

**AN ASSESSEMENT OF THE FACTORS THAT AFFECT PROFITABILITY OF
CASSAVA IN ZAMBIA'S CHONGWE DISTRICT**

A Research Report Presented to the Department of Agricultural Economics and Extension of
the University of Zambia

BY

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TABLE OF CONTENTS

ACKNOWLEDGEMENT	i
LIST OF TABLES	ii
ABBREVIATIONS.....	iii
ABSTRACT.....	v
CHAPTER ONE -INTRODUCTION	1
1.1 Background of the Study.....	1
1.2 Problem Statement	2
1.3 General Objective.....	3
1.4 Specific Objectives.....	3
1.5 Rationale	3
CHAPTER TWO -LITERATURE REVIEW	5
2.1 Introduction	5
2.2 Known Findings	5
2.3 Methods used in Profitability Analysis.	7
CHAPTER THREE - RESEARCH METHODOLOGY	9
3.1 Introduction	9
3.2 Conceptual Frame work	9
3.3 Gross Margin.....	10
3.4 Study Sites.....	11
3.5 Sample Size.....	11
3.6 Data Collection.....	11
3.7 Data Analysis	11
3.8 Limitations of the Study	12
CHAPTER FOUR -STUDY FINDINGS AND DISCUSSION	13
4.1 Introduction	13
4.2 Demographic Characteristics	13
4.3 Results interpretation	16
CHAPTER FIVE -CONCLUSION AND RECOMMENDATIONS	19
5.1 Introduction	19
5.2 Conclusion	19
5.2 Recommendations	20
REFERENCES.....	21
APPENDICES	22

LIST OF TABLES

Table 1: Distribution of Farmers by Gender 13

Table 2: Distribution of Farmers by Age..... 13

Table 3: Distribution of Farmers by Education Levels..... 14

Table 4: Kind of Farming Practiced..... 14

Table 5: Distribution of Hectares Cultivated by Farmers 15

Table 6: The Regression Results..... 15

ABBREVIATIONS

AMIC	Agriculture Marketing Information Centre
MACO	Ministry of Agriculture and Cooperatives
CSO	Central Statistical Office
RTIP	Root and Tuber Improvement Programme
SPSS	Statistical Package for Social Sciences
ACU	Acceleration of Cassava Utilization
NGOs	Non-Governmental Organizations
GR	Gross Revenue
FRA	Food Reserve Agency

ABSTRACT

An Assessment of the Factors that Affect Profitability of Cassava in Zambia's Chongwe District

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A study was carried out in Chongwe District, aimed at determining the factors that affect the profitability of cassava in Zambia. The objectives of the study were to identify the factors that affect profitability of cassava production and determine the extent to which these factors identified influence profitability of cassava in Chongwe District.

The structured questionnaire was the primary instrument used for data collection and also informal interviews. Descriptive statistics were generated using SPSS. SPSS was used to organize Outputs. Estimates of the parameters β and σ were obtained using multiple linear regression models.

Factors that affect profitability were identified and some showed positive correlation and others showed negative correlation to the profits of cassava production. These factors were identified from the results of the regression which was done in SPSS. Factors which showed the positive correlation to the factors that affect profitability are the level of education with the ($P=0.00$), farm size with ($P=0.00$), Variety of cassava cultivated with ($P=0.01$), access to credit with (0.02) and extension service with (0.02) these were statistically significant at 95% confidence level. Factors which showed negatively related to profits are the age of the farmer with ($P=0.01$), Household size with ($P=0.04$). These also were statistically significant at 95% confidence.

In line with the findings, i would recommend that Government should employ more extension workers so as to be able to reach out to each and every farmer on a regular basis; also the private sector in partnership with the government should set up some financial institution to provide credit.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Cassava production has grown rapidly in Zambia since the early 1990's. While maize production has trended downward, amid wide variation, the more drought-tolerant cassava crop has grown steadily. Two forces have motivated farmers to diversify their food staple production out of maize and into cassava. The removal of heavy subsidies for maize production and marketing coupled with the government withdrawal of a guaranteed maize market, from the early 1990s onward, clearly reduced farmer incentives to grow maize (Mungoma, 1996). Hence, farm families sought out more profitable crops. Among food staples, cassava and sweet potatoes have proven most popular (Zulu et al., 2000). At the same time, in the early 1990's, Zambia's Root and Tuber Improvement Programme (RTIP) released the first of two waves of new cassava varieties. Disease resistant and early maturing, the new varieties out yield conventional cassava varieties by roughly a factor of three. The combination of significant productivity gains in cassava, combined with a significant increase in the farmers' cost of maize production, has propelled growth in cassava production at roughly 3.4% per year for the past decade and a half.

