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## Does Land Titling Increase Smallholder Agricultural Productivity in Zambia?

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### Key Points/Summary

- 1) Land titling should, in theory, increase smallholder production and productivity. Key channels through which this is thought to occur are: facilitating the use of land as collateral for accessing credit markets, enhancing tenure security (thereby incentivizing long term land investments), and enabling the development of formal land markets (which facilitate the transfer of land to the most productive producers);
- 2) Because of the bureaucratic and relatively costly nature of the process of land titling in Zambia, smallholder households headed by relatively more educated persons and/or public sector employees are significantly more likely to obtain land title, regardless of whether it is state or customary land;
- 3) However, smallholders with land titles earn significantly less farm income than their counterparts without, signaling that the institutional arrangements for allocating land title are not yielding agricultural growth and productivity benefits;
- 4) In terms of long-term land investments, title-holders are more likely to invest in irrigation water development and equipment. However, title-holders are less likely to investment in soil erosion control, planting of soil fertility trees, and application of manure, compost or;
- 5) There is urgent need to examine reform options for land policy in Zambia in order to encourage land title distribution to more productive land users, especially the majority of the rural smallholders whose livelihood and potential to move out of poverty solely relies on increased agricultural production and productivity.

**INTRODUCTION:** The effect of land tenure systems on agricultural productivity and growth in Africa has long been a topic of analysis and debate. Proponents of land titling argue that the underdevelopment of formal property rights, in particular the limited share of land administered through statutory title documents, hinders agricultural development by maintaining land as a “dead asset” (de Soto 2000). The argument in favour of land titling as a means of triggering agricultural growth hinges on three potential economic advantages of title deeds relative to informal ownership or utilisation land rights (Feder 1988): 1) Unlike informal ownership or usufruct land rights, a legal title to land can be used as collateral to improve access to credit for agricultural investments; 2) Land title can increase the security of tenure for farmers, which may make them more willing to make medium- to long-term investments in land, such as

irrigation systems or soil improvements; and 3) Land titles may enable the formalization of the land markets, which helps to transfer land to more productive users. In spite of these theoretical arguments in favor of formal titling of land in Africa, in practice titling programs have often yielded sub-optimal results, particularly for poor or marginal households and communities (Deininger and Binswanger 1999; Deininger and Feder 2009).

Despite the highly ambiguous result of land titling on agricultural production and productivity in Africa the conversion of customary land to leasehold title remains a central component of Zambia’s land administration and agricultural development strategy. The 1995 Land Act establishes mechanisms to transfer customary ownership (usufruct rights) to statutory leasehold title,

and to thereby facilitate market valuation of land.

In practice, the Land Act, coupled with previous efforts to promote smallholder commercialization through titling schemes and associated development programs, has enabled a relatively small sub-segment of the Zambian smallholder population to acquire title to their land. According to nationally representative smallholder survey data, 8.4% of smallholder households have title to their land, with roughly 9.8% of smallholder land administered under title. Yet the poverty reduction and agricultural growth implications of smallholder land titling in Zambia remain unclear. With staple food crop yields in Zambia a fraction of global averages and rural poverty rates stuck at around 80% there is pressing need to assess whether smallholder land titling strategies can act as an effective tool for raising agricultural incomes among smallholders. This policy brief draws from recent analysis by Sitko, Hichaambwa, and Chamberlin (forthcoming) which seeks to fill this gap by using nationally representative household-level data collected in 2012 from over 8,000 smallholder households to assess presence of systematic attributes of land title holding and its impacts on agricultural income and long term investments on land.

**DATA AND METHODS:** The analysis presented in this policy brief is based on nationally representative household survey data from the Rural Agricultural Livelihoods Survey (RALS), carried out in 2012 by the Indaba Agricultural Policy Research Institute (IAPRI) in conjunction with the Central Statistical Office (CSO) and the Ministry of Agriculture and Livestock (MAL) in Zambia. A total of 8,839 households were surveyed in 442 Standard Enumeration Areas (SEAs) in all districts of the country. The survey asked the respondent to recall events primarily for the 2010/2011 production and marketing seasons (May 2011 to April 2012). The analysis employed descriptive as well as econometric methods (two stage least squares regression and instrumental probit) which control for demographic, market accessibility, and other variables.

