



Is Smallholder Horticulture the Unfunded Rural Poverty Reduction Option in Zambia?

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Key Points

- Maize centric policies that have characterized Zambian agriculture have adversely affected the other sub-sectors such as smallholder horticulture which have seen little institutionalized private sector support;
- Smallholder horticulture, as opposed to export oriented commercial horticulture under the Zambia Export Growers Association (ZEGA), involves more than 300,000 smallholder farmers and is largely domestic oriented though it has linkages to regional markets;
- Smallholder horticulture contributes significantly to the Zambian economy, with value of production per capita estimated at 1.38 times (1.85 times for sales) that of maize;
- Smallholder horticulture is much more profitable compared to maize with gross margins of cabbage, tomato and onion being 138 to 219 times higher while the percent gross margins returns to total variable costs range from 141 to 263 percentage points more;
- Smallholder horticultural market participation increases household income by 157% compared to 22% for maize. These income impacts are much more for the land constrained, women and poorer smallholders;
- There is need to invest in conditions that enhance smallholder participation in horticultural markets i.e. accessibility, hard and soft market infrastructure; and
- As a matter of priority, there is need for policy to facilitate the development of strategically located and appropriate horticultural wholesale markets (starting with Lusaka and then Copperbelt) to act as demand points in the supply chains and to link the country to regional markets.

INTRODUCTION: Zambia has recently been experiencing about 10% agricultural growth without a significant reduction in rural poverty (CSO 2014; CSO/MAL/IAPRI 2012). This has been a major concern among policy makers, development specialists, and other sector stakeholders. This is especially when agricultural growth is expected to be the most powerful tool out of poverty for developing countries where the majority of the population is in agriculture. This state of affairs is a direct result of Zambia's policy focus since independence on a single crop maize, for which it has in the past decade spent over 60% of the annual public expenditure in the sector through maize input and output subsidies (Hichaambwa, Chamberlin, and Kabwe 2015). Unfortunately, the majority of the smallholder farmers (70%)

cultivates less than two hectares and account for only 31% of all the agricultural production (Hichaambwa, Chamberlin, and Kabwe 2015). Thus, the agricultural growth being recorded is only being experienced by a minority of relatively better off smallholder farmers who are benefiting from the government support to the maize subsector. This means that this growth has not been broad based and cannot lead to significant rural poverty reduction outcomes. This calls for policy paradigm shift to investment areas that have higher potential pay offs as far as broad based smallholder income growth and poverty reduction is concerned.

Policy analysts need to provide empirical evidence to the policy makers and other stakeholders on the potential investment pay offs of other subsectors compared to maize

sector which currently receives the most attention. Within this framework, this policy brief aims to provide empirical evidence in order to raise the policy profile of smallholder horticulture in Zambia as an alternative to achieve broad based rural income growth and poverty reduction. In particular, we provide a comparative analysis with maize in the following aspects:

- ✓ value to the economy added through production and trade flows;
- ✓ household level profitability using gross margin (GM) analysis and GM returns to total variable costs (TVC); and
- ✓ household income effects of market participation.

The policy brief is based on Hichaambwa, Chamberlin, and Kabwe 2015.

DATA AND METHODS: Firstly, the policy brief is premised on smallholder horticulture contributing significantly to the national economy in general and that of rural areas in particular through values produced and marketed which form part of the overall Gross Domestic Product (GDP) in spite of current lack of public and limited private sector support. To do this we use the nation-wide representative Rural Livelihoods Survey (RALS) data of 2012 to do comparative descriptive analysis.

Secondly, given that the profitability of a farm enterprise significantly affects its income growth and poverty reduction potential we use Zambia National Farmers' Union Enterprise Budgets data of 2014 and the IAPRI Horticultural Trade Flows and Price Dynamics database (2005 to 2014) to demonstrate the superiority of smallholder horticulture over maize using descriptive analysis.

Thirdly, we use econometric methods (endogenous switching regression framework) to estimate the comparative household income impacts of participation in horticultural and maize markets. More details about this are presented in Hichaambwa, Chamberlin, and Kabwe 2015.

KEY FINDINGS:

Smallholder Horticulture Contributes Significantly to the Zambian Economy in Spite of Lack of Public and Limited Private Sector Support and Investment: At the national level, the maize sector during the

2010/11 production and 2011/12 marketing season involved 1.3 million smallholder households or 6.5 million people producing ZMW 2.9 million worth of produce of which ZMW 1.6 million (56%) was sold. During the same period, the horticultural sector involved 300,000 smallholder households or 1.5 million people producing ZMW 0.8 million of which ZMW 0.6 million (74%) was sold. On a per capita basis, the contribution of smallholder horticulture to the rural economy is much superior to that of maize. For example, the value of production at the national level is 1.38 times higher (1.85 times higher for sales). It was also 1.34 (1.78 for sales) and 3.25 times higher (9.04 times higher for sales) compared to maize subsector among the female headed and smallholder households cultivating less than one hectare respectively.

