Small and Medium Scale Farming in Zambia: A Competitive Analysis

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Abstract

The agricultural sector in Zambia has been described as the backbone of the economy. It contributes to the country's GDP, national exports and employs most of the population. The agricultural sector in Zambia is dominated by small and medium scale farmers who are mostly located in the rural areas. Due to the importance role played by the small and medium scale farmers in Zambia, it is necessary to conduct a competitive analysis to assess their competitive environment. Michael Porters five forces model was used in the analysis. In assessing the competitive environment of the agricultural sector, this analysis focuses on small and medium scale farming with reference to the crop sub sector and focusing on the major crop -maize. The analysis was informed by Secondary data sources from peer reviewed journal articles and professional reports about the agricultural sector in Zambia. Thematic analysis was used to analyze the data in line with Michael Porter's five forces framework. The findings indicate that the threat of new entrants to small and medium scale farming is relatively high due to lack of barriers of entry and supportive government programs for the farmers, the barging power of buyers is relatively high because buyers are often fewer and buy in large volumes which makes them more powerful than the small and medium scale farmers. The bargaining power of suppliers is also high as the small and medium-scale farmers are mostly dependent on subsidies due to the financial constraints that they face.

Key words

Small and Medium Scale Farming, Competitive Analysis, Michael Porter Five Forces, Agriculture Sector and Zambia.

1. Introduction

The agricultural sector plays an enormous role in the economy of Zambia and is said to be the backbone of the economy. The agricultural sector contributes approximately 12% to the national exports earnings and to the country's Gross Domestic (GDP) (Policy Monitoring and Research Centre (PMRC) 2021). The agricultural sector is arguably the main source of income and employment for much of the population in Zambia. The agricultural sector employs 70% of the labour force and provides a livelihood for most people living in the rural part of Zambia (PMRC2021; Mwando 2022). The agricultural sector in Zambia is dominated by small and medium scale farmers who are mostly located in the rural parts of the country. The small and medium scale farmers supply about 80% of the domestic food in Zambia (World Food Program 2020). It can thus be observed that the small and medium scale farmers in Zambia play an important role in the economic development of the country and as such it is important to conduct a competitive analysis of the industry. The competitive analysis done through Michael porters framework highlights how attractive the industry is from the eyes of the small and medium scale farmers. Michael Porter's five forces has been used by several researchers to analyze the competitive environment of various industries (Yunna and Yisheng 2014; Rajasekar and Raee 2013). Assessment of the agriculture industry in Zambia in the context of the small and medium scale farmers is vital because of their contribution to the economy and it can help to devise strategies that benefit the small and medium scale farmers in Zambia.

In conducting the competitive analysis, the research focused on small and medium scale farming that are involved in crop production such as Maize. The most grown crop and staple food of Zambia is Maize (Chiona et al .2014; Makondo et al. 2014). The competitive analysis will explain the five forces being threat of new entrants, threat of substitutes, power of buyers, power of suppliers and industry rivalry.

1.1 Objective

The objective of this paper is to perform a competitive analysis using the Five forces framework to analyze the agricultural sector in Zambia in the context focusing on the Small and Medium Scale farmers. To achieve the objective the paper will look at the following aspects:

- Threat of new entrants
- Bargaining power of buyers
- Bargaining power of suppliers
- Threat of substitutes
- Competitive rivalry

2. Literature Review

2.1 Agriculture in Zambia

The Zambian agriculture sector can be divided into three main categories namely crops, livestock, and fisheries. Maize is the most cultivated crop and staple food (MoA 2016) and thus, can be argued to be the cornerstone of Zambia's agricultural economy (Chiona et al. 2014). Maize production accounts for 88% of all the farming households in Zambia and this production is done by small and medium scale farmers. It is thus not surprising that maize production receives special attention when it to comes to government policies. Chisanga and Mbata (2018) explain that the Zambian government has been encouraging increased maize production through policies such as the Farmer Input Support Programme (FISP) and through the Food Reserve Agency (FRA). Government through FISP provides subsided inputs such as fertilizers and seeds to the small and medium scale farmers (Mulenga et al .2020). The FRA was established as a government agency which is responsible for buying produce from the farmers such as the small and medium scale farmer. One of the products that is often bought in bulk is Maize (Chisanga and Mbata 2018).

