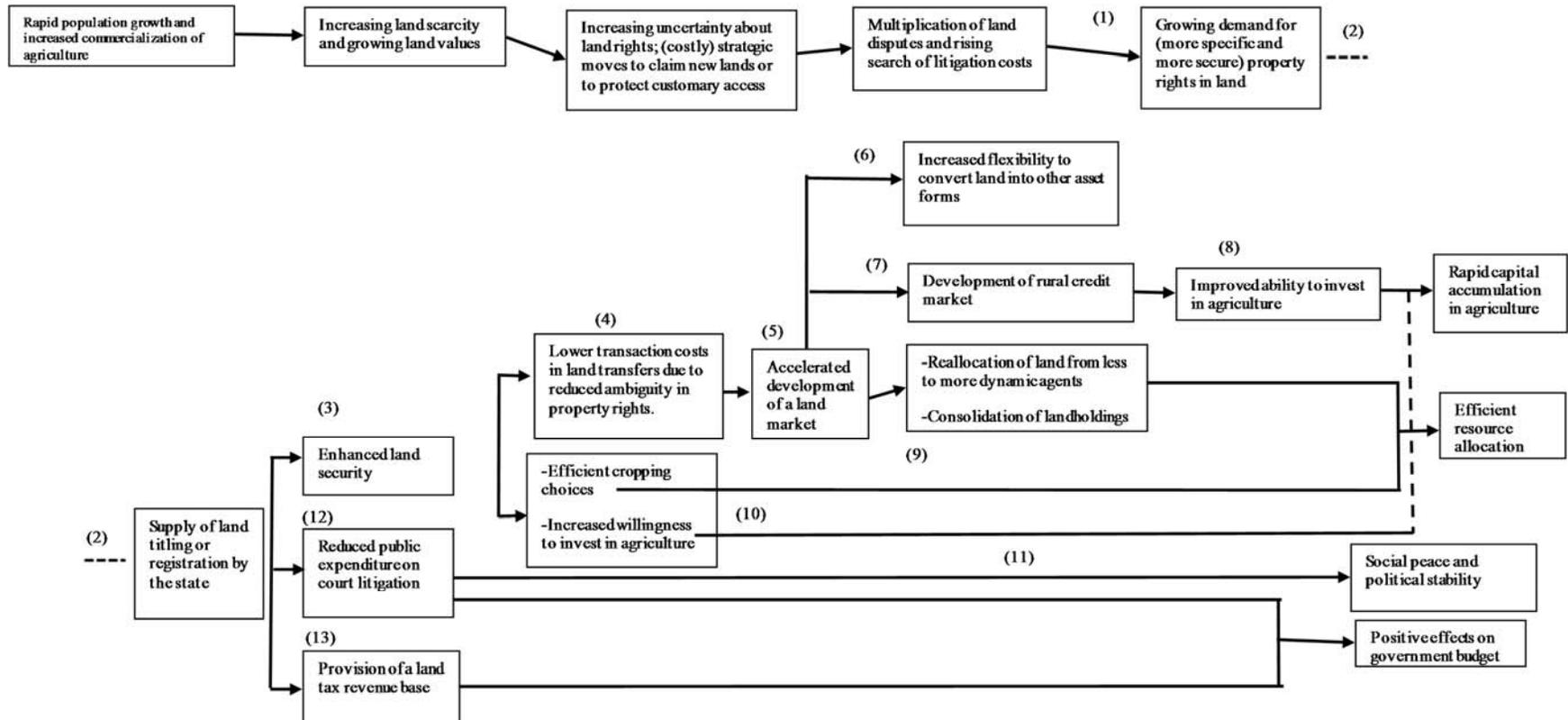
3. THEORY OF EVOLUTION OF LAND RIGHTS

Ester Boserup's (1965) theory of evolution of property and land rights provides the basis on which dynamics in land institutions can be analysed. For this paper, we rely on summaries of the theory provided for in Binswanger, Deininger, and Feder (1995) and Platteau (1996). Figure 1 from Platteau (1996) summarizes the core of the evolutionary theory of property rights.