Smallholder Horticulture Is Much More Profitable Compared to Maize, Especially Where the Market System Can Be Navigated:

Analysis has shown superior GMs of all horticultural crops compared to maize with the highest being cabbage (219 times that of maize) followed by tomato (179 times) and onion (138 times). The percent GM return on TVC of these respective horticultural crops was 263,158 and 141 percentage points respectively more than that of maize.

Smallholder Horticultural Market Participation Has Much More Household Income Impact than That of Maize:

There are significant net household income increases as a result of smallholder participation in horticultural and maize markets, but the impacts are much higher for the participation in horticultural than the maize markets. Participation in horticultural markets results in net income increase of 157% compared to 22% for maize markets at the national level; participation of female-headed households in horticultural and maize markets results in incremental income of 172% and 61% respectively while that of smallholders cultivating up to 2 hectares ranges from 160% to 167% for horticultural markets and only 24% to 28% for maize markets. Whilst, among the poor households, income increases by 152% to 162% compared to only 15% to 26% by participation in the horticultural and maize markets respectively.

A Number of Factors Condition Smallholder Participation in Horticultural Markets:

- ✓ Female-headed households are significantly much less likely to participate in maize than horticultural markets. This suggests that investments targeting increased participation of female-headed households in these markets offer greater opportunities for their commercialization, income growth, and poverty reduction. Thus, smallholder horticultural market participation offers greater potential in addressing gender income disparities than maize market participation;
- ✓ Households headed by relatively younger heads are more likely to participate in horticultural markets but age did not seem to matter in maize market participation. This means that younger heads of household are willing and/or able to navigate the current horticultural production and marketing constraints while age does not seem to matter in the case of maize;
- ✓ The proximity to good road infrastructure significantly increases the probability to participate in horticultural markets while it does not matter for maize ones. This implies that market accessibility is a critical factor to be addressed in investments meant to enhance smallholder horticultural market participation more especially that most horticultural products are perishable and have a short shelf life;
- ✓ The horticultural price variability significantly reduces the probability of participation in horticultural markets. One of the critical ways to address horticultural price variability and enhance smallholder market participation is the development of strategically located appropriate horticultural wholesale markets serviced with effectively functioning price information system that will enable traders and farmers alike to spatially arbitrage their supplies by regularly moving produce from high to low supply areas throughout the year;
- ✓ As expected, an increase in the number of households receiving Farmer Input Support Programme (FISP) packs significantly increased the participation in maize market more than horticultural market. Field

experience has shown that smallholder farmers sometimes use fertilizer acquired through FISP to grow horticultural crops and proceeds from horticultural production and marketing to meet their contributions to the input packs. This suggests that using the flexible electronic voucher in distributing FISP inputs might greatly benefit horticultural production because farmers may opt to purchase horticultural crops inputs; and

- ✓ The quantities of the previous year's Food Reserve Agency (FRA) maize purchases significantly reduce the probability of smallholders to participate in horticultural markets but have no significant effect on participation in maize ones. This implies that government expenditure on maize marketing through FRA impacts negatively on any efforts to diverse Zambian agriculture from maize monoculture.

CONCLUSIONS/RECOMMENDATIONS:

The foregoing has shown that enhancing conditions for smallholder participation in horticultural markets offers significant income earning opportunities much more than participation in maize markets, particularly for poor and land-constrained farmers. These income gains are more pronounced for smallholders cultivating less than a hectare and for poorer households earning less than US\$1.25 per day per capita. Furthermore, participation in horticultural markets appears to reduce the gender gap in rural household income: female-headed households that market horticultural output are relatively less disadvantaged than their male-headed counterparts, as compared with female-headed households that do not market horticulture.

In order to encourage smallholder participation in horticultural markets, policies and investments designed to improve accessibility in high potential horticultural production areas, namely those in proximity to urban markets, coupled with improved market information systems could have important enabling impacts on horticultural market development in smallholder areas.

Furthermore, better transportation and communication infrastructure will lower the costs of spatial arbitrage, which should also help to decrease localized price variability. These

investments should be complemented with public extension support for horticultural production, with particular emphasis on pest management, and improvements in the conditions of the traditional markets that smallholder farmers depend on.

Increased smallholder participation in the horticultural supply chains would no doubt increase their chances of moving out of poverty on one hand, and urban supply of high quality fresh produce at competitive prices on the other.

