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Smallholder Commercialization Trends as Affected by Land Constraints in Zambia: What Are the Policy Implications?

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Key Points/Summary

- 1) In spite of vast expanses of the country's land currently being uncultivated, there is increasing evidence that a surprisingly high share of rural smallholder households face land constraints that adversely affect their productivity and ability to participate in agricultural supply chains.
- 2) Smallholder agricultural commercialization has increased marginally over the past decade but after disaggregating by farm size, commercialization has only significantly increased for smallholders in the largest farm size quartile (top 25% group).
- 3) This rise in national farm commercialization has largely been maize-based due to government input and marketing subsidy policies coupled with favorable weather patterns especially in the last couple of seasons. The policy focus on maize in recent years has had questionable impacts on crop diversification and the development of an agricultural sector designed to raise incomes on small farms where a partial shift to higher-value crops will need to be part of the strategy for promoting broad-based agricultural development and poverty reduction.
- 4) There is not very great potential for most smallholder households in Zambia to substantially raise their off-farm incomes, a very small incremental addition to land access is associated with a large relative rise in commercialization and consequently in household income.
- 5) Thus, improving access to land among the most land-constrained smallholder households would be a seemingly effective way to reduce poverty in Zambia. This calls for basic public goods investments in fertile regions suitable for agricultural commercialization to promote voluntary migration into such areas to stimulate a smallholder-based agricultural system. Such investments would include trunk highways, health care facilities, schools, electrification, etc., to open up more land for cultivation in agro-ecologically suitable areas that are currently under-utilized.

INTRODUCTION: The key development challenge facing Zambian agriculture over the past two decades has been how it can effectively contribute to poverty reduction and broad-based economic growth. Agriculture remains one of the most important employers of labour and remains the main source of livelihood for most rural households in Zambia. The country has considerable agricultural potential. However, the contribution of the sector to growth and poverty reduction has been limited.

Nationally representative farm surveys in Zambia consistently reveal a highly concentrated pattern of agricultural commercialization and surplus production. Roughly five percent of Zambia's small- and medium-scale farmers produce half of the marketed surplus. Meanwhile at least half of the smallholder farms sell little or no crops and hence derive virtually no cash income from agriculture.

The pattern of smallholder production and marketed output is found to be highly correlated with farm size, i.e., the amount of land under the control of the household as understood according to the norms of the customary tenure system. Certainly many factors constrain Zambian farmers' potential to increase their incomes from farming, including the low productivity of the resources that they do possess. However, there is increasing evidence that in spite of vast expanses of the country's land currently being uncultivated, a large proportion of rural smallholder households face land constraints that impede their ability to produce a surplus and participate in agricultural supply chains. This gives rise to the paradox of smallholder rural households facing land constraints in the midst of apparent land abundance. In fact analysis of nationally representative data for the 2010/11 agricultural season shows that 54% of the smallholder households in Zambia cultivated all the land they owned, while only 41% cultivated less land than they owned, and 5% cultivated more land than they owned through renting or borrowing land.

Empirical investigation of the importance of inadequate access to land in constraining smallholder commercialization and farm incomes in Zambia is still lacking. This policy brief, based on the authors' Working Paper No. 61 of the same name, brings to the fore highlights of the level of smallholder commercialization in Zambia at different levels of farm size, and an assessment of the potential constraints that farm size may have on the process of smallholder commercialization and the potential policy implications.

DATA AND METHODS: We use two main data sources in this brief. Firstly, are the nationally 2004 and 2008 Supplemental Surveys (SSs) carried out by the Central Statistical Office (CSO) in conjunction with the Ministry of Agriculture and Livestock (MAL) and the then Food Security Research Project (FSRP) which has developed into IAPRI. Secondly, is the nationally representative Crop Forecast Survey (CFS) conducted by MAL in conjunction with CSO with technical support from FSRP/IAPRI covering the seasons from 2000/1 to 2010/11. This is part of an annual programme to forecast crop production and sales and ultimately estimate the nation's food balance sheet and inform policy on arrangements for the following crop marketing season. For commodity prices that are not captured in the CFS we use the mean of, inflated to 2011 using

appropriate consumer price indices, 2004 and 2008 SSs prices.

