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# IMPACT OF AGRICULTURAL INPUT SCHEMES ON PERFOMANCE OF RESETTLED FARMERS IN ZVIMBA DISTRICT IN ZIMBABWE

BY

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A DISSERTATION SUBMITTED IN PARTIAL FULFILMENT OF THE REQUIREMENT FOR THE DEGREE OF MASTER OF SCIENCE IN AGRIBUSINESS MANAGEMENT IN THE COLLEGE OF HEALTH, AGRICULTURE AND NATURAL SCIENCES

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## Abstract

The study assessed the impact of agricultural inputs scheme programmes on the performance of the smallholder resettled farmers in Zvimba district. It was based on the rationale that continuous food insecurity, low productivity and low incomes in rural and resettlement areas have become a threat to rural development in Zimbabwe. In terms of the objectives of the study, the research determined the socio-economic characteristics of the participants, the relationship between the input schemes, maize productivity, household food security and household income. The study adopted descriptive research design and a mixed methodology design, which used secondary data sources and a semi-structured questionnaire to gather data from 90 smallholder farmers in Zvimba District. In terms of data analysis, the study adopted a regression model. Half of smallholder farmers who are males in Zvimba benefited consistently throughout the five assessed years from the input support schemes while the others remaining farmers benefit at varied intervals in five years. The input distributions target the middle and old aged groups who have acquired knowledge on farming through non-formal education system to stimulate maize productivity and improve food security. Based on the findings of the study the research concluded that in terms of the relationship between the input support schemes on maize productivity there is a positive relationship between maize productivity and benefiting from the input support programs. Based on the findings of the study input schemes play a significant role in upholding the livelihoods of the smallholder resettled farmers. In addition, the study concluded that the input subsidies could be useful for food insecure and poor households in some locations in Zvimba District, but they alone are not a solution to food insecurity and poverty. They are only one tool that has to be built-in in a more comprehensive agricultural policy package facilitating agricultural and rural development. In terms of the overall recommendation, the government of Zimbabwe should consider distribution of inputs to smallholder farmer with orientation towards women and youth to promote food security, poverty alleviation and income generation as one of the critical sustainable developmental goal. The government must create supportive policies, which ensure market efficiencies to promote higher income among smallholder farmers.



**Key words**: Agricultural input, food security, productivity

## Declaration Page

I declare that this dissertation is my original work except where sources have been cited and acknowledged. The work has never been submitted, nor will it ever be submitted to another university for the award of a degree

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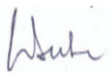
| PROFESSOR LIGHTON DUBE |  (14/05/22) |
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Lastly, I would like to thank the Lord Almighty for the wisdom and guidance during the dissertation process.

## Dedication Page

This research is dedicated to all who are involved in developmental work with an emphasis towards uplifting the livelihoods of rural farmers and bring rural development

## List of Acronyms and Abbreviations

| | |
|---|---|
| AMA | Agricultural Marketing Authority |
| FAO | Food and Agricultural Organization of the United Nations |
| GMA | Gross Margin Analysis |
| ZFU | Zimbabwe Farmers Union |

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# CHAPTER 1 INTRODUCTION

## 1.1 Introduction

This chapter looks at the background of the study, problem statement and purpose of the study. It outlines the objectives and questions that the study sought to answer. The section also covers the research assumptions, significance of the study and limitations.

## 1.2 Background of the Study

The Government of Zimbabwe embarked on the fast track land reform programme in the year 2000 with the main aim being to address the land imbalances between the black majority and white minority of Zimbabwe. Prior to that commercial farmers occupied 70% of the arable area and were the main producers in agriculture. The land reform programme was associated with the birth of the smallholder farmers associated with A1 and A2 models as there was a land shift from the commercial farmers (Govere, 2009).

Farmers who were given farms under the A1 and A2 used to grow for their own subsistence. As such, there was a shift in production responsibility from the commercial farmers to the smallholder farmers. The food security status of the country changed from the more efficient commercial farmers to these smallholder farmers with limited capacity and in need of agricultural input support. Agricultural input schemes originated in the colonial era where governments gave agricultural resource support to farmers. Other African Countries also embraced the subsidy programs before 1980 in a bid to empower its farmers (Dorwad, 2019). Agricultural inputs were supplied to farmers at

restricted and subsidized prices. The government of Malawi pioneered the return of large scale subsidies in 1998 (Banful, 2019).

Zimbabwe's agricultural sector remains a key component to the overall economic development of the country. It is the main source of food availability at the national level, and a primary source of food and income for most households. It contributes significantly to the Gross Domestic Product (Munhande, 2017). The sector accounts for over 40% of the value of exports and 60% of raw materials for agro industries.

Over the years the government has strived to expand and maintain the contribution of agriculture to the national fiscus through programmes like the Agricultural mechanization and agricultural input schemes. Prior to the year 2000, the government used to support the communal farmers but the coming in of the A1 and A2 farming models expanded the group. The main aim of agricultural input schemes is to increase agricultural production and enhance household and national food security. As such after redistributing land the government rolled out input support schemes to boost the production of the resettled farmers.

Soon after the land reform programme the government introduced the Crop and Livestock Input Scheme with the aim of assisting new farmers to meet production levels which were enough to ensure national food security. The scheme did not have adequate funding and as a result most smallholder farmers did not manage to benefit.

In the year 2005/6 season the government launched Operation food security/*maguta/inala* input scheme. Its aim was to ensure food security by focusing

mainly on production of maize, wheat and small grains. It was also not effective as it had many target crops and it resulted in a narrow range of inputs being distributed. The same year saw the launch of the Agricultural Sector Productivity Enhancement Facility by the Reserve bank. The other scheme was the Winter Crops Loan Scheme which targeted wheat production. However, little is known concerning the impact of such input support schemes on food security and income in Zimbabwe, therefore it is against this background that the researcher sought to assess the impact of input support schemes in Zimbabwe.

### 1.3 Statement of the Problem

Following the 2018/19 drought, crop production was well below average and the country was faced with a cereal deficit of about 80000 metric tonnes. (Zimbabwe Food Security Outlook, October 2019 -2020). The 2019/20 rainfall season was expected to be below average and characterized by a late start and erratic rainfall. This combined with the anticipated poor access to agricultural inputs, will likely lead to yet another below average cropped area. The expected results meant there was a likelihood of lower than normal livelihood opportunities and household income. The continuing food insecurity, low productivity and low incomes in rural and resettlement areas have become a threat to rural development in Zimbabwe. The situation prevails regardless of the fact that the government has channeled resources towards providing inputs to the farmers. The provision of inputs by government to enhance or promote food security in rural areas has not had the desired result as food insecurity, poverty and low incomes remain topical issues among the resettled farmers. Despite all the efforts by the government and donor

agencies to improve the status quo of the farmers in Zvimba district, they continue to lag behind in terms of household food security, income and productivity. The study therefore sought to explore the impact of the input support schemes on the performance of the smallholder farmers in improving household food security, income and productivity.

### 1.4 Research Objectives

The main purpose of this study was to assess the impact of agricultural inputs scheme programmes on household productivity, food security and income for the smallholder resettled farmers in Zvimba district. The specific objectives of the study were as follows:

1. To understand the socio-economic characteristics of the participants
2. To determine the relationship between input schemes and maize productivity
3. To determine the impact of input schemes on household food security
4. To determine the impact of input scheme on household income

### 1.5 Research Questions

1. What are the socio-economic characteristics of smallholder resettled farmers?
2. What is the relationship between input schemes and maize productivity?
3. What are the impacts of input schemes on household food security?
4. What are the impacts of input programmes on household income?

## 1.6 Significance of the Study

Most governments have launched agricultural subsidies in response to the Abuja declaration on Fertilizers for an African Green revolution. The Zimbabwean government supports the input programme as a way of boosting agricultural production which in turn has an impact on how well the economy fares since it is agricultural based. A decline in production among the smallholder farmers poses a great threat to economic growth activities and security of the nation (FAO, 2009), thus there is need to envision a sustainable economic development and food security, which can be achieved through increased production by the smallholder farming sector. There is need to generate specific information at a specific location to see if these subsidies are really enhancing food security and generally improving livelihoods of the people concerned.

The study will be used to evaluate if the manner in which these inputs are being distributed is really benefiting the intended person and if the benefits can then be cascaded by extension officers to the beneficiary when they carry out awareness programmes for input schemes. The study is also of benefit to the agricultural industry as it raises awareness on the benefits and impacts of the agricultural input schemes in line with household productivity, food security and income of the smallholder growers.

The researcher also benefited as he enhanced his knowledge on the various input schemes originations and intended benefits. The results obtained in the study will also enhance the body of knowledge as other authors studying on input schemes will be able to make reference to the study.

## 1.7 Delimitations of the Study

The study focused on resettled smallholder farmers who have less than 5ha of land. These farmers should have benefited from the input programme within the 2019/2020 agricultural season and who are within the Zvimba District. These should have benefitted from the Presidents Scheme which targeted the smallholder farmers only.

## 1.8 Limitation of Study

Research was conducted at a time when the world was at a standstill because of the Covid-19 pandemic which paused challenges to the data collection process. The government induced lockdown restriction limited time and accessibility of research participants.

At times respondents had difficulties to recall their production and income records as rural farmers do not keep records thus it was difficult to make conclusions. There was therefore need to complement the findings with secondary data benchmarking the normal income and productivity levels of smallholder farmers. Furthermore, the input schemes are politicized in rural areas and data collection was threatened as the respondents felt the research was associated with politics. An informed consent form was shared with the research participants so that they were fully aware of the study intentions and data utilization processes.

