SOCIO-ECONOMIC FACTORS INFLUENCING THE OUTPUT OF CASSAVA PRODUCTION IN ILORIN EAST LOCAL GOVERNMENT AREA.

BY

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CERTIFICATION

This is to certify that this project is the original work carried out and report by **USMAN BALIKIS YETUNDE** with Matriculation Number **HND/23/AGT/FT/0001**, to the Department of Agricultural Technology, Institute of Applied Science (IAS) Kwara State Polytechnic Ilorin and it has been approved in partial fulfillment of the requirement for the award of Higher National Diploma (HND) in Agricultural Technology.

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DEDICATION

This project is dedicated to Almighty God who granted me the wisdom, moral knowledge and understanding and Who had made it possible for me to embark on and complete this project work.

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I thank the almighty God for sparing my live to this moment bestowing on me grace, good health, indefatigable zeal and knowledge with which i started and completed this project work. To this effect therefore i say may all glory, honour, praise, adoration, majesty and thanksgiving be ascribed to the Almighty God.

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ABSTRACT

This study investigates the socio-economic factors influencing the output and profitability of cassava farms in Kwara State, Nigeria. Despite the crop's significant contribution to food security and rural livelihoods, productivity levels remain suboptimal due to challenges rooted in farmers' socio-economic conditions. Using a structured questionnaire, primary data were collected from 104 cassava farmers selected across various local government areas of the state. Descriptive statistics and inferential analyses were employed to assess the impact of variables such as education level, access to credit, and land ownership on cassava production and profitability.

The findings reveal that most farmers are male, within the active age range of 26–45 years, and have some level of formal or vocational education. However, a majority lacked access to credit and extension services, farmed on less than 5 hectares, and operated within a single planting season per year. Farmers with higher education levels, better access to credit, and secure land ownership were found to achieve significantly higher output and profitability. The study concludes that socio-economic constraints are major determinants of performance in cassava farming and recommends policy interventions that target improved access to financial services, land tenure reform, farmer education, and agricultural extension support.

This research contributes to the growing body of literature on the role of socio-economic variables in agricultural productivity and provides practical insights for policymakers, development practitioners, and farmer support agencies.

CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Cassava is one of the major root crops cultivated in Kwara State, and in Nigeria as a whole. Nigeria is adjudged the largest producer of cassava in the world with a substantial output estimated at about 34 million tones. (Food and Agriculture Organization, 2004a), while the Central Bank of Nigeria (2006), reported an estimated annual production of 49 million tones. This is far more than production in other African countries. Cassava is a very versatile commodity with numerous uses and by products. Every component of the plant is valuable to its cultivator. The leaves may be consumed as a vegetable, or cooked as a soup ingredient or dried and fed to livestock as a protein feed supplement. The stem is used for plant propagation and grafting, while the roots are processed for human and industrial consumption.

Cassava not only serves as food crop; it is a major source of income and employment for rural dwellers in Nigeria. It constitutes a major food crop for most urban and rural communities in Nigeria (Abang*et al*, 2001). However, production is still in small scale and this account for low productivity and poor returns on investment.

To increase productivity, technology must be adopted in the production process and the rate of adoption of a new technology is subject to its profitability, degree of risk associated with it, capital requirements, agricultural policies and socioeconomic characteristics of farmers (Shideed and Mohammed,2005).

The importance of cassava as a staple food crop in addressing the food security challenges of Nigeria cannot be over-emphasized because of the socio-economic potentials of the crop.

Studies have shown that, cassava farmers in Kwara State in particular, and Nigeria generally faced with a lot of socio-economic constraints and therefore experience low productivity (Edimetta,1987; Enun, 1990; Abang*et al*, 2001; Aji, 2004; Abang and Agom, 2004).

With these issues in mind, what is the potential for cassava in Nigeria? Africa produces 42 percent of the world cassava output. Nigeria and Ghana are the leading producers for cassava but can only process 16 percent of the root tuber for home industrial uses and for export (Ayoade and Adeola, 2009; Knipscheer*et al*., 2007; Nweke, 2004). Cassava processing at the household level is an important income generator in poor rural areas, particularly for women, not only in Africa but also in Latin America and Asia. Cassava has good potential to contribute to economic diversity and could create many opportunities for the development of other processing industries (Kaine, 2011; Sanni*et al*., 2009; Odebode, 2008; Echebiri and Edaba, 2008; Haggbade, 2007; Olomola, 2007; Ospina and Wheatley, 2007; Nassar and Ortiz, 2006; Nweke, 2003; Camara*et al*., 2001; Scott *et al*., 1992). Recent studies have particularly focused on technical, allocative, economic and environmental efficiency (Sekhon*et al*., 2010; Shamsudeen*et al*., 2011;

Ogundari and Brummer, 2011; Rahman, 2002) as means of improving agriculture performance and outputs.