The agricultural sector in Zambia plays an important role the country's economy. The sector contributes to employment. The majority of the country's population, especially in the rural areas are employed in the agricultural sector. As can be seen from the figure below, the agriculture sector contributed the greatest to employment compared to the other sectors for the observed period.

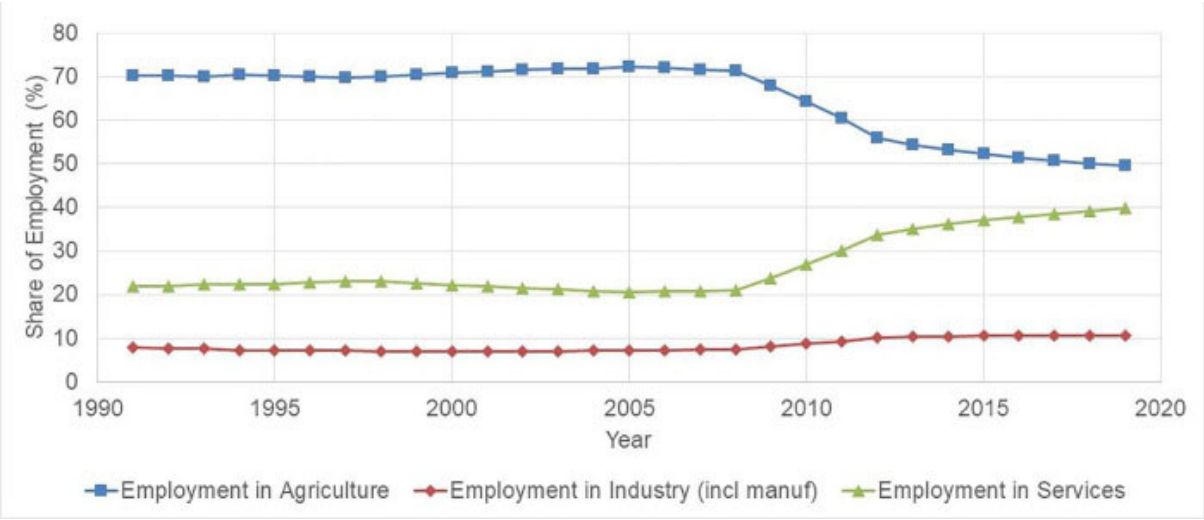

Figure 1. Sector contributions to employment (Phiri et al .2020)

Due to the importance of the agricultural sector in Zambia, the small and medium scale farmers and the crop production of maize, this study conducts a competitive analysis with respect to the mentioned contexts using Michael Porters five forces.

2.2 Competitive Analysis: Michael Porter's Five Forces

One of the ways to conduct a competitive analysis is using the Michael Porters five forces framework. This framework was developed and coined by a Harvard Business School professor named Michael Porter in 1979. The five forces include: Threat of new entrants, bargaining power of buyers, bargaining power of suppliers, threat of substitute products and rivalry among existing competitors. The model provides an important tool for analyzing the competitive environment and thereby helps to develop suitable strategies for a particular industry or corporation (Zhang et al. 2016).

The five forces framework has been used by several researchers to conduct a competitive analysis of a particular sector or industry. For instance, a competitive analysis in the following industries has been done Shale gas industry (Yunna and Yisheng 2014), railway industry (ellner and Lakotta 2020) and telecommunications industry (Chesula and Kiriinya 2018). This study also uses the five forces framework to perform a competitive analysis in the agricultural sector focusing on small and medium scale farming growing maize in Zambia. The five forces are illustrated in the diagram below.

Figure 2. Five Forces Framework (Porter and Collins 1980)

2 Methods

This study is based on secondary data collected from peer reviewed articles. The study also used document review from professional bodies such as Indaba Agricultural Policy Research Institute (IAPRI), World Bank, Ministry of Agriculture in Zambia, Policy Monitoring and Research Centre, World Food Program, and International Labor Organization. This study used thematic analysis. The process involved with a search for relevant literature that focused on small and medium scale farming in Zambia. Thematic analysis involves familiarizing yourself with the data, selection of codes, searching and naming themes, and producing the report (Kiger and Varpio 2020). In this study thematic analysis of the secondary data allowed for the identification of the codes and themes inline with the Michael Porter's Five Forces framework.