## 1.9 Research Assumptions

The underlying assumption is that by providing inputs like fertilizer and seed their use will increase thereby leading to production increases and ultimately improve output

which has an impact on household income, food security and productivity. Others include the following

- There is no leakage or diversion of inputs.
- There is a functional distribution mechanism for the inputs and efficient targeting of farmers.
- Beneficiaries do not allocate inputs to other activities.
- Farmers have knowledge and resources to use inputs productively.
- Other factors of production remain constant.
- Crop responds to inputs as intended.

# CHAPTER 2 REVIEW OF RELATED LITERATURE

## 2.1 Introduction

Agricultural input schemes or interventions aim to make particular inputs, most commonly fertilizer and seeds available to potential users at below market costs as a way increasing agricultural productivity, profitability and ultimately reduce poverty and increase income for individual households.

According to Rukuni (2017), many of the world's poor live in rural areas and are dependent on agriculture for both incomes and livelihoods. These smallholder farmers contribute significantly to national food security, economic and rural development. In Zimbabwe about 70% of the population derive their livelihoods from agriculture (Mano, 2018). In Zimbabwe the provision of inputs for smallholder farmers has been targeted at increasing production and overcome some production constraints.

## 2.2 Theoretical framework

### 2.2.1 Economic Theory of Production Function and DFID - SRLF

The study used the economic theory of production function. This production function alludes to the fact that production depends on a number of factors. The theory depicts a process of physical transformation of inputs into outputs. It must be able to specify how the output varies in response to changes in the inputs. The notion of physical causation is at the very basis of production theory. It states that there is a maximum output that can be produced when a specified set of inputs is made available to a farmer. It also states that's an increase in the usage of a single input results in an increase in output till a

certain level where continuous application of that input results in a decrease in output (Grad, 2020).

When a farmer uses recommended inputs at their respective rates we expect an increase in output. These inputs are normally costly for the majority of resettled farmers and as such most of them are not able to apply the recommended inputs (Max, 2020). By providing these inputs to farmers the intended outcome is improved production and increased output by the farmer.

The Sustainable Rural Livelihood Framework (SRLF) was also used. This theory is premised on the fact that there are economic factors which affect the livelihoods of people. These factors are human capital, financial capital, and physical capital, natural and social capital. These assets affect the livelihood outcomes of the farmers. Farmers need support mostly financial support so that they can meet their production needs (DFID, 2018). Therefore, by providing inputs government will boost the financial capital of farmers and will have an impact on the other.

### 2.3 Relevance of Theoretical Framework

Maize production is depended on a number of factors which include seed maize, fertilizer, land, rainfall among other things. A production function can be described in terms of maximum output that cann be produced from a specified sets of inputs available to farm. An increase in usage of inputs results in an increase in output of the crop. In the case of this study, if a farmer uses recommended seed and fertilizer and all other inputs are held constant, the result will be an increase in output of maize. If maize output is

increased, there will be surplus to cater for the dietary needs and some to be sold to bring income.

However, due to high costs of inputs most farmers are not able to apply the recommended input levels to increase production that will in turn lead to improved incomes and livelihoods. Support schemes by government and other agencies ensures that farmers can achieve maximum production of maize and will therefore have an impact on the production function resulting in increased output.

Sustainability of production will be achieved when farmers will be able to purchase and use the same high level of inputs even when the government has withdrawn its support. Farmers will be able to save enough capital to purchase the recommended inputs levels on their own and remove the dependency syndrome.

### 2.4. Conceptual Framework

The framework simplifies the study making use of a diagram to indicate the relationship between the study variables. The provision of inputs was necessitated by the need to improve production through use of advanced seed varieties and fertilizers by farmers. The land reform programme had also just empowered a lot of farmers who did not have adequate knowledge on agricultural production in general (Max, 2020). Input programmes made these available to smallholder farmers and the goal was to improve productivity, establish food security and improve farmer's welfare and be able to stand on their own should the input programs stop. Researchers can adopt existing frameworks. This study will adopt the constructed logical model. This model is a

planning tool used to clarify and display what a particular project intends to do and what it hopes to accomplish and impact (Fitzpatrick, Sanders & Worthen, 2017). The framework is summarized below.

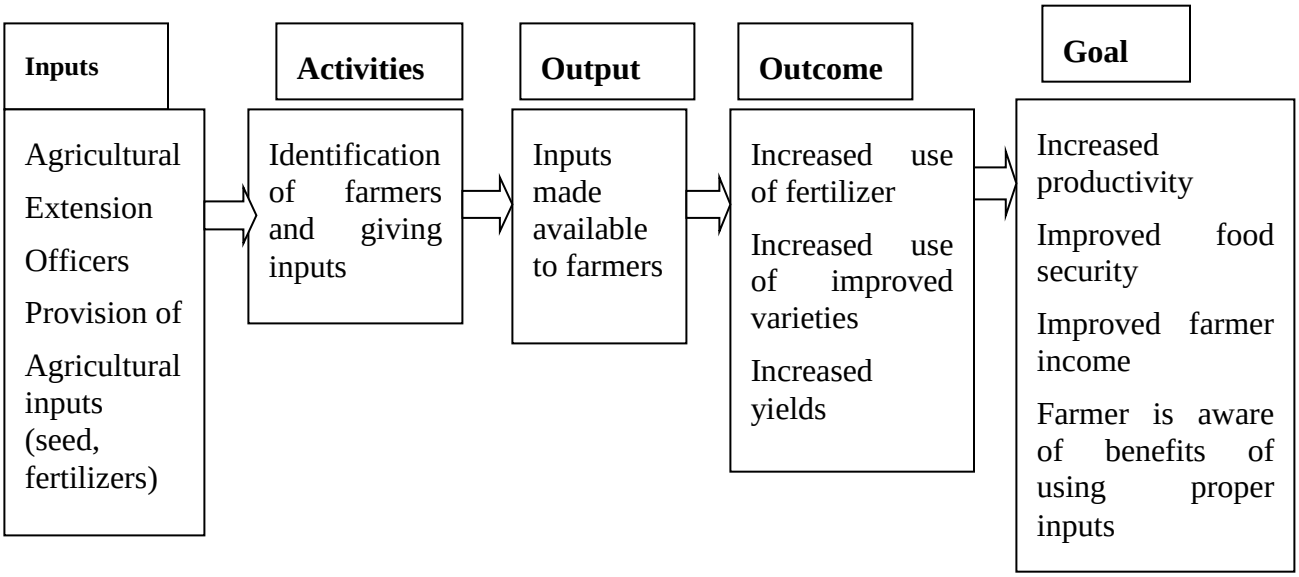


Figure 2.1: Conceptual Framework

**2.5 Input Support Schemes in Zimbabwe**

In 1980 when Zimbabwe gained independence it inherited a dual agricultural sector. This consisted of predominantly white large scale commercial farmers and black smallholder farmers. Support from colonial governments saw the large scale farmers develop into commercially viable clientele who were a priority for the private and public sector providers of agricultural finance and inputs (Chikobvu, 2019).

The introduction of the fast track land resettlement programme transformed this agricultural sector into a tripartite sector consisting of large scale commercial producers,

small to large scale indigenous farmers and the traditional communal farmers who all have unique characteristics that influence the success of any input supply (Govere, 2019).

Favorable government policies in the 1940s saw growth of the agricultural input supply sector. The post-independence era saw the rapid growth in the utilization of agricultural inputs by smallholder farmers due to the Agricultural Finance Seasonal input credit Scheme, (Govere, 2019). The fast track land resettlement programme though it addressed the issue of equitable distribution of land caused widespread disruptions in the sophisticated input supply channels that had been developed over the years.

The commencement of the land reform meant there was need for government to launch some government supported crop and livestock input schemes because the private sector could not meet the sudden and huge demand by the new farmers. The government through the Ministry of Agriculture and its arms started distributing inputs to the various farmers. Institution used were parastatals like Grain Marketing Board, Tobacco industry and Marketing Board and others. The Ministry of Finance would provide funds while the different organizations would identify farmers to benefit (Makondo, 2019).

Various programmes have been put in place by government to support the smallholder farmers. These include the Operation Maguta of 2005/06 which was meant to promote food security by focusing on production of maize, wheat and small grains. Other input supply schemes apart from the Government led ones are the private sector supply input and donor recovery programmes. The private sector input supply approach is when players in the private sector are allowed to have a free role in the provision of inputs and

services at a profit. Competition between the firms would stimulate input availability, enhance product quality, create innovation, promote information flow and encourage growth of wide manufactures and dealership networks (Govere, 2019).

Donor agencies have also played an important role in the provision of agricultural inputs and offering support services to Zimbabwe. These recovery programmes aim to promote food security and self-sufficiency to vulnerable households.

From the year 2000, government has made deliberate efforts to support farmers by directly giving them inputs. Some of the programmes include the Maguta/Inala programme in 2005 which was necessitated by the drought during the 2003/2004 agricultural season. The year 2011 saw the launch of the Presidential Input Scheme to cater for the subsistence farmers, poverty stricken and food insecure households. From the year 2016-2018/19 season government implemented the command agriculture which targeted the large and medium scale farmers. The programme covered both inputs and farm implements for the targeted farmers. Inputs included seed, fertilizer and chemicals for maize and soybean.

In the National Budget of 2019 presented in 2018, government through Ministry of Finance acknowledged that expenditure on command agriculture was excessive and unsustainable. As a result, the programme was redesigned to include the role of private credit markets. The government, however continued to support the smallholder farmers and the vulnerable. This Presidential Input support scheme supports maize production, small grains and other crops like cotton and targeted mostly the smallholder farmers mainly A1 farmers, communal farmers. Inputs provided were mostly seed and fertilizer.