The theory recognizes the limitations of communal rights to land as land scarcity increases due to population growth and increased market integration. Essentially, what starts out as territorial rights to hunt and gather diminishes and people engage in agricultural production. Population growth increases population density, old agricultural practices such as shifting cultivation disappear, fallow lengths diminish, and there is a move towards more intensive farming systems. Marginal lands also get cultivated and require investments. The growing value of land triggers an appetite for ownership security. This, then, forms the basis for increased access to finance, with titled land acting as a form of collateral.

Leasehold tenure is formally recognized by the state and can be traded in the market. However, even with such highly individualistic land rights, there remains a continuum of land rights including open access, communal, and state. These private rights to land are purported to lead to more efficient economic outcomes by allocating land to the more efficient agents with agricultural growth expected as individuals move towards technology adoption. Other gains are in form of land taxes, peace, and political stability.

Figure 1. The Evolutionary Theory of Land Rights



Source: Platteau (1996)

4. DATA AND METHODS

4.1. Data

The study relies on a combination of descriptive and econometric analysis. The 2012 and 2015 Rural Agricultural Livelihoods Survey (RALS) data are used for both analyses. RALS is a panel dataset on smallholder farmers cultivating under 20 hectares of land. RALS was collected by the Central Statistical Office (CSO) in collaboration with the Ministry of Agriculture, and the Indaba Agricultural Policy Research Institute. The survey was designed to be nationally representative and statistically valid at the provincial level. It contains very detailed information on rural agricultural households that allows for detailed analysis of land tenure evolutions and the impact of tenure forms on crop productivity even at the plot level. The RALS 2012 collects data on the 2010/11 agricultural season, while RALS 2015 represents the 2012/13 agricultural season. The sampling frame for both surveys is the 2010 census of the population and yield reliable estimates at the provincial level. RALS has a total of 7,254 panel households in 442 Standard Enumerations areas across all districts. In 2012, the total number of households interviewed was 8,840 in 2012 and 7,934 households in 2015. Full details of the RALS survey design can be found in Chapoto and Zulu-Mbata (2015). For the econometric analysis, we also use community-level variables that were collected alongside the RALS in 2015.

4.2. Methods

Both descriptive and econometric methods are used to achieve the study objectives. For the econometric analysis, the preferred estimator is the Tobit model (see Tobin 1958) because of the nature of the data. Essentially, corner solution models such as the Tobit allow for consistent and unbiased estimation of censored models because of the high number of Zero's in the data. Conceptually, a corner solution model is where:

$$\begin{aligned} y_i &= y_i^* \text{ if } y_i^* > 0 \\ y_i &= 0 \text{ if } y_i^* \leq 0 \\ y_i^* &= \alpha + X_i\beta + \varepsilon_i \end{aligned} \tag{1}$$

That is to say y_i is unobserved for values of y_i^* below or equal to zero and observed for all values greater than zero. Empirically, the Tobit model in this paper is specified as shown below:

$$\begin{aligned} s_i &= s_i^* \text{ if } s_i^* > 0 \\ s_i &= 0 \text{ if } s_i^* \leq 0 \\ s_i^* &= \alpha + X_i\beta + \varepsilon_i \end{aligned} \tag{2}$$

Where s_i represents the intensity of land titling as measured by the share of land under title, X_i denotes a vector of explanatory variables α and β are parameter estimates while ε_i is the error term. For this paper, the vector of explanatory variables are provided for in Table 2. Essentially, the correlates of the share of land include household, community and location controls such as the level of education, age, and gender of household heads. Wealth indicators such as the tropical livestock units owned, which essentially represents the number of all livestock owned expressed in a common unit. Other wealth indicators include the value of productive assets owned by the households and the quantity of land owned. In addition, we

include community level variables on land that were collected countrywide together with the RALS of 2015. Variables from this dataset include the presence of large-scale farms in the village, and the number of land conflicts. Apriori, where conflicts dominate, the incidence of land titling may be high; alternatively, this may also indicate an absence of properly defined property rights and, thus, a low incidence of land titling. The presence of large-scale farmers is expected to trigger consolidation of individual property rights among smallholders. However, the impact may differ by the size of farms, or whether these are green field or brownfield large-scale agricultural investments (or land acquisitions). One would expect the green field investments to push the farmers more towards land titling, existing large-scale farms may have little to no psychological impact among smallholder farmers.