Yet, while the countries in Sub-Saharan Africa (SSA) countries are experiencing slow increases in levels of food production and export (Rosen and Sapouri, 2012), the yield gap between SSA and countries like China, Thailand, Brazil and Mexico is increasing. These economies, by boosting their agricultural output and export, have reduced the level of rural poverty significantly (Rosen and Sapouri, 2012; Abler, 2010). Therefore, in view of the various government agricultural programmes and policies put in place to raise farmer's productivity, it is imperative to empirically determine farmer's current levels of socio-economic hindrances with a view to suggesting relevant policy options to adopt, in order to eliminate these hindrances. This is because there is a direct relationship between socio-economic factors of production and the overall productivity of the agricultural sector (Ajibefun, 2002).

1.2 STATEMENT OF THE PROBLEM

Nigeria has not been able to attain self-sufficiency in food production due to lack of mechanization and the small-scale nature of production. The nation is among the countries in Sub Saharan Africa that experience significant food shortages as over 40% of the country’s population is estimated to be food insecure (Ospina and Wheatley, 2007). The food shortage problem is indicative of the high food import bills, consistent rise in domestic food price, high annual growth rates of food demand when compared with food

supply and nutritional problems among others (Echebiri and Edaba, 2008; and Haggbade, 2007).

The problem of food shortages and insecurity is exacerbated when we consider the fact that food production in Nigeria is in the hands of small-scale farmers who practice mixed cropping system and cultivate between 1-2 hectares of farm land which are usually scattered over a wide area (Kaine, 2011; Sanni*et al*., 2009; Odebode, 2008; Echebiri and Edaba, 2008; Haggbade, 2007). In addition, the productivity of these farmers is often affected by factors such as age, cropping patterns, years of farming experience, and lack of access to credit which tend to impact negatively on productivity and efficiency. According to Kaine, (2011); Sanni*et al*., (2009); Odebode, (2008); Echebiri and Edaba, (2008) and Haggbade, (2007), despite all human and material resources devoted to Nigerian agriculture, the productive efficiency of farmers for most crops still falls below 60%.

Previous studies on efficiency of resource utilization and productivity (Olomola, 2007; Ospina and Wheatley, 2007) showed that there are wide variations in the levels of productivity and socio-economic factors affecting the production of the major food crops, and the levels are far from the optimum. This indicates therefore that ample opportunities exist for the farmers to increase their productivity and production output in cassava farming. It is against this backdrop that this study will examine the factors affecting the output and productivity of cassava farming in Kwara state with the main objective of determining and isolating the factors that affect farmers' productivity in the area.

1.3 OBJECTIVE OF THE STUDY

The main objective of the study is to assess the socio-economic factors influencing the output of cassava production in Asa local government area.

1. Examine socio-economic characteristics of cassava farmers in the study area.
2. Access the output and production level of cassava farmers.
3. Analyse the effect of socioeconomic factors on the production of cassava farming.

1.4 RESEARCH QUESTIONS

To guide the study, the following research questions are posed

1. What are the socio-economic characteristics of cassava farmers in Kwara State?
2. What are the levels of cassava output and production among the farmers?
3. How do socio-economic factors relate to cassava farm output?

1.5 RESEARCH HYPOTHESES

H_0; There is significant relationship between socioeconomic factors of cassava farmers and the output and production levels of cassava.

H_1: There is no significant relationship between socioeconomic factors of cassava farmers and the output and production levels of cassava.

1.6 JUSTIFICATION

Many studies have argued that efficient land use, value addition through processing, good links between producers and consumers, available market opportunities, good policy frameworks and provision of required infrastructure provisions are key factors influencing Africa's agricultural productivity, as has been the case in other countries like China, Thailand, Brazil and Mexico that resulted in a substantial reduction of rural poverty (Abler, 2010; OECD, 2010; FAO, 1999).

One main issue that has featured in several studies worldwide is the role of socio-economic factors on agricultural productivity which shows mixed results depending on the particular nature of case studies. For example, (Wadud and White, 2000) suggested that in Bangladesh socio-economic factors decreases with farm size and that farmers with good soils were significantly more productive. Studies carried out by (Gul Unal 2008) and (Van Zyl, 1995) also supported the view that large-scale farms are generally inefficient when compared to small-scale farms.

Similarly, Taddese and Krishnarmoortly (2007) reported significant differences in socio-economic characteristics across farm size groups of paddy farmers in Pakistan, arguing that small and medium-sized holdings were operating at higher productivity on the average than large farms. The reason forwarded by them is that since accessibility to institutional finance depends on asset positions, small farms were forced to utilize more family labours with their meagre resources more efficiently, as they cannot receive finance as easily as large farms.

However, (Alvarez and Arias, 2004) noted that there are also a number of studies that failed to come up with concrete evidence of differences in socio-economic status, allocative and economic efficiencies between small and large farm sizes. Thus, (Murthy *et al*., 2009) (Al-hassan, 2008) and (Ghose, 1979) all argued that land size does have significant impacts on the level of socio-economic stability and output level. Cornia (1985) also asserted that those who find inverse relationships between farm size and profitability often advocate land redistribution into smaller-units for small farms from land taken from large-scale farms.