## 2.6 Empirical Review

### 2.6.1 Input schemes and maize productivity

Input Support Schemes enhance the promotion of agricultural production, exports and food reliance in most developing countries. This can be in the form of price support. Price gives farmers signals, incentives to produce, hence they serve as an instrument of allocating resources and income. If there is no promotion the farmers produce less, swing to other crops, venture into illegal trading, produce for own consumption and finally leave land and seek employment in other sectors of the economy. Takavarasha (2016) states that, "the subsidization of basic food such as mealie meal has also been used in order to increase effective demand for these commodities". In general, the above quote shows that farmers respond to subsidies in a positive way as people respond to incentives. Creation of employment as well as indigenization is a benefit derived from expansion of input support schemes.

According to Max (2020), the substantial contribution of smallholder farmer's increases GDP and formal sector employment. In recent years, promotion of such off-farm enterprises has become increasingly important components in many Fund-supported projects, particularly in areas where landless and near-landless households figure prominently. The effect of such innovation is an improvement on food access through linking communities to markets through the construction, rehabilitation or improvement

of feeder roads and rural tracks, facilitating the sale of produce and purchase of inputs and consumer goods.

Chikobvu (2020) also studied roles and effectiveness of input support schemes in the production of maize as a staple crop of Zimbabwe in Masvingo and Bikita area and discovered that input support schemes are associated with provision of inputs either in the form of vouchers or direct inputs such as fertilizers and seeds. He further noted that vouchers were an effective method of input distribution in Bikita during Zimbabwean dollar era due to inflation.

Grad (2020) in his study for cereal production noted that after the Government of Bangladesh has adopted FAO's Compact Block Front-line Demonstration Model as a nation-wide programme to accelerate cereal production so that Bangladesh can attain self-sufficiency in food grains. New varieties and appropriate technology packages introduced by the Thana Cereal Technology Transfer & Identification project (TCTTI) have ensured a high degree of crop productivity.

According to Pound (2018) in Myanmar, the Field and Input Distribution Programme since 1977 have provided support to crop and food crop development in order to increase productivity and rural incomes. In his document he highlighted that among the outcomes of a project was the introduction eight new varieties of maize which had a significant doubled the average yields of 2501 kg/ha.

### 2.6.2 Impact of input schemes on household food security

Agricultural inputs play a critical role in enhancing production of any crop. The Abuja Declaration on usage of fertilizer encouraged member states to have strategies to increase fertilizer usage among its farmers as that of Africa was way below that of their counterparts in the Latin America and Europe.

According to Mlambo (2017), input credit scheme plays a significant role and without these support farmers face major constraints in realizing high-quality, consistent supplies, including financial constraints, difficulties in input markets, lack of technical and managerial capacity, etc. Emerging empirical evidence suggests that these new forms of private vertical coordination can be an engine of economic growth rural development and poverty reduction. However, shortage of credit facilities translates to lack of working capital which limits farmers to finance farm operations and this reduces the ability to purchase required inputs in time to meet expected yields per hectare (Smith, 2019). Generally, input credit schemes increase maize production due to the increase in area under maize cultivation by an individual beneficiary farmer. Non-beneficiary farmers would be having challenges of money to purchase inputs therefore leading to inputs shortages and reduced area under maize cultivation. Also input support schemes increase the number of players in the industry for maize production thus boosting overall maize production in the country. The improvement in maize production results in an improvement in food security country which is one of the objectives of agricultural policy (Max, 2020).

According to FAO (2019) most organizations and companies like AFRI-CARE and CARE international administer inputs through agents in 1988 and inputs such as seed maize and fertilizers were distributed to various communal farmers in Masvingo region in the form of a subsidy. Production levels of maize in Zimbabwe responded to this subsidy with a surplus in 1989. AFRII-CARE and SAT also assisted farmers in Hurungwe area with seed maize in 2009 as a way of boosting agricultural production and food security (Chikobvu, 2019). But this however proved that seed quantity alone cannot have a greater significant effect on production of maize, so use of input packages with inputs such as herbicides, fertilizers and seed maize increases levels of production of maize. Hist (2020) also supports the argument for input packages offered in the form of a subsidy taking Uzumba Maramba Pfungwe as an example, were in this area most of the farmers received inputs in the form of a package during 2009-2010 season and this had an increased maize supply by 85%. The overall effect inputs subsidy is shown on below.

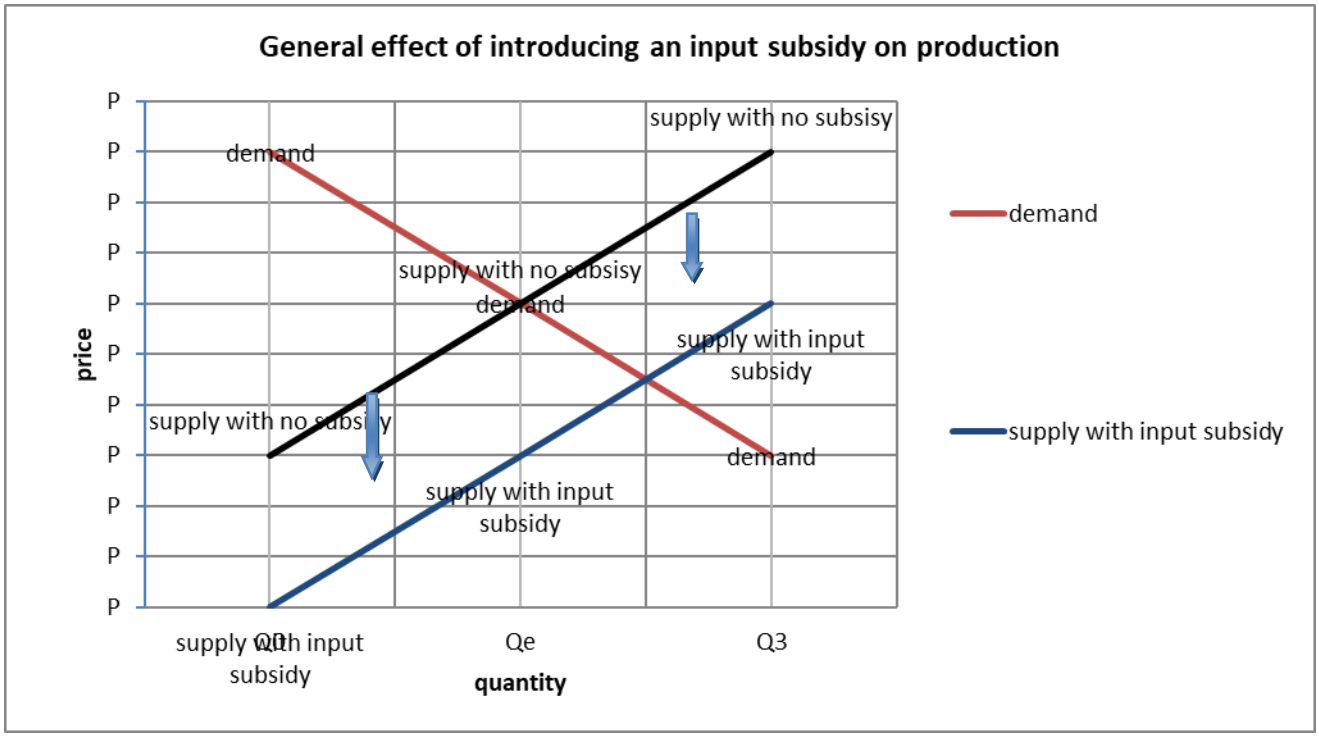


**Figure 2.2: General effect of input subsidy on maize productivity**

The graph above explains the general effect of input support scheme on maize production. Figure 2.1 shows that input subsidy shifts the supply function of the inputs to the right thereby lowering the prices of inputs. This makes the quantity demanded to increase as many farmers afford to purchase such inputs. A decrease in input price will increase production in various ways, either it increases quantity demanded by a single farmer thereby increasing maize output. From Patrick (2016) perspectives, this provides room entrance of new farmers in maize industry as maize inputs will be cheaper and production costs reduced.

### 2.6.3 Impact of input scheme on household income

According to Crawford (2016), input programmes have the advantage of sustaining intensive agricultural income among beneficiaries. The maintenance of soil fertility helps in increasing production thus enhancing rural incomes and sustainable utilization of resources and production. Input programmes also help in promoting national and household food security (Grad, 2020). They also help in increasing incomes for the beneficiaries of the programme through increased production which leads to surplus which can then be sold for a profit.

The effects of farm input subsidies on input market has also been analyzed by several researchers. Ricker-Gilbert *et al.,* (2011), Chirwa *et al.*, (2013), and Mason and Ricker-Gilbert (2013) all find crowding-out effects on commercial purchases fertilizer and hybrid maize seed in Malawi. However, Xu *et al.*, (2009) find both crowding-out and crowing-in effects on commercial fertilizer purchases in Zambia. Equilibrium effects studies include Ricker-Gilbert *et al.,* (2013), and Takeshima and Liverpool-Taste (2015) who find marginal effects on maize prices in Malawi and Zambia and on grain prices in Nigeria, respectively.

Farm input subsidies help improve the purchasing power of beneficiaries. However, the level of incremental benefit may differ among beneficiaries depending on their economic characteristics. The poor who could not afford to purchase improved inputs at all without subsidies is expected to benefit more from the program than a non-poor beneficiary.

For the poor, the direct benefit arises from either selling the received coupons for subsidized purchases or buying the inputs and using them in production (SOAS, 2018). The use of improved farm inputs is expected to lead to three positive effects increased yields that could result in improved food security; increased market participation of poor farmers as sellers and, therefore, increased farm income from crop sales; and reduced market participation as buyers of food crops resulting in savings of household cash income (Max, 2020). The cash income from sales and the income savings from purchased food could be invested in farming or in non-agricultural enterprises, and or used to increase the consumption of non-food commodities. If the savings are invested in farming, this could lead to a further increase in purchases of farm inputs in subsequent agricultural seasons and boost of future agricultural production (Grad, 2020). Purchase of durable assets and consumption of food and non-food commodities could lead to reduced poverty levels and possibly to increased investment in human, social and physical capital essential for future sustainable production and smooth exit from subsidy programs.