Location indicators such as the distance to the boma and distance to electricity indicate how far the household/village is from the urban areas; one expects that the closer these are to the village, the higher the intensity of land titling among smallholders. Included in the model is the degree of landlessness in the district, areas with a general lack of land are expected to have higher intensities of land titling. This variable is computed by ranking the median per-capita landholding size into quintiles across districts. Districts with median landholdings in the bottom two quintiles are classified as constrained, whilst those falling in the top two quintiles are classified as unconstrained. Those falling in the third quintile is classified as moderately constrained.

Table 2. Model Explanatory Variables

Model Variables	Expected Sign
Level of education household head in years.	+
Dummy indicating male-headed households.	+
Dummy indicating households with members employed in the civil service.	+
Dummy indicating households with members employed by private organizations.	-
Productive assets (ZMW/1000).	+
Landholding size per capita (Ha).	+
Landholding quintile computed at the district level for each household.	-
Local population density (persons per Sq. Km).	+/-
Number of household members.	-
Tropical Livestock Units.	+
Distance to the nearest boma.	-
Distance to electricity.	-
Dummy variable indicating migrant households.	+
Dummy variable indicating whether the head or spouse is related to the chief or headman in the area.	-
Total number of land-related conflicts in the village per year.	+
Total number of large-scale farms (20-50 hectares) present in the village.	+/-
Total number of large-scale farms (51-100 hectares) present in the village.	+/-
Total number of large-scale farms (>100 hectares) present in the village.	+/-
Location dummy variable (for provinces)	+ (With Western Province as the base category)

Source: Author.

5. RESULTS AND DISCUSSION

5.1. Descriptive Results

5.1.1. Selected Sample Characteristics

Table 3 shows selected sample characteristics among households with and without title on any one of their fields. Results show that households with titled land have generally older heads with the difference statistically significant at the 5% level. They also have more educated heads that are predominantly male, with the difference in both cases statistically significant at the 5% level.

Results all show that households with title on their land are wealthier, as shown by the the vau of their productive assets, and income levels ($p < 0.05$). This reaffirms previous findings that land titling is generally among the well-off households given the high cost and complexities associated with title acquisition (see Sitko, Chamberlain, and Hichaambwa 2015).

Table 3. Selected Sample Characteristics

Variable	Without	With Title
	Title	Mean
Landholding size per capita (Ha)	.80 _a	1.65 _b
Household Income per capita (ZMW)	2638.76 _a	7382.42 _b
Non-agricultural wage income per capita (ZMW)	301.31 _a	1608.49 _b
Agricultural wage income (ZMW)	31.88 _a	65.27 _b
Productive assets (ZMW/1000)	.00 _a	.02 _b
Household with member(s) earning government wages (=1)	2.11 _a	5.32 _b
Household with member(s) earning wage income from private sources (=1)	25.23 _a	35.17 _b
No. of Large-scale farms present (20-50 hectares)	1.47 _a	3.17 _b
No. of Large-scale farms present (51-100 hectares)	.47 _a	1.50 _b
No. of Large-scale farms present (>100 hectares)	.25 _a	.99 _b
No. of land conflicts in village/10	.51 _a	.77 _b
Titled land (share of total landholdings)	.00 _a	.89 _b
Government wage income (ZMW)	880.47 _a	3122.18 _b
Wage income from private sources (ZMW)	986.17 _a	5372.06 _b
Head or spouse is keen to chief/headman (=1)	58.56 _a	28.23 _b
Migrant households (=1)	.09 _a	.16 _b
Distance to the nearest boma (Km)	43.75 _a	31.63 _b
Distance to electricity (Km)	25.03 _a	12.39 _b
Gross household income from sources observed (ZMK)	14883.72 _a	36324.80 _b
All animal / equipment assets (ZMW per HH)	12034.36 _a	77483.35 _b
Tropical Livestock units	2.47 _a	4.22 _b
Number of household members	5.93 _a	6.29 _b
Level of education household head in years	5.51 _a	7.49 _b
Male headed household	73.79 _a	79.07 _b
Cluster population density (persons per Sq. Km)	2.16 _a	2.62 _b

Source: Author's calculation using the 2015 CSO/MAL/IAPRI Rural Agricultural Livelihoods Survey.

**Note: Values in the same row and subtable not sharing the same subscript are significantly different at $p < .05$ in the two-sided test of equality for column means.