Profitability within the cassava industry has been in the spotlight much more in recent years than historically because of the tremendous instability faced by the industry. Benefits of cassava at production level, along profitability, markets and at consumer level is enormous however, cassava has not graduated from a subsistent / semi-commercial level to commercial products with significant market shares in the consumer, business and industrial markets. Though cassava is not fully commercialized, it plays a major role in the informal marketing systems and is a part of the diets for millions of rural households.

Despite these enormous opportunities for cassava the existing institutional framework in countries does not favour the optimal exploitation of the emerging and potential opportunities. First the organizational capacities of producers in countries are wanting, removing the interest of key private sector players. Value addition technologies though available to the minority of the producers are still underutilized due to among other reasons lack of clear guidelines on standards

and policy issues from the public sector giving a solid direction to the sector. Generally the efforts by key stakeholders in the profitability are disintegrated with no clear partnership structures crucial in value chain. At production, production capacities in countries are still constrained by factors such as poor group organizational capacities, lack of commercialization skills, crop diseases such as cassava mosaic , poor access to improved planting materials, limited land sizes, inadequate inputs for production, inadequate labour, poor market linkages or access to profitable markets and poor access to credit facilities.

The main value addition challenges for the zones in countries are poor access to value addition technologies and knowledge. Key constraints for intermediaries along trading systems in many countries include limited or poor and latent demand for most of the products high trading costs notably transportation and market fees affecting their business profitability, lack of storage facilities, poor access to market information, seasonal availability of the products, poor access to credit facilities , and poor linkages with producers. Processing constraints on the other hand include poor quality raw materials, seasonal inadequate supplies, products' perish ability, poor demand for the products, products' price fluctuations, high transportation costs and stiff competition from other products like maize, sorghum and millet. At consumption, there is still a lot of unutilized market due to reduced or no awareness on cassava flour and related products. These weaknesses at various levels of the value chain make it inefficient and ineffective.

1.2 Problem Statement

The Zambia crop diversification and cassava production success story started in the early to mid-1990 with government movement away from a pan-territorial price policy for maize, and the ensuing release of two waves of improved cassava varieties by Zambia's Root and Tuber Improvement Programme (RTIP).

However little is known about the profitability of cassava production in Zambia. The dearth in knowledge concerning profitability could be due to the fact that most researches concerning cassava have focused on Disease resistant and early maturing, the new varieties out yield conventional cassava varieties by roughly a factor of three and to improve national food security

by increasing availability of drought-tolerant cassava and thereby reducing national dependence on highly variable rain fed maize production.

Despite that, there is in absence of growing commercial markets for cassava-based products, farmers have little incentive to expand production. Sustained increases in cassava production will, therefore, require steady expansion of commercial cassava markets – for composite flours, convenience foods, livestock feed and industrial starch – all of which stand to benefit from access to low-cost, cassava-based carbohydrates.

At consumption, there is still a lot of unutilized market due to reduced or no awareness on cassava flour and related products. These weaknesses at various levels of the value chain make it inefficient and ineffective.

1.3 General Objective

- The overall objective is to determine the factor that affects profitability of cassava production among the small holder farmers

1.4 Specific Objectives

- To identify the factors that affect profitability of cassava production
- To measure the extent to which those factors affect profitability of cassava production

1.5 Rationale

For one to get motivated to enter into a business one must know the profitability of that enterprise. Carrying out a research about profitability analysis of cassava production is important as it may be one of the factors that influence production. Farmers are rational and thus they tend to make production decisions based on crops that will yield the most benefits to them. Therefore information concerning profitability of cassava is essential because if production is found to be highly valuable then more farmers are likely to participate in production of cassava. An increase in production of cassava would be beneficial to the country.