Agricultural production, like production activities in any other sector requires accessibility to quality inputs which are transformed into output that will raise productivity (Vosanka, 2019). The access and efficient use of quality agricultural inputs such as improved seeds, fertilizers and crop protection products is necessary to improve agricultural production and increase farmer's livelihoods such as farm output, income and assets in Sub Saharan Africa.

Smallholder farming is important in terms of poverty reduction, food security and wider economic development in developing countries (Ochola & Odhiambo, 2018). Provision of inputs can have different objectives which include economic growth, agricultural policy, social protection and political objectives. However, Dorward (2019) when reviewing ten subsidy programmes in Africa found that three most popular objectives include increasing food production (food security objective), adoption of inputs (agricultural policy objective) and welfare of producers (economic objective).

The objective of input programmes is to contribute to food production and productivity in targeted areas by improving farmer's access to critical agricultural inputs. The anticipated primary outcomes are to improve targeting of smallholder farmers, lower their production costs and increase utilization of inputs (Hist, 2020). The secondary effects include increase in productivity, crop output and farm income and thus farmer livelihood. The subsidy programme in Kenya, Malawi and Tanzania revealed its effect on livelihood, such as increased crop yield, income and assets like hoes, chickens and goats (Mansion, 2017; IFDC, 2019; Kato, 2018; Usambara, 2018 and Mania, 2019). Findings from researches done on input subsidies are presented in the table below:

**Table 2.1: Empirical Review Summary**

| Author | Research Area And Findings |
|---|---|
| Chirwa and Dorward (2018) | Noted that productivity significantly influenced subsidy distribution. |
| Christopher (2016) | Noted that farmers who received subsidies significantly improved maize production. Comparisons of output before and after subsidies showed an increase in bags per acre from an average of 5.35 to 10.10 which was almost double. |
| Bhasera (2015) | In the study of profitability and productivity of maize farmers in Mazowe district he found that maize smallholder farming had the potential for improving food security but there was need to improve productivity. |
| Hepelwa (2013) | In the study they found that subsidies did not improve the situation of poverty among the poor households |
| Kato (2018), Aloyce (2014) | In their assessments of Agricultural subsidies on poverty in Tanzania they found that subsidies increased production of subsidized crops and thus productivity in places where vouchers were distributed according to national guidelines. Results also showed the positive contribution the vouchers had in reducing poverty and living standards. |
| Chirwa (2010) | In assessing the effectiveness of the input support programmes in Hwedza on maize production, it was |

| | |
|---|---|
| | found out that there was an increase in maize production with most beneficiaries increasing yields from 0.4t/ha to 0.7 t/ha. As a result food security was also increased amongst the beneficiaries. |
| Mudzonga and Chigwada (2009) | These evaluated the effectiveness of the input programmes in Hwedza They focused on yields after application of inputs. The results from their study showed that the programme failed to increase maize production among the smallholder farmers. As such food security was not achieved as well. This was attributed to some inefficiencies of the programme which had a bearing on the maximum output that was achieved by the farmers. |
| Chibwana, (2009) | In Malawi the Farm Input Subsidy Program showed that the input subsidy programme increased fertilizer usage in Malawi by smallholder farmers. |
| Kibarra (2005) | When evaluating the successfulness of input support programmes in promoting food security in Nigeria, results showed an increase of 49 % in maize production. There was an improvement in farmer incomes by 35% as well. |

## 2.7 Summary

From the above studies in as much as most of them have concluded that there was an increase in production after farmers had being given subsidies or inputs some argue that it was not the case. In Zimbabwe, Mudzonga and Chigwada (2019) failed to find the link between inputs subsidies and food security in Hwedza and attributed it to some inefficiencies of the programme. This study sought to understand if the same inefficiencies will apply to the resettled farmers from the Zvimba farming area.

# CHAPTER 3 METHODOLOGY

## 3.1 Introduction

This section's objective was to unpack the methodological framework used for the study. The chapter looks at the research design, the sampling techniques and procedures.

## 3.2 Research Design

A research design is a guide for data collection and interpretation, with set rules that allow the researcher to conceptualize and examine the problem under study (Buckingham & Saunders, 2004). According to Robson (2011), research design is turning the research questions into a project. In this study the experimental research design was used. Experimental research establishes a relationship between the cause and effect of a situation. It is a causal design where one observes the impact caused by the independent variable on the dependant variable. The independent variables were access to fertilizer, access to seed maize, area under cereal, and beneficiary status. The dependant variables were food security, income and productivity.

## 3.3 Research Approach

The study used mixed method approach. The most appropriate approach for mixed methods is abductive reasoning approach which combines quantitative and qualitative data to fulfil the needs of the research (Ralws, 2018). This is known as triangulation. The use of mixed methods helps as the quantitative and qualitative will complement each other during data collection. Triangulation involves the use of questionnaires, interviews and focus groups to collect data.

Triangulation method employs the strength of both the qualitative and quantitative methods to provide a broader view of the subject under study. It expands the research study in a way that is not possible with a single approach. The process of providing statistical analysis of a research together with examination builds the study with comprehensive results that are more likely to bring a difference.

## 3.4 Population and Sampling

### 3.4.1 Study Area

This research was carried out in Zvimba District focusing on Kangere Smallholder farmers. Zvimba District is in Natural Region 2a with rainfall pattern ranging from 750mm-1000mm.the main agricultural activities are horticulture, fish and crocodile farming and Eco Tourism. The major crops grown in the district are maize, cotton, tobacco, Soya beans and vegetables. It is also endowed with minerals such as gold, platinum, chrome and copper since the great dyke cuts across the District. It has a population of around 245 489 (ZIMSTAT, 2012). It is the second most populous district in Mashonaland West Province

### 3.4.2 Targeted Population

The respondents were smallholder farmers who benefitted from the Government Input Scheme in the 2019/2020 season and are bona fide residents of Zvimba District.

### 3.4.3 Sampling Approach

The researcher used probability sampling to ensure that each and every respondent had an equal chance of being selected. Probability sampling methods have many advantages

over non- probability methods with the most common one being that it removes element of bias in interviewee selection.

In this study purposive sampling used to choose the study district. Participants were identified through agricultural extension officers and councilors. These provided a list of beneficiaries where respondents were picked from. From this list of beneficiaries systematic random sampling was used to choose research respondents.

#### 3.4.3.1 Inclusion Criteria

Respondents should be resettled farmers in the Kangere Resettlement area who were beneficiaries of the input programme during the 2019 -2020 Agricultural season.

#### 3.4.3.2 Exclusion Criteria

Farmers not from the Kangere area are not included and those who were not beneficiaries during the aforementioned agricultural season.

### 3.4.4 Sample Size

Sample size determination refers to the process of choosing the number of observations or replicates one can include in a statistical sample. It is important in an empirical study whose goal is to make inferences about a population from a sample. It can be determined based on cost, time or convenience of collecting data and the need for it to offer sufficient statistical power. For the purpose of this study a Survey Monkey Sample Size Calculator was used to calculate the sample size. Using these parameters population size

of 1217, 95 % Confidence interval a sample size of 90 participants was found and was used.

### 3.5 Research Instruments

#### 3.5.1 Questionnaire

Finn and Jacobson (2017) define a questionnaire as a written list of questions, the answers to which are recorded by respondents. The questionnaire was in structured form. For the purpose of study 90 questionnaires were self-administered to small holder farmers in Zvimba. An interviewer administered questionnaire was used for the purpose of addressing issues related to literacy and reduction of missing information. During data collection this research made sure that the questionnaire specifies on the introductory part of the questionnaires that the data from the respondents is only for academic purposes and were kept with confidentiality for ethical considerations.

The researcher utilized questionnaires because Ralws (2018) posits that their administration is comparatively inexpensive and easy even when gathering data from large numbers of people spread over wide geographic area. In addition, it reduces chance of evaluator bias because the same questions are asked of all respondents and many people are familiar with surveys. Questionnaires helps in focusing the respondent's attention on all the significant items and is easy to plan, construct and administer. In terms of the disadvantages, respondents may not complete the survey resulting in low response rates, size and diversity of sample was limited by people's ability to read. Furthermore, given lack of contact with respondent, never know who really completed

the survey and customized surveys can run the risk of containing certain types of risk. Lastly, survey questions are hard to write and they take considerable time to develop.

### 3.5.2 Documents and Records

Secondary data was also utilized. Documentary work involved reading lots of written material. Sources of documents included public records under ZFU, Ministry of Lands, Agriculture, Water, Fisheries, Rural Settlement; GMB and AMA.

### 3.6 Analysis and Organization of Data

#### 3.6.1 Analytical Framework

The following is an analytical framework:

Table 3.1: Analytical Framework

| **Objective of the study** | **Data analysis tool** | **Justification** |
|---|---|---|
| To understand the socio-economic characteristics of the participants | Descriptive statistics mainly percentages | The data is qualitative categorical in nature measured using ordinal and nominal scales |
| To determine the relationship between of the input schemes and maize productivity | Beta analysis | The objective seek to establish relationship only which Saunders (2010) suggests that beta coefficient is sufficient. |
| To determine the impact of input schemes on household food security | Binomial Logistic Regression Analysis | Dependent variable is categorical in nature (binary). Measured by an nominal scale |
| To determine the impact of input scheme on household income | OLS Linear regression | Dependent is numerical in nature. Measured quantitatively by money derived from sale of produce using an interval scale. |

### 3.6.2 Econometric Models and Explanation of Variables

Below are the three regression models used in the study:

i. **Model 1: Input support scheme vs Maize productivity**

$M_i = \beta_0 + \beta_1 X_{1i} + B_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \mu$…..**equation for objective 2**

The dependent variable was maize productivity which was measured quantitatively as an average yield per Ha. The independent variables were access to fertilizer, access to seed maize, area under cereal, and beneficiary status.

ii. **Model 1: Input support scheme vs Food Security**

$F_i = \beta_0 + \beta_1 X_{1i} + B_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \mu$…..**equation for objective 3**

The dependent variable was food security which was measured quantitatively by number of meals/day. The independent variables were access to fertilizer, access to seed maize, area under cereal, and beneficiary status.

iii. **Model 1: Input support scheme vs Household income**

$Y_i = \beta_0 + \beta_1 X_{1i} + B_2 X_{2i} + \beta_3 X_{3i} + \beta_4 X_{4i} + \mu$…..**equation for objective 4**

The dependent variable was household income which was measured quantitatively by money derived on average after selling farm produce on average. The independent variables were access to fertilizer, access to seed maize, area under cereal, and beneficiary status.