IMMEDIATE NEED TO DEVELOP HORTICULTURAL WHOLESALE MARKETS:

As a matter of priority, we recommend investments to develop strategically located and proper horticultural wholesale markets with links to markets in the region starting with Lusaka and the Copperbelt. That only 21% of the smallholder households in Zambia participate in horticultural supply chains suggests that new demand points could enjoy substantial supply response if they link effectively to the smallholder farm sector. The horticultural wholesale markets when developed will provide this vital and effective link.

In this proposed development, the most important first step is to develop a new fresh produce wholesale market on the outskirts of the City of Lusaka, as the current site is illegally settled and the space is inadequate and its access roads are heavily congested with traffic. The construction can be based on appropriate cost-effective design with the structure encompassing a concrete slab (flooring) to facilitate drainage and cleaning, designated entry and exit points for vehicular and human traffic, loading and offloading bays, storage facilities (which may or may not have refrigeration facilities) and roofing among others. Such a market could be developed through Private Public Partnerships initiatives as provided for under the Public-Private Partnerships Act No. 14 of 2009 of the Laws of Zambia (see Figure 1 on current trade volumes of three crops in spite of poor state of the main wholesale market in the country shown in Figure 2).

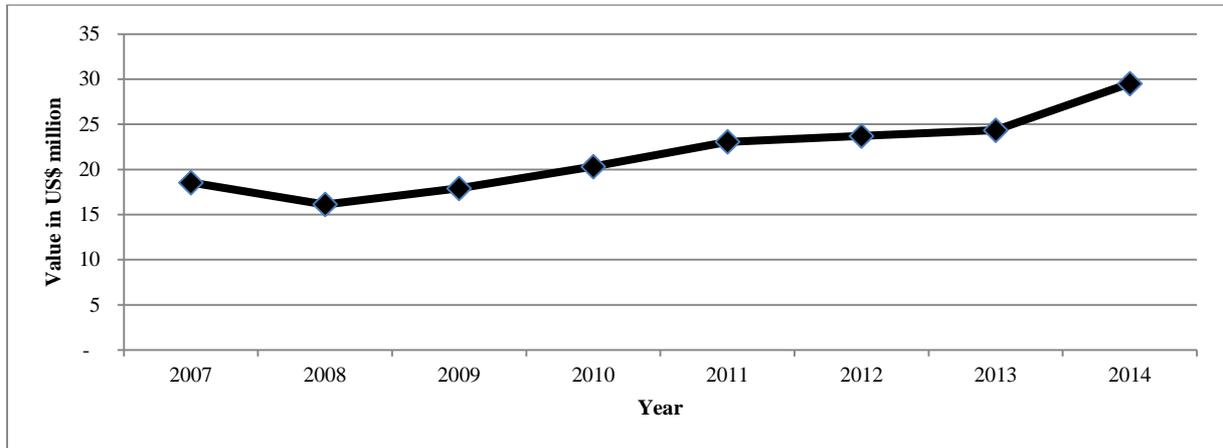
The second step would be the development of a legal and institutional framework under which

brokerage activities at the market can be undertaken in order to achieve a win-win outcome for all stakeholders. Only trained and certified brokers would then be allowed to operate in the market within a framework of rules and regulations. In addition, it will be important to develop and implement a horticultural market information system. Over the past year, iDE Zambia has been implementing on a pilot basis some horticultural price information service covering ten crops and a number of selected markets in the city. This could be further supported with electronic billboards at the market displaying hourly prices.

Once the Lusaka market has been completed and is functional, it would then be prudent to replicate this market development in at least two other markets (one each on the Copperbelt and Southern or Eastern Province) and, the three of them would act as major links to markets in other parts of the country and indeed to regional markets. Other wholesale markets in other parts of the country can then be developed as the supply chains develop.

Following these developments, smallholders' active participation in the supply chains can be enhanced through, among other things, development of storage or packinghouses in strategic places along the supply chains for bulking produce before transportation to markets. Women farmers and traders will be encouraged to participate in the orderly market system as they are most disadvantaged by the current *rule of the jungle* system at Soweto market. This development will benefit farmers, urban consumers, traders, brokers (as more farmers will bring produce their turnover will increase such that their total amount of commissions though charged at a low rate will increase), the city council, government, and even private institutions such as hotels, restaurants, schools, colleges, and hospitals that will be encouraged to source quality fresh produce from an organized wholesale market. This is important considering that over 90% of the fresh produce consumed by urban households in Lusaka is procured from traditional markets that are largely supplied by such markets.

Figure 1. Estimated Annual Trade Flows of Tomato, Rape, and Onion in Soweto Market



Source: IAPRI 2007 to 2014.

Figure 2. Vegetables Wholesaling at Soweto Market in the Rain Season



Source: IAPRI Horticultural Markets Pictures.

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