The primary objective of this study is to assess smallholder commercialization in the midst of land holding constraints. However, the CFS data collection instrument has only been collecting the land cultivated by each smallholder households until the last three seasons when the instrument was modified to farm size. In order to study the commercialization trends over a longer period of eleven seasons, we use cultivated land as a proxy for land holding size based on a premise that the two are closely related and their correlation coefficient is close to unity and highly significant. The values of smallholder sales together with the proportion of households selling were used as indicators of the level of commercialization. Another indicator used to measure smallholder commercialization was the Household Commercialization Index (HCI), determined as the sum of the ratios of the value of each commodity sold over the value produced.

Smallholder Commercialization Has Marginally Increased: Smallholder mean crop sales per households, proportion of households selling, and the HCI have fluctuated in the last eleven seasons but have shown a general increase especially in the last two seasons (Table 1). This increase is attributed mostly to an increase in maize sales as a result of favorable weather facilitating production, and

Table 1. Smallholder Commercialization Indicators

Season	Mean crop sales ¹ (Zmk'000s)	% Maize sales	% households Selling crops	Mean HCI
2000/1	798	27.6	56.3	0.25
2001/2	582	26.3	50.3	0.24
2002/3	647	37.0	46.5	0.22
2003/4	761	38.1	50.1	0.22
2004/5	371	43.5	35.6	0.19
2005/6	932	39.7	56.6	0.31
2006/7	698	53.6	48.0	0.27
2007/8	807	48.9	46.8	0.23
2008/9	902	49.2	50.4	0.23
2009/10	1,324	62.2	58.1	0.25
2010/11	1,662	65.6	61.0	0.30
Mean	862	44.7	50.9	0.25

¹ Per household at constant 2011 Zmk prices

government input and out market subsidy programmes, which makes maize production and marketing more attractive to the smallholders.

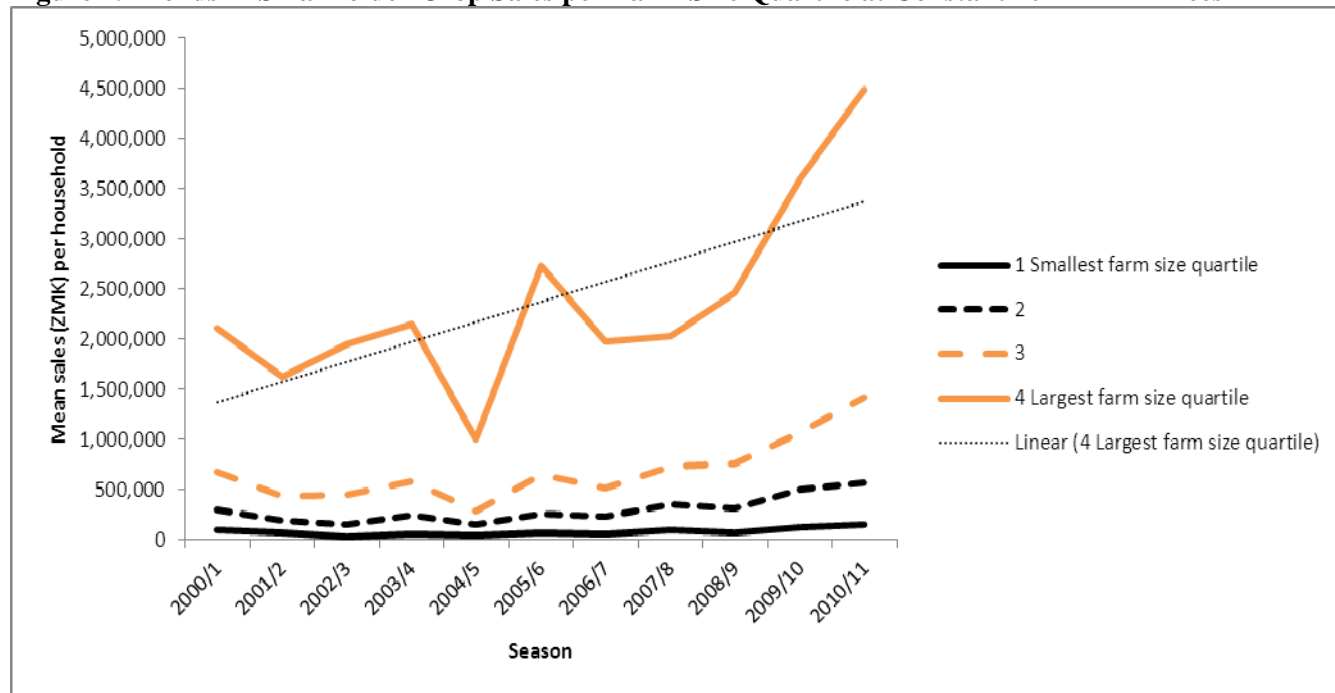
Commercialization Has Only Significantly Increased for Smallholders with Relatively Larger Farm Sizes: All indicators of smallholder commercialization used in this brief have exhibited significant increases among households with greater farm sizes and least increases, even decreases, among households with least farm sizes. While crops sales among households in the largest farm size quartile have significantly increased, that of households in the least farm size quartile especially has remained more or less the same as is shown in Figure 1.