The notation of variables and explanations are shown in the table 3.3 below:

**Table 3.2: Description of Variables**

| Variable | | Scale | Measurement | Expected Impact | | |
|---|---|---|---|---|---|---|
| | | | | Food Security ($F_i$) | Maize Productivity ($M_i$) | Household Income ($Y_i$) |
| | | | | Beta coef. | Beta coef. | Beta coef |
| Access to fertilizer | $X_{1i}$ | Ordinal | 0=Not at All<br>1=Sometimes<br>2=Always | + | + | + |
| Access to seed maize | $X_{2i}$ | Ordinal | 0=Not at All<br>1=Sometimes<br>2=Always | + | + | + |
| Area under cereal | $X_{3i}$ | Ordinal | | + | + | + |
| Beneficiary status | $X_{4i}$ | Nominal | 0=Yes<br>1=No | + | + | + |
| μ = Error Term | | | | | | |

### 3.7 Data Presentation Procedures

In terms of the data presentation the data was presented in the form of tables, pie charts and bar graphs in preparation of analysis. The research findings were presented according to research objectives starting with the demographical data for the respondents in trying to answer the research questions in the first chapter.

### 3.8 Summary

The chapter provided the research design of the study. In addition, the chapter also highlighted model specification, model adopted in the study. Lastly, the chapter justified variables and provided data sources and type. The chapter looked at the research design,

the sampling techniques and procedures. The next chapter will focus on data presentation, analysis and discussion. The chapter adopted descriptive research design and a mixed methodology design which used secondary data sources and a semi-structured questionnaire to gather data from 90 smallholder farmers in Zvimba District. The chapter highlighted the regression models and gross margin analysis adopted in the study.

# CHAPTER 4 DATA PRESENTATION, ANALYSIS AND INTERPRETATION

## 4.1 Introduction

The chapter presents, analyzes and interprets the primary and secondary data that was collected using questionnaires, and document analysis. The study aimed to analyze the impact of agricultural input schemes on productivity, food security and income of resettled farmers in Kangere resettlement of Zvimba district in Zimbabwe. Both categorical qualitative and quantitative data was collected and presented according to objectives of the study. Data was presented in the form of pie charts, graphs and tables. Data was analyzed using SPSS version 16.

## 4.2 Data Presentation and Analysis

### 4.2.1 Response Rate

The response rate was as follows:

**Table 4.1: Response Rate**

| | **Research Instruments** | | |
|---|---|---|---|
| | **Administered** | **Returned** | **Response Rate** |
| **Questionnaires** | 90 | 88 | 94% |
| | Average Response Rate | | 94% |

**Sources:** Primary Sources

The table 4.1 highlighted that a total of 90 questionnaires were distributed to small holder farmers in Zvimba District. Out of the total, 88 questionnaires were returned representing a 98% percent response. Mugenda and Mugenda (2018) suggested that response rate must be above 70% for precision.

### 4.2.2 Socio-Economic and Demographic Characteristics of the Participants

The objective sought to determine the socio-economic and demographic characteristics of the participants.

#### 4.2.2.1 Gender of the Respondents

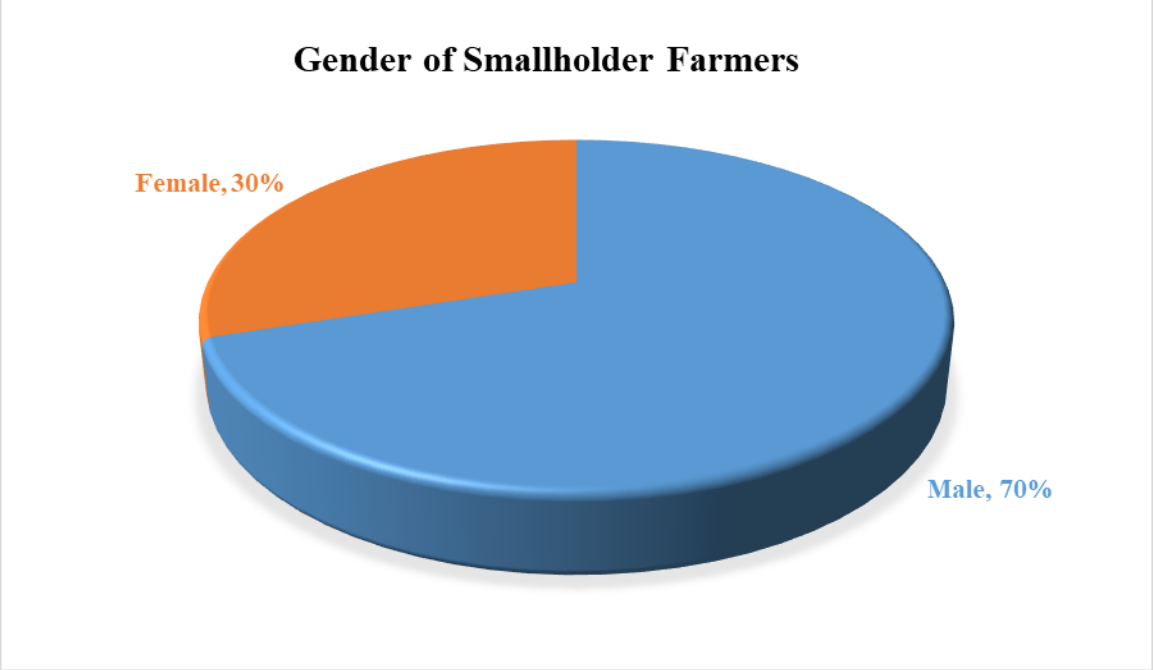


**Figure 4.3: Gender of the respondents**

**Source:** Primary Data

70% of the respondents are males while 30% are females

### 4.2.2.2 Age of Respondents

The age distribution of the respondents is given in Table 4.3 below.

**Table 4.2: Age distribution of the respondents**

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | 21-30 years | 18 | 20.5 | 20.5 | 20.5 |
| | 31-40 years | 36 | 40.9 | 40.9 | 61.4 |
| | 41-50 years | 34 | 38.6 | 38.6 | 100.0 |
| | Total | 88 | 100.0 | 100.0 | |

**Source:** Primary Data

The findings show that 40.91% of the respondents are within age range of 31-40 years while 38.64% are within 41-50 years. The findings also show that the government targets old aged farmers in Zvimba district since they are part of vulnerable.

### 4.2.2.3 Education Level of Respondents

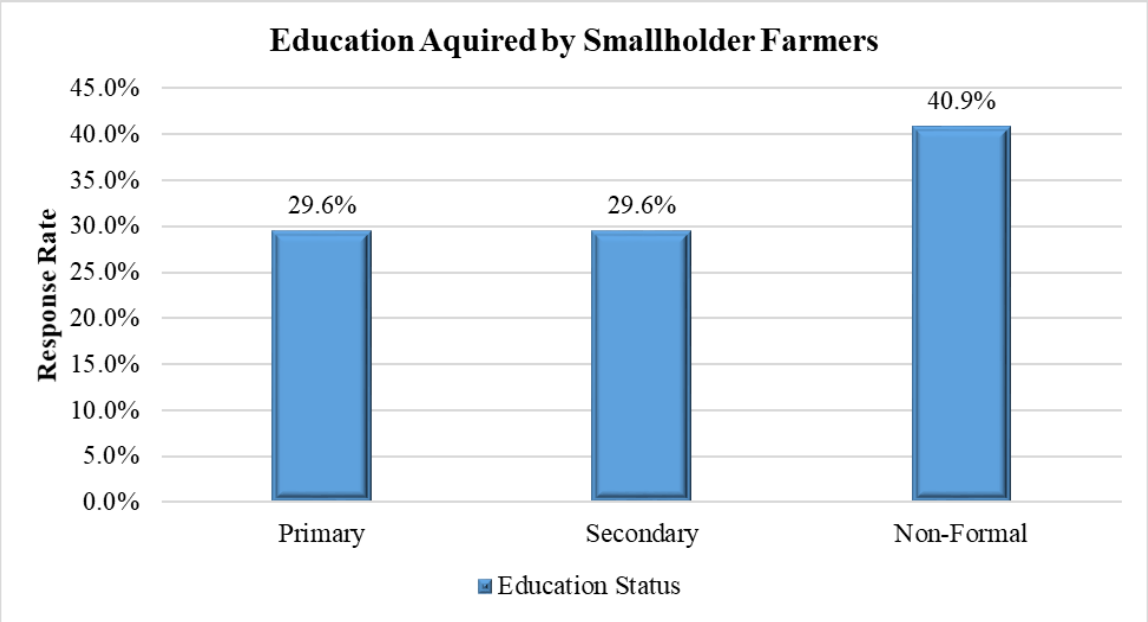


**Figure 4.4: Highest Level of Education Attained**

**Sources:** Primary Data

Figure 4.4 shows that 40.9% of the respondents have non-formal education. 29.6% of the respondents had primary level education while 29.6% had attained secondary

#### 4.2.2.4 Marital status of respondents

Table 4.3: Marital status of respondents

| | | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|---|
| Valid | Married | 17 | 19.3 | 19.3 | 19.3 |
| | Divorced | 27 | 30.7 | 30.7 | 50.0 |
| | Widowed | 27 | 30.7 | 30.7 | 80.7 |
| | Single | 17 | 19.3 | 19.3 | 100.0 |
| | Total | 88 | 100.0 | 100.0 | |

**Source**: Primary Data

A majority the respondents who constitute are 30.7% and 30.7% respectively are divorced and widowed (Table 4.3). The minority of farmers are single and married. The findings show that the majority of the smallholder farmers in Zvimba District are vulnerable by virtue of being single parent headed families.