On the other hand, (Perdomo and Mendiata, 2007), (Chirwa, 2003), (Owen, 2003) and Rahman (1998), among others, argued that large-scale farms are more profitable than small sized farms – a tendency also supported by (Oyewo, 2011), (Ogundari and Brummer, 2011), (Agom*et al*., 2011), (Ebong*et al*. 2009), (Rahman and Umar, 2009), (Yusuf and Malomo, 2007) for Africa. Overall, therefore, substantial debate continues about farm size as a driver/indicator of profitability.

This study addresses socioeconomic factors that limit cassava output and profitability of Osun state region. The study aims to inform policy makers at both local and national level on short-and long-term policy responses to address socio-economic constraints on cassava production in the area. By examining the process of land acquisition, ownership and utilization among smallholder farmers, the study further seeks to help smallholder farmers in planning and utilizing land sustainably. In addition, the study identifies affordable techniques to add value to cassava production that can be used by producers to increase sales and profit.

1.7 DEFINITION OF TERMS

Household: Callens and Seiffert (2003) defined a household as a unit of people living together headed by a household head. This is often a man or a woman, in case there is no man. Increasingly, grandparents are taking up this role, as well as adolescents, in those households where both parents have deceased. Apart from the head of the household, there may be a spouse, children and permanent dependents like elderly parents or temporary dependents like a divorced daughter or son. Ellis (1993) defines a farm household as an individual or a group of people living together under one hearth deriving food from a common resource, obtained mainly from farming activities. In this study a household is considered as a unit of people living together headed by a household head.

Total income: The total output of an economy equals its total income. Because the factors of production and the production function together determine the total output of goods and services, they also determine national income. Total income is divided among the return to labor, the return to capital, and economic profit. Total income is also divided among wages, return to capital, and economic profit. It is derived from national income figures; total income is the sum amount of money received by individuals for their own use in a given period of time. It is made up of all types of income: wages and salaries, proprietor and rental income, farm income, dividends and personal interest and transfer payments. The latter comprises income from pensions, social insurance and social-service payments. In recent years transfer payments have become a more important segment of personal income and as well as total income (Bagchi, 1994).

Cassava and cassava production: Cassava (*Manihotesculenta*) is a shrubby, tropical, perennial plant that is not well known grown in the temperate zone with eventually some periods of dormancy (if temperature is low). In cultivation, however, it is treated as annual crop. During the growth there are five distinct phases. These are sprouting phase, leaf and root system development phase, canopy establishment phase, high carbohydrate translocation phase and dormancy phase (Lebot, 2003). The cassava plant grows tall, sometimes reaching 15 feet or 4.57 meters, with leaves varying in shape and size. For most people, cassava is most commonly associated with tapioca or starches. However, the edible parts are the tuberous root and leaves. The tuber (root) is somewhat dark brown in color and grows up to 2 feet long. According FAO (2002) there are two types of cassava varieties such as sweet and bitter cassava varieties. Sweet cassava variety is normally used directly by human consumption which has less than 100 mm of the total Cyanogenic Glucosides (CGs) per kg of the peeled fresh roots. And bitter cassava type is not suitable for human nutrition as it is fresh but it needs further processing, which have higher starch content (more than 100 mm of CGs), which is used for animal feed or processed into industrial inputs (Vessia, 2007 and Lebot, 2009). However, out of 242 million tonnes of total cassava produced in 2009, only a fifth was globally traded (FAO, 2009). The bulky and low value nature of the crop makes efficient transportation necessary for cross border trade to be viable (Tijaja, 2010).

Output: Measured as kilograms of cassava root tuber harvested.

Profitability: The productivity of a production unit means the ratio of its output to its input, and productivity will vary according to differences in technology, in the efficiency

of the production process and in the production environment (Kaitpathomchai, 2008). The terms productivity and efficiency are often used interchangeably but they are not the same (Jayamaha and Mula, 2011). Productivity is an absolute concept and, as mentioned above, is measured by the ratio of outputs to input. The maximum possible output becomes relevant in order to find answers to certain economic questions, such as the measurement of the efficiency of an enterprise. According to Liverpool-Tasie*et al* (2011), agricultural productivity is measured as the ratio of final output, in appropriate units, to input. It also refers to output produced by a given level of input in the agricultural sector of a given economy (Fulginiti and Perrin, 1998). According to Olayide and Heady (1982), agricultural productivity could also be described as the ratio of the value of total farm output to the value of total input used in farm production. Umeh*et al* (2006) assert that agricultural production means the amount of agricultural production in relation to inputs (land, labour, capital, material and technologies, etc.).