In addition increase in production will also improve farmers' livelihoods by increasing their incomes. Most value chain stakeholders such as wholesalers, retailers and other intermediaries are driven by market value factors such as profits thus information concerning these factors is vital in influencing their decision to participate in a value chain.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This section reviews the findings by other researchers and tries to analyse the findings and see how they can be used in the Zambian set up. It reviews the factors that affect profitability of Cassava production.

According to (Omary, 1978) defined profit as “an increase in the net worth through time and is measured by the amount of what is increased”. In this definition, increase in net worth can be interpreted as the result of increase in production in Cassava production

Profitability is a common tool used by many managers of different enterprises to make decisions on whether to participate in the enterprise or not. Many studies have been done concerning profitability of different enterprises in different fields. In agriculture profitability analysis are done on different crop and livestock enterprises

2.2 Known Findings

Source: World Bank (World Bank, 2009)

Cassava has been growing in importance in Zambia since the era of market liberalization in the 1990s when support for maize was reduced, as part of a trend towards agricultural diversification (Govere, *et al* 2010). The evidence from the literature (Chitundu, 2006; Droppelmann, 2008; Haggblade, S, 2009) and recent small scale research such as the study conducted by (Cadoni, 2010) has shown that cassava production using traditional, and increasingly improved varieties, currently contributes significantly to food security in the northern and western cassava belt. Following sustained interest by Government, donors and NGOs in the development. According to the literature a study was focused on improving the food security through the use of improved varieties but they didn't focus on profitability of cassava at the farm level of the small holder farmers.

The lack of contractual agreements is the result of uncertainty of supply because traders and processing industries are not prone to bind themselves in contracts, given that they are unsure about effective time of delivery and quality of supply. However, it can be equally argued that such contractual agreements could become a drive in promoting certainty in supply, which will result into profit making by the farmers (Cadoni, 2010).

At consumption, there is still a lot of unutilized market due to reduced or no awareness on cassava flour and related products. These weaknesses at various levels of the value chain make it inefficient and ineffective. This is because most of the people are not aware about the nutritional value of cassava products (Chitundu, 2006; Droppelmann, 2008; Haggblade, 2006).

In recent years, the development of value chain analysis applied to markets in developing countries has become particularly relevant for the cassava sector in Zambia (Evans, 2004; Mitchell, 2009). A partnership of public and private stakeholders created the Acceleration of Cassava Utilization (ACU) Task Force in 2006, to develop strategies to tackle the issue of underutilisation of cassava potential using a profitability approach. The value chain task force process (Chitundu, *et al* 2006) later developed the basis for the cassava sector strategy developed within the Programme, which aims at engaging supply chain actors in a participatory analytical process. There are five main supply channels identified within the cassava value chain in Zambia: subsistence production, marketed fresh cassava for human consumption, processed cassava for human consumption, livestock feed, industrial uses. This study focuses on channels which, according to available literature, together account for 5 to 10percent of total cassava production, and hold the main potential prospects to drive the commercial growth of the cassava sector in the country, both in the short and longer term(Chitundu, 2006; Droppelmann, 2008; Haggblade, 2006).

The literature provides a framework for understanding the three supply channels. Analysing their role within the value chain, as well as identifying potential participants in the sector and provide an overview of market dynamics for farmers participating in the cassava value chain, and to provide an analysis of the costs involved in cassava production, with a focus on farmers'

practices and sale patterns. According to the research they did not focus on the returns at the farm gates.

2.3 Methods used in Profitability Analysis.

Profitability analysis is the most common method used interns of determining the market value; however it appears to be more common in other crops. (Ahmad,2004), for example a study that was done on the performance and profitability of the cassava Uganda, a gross margin analysis was used to determine the profitability of cassava production. The gross margin analyses involved cost benefit trade -offs where total variable costs were subtracted from total revenue. Budgeting techniques were used to measure comparative advantage of various crops to the farmer in terms of income earned and return to family labour. Regression analysis was used to determine the factors affecting cassava productivity and profitability in the study area. Yield of cassava was regressed against variables thought to influence.