In addition, households with title have more members working in the civil service (3.2% higher) and are 9.9% more likely to have members working in the private sector. Generally, households with title to land are likely to be located in areas with a large presence of large-scale farms, and the likelihood of titling is more pronounced in those areas with farms ranging between 20 to 50 hectares. Those households with a head or spouse that is related to the chief or headman are less likely to have title to their land, with the difference in the percentage of households with kinship ties under the two categories estimated at 30.3%.

Further, households with title are located closer to the boma and have generally more land per capita. The level of crop commercialization for households with title to land, at 0.06, is not significantly lower than that among households with no title to land.

5.1.2. Dynamics in the Rate and Extent of Title Conversions

In line with the evolutionary theory of property rights, we observe an increasing preference for more secure private rights to land owing to growing land pressures. Of the 1.5 million smallholder farming households in Zambia, 4.1% have title to at least one of their plots. This shows an increase of 0.9 percentage points from a 2001 (Table 4). Smallholder land is increasingly being converted to leasehold tenure among smallholder farmers with population pressures, with individuals converting it to leasehold tenure. In 2001, it was 7.1%, and this rose to 9.8% of the total land under smallholder ownership. On average, households have title on 0.62 hectares of their land.

The highest share of titled land is observed in Lusaka (25.2%), followed by Luapula (17.8%) and Southern (13.5%) Provinces respectively (Table 5). Western Province has the least share of titled land (0.38%), followed by Muchinga and Central Provinces at 1.9% and 2.6% respectively. Luapula and Northern Provinces are of particular interest given that these are preferred destinations for Greenfield large-scale agricultural investments (particularly in the farm-blocks). This suggests farmers' concern of land access with the increasing agricultural investments.

Table 4. Trends in the Rate and Extent of Tenure Conversions from Customary to Leasehold

	Survey year	
	SS01	RALS2015 ¹
Total landholdings (Ha)	3,424,300	6,166,499
Titled land (%)	7.1	9.8
Average under title (Ha)	0.36	0.62
Number of households	1,116,496	1,512,378
Households with Title (%)	3.2	4.1

Source: 2001 CSO/MAL/FSRP Supplemental Survey and 2015 CSO/MAL/IAPRI Rural Agricultural Livelihoods Survey.

¹ In the RALS 2015, the land institutions were disaggregated more to reflect land in the process of being converted to leasehold tenure, and that under chief's certificates. In the 2001 Supplemental Survey, this disaggregation did not exist, and it is likely that what was considered title included land in the process of being converted to leasehold tenure. Therefore, titled land in 2015 includes land that was in the process of being converted to leasehold tenure.

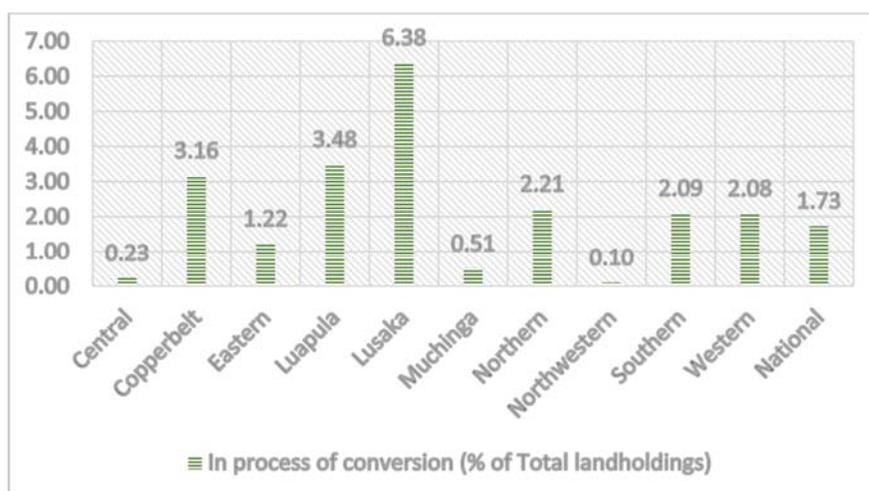
Table 5. Distribution of Land under Title by Province

	Total Landholdings (Ha)	% Titled	Pop. Dens (2000)	Population. Density(2010)	Change in Population. Density(2000-2010)
Central	1,112,009	2.57	10.7	13.8	3.1
Copperbelt	479,026	12.93	50.5	63	12.5
Eastern	758,541	5.96	17.8	30.9	13.1
Luapula	656,700	17.75	15.3	19.6	4.3
Lusaka	152,916	25.24	63.5	100.1	36.6
Muchinga	367,425	1.93	6	8.1	2.1
Northern	785,885	7.92	10.5	14.2	3.7
Northwestern	543,111	3.83	4.6	5.8	1.2
Southern	859,708	13.54	14.2	18.6	4.4
Western	467,899	0.38	6.1	7.1	1

Source: CSO/MAL/IAPRI 2015; CSO 2010.