3 Results and Discussion

In this part the results and discussion of the analysis are presented. Being desktop research, the results and discussion are presented simultaneously. The Five Forces Model is applied to the agriculture crop sector in Zambia with respect to small and medium scale farmers.

3.1 Threat of New Entrants

Porter (1980) argues that the threat of new entrants into an industry is related to the barriers to entry that exist within the industry and geographic boundaries. These barriers could include aspects such as the extent to which established firms have scale economies, high capital requirements for new entrants, better access to distribution channels for inputs and outputs, the extent to which government regulations restrict entry, and the extent to which established firms have brand name loyalty with customers.Some of the major factors influencing the threat of new entrants are related to capital requirements and the role of government policy in small and medium scale farming.

3.1.1 Capital Requirements

Capital requirements refer to machinery, equipment and resources needed to operate in an industry. Even though machinery and equipment can be employed in crop production, the small and medium scale farmers operate under low mechanization. Mechanization in farming requires financial resources and most small and medium scale farmers are financially constrained (Sebatta et al.2014). For small and medium scale farming, availability of land, labor and farming inputs are the requirements needed for crop production such as Maize (Umar 2016). Most small and medium scale farmers use family labor for crop production (Umar 2016). Small and medium scale farmers may be helped with farming inputs through FISP, however, access to farming inputs remains a challenge to the farmers (Mulenga et al. 2020; Umar 2016). There are relatively low capital requirements required for new entrants wanting to become small and medium-scale farmers.

3.1.2 Government Policies

Government can restrict or encourage entry of new players in the industry through their policies (Rajasekar and Raee 2013). In the case of Zambia, two of the major policies in the agricultural sector affecting the small and medium sized farmers are Fertilizer Input Support Program (FISP) and the creation of Food Reserve Agency (FRA). FISP was introduced in farming season 2002/2003 in order to provide subsidized inputs (i.e., fertilizer and maize seed) to small and medium sized farmers in Zambia (Mulenga et al, 2020). In 2002/ 2003 a total of 120,000 small holder farmers were assisted and today the number of recipients has increased (Mulenga et al.2020). FRA was formed as a body corporate in 1995 through the Food Reserve Act, Cap 225 of the Laws of Zambia. One of the functions of FRA is facilitation of market access for small and medium scale farmers in Zambia (International Labor Organization 2015).

The two policies involving the FRA and FISP can be seen to be an act that is meant to encourage rather restrict new entrants in the sector. As can be seen in figure 3 depicted below the budget allocation towards these two programs has been fluctuating, however, the last two years saw an increment of over 30%. Considering the financial constraints that small and medium scale farmers face, programs such as the FRA and FISP are beneficial and encouraging to the farmers and would be small and medium scale farmers in acquiring farming inputs and market accessibility.