Farmers 'decisions to invest in agricultural production Thus yield of cassava was regressed on the total farm size, total farm income, off-farm income, age of the farmer, weevil damage, interaction with government extension agents, gender of the farmer, distance from the farm to the tarmac, years spent in school and number of cattle owned. (Bagamba, 1998)

Another study that was done on factors affecting the profitability and yield of cassava production in two districts of Punjab a partial budgeting model was used to determine profitability of cassava growing. This methodology included a gross margin analysis which was used to determine the costs of various inputs and the profitability of cassava cultivation. (Ahmads, 2004). Factors affecting yield in this study were determined by carrying out a regression analysis using a Cobb-Douglas production function which was used due to its ease in computation and interpretation.

It is also clear that gross margin analysis is a common tool that is used in determining profitability of an enterprise. However two methods of identifying the factors that affect profitability are mentioned above the first method is to regress yield on different variables. The

results of this regression are then inferred to profitability hence yield acts as a proxy for profitability. The second method is to regress gross margin variable (Total Revenue- Total Variable Costs) directly on different factors expected to affect profitability.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

This chapter describes the methods and procedures that were used to help in the achievement of stated objectives. The chapter also described the study area, sample used and the method of collecting and analysing data.

3.2 Conceptual Frame work

A multiple regression model was used to determine the effects of various variables on the profitability of cassava production. More generally an unknown population model is expressed as (Dougherty, 2002).

$$Y_i = \beta_1 + \beta_2 X_{2i} + \dots + \beta_k X_{ki} + U_i$$

Where Y is the dependent variable, X's are K-1 explanatory variables and U_i is the error term.

$$Y_i = b_1 + b_2 X_2 + \dots + b_k X_k$$

This means minimizing the sum of squares of the residuals. Hence $b_1 \dots \dots \dots b_k$ is chosen so as to minimize the residual sum of squares.

Multiple regression analysis allows one to discriminate between the effects of the explanatory variables, making allowances for the fact that they may be correlated. The regression coefficient of each X variable provides an estimate of its influence on Y, controlling for the effects of all the other X variables (Dougherty, 2002).

The gross margin variable was used as the dependent variable; whereas the explanatory variables are the farm size, Level of education, Variety of cassava, household size and Extension service, a set of dummy variables age of the farmer, experience of the farmer

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + B_4X_4 + B_5X_5 + B_6X_6 + B_7X_7 + B_8X_8 + e$$

Where:

Y = Gross margin

X₁ = Age of the farmer

X₂ = Level of education

X₃ = Farm size

X₄ = Variety of cassava

X₅ = Household size

X₆ = Number of years of Experience

X₇ = Extension service

X₈ = Access to credit

e = error term

Y is the dependent variable which is the gross margin and the independent variables are Age of the farmer, Farm size, Variety of cassava, Household size, Number of years of experience extension services. And access to credit.

From literature it was expected that that these independent variables had a significant effect on profitability

3.3 Gross Margin

Gross margin (also called gross profit margin or gross profit rate) is the difference between REVENUE and cost before accounting for certain other costs. Generally, it is calculated as the selling price of an item, less the cost of goods sold (production or acquisition costs, essentially). Algebraically gross margin can be expressed as

$$GR = TR - TVC$$

Where GR is the gross revenue, TR is total revenue and TVC is total variable costs.

3.4 Study Sites

This study was conducted in chongwe district, Lusaka Province. The area was selected because it comprises not only village farmers but also smallholder farmers who have settled there from various urban areas. Therefore, it represented both the village farmers and smallholder farmers. This was true representative of various household characteristics such as education and extension services which are some of the variables this study measured.

3.5 Sample Size

A sample of 80 farm households was selected from a sampling frame comprising all farm households who Produce Cassava. A simple random sample of a total of 80 households was selected from a number of camps to ensure representation of all categories of households. A farm household was used as a sampling unit.

3.6 Data Collection

Primary data was collected through a pretested questionnaire and secondary data was also collected from Agriculture marketing information centre (AMIC) and Central Statistics Office (CSO).

The primary data was collected in Lusaka Province in chongwe. The data included information concerning the variables that are required to carry out a gross margin and a multiple regression.