#### 4.2.2.5 Beneficiary status of respondents

The study also categorized respondents according to whether they benefited from the input support schemes and the frequencies of benefiting from the program and findings are presented in Table 4.4.

**Table 4.4: Beneficiary status of respondents**

| | Frequency | Percent | Valid Percent | Cumulative Percent |
|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| Valid | Once | 38 | 43.2 | 43.2 | 43.2 |
| | Twice | 38 | 43.2 | 43.2 | 86.4 |
| | Thrice | 12 | 13.6 | 13.6 | 100.0 |
| | Total | 88 | 100.0 | 100.0 | |

**Source:** Primary Data

According to the results majority (43.2% and 43.2%) the respondents confirmed that they benefited once and twice times respectively from input schemes in the 5-year period assessed. In addition, none of the farmers benefited twice in five years. The results show that only 13.6% benefited thrice in 5 years.

### 4.2.3 Relationship between Input Schemes and Maize Productivity

This objective shows the findings on the relationship between the input schemes on maize productivity. In order to establish the relationship between maize productivity and input support schemes on offer in Zimbabwe, the researcher conducted a regression analysis and the results were as follows:

**Table 4.5: Regression Analysis between Input Support Schemes and Maize Productivity**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .698[a] | .488 | .463 | .228 | .512 | 21.814 | 4 | 83 | .000 |

a. Predictors: (Constant), Beneficiary Status, Area under Cereal,

Access to Seed, Access to Fertilizers

**Coefficients[a]**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -1.014 | .522 | | -1.943 | .055 |
| | Area under Cereal | 0.039 | .078 | .119 | .558 | .579 |
| | Access to Fertilizers | .342 | .136 | .566 | 2.522 | .014 |
| | Access to Seed | .265 | .056 | .436 | 4.762 | .000 |
| | Beneficiary Status | .109 | .052 | .252 | 2.114 | .038 |

a. Dependent Variable: Maize productivity (t/Ha)

**Source:** SPSS Computation

From the table 4.5 above, a beta coefficient of 0.109 shows that there is a positive relationship between maize productivity and beneficiary status. In this case this suggested that an increase benefiting from input support scheme is associated with 0.109 increase in maize productivity. The more smallholder farmers under Zvimba District receive inputs there is 0.109 increase which will be associated with a single unit in increase in beneficiaries. This is supported by literature were an increase in input and credit schemes to support smallholder maize growers increases maize production as discussed by (Rukuni, 2019). Being part of input credit schemes proved to be an effective way of boosting smallholder maize production in Zimbabwe.

On the other hand, a beta coefficient of 0.039 has shown that there is a positive relationship between maize productivity and area under maize. In this case this suggested that an increase in increase in area potentially for maize was associated with input support scheme.

The results also show a beta coefficient of 0.342 which means that there is a positive relationship between maize productivity and access to fertilizer. In this case this suggested that an increase in access to fertilizer can increase maize productivity by 0.342. This shows that the productivity increase at an increasing rate. In addition, a beta coefficient of 0.265 has shown that there is a positive relationship between maize productivity and access to seed. In this case this suggested that an increase in access to seed is associated with 0.265 increase in maize productivity.

The coefficient of determination ($R^2$) value of 0.488 was obtained during the study which suggested that 48.8% of the variance in smallholder maize productivity was

explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. In addition, Adjusted R-squared value of 0.463 was obtained during the study which suggested that 46.3% of the variation in smallholder maize productivity was explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. The F-Stat was large enough and statistically significant ($p<0.05$) signifying that the model had a goodness of fit.

### 4.2.4 Impact of Input Schemes on Household Food Security

The findings on the impact of input schemes on household food security was as follow:

Table 4.6: Multiple Regression for the impact of Input Schemes on Household Food Security was presented as follows:

**Table 4.6: Regression Analysis between Input Support Schemes and Food Security**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .798[a] | .636 | .619 | .324 | .648 | 36.316 | 4 | 83 | .000 |

a. Predictors: (Constant), Beneficiary Status, Area under Cereal, Access to Seed, Access to Fertilizers

**Coefficients[a]**

| | Unstandardized coef. | | Standardized | | |
|---|---|---|---|---|---|
| | B | Std. Error | Beta | T | Sig. |

| | | | | | | |
|---|---|---|---|---|---|---|
| 1 | (Constant) | -1.830 | .767 | | -2.385 | .019 |
| | Area under Cereal | .310 | .104 | .535 | 2.983 | .004 |
| | Access to Fertilizers | 1.072 | .199 | 1.017 | 5.378 | .000 |
| | Access to Seed | .549 | .082 | .517 | 6.707 | .000 |
| | Beneficiary Status | .322 | .076 | .428 | 4.254 | .000 |

a. Dependent Variable: food security (Number of Meals/day(

**Source:** SPSS Computation

Findings in table 4.7 above, a beta coefficient of 0.322 shows that there is a positive relationship between food security and beneficiary status. In this case this suggested that an increase benefiting from input support scheme is associated with 0.322 increase in food security. The more smallholder farmers under Zvimba District receive inputs there is 0.322 increase which will be associated with a single unit in increase in beneficiaries. Mavambo (2020) in his article suggested that there is an intervening relationship as subsidy has a potential of reducing cost of production which can have a direct effect on improving food security.

The results also show a beta coefficient of 1.072 which means that there is a positive relationship between food security and access to fertilizer. In this case this suggested that an increase in access to fertilizer can increase food security by 1.072.

In addition, a beta coefficient of 0.549 has shown that there is a positive relationship between food security and access to seed. In this case this suggested that an increase in access to seed is associated with 0.549 increase in food security.

On the other hand, a beta coefficient of 0.310 has shown that there is a positive relationship between food security and area under maize. In this case this suggested that an increase in increase in area potentially for maize was associated with input support scheme. These findings were echoed by Jabangwe (2017) who is of the view that as a smallholder farmer increase area under maize he/she increase access to food moderated by availability to maize.

The coefficient of determination ($R^2$) value of 0.636 was obtained during the study which suggested that 63.6 % of the variance in smallholder food security was explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. In addition, Adjusted R-squared value of 0.619 was obtained during the study which suggested that 61.9 of the variation in smallholder food security was explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. The F-Stat was large enough and statistically significant ($p<0.05$) signifying that the model had a goodness of fit. Kibarra (2005) evaluated the successfulness of input support programmes in promoting food security in Nigeria, results showed an increase of 49 % in maize production. There was an improvement in farmer incomes by 35% as well.

### 4.2.5 Impact of Input Scheme on Household Income

In order to establish the impact of input support schemes on income, the researcher conducted a regression model and the results were as follows:

**Table 4.7: Regression Analysis between Input Support Schemes and Household Income**

**Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change |
| 1 | .881[a] | .776 | .765 | 21.6 | .797 | 71.987 | 4 | 83 | .000 |

a. Predictors: (Constant), Beneficiary Status, Area under Cereal, Access to Seed, Access to Fertilizers

**Coefficients**

| Model | | Unstandardized Coefficients | | Standardized Coefficients | T | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | 48.455 | 51.333 | | .944 | 348 |
| | Area under Cereal | 14.325 | 6.952 | .290 | 2.061 | .000 |
| | Access to Fertilizers | 73.862 | 13.339 | .821 | 5.537 | .000 |
| | Access to Seed | 52.433 | 5.482 | .579 | 9.565 | .000 |
| | Beneficiary Status | 24.435 | 5.068 | .365 | 4.624 | .000 |

a. Dependent Variable: Household income

**Source:** SPSS Computation

The findings show a beta coefficient of 52.433 between the access to seed and smallholder household income. The results revealed that there is a positive significant ($p<0.05$) relationship between the access to seed and smallholder household income. This suggests that access to seed increase smallholder householder income by a factor 52.433.

In addition, the findings show a beta coefficient of 73.862 between the access to fertilizer and smallholder household income. The results revealed that there is a positive

significant ($p<0.05$) relationship between the access to fertilizer and smallholder household income.

The findings show a beta coefficient of 14.425 between the area under maize and smallholder household income. In addition, the findings show a beta coefficient of 23.435 between the beneficiary status and smallholder household income. The results revealed that there is a positive significant ($p<0.05$) relationship between the beneficiary status and smallholder household income. This suggests that if a farmer benefits from input support schemes this promote smallholder householder income by factor 23.4. The findings were in line with Manjera (2021) who highlighted that farm input subsidies help improve the purchasing power of beneficiaries. However, the level of incremental benefit may differ among beneficiaries depending on their economic characteristics. The poor who could not afford to purchase improved inputs at all without subsidies is expected to benefit more from the program than a non-poor beneficiary.