Commercialization Has Largely Been Maize Based: This has been achieved at the expense of crop diversification as smallholders are moving out of growing other cash and food crops into maize. This negates the policy of diversification of the economy and, indeed, the agricultural sector up to the crop subsector levels, which have long been

identified as opportunities for economic growth and rural poverty reduction (see Figure 2).

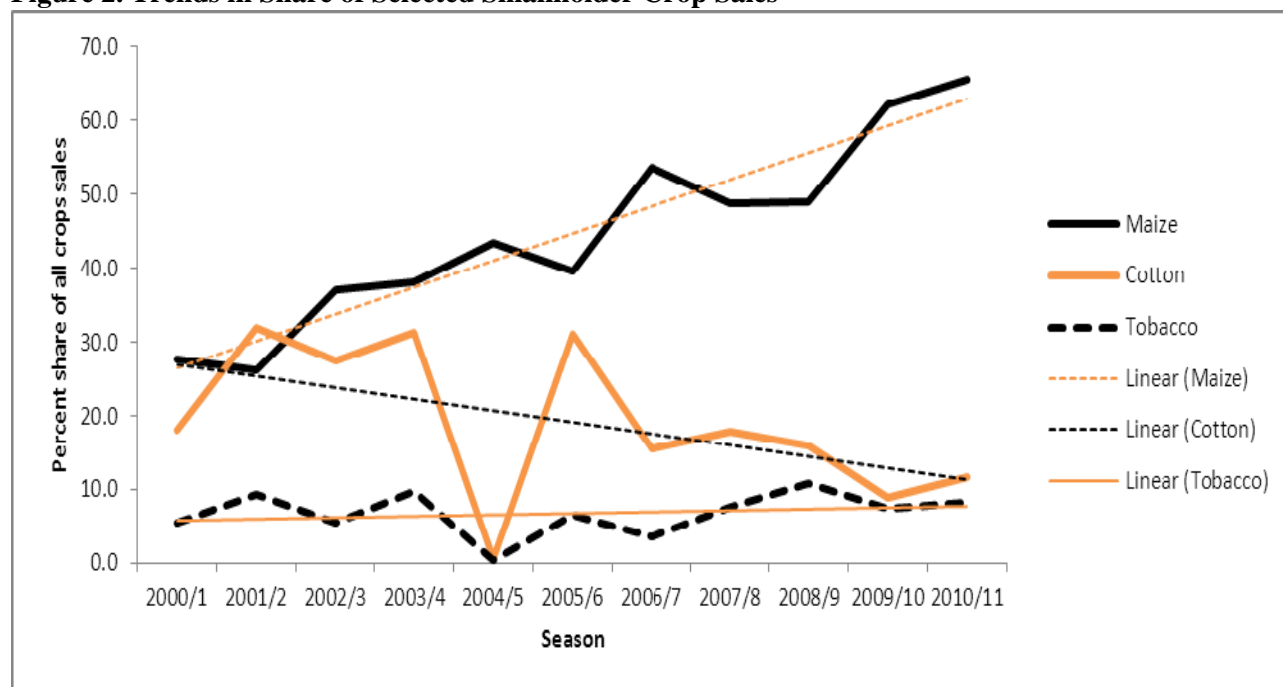
Only a Minority of the Smallholders Account for Most of the Maize Sales: In spite of the smallholder commercialization being largely maize based, only a minority of smallholder households in Zambia account for most of the maize sales. Evidence has shown that over the period 2000/1 to 2010/11 the proportion of smallholder households accounting for the top 50% of the value of maize sales has ranged from 1.3% to 8.6% with an average of 3.6% over the entire period. The proportion of those accounting for the rest of the maize sales ranged from 13.0% to 34.1% with an average of 19.9%, and the proportion of those not selling ranged from 57.3% to 85.5% with an average of 76.5%. Clearly, this shows that the maize commercialization has only benefited about a quarter of the smallholder households. It is comforting to note that the proportion of smallholders not selling maize has declined, especially in the last two seasons, from about 76% in 2008/9 through 64% in 2009/10 to 57% in 2010/11, but the figure *is still very high*.