3.7 Data Analysis

The gross margin analysis and multiple regressions were carried out in a statistical package and field data was analysed in SPSS to produce descriptive statistics and the output was organized using SPSS

3.8 Limitations of the Study

In this research, a sample size of 80 farmers was supposed to be sampled. Covering all sampled farmers was not possible and only 71 farmers were interviewed because of the resources to do that were limited. Secondly, the gathering of information from some farmers was difficult using structured questionnaires because of illiteracy. This affected the interviewing process with farmers especially among households with no common language with the researcher. In such cases, an interpreter was used and this meant more time for data collection.

CHAPTER FOUR

STUDY FINDINGS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the study findings. It begins with a presentation and discussion of the demographic characteristics. The knowledge the farmers have on the factors that affect profitability of cassava production was done using the model of multiple linear regression

4.2 Demographic Characteristics

Table 1 showthat majority of the farmers (56%) were males while (44%) were females. There are more males because only the household head in each household was the respondent implying that females were respondents only in female headed households. Therefore, there were more male headed households than female headed households.

Table 1: Distribution of Farmers by Gender

Gender	Number	Percentage
Female	31	44
Male	40	56
Total	71	100

Table 2 shows majority of the farmers (39%) had ages between 45 and 54 years. About 17% constituted those that were between 25 and 34 years and another 17 % were between 35 and 44 years. Further, 18% constituted those that were between 55 and 64 while 9% were between 65 and 74 years respectively.

Table 2: Distribution of Farmers by Age

Age group (years)	Number	Percentage
25-34	12	17
35-44	12	17
45-54	28	39
55-64	13	18
65-74	6	9
Total	71	100

Table 3 show the level of education, 23% of the farmers had reached formal school up to secondary level, 24% up to primary, 15% up to tertiary level and 9% never went for formal education. Since only 53% had reached secondary and tertiary levels, the implication is that they may be able to comprehend new technologies and practices easily.

Table 3: Distribution of Farmers by Education Levels

Education	Number	Percentage
Primary	24	34
Secondary	23	32
Tertiary	15	21
None	9	13
Total	71	100

Table 4 show the farming practiced, 78% of the respondents were small scale farmers while 22% were large scale farmers. It means that they were more Small scale farmers who were interviewed to the large scale farmers. This could be that most rural parts of Zambia is mostly occupied by the small Scale farmers.

Table 4: Kind of Farming Practiced

Farming	Number	Percent
Small scale	55	78
Large scale	16	22
Total	71	100

Table 5 show the majority (45%) of the farmers cultivated in less than a hectare 1-2 hectares of land, 44% cultivated between 1-5 hectares while 11% of the farmers cultivated above 5ha.The mostly grown crops were maize and cassava however more land was allocated to maize by most

farmers. The smaller size of the cultivated fields shows that the research dealt with small scale farmers.

Table 5: Distribution of Hectares Cultivated by Farmers

Hectare cultivated	Number	Percentage
Less than 1ha	32	45
1-5ha	31	44
Above 5ha	8	11
Total	71	100

The table below shows the results of the regression model which was regressed in SPSS using the multiple linear regression model.

Table 6: The Regression Results

Model	B	Standard error	Beta	t-Values	Sgn.P	F Value	R Squared
Constant	4.424	1.152	0.650	-3.839	0.000	11.950	0.782
Age of the farmer	-0.022	0.017	0.117	1.331	0.01	—	—
Level of education	0.069	0.180	0.034	0.385	0.00	—	—
Farm size	0.285	0.295	0.88	0.961	0.00	—	—
Variety of cassava	0.298	0.352	0.071	0.846	0.01	—	—
Household size	-0.215	0.279	0.071	0.769	0.04	—	—
Number of years of experience	0.003	0.016	-0.016	-0.177	0.86	—	—
Extension Services	1.899	0.255	0.683	7.455	0.03	—	—
Access to Credit	0.442	0.023	0.642	0.456	0.02	—	—

4.3 Results Interpretation

$R^2=0.782$ indicated that the independent variables included in the model explains 78% variation occurring in the level of profits earned per ton of cassava produced.

F value was 11.950 at 0.05 level of significant which implies that regression was significant and reliable.