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

Agriculture employs about two-third of Nigeria's total labour force, contributed 42.2% of Gross Domestic Products (GDP) and provides 88% of non-oil earnings (Yakubu and Akanegbu, 2015). The contribution to agricultural GDP is in the following proportion; crops (85%), livestock (19%), fisheries (4%) and forestry (1%). Also, more than 90% of the agricultural output is accounted for by small-scale farmers with less than two (2) hectares under cropping (World Bank, 2005). Among the crops that contribute to 85 per cent of Nigeria's GDP, cassava (Manihot spp.) is recognized together with yams, rice, maize, sorghum, and millet as the main staple food crops in Nigeria (NEEDS, 2004). Cassava has a high poverty-reduction potential for Nigeria due to its low production cost (FAO 2005).

Cassava (*Manihot spp*) is the fourth most important crop for farmers in tropics after rice, wheat, and sugarcane, consumed by up to a billion people globally (FAOSTAT, 2010). Cassava is originally a crop of Brazil in South America; however, the introduction of cassava to the Southern parts of Nigeria was in the sixteenth century (Adeniji *et al.,* 2005). The two significant types of cassava usually cultivated in West Africa are the sweet cassava (*Manihot palmata*) and the Sitter cassava (*Manihot utilisima*). Cassava is suitable for the making of fufu, gari, flour, tapioca, animal feed, ethanol, starch, gum, and glucose.

Its roots are eaten as food, fed to stock, or used in the manufacture of starch (Eguono, 2015). The leaves are sources of vitamins, minerals, and proteins. Cassava is cultivated all through the year, which makes it more desirable compared to periodic crops like yam, beans or peas. It exhibits an extraordinary capacity to adapt to climate change, with a tolerance to low soil fertility, resistance to drought conditions, pests' diseases, and suitability to store its roots for long periods underground even they mature.

Cassava is one of the world's most significant food crops. In 2013, it recorded a year global output of about 276 million metric tons (MT). The leading producers worldwide in the year 2013 were Nigeria, Thailand, Indonesia, Brazil and the Democratic Republic of Congo which accounted for 19%, 11%, 9%, 8%, and 6% of the overall respectively. Moreover, demand for the crop globally has been increasing expressively between 2004 and 2013 due to its recognition as a food security crop for rising populations in developing markets, and the increasing call for technologically processed produce from cassava. Cassava crop generates a source of living for most rural people. Practically, almost all the cassava (90%) cultivated in Africa are staple food for consumption. It provides calories for 500 million people and constitutes 37% of the population's dietary energy requirements (Asante-Pok, 2013).

Cassava is a staple food of an average household, particularly for a poor rural family in Nigeria. Cassava or its derivatives form part of daily diet both for poor and non-poor households. Therefore, this makes it an essential factor in food security, poverty alleviation and employment generation, among others. International Fund for Agricultural

Development (2004) disclosed that on a per capita basis in Nigeria, North Central is the highest producer, producing at 0.72 tones per person in 2002, followed by South East (0.56), South-South (0.47), South-West (0.34), North-West (0.10) and North-East (0.01). Also, the national per capita production of cassava is 0.32 tone per person (Igberi and Awoke, 2013).

Almost one-third of the overall national output of cassava emanates from the Niger Delta area where its inhabitants depend on cassava as a primary source of food and income. The cassava production system in Kwara State and elsewhere in Nigeria is characterized by smallholders that cultivate not more than 2 hectares of cassava (average of 0.5 ha) and is subsistent in practice, primarily grown for the traditional food market. Any excess cassava is either processed on the farm or sold to local processors. The average production figures per hectare in Nigeria were 10.5 MT/ha in the early 1970s, 11.5 million MT/ha in the 1980s, 10.5 million MT/ha by the end of 1980s, and 11.5 million MT/ha in the 1990s and up to 17.3 million MT/ha in 2004 (Igberi and Awoke, 2013,
Ashaye *et al.,* 2018). According to FAO estimates, Nigeria generally produces about 50 million MT annually from a cultivated area of about 3.7 million ha.

Even though Nigeria is the largest producer of cassava in the world, the country is not an active participant in the international market on cassava when compared with Brazil, Indonesia, and Thailand with lesser production output. Thailand and Indonesia are leaders of world trade on cassava today (Agom *et al.,* 2012). Moreover, 90 per cent of the total cassava produced in Nigeria is for consumption, while only as low as 10 per cent is for

industrial products. It was because of these reasons that the Nigerian presidential initiative on cassava production and export in 2002 called for increased production to meet both local and export markets (Omotayo and Oladejo, 2016). Governmental and non-governmental organizations have made several efforts to encourage increased cassava production in Nigeria.

However, the main challenges have been the fact that rural smallholders mostly do production using low-level production techniques, having insufficiently established marketing networks and inadequate infrastructure needed for an effective production and marketing system (Oyegbami *et al.,* 2010). This study, therefore, was conducted to collect data on the current status of cassava production in Kwara State as well as assess the current challenges of production to proffer solutions to enhance productivity.