The coefficient of determination ($R^2$) value of 0. 776 was obtained during the study which suggested that 77.6 % of the variance in smallholder household income was explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. In addition, Adjusted R-squared value of 0.765 was obtained during the study which suggested that 76.5 % of the variation in smallholder household income was explained by access to fertilizer, access to seed maize, area under cereal, and beneficiary status. The F-Stat was large enough and statistically significant ($p<0.05$) signifying that the model had a goodness of fit

## 4.3 Discussion and Interpretation

### 4.3.1 Socio-Economic and Demographic Characteristics of the Participants

#### 4.3.1.1 Gender of the Respondents

The results show that the majority of the of input support schemes beneficiaries are men. The result is in line with Grandus (2015) who suggested that men are the majority beneficiaries of agricultural input schemes due to a patriarchal cultural setup that exists in rural areas. Matanda (2018) in his research in Zambia also found that men comprised the majority of beneficiaries of input subsidy programmes.

#### 4.3.1.2 Age of Respondents

Hitari (2017) suggested that the presidential scheme in Zimbabwe targets the young aged group. The Government prefer youths since they are energetic in the production of maize. The findings also show that the government targets old aged farmers in Zvimba district since they are part of vulnerable. According to FAO (2021) old aged are categorized among vulnerable people in terms of food insecurity. Based on vulnerability categorization 75% of the beneficiaries from *Pfumvudza* presidential scheme, the operation Maguta and Stabex-95 scheme were old aged people

#### 4.3.1.3 Education Level of Respondents

The findings suggest that the majority of Zvimba smallholder farmers acquired knowledge through the government and private extension officers in their local areas.

Rukuni (2019) suggested that majority of the farmers acquire inputs like seeds, fertilizers and herbicides from government. Max (2019) also suggested that extension government workers were mandated to educate famers in terms of good agronomic practices.

#### 4.3.1.4 Marital status of respondents

The findings show that the majority of the smallholder farmers in Zvimba District are vulnerable by virtue of being single parent headed families. Max (2019) suggested that most single headed families in African cultures are food insecure with low incomes to cater for their families.

### 4.3.2 Relationship between Input Schemes and Maize Productivity

The analysis has shown that input support schemes are positively related to maize productivity and the findings concur with Chirwa (2010), who studied on effectiveness of the input support programmes in Hwedza on maize production and found out that there was an increase in maize productivity with most beneficiaries increasing yields from 0.4t/ha to 0.7 t/ha. In addition, Christopher (2016) indicated that farmers who received subsidies significantly improved maize productivity. Comparisons of output before and after subsidies showed an increase in bags per acre from an average of 5.35 to 10.10 which was almost double. Lastly, Bhasera, (2015) suggested in his study of profitability and productivity of maize farmers in Mazowe district that maize smallholder farming had the potential for improving food security but there was need to improve productivity.

### 4.3.3 Impact of Input Schemes on Household Food Security

The findings generally show that there was a positive relationship between input schemes and household food security. These were supported by other scholars like Hist (2020) who, using Zumba Maramba Pfungwe as an example showed that farmers who received inputs in this area recorded increases in maize supplies of up to 85%.

The other supporter of the research findings is Takavarasha (2016) who states that," the subsidization of basic food such as mealie meal has also been used in order to increase effective demand for these commodities". In general, the above quote shows that farmers respond to subsidies in a positive way as people respond to incentives. Based on the data gathered from Zvimba it is imperative to understand that the effect of such innovation is an improvement on food security through linking communities to markets through the construction, rehabilitation or improvement of feeder roads and rural tracks, facilitating the sale of produce and purchase of inputs and consumer goods. Grad (2020) in his study for cereal production noted that after the Government of Bangladesh has adopted FAO's Compact Block Frontline Demonstration Model as a nationwide programme to accelerate cereal production so that Bangladesh can attain self-sufficiency in food grains

### 4.3.4 Impact of Input Scheme on Household Income

The effects of farm input subsidies on income has also been analyzed by several researchers. Ricker-Gilbert *et al*., (2011), Chirwa *et al*., (2013), and Mason and Ricker-

Gilbert (2013) all found positive effects on commercial purchases of fertilizer and hybrid maize seed and income in Malawi.

Access to fertilizer as an input improves smallholder householder income. Xu *et al.,* (2009) find both income and profit generating results on commercial fertilizer purchases in Zambia. Equilibrium effects studies by Ricker-Gilbert *et al.,* (2013), and Takeshima and Liverpool-Tasie (2015) found marginal effects on maize prices in Malawi and Zambia and on grain prices in Nigeria, respectively

The findings were in line with Manjera (2021) who highlighted that farm input subsidies help improve the purchasing power of beneficiaries. However, the level of incremental benefit may differ among beneficiaries depending on their economic characteristics. The poor who could not afford to purchase improved inputs at all without subsidies is expected to benefit more from the program than a non-poor beneficiary. Chirwa and Dorward (2018) indicated that productivity and farm income were influenced by provision of subsidies. According to Crawford (2016), input programmes have the advantage of sustaining intensive agricultural income among beneficiaries. The maintenance of soil fertility helps in increasing production thus enhancing rural incomes and sustainable utilization of resources and production. Input programmes also help in promoting national and household food security (Grad, 2020). They also help in increasing incomes for the beneficiaries of the programme through increased production which leads to surplus which can then be sold for a profit. Kibarra (2005) when evaluating the successfulness of input support programmes in promoting food security in

Nigeria, results showed an increase of 49 % in maize production. There was an improvement in farmer incomes by 35% as well.

### 4.4 Summary

The chapter presented, analyzed and interpreted the primary and secondary data which was collected using questionnaires, and document analysis. The study aimed to analyze the impact of agricultural input schemes on productivity, food security and income of resettled farmers in Kangere resettlement of Zvimba district in Zimbabwe. Both categorical qualitative and quantitative data was collected and presented according to objectives of the study. Data was presented in the form of pie charts, graphs and tables. Data was analyzed using SPSS version 16. The chapter revealed that majority of the beneficiaries from the input support schemes are males who are within 31-40 years which is the energetic group. However, a moderate relationship was noted between input support schemes and maize productivity. The chapter has revealed that input support schemes have a positive impact on food security and household income in Zvimba District.

# CHAPTER 5 SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

## 5.1 Introduction

The previous chapter detailed the findings of the research. This chapter will focus on bringing out the summary of the study, the major findings and the recommendations to the problems observed.

## 5.2 Discussion

The majority of the beneficiaries of the input scheme were males due to the patriarchal society where men are regarded as the head of the household. It also targeted the young aged group as they are the most active both politically and in the production of maize. The vulnerable or old aged group were also targeted as they are believed to be the most decent and wont abuse resources.

The majority of the beneficiaries were given knowledge by government and private extension officers. This is so because government and some Non-Governmental organizations are combining to fight against poverty and improve the livelihoods of the rural farmers and bring about rural development. Most of the farmers were single parent headed families and are mostly vulnerable.

Provision of the inputs to farmers greatly improved their productivity as there was an increase in their output that is increased yields. Availability of advanced inputs like maize meant the farmers no longer had to depend on their traditional manures whose nutrient status are not known.

Input schemes had a positive relationship with food security. Input schemes have the advantage that farmers will increase area under production and as such increase yields which means food access is improved for them aiding in food security. Normally there will be surplus in their grain reserves which means even number of meals can increase per day.

Income improved significantly as a result of provision of income. This was because after receiving inputs farmers no longer had to spend their money on inputs thereby boosting their reserves. Secondly the surplus could be sold also for a profit for the farmers thus increasing their income streams.

## 5.3 Conclusions

Following the findings gathered from the research the study concluded the following:

### 5.3.1 Socio-economic characteristics of Smallholder Farmers

Based on the findings of the study the research concluded that in terms of the beneficiary status half of smallholder farmers in Zvimba benefited consistently throughout the 5 assessed years from the input support schemes while the others remaining farmers benefitted at varied intervals in 5 years. It was revealed that the respondents benefited from the presidential input scheme program between 2015 and 2021, command agriculture between 2017 and 2020 and the *Pfumvudza* government program during 2020/21 farming season. The input distributions target the 31-40 years energetic aged group to stimulate maize productivity and improve food security and also the old aged since they are categorized among vulnerable in terms of food insecurity and poverty.

The targeted group by input support schemes has acquired knowledge on farming through non-formal education system as majority of the farmer's work hand in hand with the locally based extension officers who assists in accessing inputs like seeds, fertilizers and herbicides. The other targeted group were the single parent headed families as findings suggests that most single headed families in African cultures are food insecure with low incomes to cater for their families. However, benefiting from these input support schemes will improve their food security and reduce poverty.

### 5.3.2 Relationship between the Input Schemes on Maize Productivity

Based on the findings of the study the research concluded that in terms of the relationship between the input support schemes on maize productivity there is a positive relationship between maize productivity and benefiting from the input support programs. This conclusion was supported by Chirwa (2010) who studied on effectiveness of the input support programmes in Hwedza on maize production and found out that there was an increase in maize productivity with most beneficiaries increasing yields from 0.4t/ha to 0.7 t/ha.

### 5.3.3 Impact of Input Schemes on Household Food Security

Based on the findings of the study the research concluded that in terms of the access to seed, fertilizers and herbicides there is a positive influence towards food security status. Based on literature reviewed through FAO (2019) and the empirical data presented the study has revealed that access to seed, fertilizers and herbicides has a direct effect on food security. Based on these findings the study in terms of the impact of input support

schemes on food security has concluded that the input subsidies could be useful for food insecure and poor households in some locations in Zvimba District. They are one tool that has to be built-upon in a more comprehensive agricultural policy package to facilitate agricultural and rural development.

### 5.3.4 Impact of Input Scheme on Household Income

Based on the findings of the study the research it can be concluded that access to inputs like seed, fertilizer and herbicides has a direct effect on income of individual households. However, the study in this case has concluded that input support schemes are making significant positive contribution in Zvimba to household income although constrained by macroeconomic policies in Zimbabwe.

## 5.4 Implications

Generally, the input programme led to an improvement of agricultural activities by some smallholder farmers. By increasing agricultural activity agricultural output is also increased and this has had a positive impact on the livelihoods of the smallholder famers.