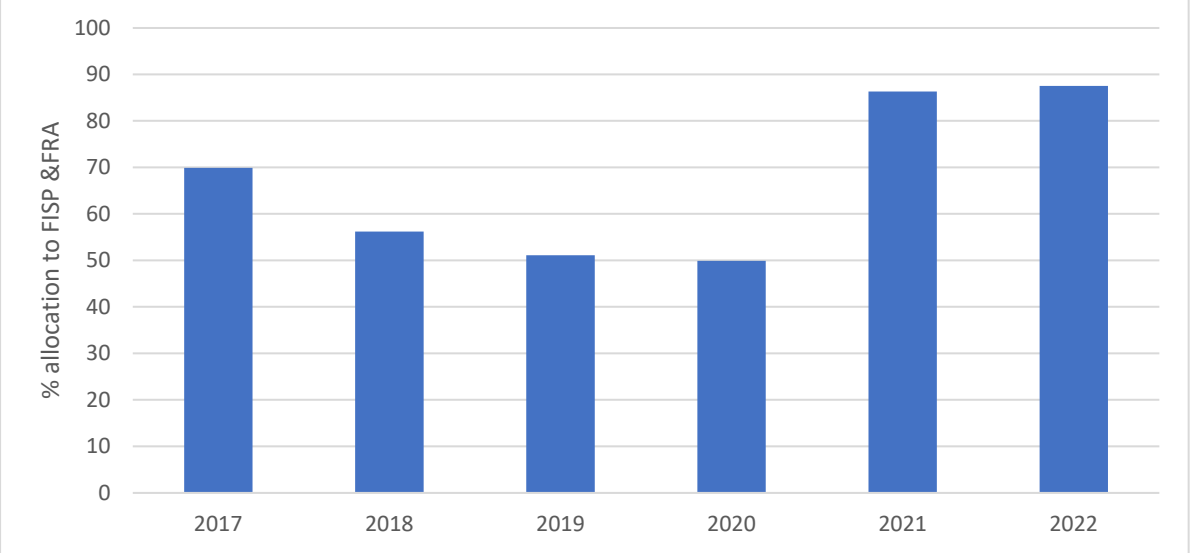

Figure 3. % Allocation of Agriculture budget for FISP &FRA (2017- 2022)

Apart from the aspect of capital requirements and government policy affecting the threat of new entrants, another factor to consider would be economies of scale and brandy loyalty. In as far as having economies of scale is concerned, it can be observed that majority of the small and medium sized farmer cultivate not more than 20ha (Umar 2016) thus may not benefit much from economies of scale that comes with large volumes of production. Furthermore, the small and medium scale farmers producing maize commodity do not differentiate their products as the maize is often standardized.
Based on the above factors it can be argued that the threat of new entrants to small and medium scale faming is thus high and thus could be one of the reasons why the agricultural sector is dominated by small and medium scale farmers.

3.2 Bargaining Power of Buyers

The power of buyers in an industry is important as they can bring prices down. Some of the factors that influence the buyer's power include number of buyers, size and volume and purchase and whether the product is standardized or not. There are two types of buyers of commodities from the small and medium scale farmers and these are FRA (government) and the private buyers.

3.2.1 FRA

The Government of Zambia through the Food Reserve Agency is one of the major buyers of the produce from small and medium scale (Mulenga et al.2019). One of FRA 's mandate is to ensure national food security and to facilitate market access for small and medium scale farmers.FRA buys the farmer's produce such as maize in large volumes. FRA determines both the quantity and the price at which it buys the commodities from the farmers. Government is actively involved in controlling the agricultural market for maize (Mulenga et al 2020; Mulenga et al 2019). For example, during the marketing season 2020/2021, the FRA announced that it was targeting to procure 1 million metric tonnes (MT) of maize commodity, a significant departure from the 300,000 MT it earlier indicated. FRA also determines the floor price for the commodity every year at which the farmers sell their produce to them. For example, during the marketing season 2020/2021, the FRA announced its crop purchase prices for maize, soybean, and rice. Maize prices were ZMW110 per 50 Kg bag (ZMW 2.2/kg), like the previous season (Mulenga et al. 2020).

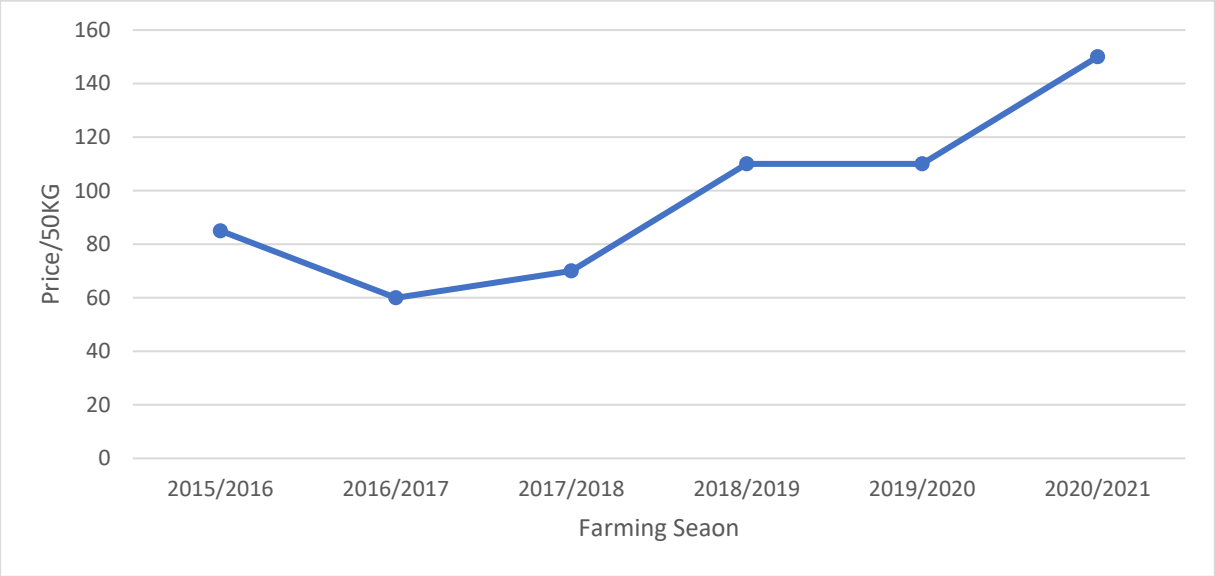

Figure 4. FRA market price for maize (2015/2016 – 2020/2021)