Multiple regression equation

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + e$$

$$Y = 4.424 - 0.022X_1 + 0.069X_2 + 0.284X_3 + 0.298X_4 - 0.215X_5 - 0.003X_6 + 1.899X_7 + 0.002X_8 + e$$

Age showed some negative correlation to the profitability of cassava as the age of a farmer increases the efficiency reduces hence making fewer profits. This indicates that most of the cassava producers were young and in their prime age in terms of productivity given the necessary resources, these sets of respondents have high potentials to attain a high level of profitability. In other words it meant that when one is aging the efficiency reduces drastically, thereby reduces production and in turn profit reduces. It was statistically significant because the P value was 0.001.

Education enhances the allocative ability of decision makers by enabling them to think critically and use information sources efficiently. In this study, the coefficient for education was 0.069 values which showed positive correlation with the factors that affect profitability and if one attains an extra year in education will increase profits by K0.069. It means that the higher one gets educated the more profits is likely to make in the sense that farmers with more education should be aware of more sources of information, and are efficient in evaluating and interpreting information about innovations than those with less education. The coefficient of the household education indicates that an increase in head's education level by one year results into making more profits than other farmers with less education. It was statistically significant at 95% confidence level according from the table above.

Size of the farm and the results showed that there was a positive correlation between the size of the farm and the profits generated on that farm. At 95% confidence level, the coefficient of the farm size was found to be 0,28 which mean that a one extra increase in the farm size it resulted in an increase in profits of about that same margin (i.e. ZMK 0.285). This can be true because as an enterprise expands, production also increases and there by more profit is likely to be made.

There was a negative correlation between gross profit and the size of the household. As the size increased by one extra individual profits were seen to reduce by the margin of ZMK -0.215 which is the coefficient of the household size on the regression model. This situation can be explained by the fact that the increased use of the family income or the income from the selling of Cassava, buy clothes and educate a larger number of children may leave limited funds for meeting Cassava farming expenditures because of the high household expenditures. Hence, farmers with bigger families' were less successful in terms of profitability than those with smaller family sizes. The other reason could be that as the member's of household size increases it can also increase consumption of cassava there by reducing profits on the farm from the sales of cassava. It was statistically significant with the P value of 0.01

The extension services showed positive correlation to the profits of cassava. It indicated that those farmers who received extension services are likely to make profits compared to those who didn't receive some extension; this was due to the fact those who received some extension training were told how to grow cassava and apply some improved practices. This variable was significant at 95% confidence level. And it had a coefficient of 1.899.

Access to credit had a positive correlation to profitability which meant that those who had access to credit are likely to make profits because they had capital which was employed in the production resulting into excess production of cassava and inturn making some profits. This means that those who had access to credit sources generated higher profits on the cassava production enterprise than those who did not have. The profits for those who had access to credit were found to higher by ZMK 0.442 than those who did not have access. This is can be true because those farmers who have access to other sources of incomes made better use of all

existing factors of production while farmers who have access to little alternative income under-utilized some of their factors of production due to inadequate operating capital. It was statistically significant at 95% confidence level.

The Variety of cassava showed a positive correlation to the profits and with the coefficient of 0.298. This indicated that those farmers who used improved varieties were likely to make profits to those traditional varieties. It was statistically significant at 95% confidence level.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter presents the conclusion and Recommendations based on the interpretation of the study findings.

5.2 Conclusion

This study was designed to determine the factors that affect profitability of cassava production and multiple linear regression analysis was employed to analyse and discuss the factors affecting profitability which was analysed in SPSS.

The objectives of the study were met and several factors were identified that affect profitability of cassava and these factors are Age of the farmer, Level of education, Farm size, and variety of cassava planted, household size, access to credit and extension services

These factors were identified from the results of the regression which was done in SPSS. Factors which showed positive correlation to the factors that affect profitability are the level of education which had a coefficient 0.069, farm size with the coefficient 0.284, Variety of cassava cultivated with the coefficient of 0.298, access to credit with a coefficient of 0.442 and extension service with coefficient of 1.899. These indicated that the higher they become the more likely one makes profits. These variables were significant at 95% confidence levels.