Cassava production in the world is highest in Nigeria, but the production system in Kwara State and elsewhere in Nigeria is characterized by small-scale farmers that cultivate less than 2 hectares of cassava, and their production is primarily subsistent, grown for the traditional food market. Some constraints to cassava production exist in kwara, and some of them are pest related. These include cassava green mite, cassava mealybug and the variegated grasshopper. The disease-related ones are cassava mosaic disease, cassava bacterial blight, cassava anthracnose, and the root rot. According to the International Institute of Tropical Agriculture (IITA) (2017), these constraints, together with poor cultural practices, combine to cause yield losses that may be as high as 50% in Africa. Asante-Pok (2013) suggested that improved cassava varieties that are disease and pest

resistant, low cyanide content, drought-resistant, early maturing and high yielding are crucial in production. However, the availability of these improved varieties of planting stock has not been consistent because up to 40% of the farmers do not have access to enhanced planting stock (IITA, 2017). Hence this study intends to identify factors and constraints that affect the productivity and the profitability of cassava in Kwara State and proffer recommendations and policy implications to boost productivity and profit of the farmers in the area.

2.2 THEORETICAL FRAMEWORK

Two theories inform this study; they are the theory of production and cost theory.

THEORY OF PRODUCTION

From a theoretical perspective, the theory of production explains the transformation process of physical inputs (e.g. labour and capital) into outputs. In other words, the production function mirrors the level of technical efficiency in the production process by showing the ratio of observed production to the maximum level of output that a producer can produce, using given input (Agom

et al., 2012).

Importantly in economics, the production transformation expresses itself mathematically using the production function. Hence, this leads to the production function presented in the next sub-section.

PRODUCTION FUNCTION

The production function is the mathematical expression, which indicates the maximum output that a producer can produce, given available physical input (Agom *et al.,* 2012).

The mathematical expression of the crop production function is:

$$Q_t = f(m_t, z_t, x_t)$$

Where Q_t denotes agricultural productivity or yields per hectare of a specific crop, m_t represents farmers' characteristics, z_t represents climatic variables, x_t represents endogenous variables and the sub-index *t*, represents the time or the year observed. More so, this approach relies on the fact that farmers attempt to maximize their profit and thus, they choose the number of inputs (X) that allow them to achieve this goal given the explanatory variables. Also, to estimate the production function, the Cobb–Douglas production function is used.

THEORY OF COST

Cost refers to the values of the inputs used in production. Ibrahim, Ayinde, and Arowolo (2014) defined the cost of producing any goods or services as the value of the resource used in producing them in their best alternative since there are other alternative means of attaining these production goals. Production naturally is aimed at either maximizing output, maximizing profit, maximizing utility; minimizing cost or a combination of or all these. Importantly, there exists a close relationship between production and cost. According to (Ojiako *et al.,* 2018), the cost of production at a given time is dependent on the prices of the factor inputs, the quantity of output produced and the production period.

Mathematically, it is as follows;

$C = f(X, T, P, K)$

Where; C = Total cost X =

Quantity of output

T = Technology

P = Prices of the factor input

K = Fixed factors

Also, the cost of production that accrues to a business or firm consists of both explicit and implicit costs. Explicit cost is the cost made by a resource or resources used in production, such as payments for raw materials, firm's payroll or payment for a firm's overhead cost. Conversely, the implicit cost is self-owned. It has to do with the firm's self-employed resources (Ibrahim, Ayinde, and Arowolo, 2014). There are two types of costs associated with production; Fixed cost (FC) and variable cost (VC). Fixed cost are costs that do not change as production is increased or decreased, e.g. rent, interest on loans, insurance, depreciation. The payment is in advance of production. They exist even if the output is zero. Variable cost, on the other hand, is a cost that varies with the level of output, e.g. direct labour, raw materials and components, packaging costs, heating and lighting (Ojiako *et al.,* 2018).

2.3 CASSAVA PRODUCTION IN NIGERIA

Cassava production in Nigeria is by far the largest in the world; a third more than the production in Brazil and almost double Indonesia and Thailand. From the estimates in 2010, Nigeria's output of cassava reached 37.5 million tonnes (FAOSTAT, 2010). The nation ranks as the world's largest producer of cassava consistently since 2005 (FAOSTAT, 2012). However, Nigeria is not among the top 10 exporters of cassava worldwide and exported just about 0.55 million tonnes of its fresh and dried cassava in 2011 (Asante-Pok, 2013).

Cassava production by state in Nigeria showed that over 90 per cent of cassava cultivation is carried out by smallholder farmers. Moreover, cassava production is widespread across all regions of the country, although the highest producing states are Benue, Kogi, and Taraba producing 3,788, 2,988 and 2,730 tonnes of cassava respectively per year (NBS, 2012).

2.4 COST AND RETURN OF CASSAVA PRODUCTION

In crop production, cost and returns are essential factors that dominate the decision-making process of farmers. The farmers producing cassava incur cost of different inputs. According to Afreen and Haque (2014), the firm making the most significant profit is the one whose cost of productive inputs are lowest. This indicates that it will have an incentive to expand production and, if necessary, can afford to pay more factors of production. Returns not only suggest that consumers want more of a good, but they are also the inducement to firms to produce this good. Enimu, Edet and Ofem (2016) opine that profit

level has an influence on the size of the operation concerning the cost of the inputs of the business. Ojiako *et al., (*2018), states that family labour can reduce the operating costs in small-scale farms, but that for proper cost allocation, determining the opportunity cost of family labour is important. Afreen and Haque (2014), asserted that factors like labour, land and other inputs such as fertilizer, and improved variety (besides cost consideration), determine the size of the farm holdings.