The Figure 4 shows how the price of maize bought by FRA from the farming season 2015/2016 to 2020/2021 as reported by the Zambia Agriculture Status Reports. Generally, the price set by FRA shows an upward trend over the period. The lowest price was for the farming season was reported in 2016/2017. Chapota et al (2017) asserts that during the 2016/2017 farming season, FRA maize buying price was way below the cost of production and the greatest losers in this regard are the small and medium scale famers whose productivity was too low to cover the production costs. Whilst it is commendable that FRA provides a market for the small and medium scale farmers, it may not have capacity to absorb all the produce from the farmers and thus the small and medium scale farmers may face challenges to access a market for their produce (Makondo et al .2014).

3.2.2 Private Buyers

Besides FRA, there are also other buyers of the small and medium scale farmer's produce who represent the private sector in Zambia. Buyers from the private sector comprise of millers, animal feed manufacturing companies, medium- scale traders, and a myriad of small-scale individual traders also known as Briefcase Buyers (Mulenga et al.2020). Normally the price of the farmer's produce differs depending on the buyer. Sometimes FRA offers a higher price than the private buyers and vice versa (Mulenga et al. 2020; Chapoto and Chisanga 2016). Market accessibility for small and medium scale farmers can be a challenge and as such the small and medium scale farmers are sometimes forced to sell at a give-away price to local businessmen who then sell to the millers in the cities at better. In their vulnerable state the small and medium scale farmers risk being swindled without getting any payment for their produce by unscrupulous buyers (Makondo et al.2014).

Looking at the market situation surrounding the small and medium scale farmers, it can be argued that they have relatively low power over the buyers. Firstly, the biggest buyer FRA often buys determines the price and quantity at which it will buy the farmers produce annually of which the small and medium scale farmers have little control over. Secondly, the small and medium scale farmers for crops such as maize have a standardized product with little or no differentiation. This leads to low switching costs for the buyers and thus reduces the farmers' bargaining powers. Furthermore, the fact that there are more small and medium scale farmers than buyers also reduce their bargaining power. All these factors collectively lower the bargaining power of the small and medium scale farmers.

3.3 Bargaining Power of Suppliers

Supplies are those that supply the industry with raw materials such as labor, components, financial resources etc. Suppliers if powerful can exert pressure on the producing industry. When it comes to the agricultural sector especially for small and medium scale farmers, raw materials required for production include farming inputs such as seeds, fertilizers, land, labor as well as agricultural credit.

3.3.1 Agricultural credit

One of the greatest challenges for small and medium sized farmers involves access to agricultural credit. Financial Sector Deepening Limited Zambia -FSD (2021) that small and medium scale farmers face limited access to financial services. This finding has also been reported by Bank of Zambia (2018) who state that 2017 only 8% of the credit provided to the agriculture sector went to the small and medium scale farmers compared to the 85% that went to commercial farmers. Most lending institutions in Zambia hesitate to offer credit facilities to the small and medium scale farmers because of the high risk involved (Sebatta et al.2014).

3.3.2 Farming Inputs - FISP

Small and medium scale farmers often face challenges with accessing farming inputs. FISP, which was introduced in 2002, is meant to help farmers obtain farming inputs at subsidized rates (Umar 2016; Mseteka 2019). Through this program the government provides various farming inputs such as seeds and fertilizer at a subsided rate. Even though this program is helpful and has assisted several farmers, it is not able to meet the high demand from the small and medium scale farmers who need the farming inputs (Umar 2016). Furthermore, the farming inputs from FISP are sometimes also delivered late and this affects agricultural production. Unfortunately, without the help of FISP, the small and medium scale farmers that are financially have limited access to farming inputs thus affecting their crop production. Besides using FISP to obtain farming inputs, the small and medium scale farmers can buy from the agro dealers.