## **KEY FINDINGS:**

### **Smallholders with Land Titles Are Likely to Have Higher Levels of Human Capital:**

Because the land titling process in Zambia entails a high level of bureaucratic complexity and potentially high transaction costs, smallholders with title to their land, regardless of whether it is state or customary, are therefore, likely to have higher levels of human capital, measured in terms of education levels and private and public sector employment status of the household head. While the proportion of female-headed households, average age of household heads, and family sizes of smallholders with and without land titles were comparable, heads of those with land titles:

- ✓ Had on average two more years of education;
- ✓ Were more likely to be employed in the private sector (27% compared to 15%) and more so in the public sector (14% compared to 4 %); and
- ✓ Were more likely to be migrants (77% compared to 53%).

Econometric estimation results confirm that possession of land title is positively and significantly correlated with the education level of the household head. Keeping all factors constant, increasing the educational level of the household head by one year significantly increases the probability of the household owning titles to land by 0.7 percentage points at less than 1% level of probability.

The results further confirmed our hypothesis that the costs and bureaucratic complexity of acquiring titling to land in Zambia privileges wage earners over full-time farmers, particularly wage earners from the public sector. Holding all other factors constant, household engagement in private and public waged labor increases the probability of owning land titles by 4.0 and 3.5 percentage points respectively. In the same vein, the probability of owning land titles among smallholder households headed by migrants is higher by 3.8 percentage points all other factors held constant.

This strongly supports the assertion that Zambia's system of allocating land titles to smallholders is configured in such a way as to disproportionately favour individuals with the economic and social advantages conferred through wage labor, particularly in the public sector. The more educated individuals are more likely to easily navigate the processes for acquiring land title. Formal wage employment may facilitate access to land title in two ways. First, wage employment provides individuals with access to consistent income to enable the financing of formal and informal fees needed to acquire title. These may include surveying costs, registration fees, and fees associated with gaining consent from the chief for granting title. Second, formal employment, particularly in the public sector, may provide individuals with the knowledge and social networks needed to navigate Zambia's complicated land titling system or to access titles through settlement schemes.

**Smallholders with Land Titles Are Likely to Have Larger Farms and Be Located in Relatively More Accessible Areas:**

Econometric analysis results confirmed descriptive results that households with larger land areas are more likely to own land titles. In addition, smallholders with land titles are more likely to be located in more accessible places, as indicated by proximity to district administrative centres (bomas), tarred roads, and urban markets. These findings suggest that households in remote locations may face relatively larger costs of acquiring title. An alternative, but complementary, possible interpretation is that more accessible areas are more attractive to investors because of lower transactions costs and higher returns to market-oriented production, and hence, formal land markets (which are only available for titled land) are more likely to develop in such areas. Households in more densely populated areas are also more likely to obtain title. Furthermore, even after controlling for these other factors, the probability of owning land titles by smallholders is significantly higher in the more urban provinces of Copperbelt and Lusaka.

**Title Holders Have Lower Farm Incomes:**

At the median, smallholders with titled land earn less farm income but have more total household income than those without title. Moreover, the share of farm income to total household income of smallholders that do not have land title is significantly higher, 69%, than those with title, 42%. These descriptive statistics support the evidence that households with land title appear to prioritize off-farm over farm income, leading to lower median farm incomes and a smaller share of total income derived from agricultural production. This is worrying, as it suggests that the systems by which land titles are awarded in Zambia are not effectively identifying the sorts of individuals who are capable and willing to invest in agricultural growth.

We estimated the effect of title possession on smallholder productivity expressed as farm (in a way similar to Smith (2004)) and total household income controlling for farm size as well as other variables. We find a negative and statistically significant association of land title possession on smallholder farm income, and no significant effect on total household income at the 5% level of probability. Holding all other factors constant, possessing land title is associated with a 137% reduction in smallholder farm income.

These results suggest that the institutional arrangements for allocating land title to smallholders in Zambia are not yielding the agricultural growth and production benefits envisaged by advocates of land titling. Indeed, to the contrary, econometric results suggest that systems of allocating land title in Zambia are enabling sub-optimal land users to acquire land title, leading to significantly lower returns per hectare than would be the case if the land was managed through customary administration systems. This is likely the result of systems of awarding land title that tend to exclude existing farmers from acquiring land title, while facilitating access to title among individuals whose primary occupation may not be farming.

**Land Titling Has Few Significant Effects on Long Term Land Investments:** While current land title holders within Zambia's smallholder sector are not achieving the sorts of agricultural income outcomes as smallholders without titles, it may be that those with title to land are making more investments in land improvement, relative to those without, which will yield improvements in agricultural outcomes in the medium-term.