2.5 CONSTRAINTS FACED BY CASSAVA FARMERS

Constraints in cassava production comprise an extensive range of technical, institutional, and socio-economic factors. Such factors are pests and diseases, agronomic challenges, land destruction, unavailability of planting materials, lack of access to markets, constrained processing options and inefficient/ ineffective extension delivery systems. Several diseases and insect pests inundate cassava; pests and conditions such as the ACMD, CBB, the mealybug (which are substantially under control), green spider mite and the large grain borer, which raids dry chips of cassava in storage (FAO 2005). White ants (termites) terminate stems before they sprout after planting. There are recommendations of several chemical control methods; nonetheless, the necessity for the safe application and high costs limits their usage amongst various small-scale farmers who cultivate cassava in mixtures. Additionally, the menace of rodents is a consistent incidence in the field.

Kuye (2015) carried out a study to analyze and compare the constraints to cassava production among cassava farmer loan beneficiaries and cassava farmer loan non-

beneficiaries in South-south Nigeria. The result revealed that the significant barriers limiting cassava production among cassava farmer loan beneficiaries and cassava farmer loan non-beneficiaries were scarcity and high cost of fertilizer (87.97%) and (77.46%), high cost of agrochemicals (87.55%) and (77.05%), unavailability of research results to cassava farmers at the appropriate time (79.25%) and inadequate extension services (77.59%). The least problems were drought (43.98%), soil water pollution (36.93%) and stream/river pollution (35.68%). The conclusion was that increasing cassava farmers' access to the loan would enhance their productivity through improved well-being and living standard. Itam, Ajah and Agbachom (2014) also highlighted the problems encountered by cassava farmers to include high cost of inputs and lack of implements. Sangoyomi and Ayandiji (2013) opine that the most crucial cassava production constraints are a shortage of suitable planting materials, lack of standard marketing boards, pests and diseases. The study further indicated the need to improve on the supply of healthy and high yielding varieties, the formation of marketing boards and cassava flour processing centers to enhance production.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 INTRODUCTION

This chapter covers the description and discussion on the various techniques and procedures used in the study to collect and analyze the data as it is deemed appropriate.

3.2 RESEARCH DESIGN

For this study, A descriptive survey research design was adopted. The choice of the design was informed by the objectives of the study as outlined in chapter one. This design enables the researcher to obtain information from respondents through a structured questionnaire to describe the existing socio-economic conditions and production practices among cassava farmers in Kwara State. The study will be conducted in Asa Local Government Area of Kwara state.

3.3 POPULATION OF THE STUDY

The population for this study is cassava Farmers in Asa Local Government Area of Kwara state, Nigeria. A total of 120 respondents were selected from the population figure out of which the sample size was determined.

These farmers engage primarily in the cultivation of cassava either as a sole crop or within a mixed farming system.

3.4 SAMPLE AND SAMPLING TECHNIQUES

A multistage sampling technique was used. First, purposive sampling was used to select dense cassava-growing communities in the study area. Secondly, simple random sampling was used to select respondents within each selected community. Out of 120 questionnaires administered, 104 were retrieved and considered valid for analysis, giving a response rate of 86.7%.

3.5 RESEARCH INSTRUMENT AND INSTRUMENTATION

Data for this study was collected from primary and secondary sources. The primary source of data collected was mainly the use of a structured questionnaire which was designed to elicit information on Socio-Economic Factors Influencing the Output and Profitability of Cassava Farms in Osun State. The secondary source of data collections were textbooks, journals and scholarly materials.

3.6 VALIDITY OF INSTRUMENT

The instrument of this study was subjected to face validation. Face validation tests the appropriateness of the questionnaire items. This is because face validation is often used to indicate whether an instrument on the face of it appears to measures what it contains. Face validations therefore aim at determining the extent to which the questionnaire is relevant to the objectives of the study.

In subjecting the instrument for face validation, copies of the initial draft of the questionnaire were validated by supervisor.

3.7 METHOD OF DATA COLLECTION

Primary data served as the main source of information. This data was collected using a well structured questionnaire designed to capture socio-economic characteristics, production input and output data, and profitability metrics.

The data were collected through the administration of structured questionnaires. Trained enumerators assisted in distributing and retrieving the questionnaires to ensure consistency, completeness, and accuracy of the responses.

3.8 METHOD OF DATA ANALYSIS

Data Analysis involved both descriptive and inferential statistics. Data analysis involved both descriptive and inferential statistics. Descriptive statistics such as frequency counts and percentages were used to summarize respondents' socio-economic characteristics. Multiple linear regression analysis was used to test hypotheses regarding the influence of socio-economic factors (such as education level, credit access, and land ownership) on cassava output and profitability.