Therefore, it can be argued that the bargaining power of the small and medium scale farmer in relation to their suppliers of various resources is low. The most important suppliers are those providing the small and medium scale farmers with farming inputs such as seeds and fertilizer, (i.e., the government and the private agro dealers). The small and medium scale farmers are many in comparison to suppliers and this increases the bargaining power of the suppliers. Other resources such as land and labor are affordable as small and medium scale farmers mostly have access to traditional land and the farmers normally depend on family labor for their agricultural activities (Umar 2016).

3.4 Threat of substitutes

Substitutes affect the price and profitability of existing products (Zhao et al. 2016). Substitute products refer to products in other industries offering similar benefits. A threat of Substitute of a product exists when a products demand is affected by a price change of a substitute product. For small and medium scale farmers threat of substitute products come from commodities produced by large scale farmers in Zambia and from imported commodities. Farmers must compete with imported commodities such as rice, potatoes etc. Zambia being a member of the SADC implies that it allows for free trade of goods between Zambia and the member countries.

Imported commodities can be found in supermarket chains and markets across the country. It can be observed that mostly the imported products are of high quality and have better packaging thus offering great competition to the small and medium-scale farmers who have little resources to compete (World Food Program 2020).

3.5 Rivalry among Established Firms

One of the factors used to assess the the level of rivalry within an industry may include number of firms in the industry and exit barriers. The agricultural sector in Zambia has many players who are predominately small and medium scale farmers Due to the large number of small and medium scale farmers in the industry, the agricultural sector can be argued to be perfectly competitive as opposed to being in a monopoly or oligopoly. The agricultural sector is characterized by many small and medium scale farmers of which non-has a significant share. Furthermore, the small and medium scale farmer produces homogenous products which is maize in this scale and normally provide little to no differentiation.

In terms of exit barriers, it can be observed that the agriculture industry has low exit barriers. The low levels of investments and mechanization by the small and medium scale farmers makes it easier for them to leave or join whenever they decide to. These factors increase the rivalry in the industry as many new players can join at any time without having much investment.

4 Conclusions and Recommendations

Based on secondary data this paper conducted a competitive analysis of the small and medium scale farmers using Michael porters five forces model. The results show that the threat of new entrants is relatively high. This is because there are so significant barriers to entry as small and medium scale farming is not mechanized in Zambia. The government policy of FISP and FRA can also be viewed as encouraging factors rather than restricting entry. The barging power of buyers and suppliers is relatively high and outnumber the buyers who mostly impose the buying price. As for suppliers, the small and medium scale farmers' financial constraints bring about challenges of accessing farming inputs. When it comes to the threat of substitutes, small and medium scale farmers mostly cultivate maize which is a staple food in Zambia and thus a crop may not have much threat of substitution. However, the threat of substitution can be looked at from the point of view of the other players in the industry who also cultivate the same product and offer it to the market. Threat of substation comes from large and commercial farmers who have more resources to package and reach out to the markets.

The results of the five forces analysis suggest that the small and medium scale farmers do not benefit the most out of their farming activities. It can be argued that from the small and medium scale farmer's perspective, the profitability is on the low side as it appears that the farmers are at the mercy of the buyers and suppliers who exert more influence on them. That being the case, the small and medium scale farmers need more support in terms of adequate farming inputs (which are normally in short supply or delayed) and cost reflective prices which absorbs their cost of production. The small and medium scale farmer's views should be considered when the floor price for commodities such as maize is being determined. Since the small and medium scale farmers account for a larger proportion to the provision of food security and employment, there is need to ensure that their challenges such as access to credit, market and fair prices are in improved. The government as well as the private sector should offer agricultural credit at lower interest rates to the small and medium scale farmers. This has potential to boost their faring activities as they will be able to meet some of their farming requirements such as farming inputs.

5 Limitations

This study has some limitations. Firstly, this study is based on secondary data of peer reviewed articles, professional reports, and websites. It would be great to conduct a Five forces analysis using primary data such as a survey or interviews with small and medium scale farmers. Secondly this study only looked at small and medium scale farmers in crop production with particular emphasis on maize. Future studies can look at the other sub sectors of the agriculture industry or the whole industry analysis.

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Biography

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