The sorts of long-term land investments captured in the RALS 2012 data set and for which we test for are: investments in irrigation water development and irrigation equipment; investments in soil erosion management, including contour ridging, building bunds, or water drainage systems; investments soil improvement, including planting leguminous trees, applying lime to lower soil acidity level, applying animal manure and/or compost, and land fallowing. The proportion of smallholders making these investments was found to be higher among those with land titles for all types of investments, except for land fallowing.

Econometric analysis to assess the effect of land titling on the probability of smallholders making these long-term land investments was also carried out. Only the model on the probability of investing in irrigation water development and equipment showed a positive significant effect at the 1% level of probability. Holding all other factors constant land titling increased on average the probability of smallholders investing in irrigation water/equipment by 2.9 percentage points. Because the government of Zambia invested in irrigation equipment in some settlement schemes, we reran the model excluding smallholders on state land. This yielded similar results to the model that included state land title holders (land titling on average increased the probability of making this investment by 3.2 percentage points all other factors held constant). This suggests that the difference in irrigation investment between title and non-title holders is not the result of state investments in irrigation infrastructure, but rather individual investments by the smallholders themselves.

Further results indicated that smallholder land titling has a significantly negative impact on investments in liming, tree planting, manuring, and land fallowing. Holding all other factors constant, land titling significantly decreased on average the probability of smallholders investing in manure application by 223 percentage points; liming and fertility-improving tree planting by 266 percentage points; and land fallowing by 280 percentage points at the 1% level of probability.

Together, these results suggest that in addition to having a negative effect on farm income, land titling in Zambia has only contributed marginally to smallholder investments in land improvements, except for irrigation. This is unfortunate, and supports the hypothesis that systems of allocating land titles in Zambia are ill-equipped to enable the sorts of necessary improvements in the conditions of smallholder production systems required to drive agricultural growth in Zambia.

**CONCLUSIONS AND RECOMMENDATIONS:** Our findings show that the systems for allocating land titles to smallholders in Zambia do not appear to be leading to the sorts of beneficial changes in smallholder production systems and investment strategies needed to drive productivity growth and agricultural-led poverty reduction. To the contrary, our findings suggest that smallholders with title to their land are likely to earn significantly less agricultural income. Our analysis of the determinants of smallholder land titling, coupled with our analysis of land policies in Zambia, suggest that the negative relationship between land title and agricultural income is the result of institutional arrangements for awarding land title in Zambia that have developed over time. These arrangements are implicitly or explicitly designed to exclude existing farmers in customary areas from accessing land title, while favouring individuals from outside the community who are not primarily farmers. A significant proportion of individuals acquiring land titles are public sector employees utilizing their knowledge of bureaucratic systems and incomes to acquire titled land.

Ultimately, the negative outcomes of land titling for smallholder agriculture are the result of institutional arrangements that favour elite capture of land over meeting the needs of the smallholder farming community. In the context of urban income growth, coupled with limited investment opportunities in Zambia, there are significant incentives within the political system to enable urban income earners to invest their disposable income in land. The low agricultural returns of these investments suggest that much of this investment appears to be speculative rather than productive.

There is, therefore, urgent need to reform existing land policy in Zambia. In particular, Zambia's system for allocating titled land for agricultural purposes must be realigned in order to encourage productive, rather than speculative acquisition of titled land. This may entail providing clear mechanisms to enable existing smallholder to obtain title to their land. Central to this is lowering the transaction costs and bureaucratic complexity of acquiring title to land. A simple strategy for achieving this goal would be to combine an educational campaign about land titling with the decentralization of the titling process to enable titles to be obtained in provincial capitals. Ways need to be considered to encourage chiefs to allocate title to smallholders and/or weaken their powers in the conversion process. Perhaps a more transparent process is where awarding of titles to land is done in a more participatory manner.

By addressing the institutional constraints that limit existing farmers' access to land title, Zambia may be able to encourage the sorts of beneficial changes in smallholder production envisaged by proponents of land titling in Africa. More importantly, land policy in Zambia must be addressed in order to allow opportunities for future generations of farmers to acquire the land they need to derive a living from farming.

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**ACKNOWLEDGEMENTS:** The Indaba Agricultural Policy Research Institute (IAPRI) 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. Financial and substantive support of the Swedish International Development Agency (Sida) and the United States Agency for International Development (USAID) in Lusaka are greatly appreciated. Technical and capacity building support from Michigan State University and its researchers is also acknowledged.