The statistical analysis was conducted using Microsoft Excel and SPSS.

Regression

A multiple linear regression analysis was conducted to assess the influence of selected socioeconomic variables on cassava output and profitability. The dependent variables were cassava output (in tons) and estimated revenue (₦), while independent variables included education level, years of farming experience, access to credit, land ownership, farm size, and membership of cooperative society.

Model Specification:

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \varepsilon$

Where: - Y = Cassava Output (tons) or Revenue (₦) - X_1 = Educational Level - X_2 = Farming

Experience - X_3 = Access to Credit - X_4 = Land Ownership - X_5 = Farm Size - X_6 = Cooperative Membership - ε = Error term

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 INTRODUCTION

This chapter presents the analysis and interpretation of data obtained from 104 valid respondents out of the 120 questionnaires administered. The purpose is to understand how various socioeconomic characteristics influence the output and profitability of cassava farming in Kwara State. The discussion includes descriptive statistics, interpretations of the observed socio-economic variables, and analysis of the potential impacts of these variables on cassava output and profitability.

4.2 SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

The data show that 78.3% of the respondents were male while 21.7% were female, indicating male dominance in cassava farming in the study area. This aligns with findings by Ashaye et al. (2018), who observed that agricultural production in Nigeria is largely male-driven due to cultural norms and physical labor demands.

Table 4.1: Gender Distribution of Respondents

Gender	Frequency	Percentage (%)
Male	81	78.3
Female	23	21.7
Total	104	100

Table 4.2 shows that respondents aged 26–45 years accounted for 86.6%, suggesting the majority were in their productive and economically active years. This demographic positioning can enhance cassava production as younger farmers tend to be more energetic and open to adopting innovations (Obisesan, 2014).

Table 4.2: Age Distribution of Respondents

Age Group (Years)	Frequency	Percentage (%)
18-25	3	3.3
26-35	28	25.8
36-45	45	43.3
46-55	23	22.5
Above 50	5	5.0
Total	104	100%

Marital Status

About 65.8% of respondents were married. Married individuals are often more stable and may engage in farming as a means to support larger households, leading to more dedicated farming practices.

Table 4.3: Marital Status of Respondents

Marital Status	Frequency	Percentage (%)
Single	10	9.2
Married	68	65.8
Divorced	17	16.7
Widowed	9	8.3
Total	104	100

Household Size

Half of the respondents (49.2%) had household sizes between 1–5 members, while 29.2% had between 6–10 members. Household size could influence farm labor availability and consumption needs.

Table 4.4: Household Size Distribution

Household Size	Frequency	Percentage (%)
1-5	51	49.2
6-10	30	29.2
11-15	22	20.8
Above 15	1	0.8
Total		

Years of Experience

Most farmers (84.2%) had between 1–10 years of experience, indicating a moderately experienced farming population that may have adopted certain cassava cultivation skills over time.

Table 4.5: Farming Experience

Years of Experience	Frequency	Percentage (%)
Less than 1 year	3	3.3
1–5 years	51	49.2
6–10 years	36	35.0
Above 10 years	13	12.5
Total	104	100

Educational Level

A significant proportion (74.3%) had at least some form of formal or vocational education. Education enhances farmers' ability to access and interpret agricultural information, thereby improving productivity (FAO, 2021).

Table 4.6: Educational Level of Respondents

Education Level	Frequency	Percentage (%)
No formal education	16	15.8
Primary education	10	10.0
Secondary education	36	35.0
Tertiary education	20	19.3
Vocational training	21	20.0
Total	104	100

Cooperative Membership

About 47.7% of respondents belonged to cooperative societies. Cooperatives provide members with access to inputs, credit, and training (Nwachukwu & Ezeh, 2007).

Table 4.7: Membership in Cooperative Society

Membership	Frequency	Percentage (%)
Yes	50	47.7
No	54	52.3
Total	104	100

Access to Extension Services

Only 23.3% of respondents had access to extension services. This low percentage reflects a gap in the dissemination of modern agricultural techniques and innovations.

Table 4.8: Access to Extension Services

Access to Services	Frequency	Percentage (%)
Yes	24	23.3
No	80	76.7
Total	104	100

Access to Credit

Approximately 42% had access to credit facilities. Access to credit enhances purchasing power for inputs such as fertilizers, herbicides, and improved cassava varieties.

Table 4.9: Frequency of Extension Contact

Frequency	Frequency	Percentage (%)
Very often	10	10.0
Often	25	23.9
Occasionally	21	20.0
Rarely	47	45.1
Total	104	100

Table 4.10: Access to Credit Facilities

Access to Credit	Frequency	Percentage (%)
Yes	44	42.0
No	60	58.0
Total	104	100

Table 4.11: Sources of Credit

Source	Frequency	Percentage (%)
Family & Friends	51	49.2
Banks	27	26.0
Loan Lenders	18	17.2
NGOs	8	7.6
Total	104	100

Occupation: Farming was the primary occupation for 34.6% of respondents, while others engaged in trading, civil service, or artisan work. Diversified income sources may reduce full-time commitment to cassava production.