Factors which showed negatively related to profits are age of the farmer with the coefficient of -0.022, Household size with a coefficient of -0.215. These indicated that they are negatively related to the profitability of cassava production.

5.2 Recommendations

In line with the finding the Government should employ more extension workers so that to be able to reach out to each and every farmer on a regular basis and the extension education should not be directed towards production only but also towards encouraging the households to engage in value addition so that to make more profits from the sales of cassava products.

The private sector in partnership with the government should set up some financial institution which can provide some credit to the rural farmers so that they increase the production of cassava so as to make huge profits and become food secure.

The government in partnership with the private sectors should provide readily market to the rural farmers so that they have access to market where they can sell their cassava so that profits are made. This is because those farmers who had access to markets made profits from the sale of cassava. They should set up some marketing board like the Food Reserve Agency targeting farmers who grow cassava and buy cassava from them with the view of becoming food secure.

Future studies should be conducted in different areas and with a larger sample size so as to have a lot of variations in the explanatory variables. This is likely to make other factors significant. It is further recommended that extension workers should educate rural farmers on profitability of Cassava production

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APPENDICES

Questionnaire

Questionnaire serial number:

An Assessment of the Factors that affect Profitability of Cassava in Zambia's Chongwe District

*Department of Agricultural Economics & Extension
The University of Zambia*

This questionnaire is for academic purpose only. Be rest assured that all the information you provide will be treated as private and confidential as possible. Feel free to answer all the questions honestly. Your cooperation in this regard will be highly appreciated.

Instructions: Please write some answers in the boxes and blank spaces provided.

Section A: Demographics Characteristics

1. Sex of the Farmer

- a). Male ☐
- b). Female ☐

2. Level of education attained

- a). Primary ☐
- b). Secondary ☐
- c). Tertiary ☐
- d). None ☐

3. Age (at last birthday).....

4. What kind of farming are you involved in?

- a) Small Scale ☐
- b) Large Scale ☐

5. What is your monthly income?

- a) Less than 500,000 ☐
- b) 500,000 – 1,000,000 ☐
- c) Above 1,000,000 ☐

6. Are you involved in crop production?

- a) Yes ☐
- b) No ☐

7. What kind of crops do you grow?

.....

8. What is the total number of your household?

- a). Below 5 []
- b). 6 – 8 []
- c). 9 – 11 []
- d). 12 – 14 []
- e). Above 14 []

Section B: Socio-Economic Status

Nature of the farm

9. What is the size of the farm which is used to produce cassava?

- a). less than a hectare []
- b). 1 -2 hectares []
- c). 1- 5 hectares []
- d). Above 5hectares []

10. Main type of cassava Cultivated

- a) Traditional []
- b). Improved []
- c). Mixed type []

11. How much cassava do you produce per hectare?

- a). Less than a ton []
- b). 1- 2 tones []
- d). Above 2 tones []

12. What is the cost of producing cassava per hectare?

- a). K50,000-K100,000 []
- b). K100, 000- K500, 000 []
- c) Above K500, 000 []

13. How many 50kgs bags of cassava do you sale

- a) 1- 20 bags []
- b). 20-50 bags []
- c) Above 50 bags []

14. What is the mode of ownership of land on which you carry out cassava production?

- a). Owned land []
- b). Rented Land []

15. What is the main source of labor for you cassava production?

- a). Hired labor []
- b). Family labor []

16. What is the farm gate price per 50kg bag?

- a) Less than K200, 00 []

- b) K20, 000- K50, 000 []
- c) Above K50, 000 []

17. What is the number of years of Experience.....

18. Where/ to whom Cassava is Normally Sold

- a). Processor []
- b). Wholesaler []
- c). Retailer []
- d). Consumers at the Local market []

19. Are there any price Variations in the sales of Cassava?

- a). Yes []
- b). No []

20. Do you receive some Extension Service?

- a). Yes []
- b). No []

21. Do you have access to Credit?

- a). Yes []
- b). No []

22. Do you have available Markets where you sale Cassava

- a). Yes []
- b). No []

23. What are some of the factors that affect profitability?

- a). Prices []
- b). Distance to the market []
- c). Others.....