The share of titled land seems to follow increases in population density, from Table 5, provinces that have a high share of land under title experienced the largest increases in population density between 2000 and 2010. However, Eastern Province is an exception to this, while having a large shift in population density, land under title is only 5.96%, which is less than that observed for provinces that experienced similar changes in population density (Table 5).

In the RALS 2015, information on land that is in the process of being converted to leasehold tenure was collected for the first time in rural surveys. Results show that of the 6,183,220 Ha under smallholder control, only 1.7% is in the process of converted to leasehold tenure. This is more pronounced in Lusaka, Luapula, and Copperbelt Provinces at 6.4%, 3.5%, and 3.2% respectively, and least in Northwestern at 0.1% (Figure 2).

Figure 2. Spatial Distribution of Land in the Process of Being Converted to Leasehold Tenure

Source: 2015 Rural Agricultural Livelihoods Survey.

5.1.3. Dynamics in Land Institutions by Gender

When we considered the dynamics in the share of land under leasehold tenure by gender of household head, results indicate that land titling is more pronounced among male-headed households, with 5.5% of the male-headed households having title to land; only 4.3% of female-headed households had title on any one field (Table 6). However, results indicate a higher percentage point increase in land under title among female-headed households than their male-counterparts (i.e., 5.7 compared to 2 percentage points) (ibid). This suggests that (i) Male-headed households had more land under title, making their land more marketable than their female counterparts, or (ii) females are increasingly acquiring title to land. The former is more plausible considering the complexity and costly nature of title acquisition—something which is less likely among the often-disadvantaged female-headed households. It also agrees with Chamberlin, Hichaambwa, and Sitko (2014) who showed that males are most likely to acquire title to land in Zambia.

5.1.4. How Much Land Is Documented under Chief Certificates?

In Zambia, chiefs have for a long time allocated some piece of paper that recognizes one as an occupant of a piece of land. This practice has increased in recent times and the chief's certificate has evolved to include a lot of details about the individuals with rights to a parcel of land and further details on the land parcels themselves. This information was collected in the RALS 2015 and presented the first opportunity to assess how prevalent this form of land documentation is countrywide.