Provision of inputs for maize production contributed to increased productivity as the farmers' increase area under maize production.it also resulted in farmers not producing just for subsistence but used the surplus for generating income that can be used to buy other household needs. Input subsidizing contributed to food security as most farmers use maize for other dishes which led to improved feeds or meals that one gets per day.

Use of improved seeds and inputs also increased with the provision of inputs. This had the impact that yields improved significantly as most farmers used to rely on carryover seed and limited to no application of fertilizers and other chemicals and herbicides. This had the implication of reduced yields as the carryover seed will not be tolerant to disease and pest attacks.

## 5.5 Recommendations

Based on the findings of the study, conclusions made pertaining this research and supported empirical literature in this study the researcher pose the following recommendations:

### 5.5.1 Socio-economic characteristics of Smallholder Farmers

- The government of Zimbabwe should consider distribution of inputs to smallholder farmer with orientation towards women and youth to promote food security, poverty alleviation and income generation as one of the critical sustainable developmental goal.
- The government of Zimbabwe should continue to emphasize that smallholders who seek to benefit from the input support first acquire skills and knowledge from locally based extension officers and private extension officers from fertilizer companies and seed companies to ensure that the national objectives are achieved.

### 5.5.2 Relationship between the Input Schemes on Maize Productivity

- To maximize maize productivity, the government of Zimbabwe should take immediate action to continue increase access to adequate credit facilities, extension services and input such as fertilizers, seed maize and chemicals i.e. herbicides and insecticides.
- The government should also partner the financial institutions in its input support schemes to allow smallholders to access low interest rate financial credit to pay labour and to stimulate working capital required to improve maize productivity.

### 5.5.3 Impact of Input Schemes on Household Food Security

- The government and all humanitarian concerned organizations should change their policy direction and focus on gender issues of improving food access at household level through credit and input assistant as findings has shown that males are major beneficiaries.
- Government of Zimbabwe should ensure that all inputs are distributed before season in order for farmers to prepare for the season to come.
- Input support scheme offer such benefit and can improve food self-sufficiency for the country. Companies and organizations which facilitate input distribution should also offer knowledge through training to smallholder farmers to improve farmer knowledge base and level of income.

### 5.5.4 Impact of Input Scheme on Household Income

- The government must create supportive policies which ensure market efficiencies to promote higher income among smallholder farmers. In this case the government need to review statutory instruments like SI145 of 2019 to incorporate more players in the grain market and allow prices to flow to create income for smallholder farmers since there will be a competition.
- The government through GMB should buy maize at a competitive optimum price that allows farmers to be profitable and generate income to sustain their families and farming enterprise.
- The government should consider household size also when distributing inputs to increase per capita income under smallholder farming community.

## 5.6 Suggestions for Further Research

Based on the findings of the study, conclusion made pertaining this research and supported empirical literature in this study the researcher poses the following further studies:

- A study on the effectiveness of input support schemes on poverty eradication among small scale farmers in Zimbabwe
- A comparative analysis on the impact of beneficiaries and non-beneficiaries of input support schemes on food security in Zimbabwe
- A study on the determinants of food security in Zimbabwe.

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## Appendices

**Appendix I: Questionnaire Guide Smallholder Farmers**

**QUESTIONNAIRE ON THE STUDY: IMPACT OF AGRICULTURAL INPUT SCHEMES ON PRODUCTIVITY, FOOD SECURITY AND INCOME OF RESETTLED FARMERS IN KANGERE RESETTLEMENT AREA OF ZVIMBA DISTRICT IN ZIMBABWE**

Questionnaire Number:

Enumerator Number:

Date of Questioning:

**INTRODUCTION**

My name is Kamba Kudakwashe and am studying towards a Master of Science in Agribusiness Degree with Africa University. I am carrying out a research with the topic as part of requirements to attain the degree. I am kindly asking for your responses to the following questions. The information you give will be used for academic purposes only and your participation is voluntary.

Your personal details are not required on this questionnaire and will remain anonymous. All information given will be reported in summary format. Thank you in advance for your cooperation and patience

**SECTION A: PARTICIPANTS PERSONAL INFORMATION**

| | | |
|---|---|---|
| 1.1 Gender | ( ) Male | ( ) Female |
| 1.2 Marital Status | ( ) Married | ( ) Single |
| | ( ) Divorced | ( ) Widowed |
| 1.3 Age years | ( ) Less than 20 years | ( ) 31-40 |
| | ( ) 21-30 years | |
| | ( ) 41-50 years | |
| | ( ) above 50 years | |

1.4 Educational Level ( ) None ( ) Primary

( ) Non Formal

( ) Secondary

( ) Tertiary

**SECTION B: MAIZE PRODUCTIVITY AND INPUT SUPPORT SCHEME**

2.1 Have you ever received free agricultural inputs? ( ) always ( ) Sometimes ( ) Not at all

If yes, specify the name of the input distribution program _____

2.2 What type of inputs were received?

2.2.1 Seed maize

( ) always ( ) Sometimes ( ) Not at all

2.2.2 Basal fertilizers

( ) always ( ) Sometimes ( ) Not at all

2.2.3 Top dressing fertilizer

( ) always ( ) Sometimes ( ) Not at all

2.2.4 Area to be covered (ha) _____

2.3 When were the inputs received?

Before onset of rains ( ) during the season ( ) Just after onset of rains ( ) offseason ( )

2.4 Were the inputs sufficient for the intended area?

( ) always ( ) Sometimes ( ) Not at all

2.5 What is your source of power and average cost of production per hectare?

Source of power _____

Cost (USD) _____

2.6 What is your source of labor and average cost of production per hectare?

Source_____

Cost (USD) _____

2.7 Was there improvement in production after receiving the inputs?

Significantly improved ( ) Improved ( )

Somewhat ( ) No change ( )

2.8 Has there been any change in area planted and production before and after being given inputs?

| Before inputs | | After inputs | |
|---|---|---|---|
| Area | Number of bags | Area | Number of Bags |
| | | | |

**SECTION C: HOUSEHOLD INCOME AND INPUT SUPPORT SCHEME**

3.1 Was there any surplus produce? Yes ( ) No ( )

3.2 Do you sell your surplus? Yes ( ) No ( )

3.3 Estimate the number of 100kg bags that you sold and the respective revenue

| Before Inputs | | After Inputs | |
|---|---|---|---|
| Area | Revenue | Area | Revenue |
| | | | |

3.4 Can you say input programme improved your income? Yes ( ) No ( )

**SECTION D: FOOD SECURITY AND INPUT SUPPORT SCHEME**

4.1 If you have reserve grain in your household, can you say you are food secure?

Yes ( ) No ( )

4.2 Please explain with reference to 4.1

_____
_____
_____
_____

4.3 Generally can you say input programmes helps smallholder farmers attain food secure status? Yes ( ) No ( )

4.4 How? Explain in relation to your answer to 4.3

_____
_____
_____
_____

4.5 What is the average number of meals eaten each day before and after input programme?

| **Before Inputs** | **After inputs** |
|---|---|
| One meal ( ) | One meal ( ) |
| Two meals ( Lunch and dinner) ( ) | Two meals(Lunch and dinner) ( ) |
| Three meals(breakfast, lunch and dinner) ( ) | Three meals(breakfast, lunch and dinner) ( ) |
| More than three meals ( ) | More than three meals ( ) |

**Appendix II: Approval Letter**

AFRICA UNIVERSITY
(A United Methodist-Related Institution)
INVESTING IN AFRICA'S FUTURE

**AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)**

Ref AU1919/21 23 February, 2021

Kudakwashe E. Kamba
C/O CHANS
Africa University
Box 1320
Mutare

**RE: IMPACT OF AGRICULTURAL INPUT SCHEMES ON PRODUCTIVITY, FOOD SECURITY AND INCOME OF RESETTLED FARMERS IN KANGERE RESETTLEMENT OF ZVIMBA DISTRICT IN ZIMBABWE**

Thank you for the above titled proposal that you submitted to the Africa University Research Ethics Committee for review. Please be advised that AUREC has reviewed and approved your application to conduct the above research.

The approval is based on the following:

a) Research proposal
b) Data collection instruments
c) Informed consent guide

- **APPROVAL NUMBER** AU1919/21
  This number should be used on all correspondences, consent forms, and appropriate documents.
- **AUREC MEETING DATE** NA
- **APPROVAL DATE** February 23, 2021
- **EXPIRATION DATE** February 23, 2022
- **TYPE OF MEETING** Expedited
  After the expiration date this research may only continue upon renewal. For purposes of renewal, a progress report on a standard AUREC form should be submitted a month before expiration date.
- **SERIOUS ADVERSE EVENTS** All serious problems having to do with subject safety must be reported to AUREC within 3 working days on standard AUREC form.
- **MODIFICATIONS** Prior AUREC approval is required before implementing any changes in the proposal (including changes in the consent documents)
- **TERMINATION OF STUDY** Upon termination of the study a report has to be submitted to AUREC.

AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE (AUREC)
APPROVED
P.O. BOX 1320, MUTARE, ZIMBABWE

**Yours Faithfully**

**MARY CHINZOU – A/AUREC ADMINISTRATORFOR CHAIRPERSON, AFRICA UNIVERSITY RESEARCH ETHICS COMMITTEE**

**Appendix III: Urkund Report**

Curiginal

**Document Information**

| | |
|---|---|
| **Analyzed document** | Kudakwashe Kamba Dissertation -4.April 2022.doc (D132554336) |
| **Submitted** | 2022-04-04T13:43:00.0000000 |
| **Submitted by** | |
| **Submitter email** | kambakuda@gmail.com |
| **Similarity** | 0% |
| **Analysis address** | mukumbik.africa@analysis.urkund.com |

**Sources included in the report**

1/25