Figure 1. Trends in Smallholder Crop Sales per Farm Size Quartile at Constant 2011 Zmk Prices



Source: MAL/CSO Crop Forecast Surveys 2000/1 to 2010/11 and authors' computations.

Figure 2. Trends in Share of Selected Smallholder Crop Sales



Source: MAL/CSO Crop Forecast Surveys 2000/1 to 2010/11 and authors' computations.

More Land Endowed Smallholders Are the Ones Selling Maize:

The majority of smallholder householders accounting for the top 50% of maize sales have relatively larger farm sizes. Analysis has shown that on average, over the last eleven seasons, less than 2% of the smallholder households accounting for the top 50% of maize sales belong to the least farm size quartile compared to 64% (range from 46% to 92%) for the largest farm size quartile. About 10% (range from 0% to 22%) and 24% (range from 8% to 37%) of these maize sellers belong to the second and third farm size quartiles respectively. Among this group of maize sellers, the proportion of smallholders from the third farm size quartile has been increasing over the years, while that of those from the least farm size quartile has remained more or less the same.

There Is Little Potential for Increased Smallholder off-farm Income Generation:

Analysis of determinants of smallholder agricultural sales has shown that there is little potential for most smallholder households in Zambia to raise their off-farm income under current levels of human capital and demand for off-farm goods and services in the rural areas. Such conditions provide limited opportunities for poverty reduction for land-

constrained farm households. Off-farm income is not a significant alternative income source for the majority of smallholder households in Zambia, and especially not for the most land-constrained ones. While off-farm income makes up a sizeable portion of total income overall, this is highly concentrated among a relatively small proportion of households. Only 27% and 40% of the smallholder households in Zambia earned off-farm income of at least Zmk1 million per annum at 2011 prices in 2003/04 and 2007/08 respectively.

By contrast, increasing farm size for the land constrained households would be one of the more promising ways to reduce rural poverty in Zambia, given the supply of unutilized land in the country, but exploiting such potential would require a reorientation of public investment to agriculture. Keeping all other factors constant, increasing household farm size by 1 ha would be associated with increase in smallholder agricultural sales of 29% for all households in general, 788% for the households in the least, 319% for those in the second, 62% for those in the third and only 4% for those in the most farm size quartile. The mean household farm size is 0.424 ha, 1.098 ha, 1.976 ha

and 6.576 ha for the respective farm size quartiles (categories).

CONCLUSION: Smallholder commercialization based on increased price and subsidy incentives will tend to benefit mainly the farmers with relatively large farms. Any measures promoting increased crop commercialization should go hand in hand with those aimed at increasing access to land for the more land constrained smallholders. The fact is very little change in rural poverty rates has been registered in the past six years in spite of massive public resources having been spent on government poverty reduction programmes such as FISP and FRA marketing to raise food production calls for re-orientation of these programmes.

In addition, the promotion of certain agricultural support activities that feature prominently in the activities of the more land constrained smallholders such as horticulture, small livestock, and poultry, would go a long way in improving smallholders' meaningful participation in agricultural markets. Unfortunately data on such smallholder sales are not contained in the CFS, hence, these activities cannot be monitored, nor trends be established using conventional government monitoring systems. Government intentions to cover these under the rejuvenated annual PHS should be lauded and supported as these data will go a long way in monitoring broad based smallholder commercialization and offer timely opportunities for policy actions.

And finally but not the least, this analysis also shows that improving access to land among the most land-constrained smallholder households would be a seemingly effective way to reduce poverty, as a very small incremental addition to land access is associated with a large relative rise in commercialization and consequently in income. This calls for basic public investments in feeder roads linked to trunk highways, health care facilities, schools, electrification, etc., to induce voluntary

migration and open up more land for cultivation in currently underutilized yet agro-ecologically suitable areas of the country.

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