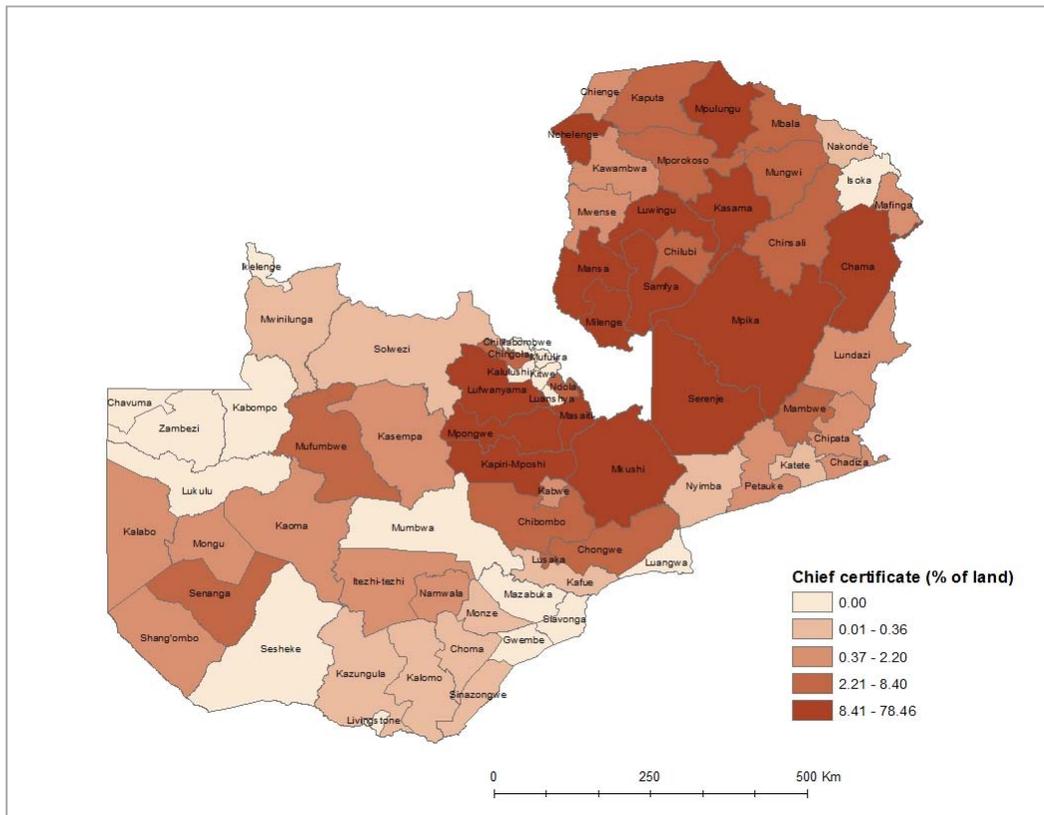
We find that in the whole Zambia, land documented under chief's certificates accounts for 644,495.8 Hectares—corresponding to 10.4% of smallholder land. Parcel certification through chiefs is common in Central and Copperbelt Provinces where the share exceeds the national average and less so in Northwestern and Southern Provinces (at less than 1%). Figure 3 shows the extent of parcel certification across districts in Zambia. Districts with the largest share of land documented under the chief certificates (i.e., >25%) include Mkushi, Serenje, Lufwanyama, Mpongwe, and Mpika. These areas are preferred destinations for farm

Table 6. Dynamics in the Share of Land under Title by Gender

		Survey	
		SS01	RALS2015
Male-headed	Number of households	1,080,506	1,103,511
	% with title	3.3	5.5
	Titled Land (Ha)	228,339	503,596
	% of land titled	7.9	9.9
Female-headed	Number of households	35,990	379,642
	% with title	2.9	4.3
	Titled Land (Ha)	21,069	102,482
	% of land titled	3.8	9.5

Source: CSO/MAL/IAPRI 2012/2015; CSO/MAL/FSRP 2001.

Figure 3. Spatial Distribution of Land Documented with Chief Certificates



Source: Author’s illustration using CSO/MAL/IAPRI 2015.

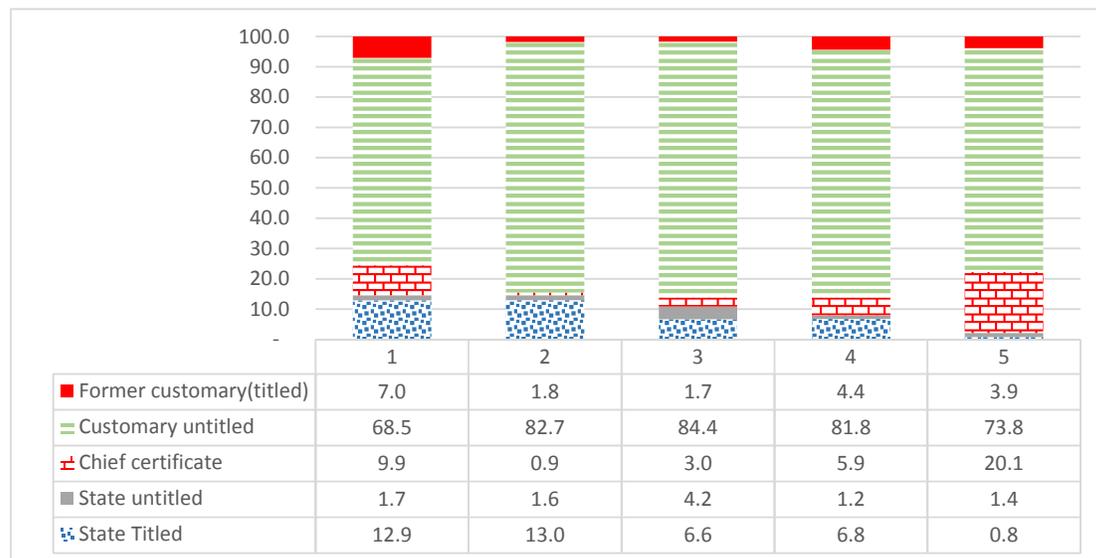
investments by urban dwellers and large-scale agricultural investors seeking farmland given and that they are of high agro-ecological potential. This result suggests a push towards some formal recognition of land occupancy from the traditional leaders among local smallholder farmers.

5.1.5. Distribution of Land Institutions by Degree of Landlessness

Areas with a general lack of land are expected to have a higher share of land under title. Using the median per capita land sizes, we show the distribution of land institutions according to the degree of landlessness. Districts with median per capita landholding sizes in the first and second quintiles are classified as land constrained, those in the third quintile are classified as moderately concerned, whilst those in the fourth and fifth quintile are classified as unconstrained (see Figure 4).

Results indicate that land titling is predominant in areas classified as relatively land constrained. Most of the land under title in these areas is state land; however, formerly customary land under title is high in the most land-constrained areas (i.e., the 1st quintile) with 7% of the land falling under this classification of landlessness. The chief certificate is predominant in areas most constrained (1st quintile at 9.9%) and those that are least constrained (5th quintile at 20.1%). This corresponds to the Northern, Copperbelt, and Central Provinces (see Figure 3). Untitled customary land is dominant in areas that are less land constrained (i.e., the 2nd, 3rd, and 4th quintile).

Figure 4. Distribution of Land Institutions by Degree of Landlessness



Source: 2015 CSO/MAL/IAPRI Rural Agricultural Livelihoods Survey.

5.2. What Determines the Intensity of Land Titling?

Table 7 presents Tobit estimates on the correlates of the share of land that is titled among smallholders. Overall, wealth as measured by the value of productive assets and tropical livestock units, larger landholdings per capita and the presence of large-scale farms ranging between 20 and 50 hectares positively influence the share of land under title among smallholders.

The degree of landlessness shows a negative relationship with the share of land under title, implying that as one moves from small to large median landholdings, the share of land under title reduces. This result means that the share of land under title is higher for land-constrained areas (i.e., regions with small median landholdings). The size of the impact (i.e., 0.15) from this variable is large, and comparable only to the location dummies. Suggesting that landlessness is the key correlate of the share of land under title. The second most important correlate is the head's average education at (0.08 units). This is followed by the size of land owned per capita, with the share of titled land increasing by 0.04 units due to a Kwacha increase in the value of productive assets. Note that this discussion excludes the location controls, which have much larger influences on the share of land under title.

The fact that the unit change in the amount of livestock owned as measured by the tropical livestock units increases the intensity of land titling by 0.01 units suggests that households with more livestock are pushed to secure individual rights to land—these are perhaps in the land-constrained areas given the result on the degree of landlessness and its impact on land titling. This result suggests opening up areas for other settlements to ease the land pressures particularly in the highly land-constrained areas such as Southern and Eastern Provinces.

Curiously, we find no significant effect of the presence of large-scale farms greater than 50 hectares on the share of land under title among smallholders. Perhaps because such farms locate mostly in areas with relative land abundance if present in land-constrained areas, they usually take on existing farms and, thus, may not be viewed as a threat by the locals.

Table 7. Tobit Regression Results on the Determinants of the Extent of Land Titling

Variables	(1) Share of land under title	(2) se
Level of education household head in years	0.0753***	(0.012)
Male headed household	-0.0007	(0.001)
Waged, government (=1)	-0.0011	(0.002)
Waged, private (=1)	0.0006	(0.001)
Productive assets (ZMW/1000)	0.0004*	(0.000)
Landholding size per capita (Ha)	0.0355***	(0.010)
Degree of landlessness	-0.1541***	(0.034)
Population density (district)	0.0000	(0.000)
Number of household members	0.0025	(0.015)
Tropical Livestock Units	0.0125***	(0.003)
Distance to boma (Km)	-0.0053**	(0.002)
Distance to electricity (Km)	-0.0093***	(0.003)
Migrant (=1)	0.1472	(0.118)
Kin to chief (=1)	-0.0071***	(0.001)
No. of land conflicts in village/10	0.0123	(0.021)
No. of Large-scale farms present (20-50 hectares)	0.0232**	(0.009)
No. of Large-scale farms present (51-100 hectares)	-0.0128	(0.008)
No. of Large-scale farms present (>100 hectares)	0.0027	(0.025)
Central Province	0.6275*	(0.363)
Copperbelt Province	1.9462***	(0.303)
Eastern Province	0.9848***	(0.269)
Luapula Province	1.1325***	(0.302)
Lusaka Province	1.6483***	(0.289)
Muchinga Province	0.6390**	(0.299)
Northern Province	1.3316***	(0.292)
Northwestern Province	0.8732***	(0.310)
Southern Province	1.1251***	(0.289)
Constant	-3.1096***	(0.412)
Overall log-likelihood	-2023.108	
Pseudo R.Sq.	0.1352	
No. of households	7,370	

Robust standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1.

The share of land under title reduces with increasing distance to electricity and to the boma, suggesting that most titled land is in the peri-urban areas. Further, results indicate that households with the head or spouse related to the chief have less land under title, with the share of titled land 0.76 times less when compared to those that are unrelated. This would suggest that these feel more secure given the kinship ties, and thus see no reason as to why they should title their land.

Lastly, compared to Western Province where the traditional set-up has been less open to land titling, all other provinces appear to have larger shares of land, particularly Central and Northern Provinces. This underscores the role that traditional leaders have in restricting land titling or the entry of other people seeking to acquire and secure land to title. The result on the migrant households' dummy suggests that it is more the households considered non-local that prefer to acquire title to their land.

6. CONCLUSIONS AND IMPLICATIONS

This study's primary purpose was to provide an updated picture of the status of land institutions among smallholder farmers in Zambia and to identify the correlates of the intensity of land titling. Data to achieve these objectives are nationally representative data on smallholder farmers that were collected in 2012 and 2015 and a nationally representative community-level dataset that was collected in 2015. This is further complemented by other secondary data from the Central Statistical Office.

There is evidence of increasing acquisition of land titles in among smallholder farmers in Zambia. The share of smallholder land under title among smallholder farmers has increased by 2.1 percentage points and now stands at 9.8%. The percentage of households has also increased from 3.2% to 4.1%. With households having title to about 0.62 hectares of land on average. The intensity of land titling follows increases in population density, with Lusaka, Luapula, and Southern Provinces recording the highest shares. The intensity of titling is highest among female-headed households with 9.5% of their land under title, catching up with their male counterparts who appear to have marketed off most of their titled land. However, the share of male-headed households having title to at least one plot still remains higher than that of females (i.e., 5.5% compared to 4.3%). For the other types of land institutions, we find that about 10.4% of smallholder land is documented under a chief's certificate, representing 644,495 hectares, with the chief's certificate common in the Copperbelt and Central Provinces. When the distribution of land institutions is analyzed by the degree of landlessness as measured by the median landholding quintile, land titling is dominant in highly constrained areas; the chief's certificate is predominant in areas with the least land constraint and in those with the highest land constraint. Untitled customary land is dominant in areas with moderate land constraints. In addition, there are 106,848 hectares of farmland that is still in the process of being converted to leasehold tenure (representing about 1.88% of smallholder farmland); this is predominantly in Lusaka, Luapula, and Copperbelt Provinces.

The econometric estimates indicate that the share of land under title is higher in land-constrained areas. Other positive correlates of the share of land titled include the presence of large-scale farms between 20 and 50 hectares, the size of landholdings per capita, education of household head and the level of wealth. However, the largest influence on the share of land under title comes from increasing landlessness and the heads level of education.

These results mean that development planning needs to consider accelerating implementation of plans for urban expansion. Further, there is need to ensure land does not get concentrated in the hands of the few well-off households, results thus far suggest titling is among more educated and well-off households. The high share of land under chief's certificates compared to title indicates a need to strengthen or enhance the land documentation efforts currently underway in rural areas. However, care should be taken that this form of documentation does not contribute to a security of tenure that facilitates rapid sales of land to urban settlers, as is the case for land under title in largely the peri-urban areas. In addition, areas with a large presence of large-scale farms in the range of 20 to 50 hectares should be prioritized in land documentation or titling exercise, because farmers in these areas most likely feel threatened by the presence of these farms.

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