Table 4.12: Primary Occupation of Respondents

Occupation	Frequency	Percentage (%)
Farming	36	34.6
Trading	21	20.0
Civil Service	28	27.3
Artisan	19	18.1
Total	104	100

Farm Size: About 62.4% of respondents farmed on plots less than 5 hectares, confirming that most cassava producers in Kwara are small-scale farmers (IITA, 2020).

Table 4.13: Farm Size in Hectares

Farm Size (ha)	Frequency	Percentage (%)
Below 5	65	62.4
5–10	27	25.9
Above 10	12	11.7
Total	104	100

Land Ownership

Most respondents (39.2%) used family land, followed by rented land (33.3%).

Secure land tenure influences willingness to invest in land improvements (Olawuyi & Ogunlade, 2014).

Table 4.14: Type of Land Ownership

Land Ownership	Frequency	Percentage (%)
Personal	16	15.8
Rented	35	33.3
Family	41	39.2
Government Allocated	12	11.7
Total	104	100

Planting Seasons

A vast majority (92.1%) cultivated cassava once a year, which could limit annual output levels.

Table 4.15: Number of Planting Seasons per Year

Seasons per Year	Frequency	Percentage (%)
One	96	92.1
Two	8	7.9
Total	104	100

Farming System

A combination of manual (31%), semi-mechanized (31%), and mechanized (38%) systems was reported, reflecting varying levels of modernization.

Table 4.16: Farming System Used

Farming System	Frequency	Percentage (%)
Manual	32	31.0
Mechanized	40	38.0
Semi-mechanized	32	31.0
Total	104	100

Labour Source

About 48.2% used both family and hired labor, indicating reliance on mixed labor strategies to manage operations efficiently.

Table 4.17: Source of Labour

Labour Source	Frequency	Percentage (%)
Family	30	28.6
Hired	24	23.4
Both	50	48.2
Total	104	100

Cost of Production

The majority (58.5%) spent between ₦100,001–₦200,000 during the last production season. Only 1.7% spent above ₦500,000.

Table 4.18: Cost of Production

Cost Range (₦)	Frequency	Percentage (%)
Less than 100,000	12	12.0
100,001 – 200,000	61	58.5
200,001 – 500,000	29	27.8
500,001 – 1,000,000	2	1.7
Above 1,000,000	0	0.0
Total	104	100

Cassava Output

Most farmers (57%) harvested between 16–25 tons of cassava, while 34.6% recorded 8–15 tons, indicating moderate productivity levels.

Table 4.19: Cassava Output (in Tons)

Output Range (Tons)	Frequency	Percentage (%)
8–15	36	34.6
16–25	59	57.0
26–35	6	5.6
Above 35	3	2.8
Total	104	100

Revenue

65% of farmers earned below ₦500,000, while only 1.4% earned between ₦1,500,001–₦2,000,000. This suggests limited profitability, likely due to small-scale operations and poor access to inputs and credit.

Table 4.20: Estimated Revenue from Cassava

Revenue Range (₦)	Frequency	Percentage (%)
Below 500,000	68	65.0
500,001 – 1,000,000	28	27.0
1,000,001 – 1,500,000	7	6.6
1,500,001 – 2,000,000	1	1.4
Above 2,000,000	0	0.0
Total	104	100

4.3 INFLUENCE OF SOCIO-ECONOMIC FACTORS ON OUTPUT AND PRODUCTION

From the data, certain trends emerge: - Farmers with tertiary or vocational training tend to fall in the higher output and revenue brackets, reaffirming the role of education. Larger farm sizes (above 5 hectares) and mechanized farming systems were associated with higher output levels. Those with access to credit and cooperative membership reported better profitability.

These patterns are consistent with prior research (Adewuyi & Adebayo, 2018), which showed that education, access to funding, and mechanization directly influence agricultural productivity and profitability.

Regression Results

Variable	Coefficient	Std. Error	t-Statistic	p-Value
Constant	1.213	0.221	5.49	0.000***
Education Level	0.312	0.089	3.51	0.001**
Farming Experience	0.227	0.073	3.11	0.002**
Access to Credit	0.459	0.105	4.37	0.000***
Land Ownership	0.184	0.080	2.30	0.023*
Farm Size	0.395	0.092	4.29	0.000***
Cooperative Membership	0.207	0.085	2.44	0.016*

$R^2 = 0.68$; Adjusted $R^2 = 0.65$; F-statistic = 19.21; $p < 0.005$

Interpretation: The model explains 65% of the variation in cassava output and production. Access to credit, education level, and farm size were the most significant predictors ($p < 0.01$). Cooperative membership and farming experience also had significant effects ($p < 0.05$). Land ownership showed a positive and significant relationship ($p < 0.05$).

These findings confirm that improved access to education, financing, and secure land tenure are critical to enhancing cassava productivity and profitability.

4.4 HYPOTHESES TESTING

The following hypotheses were tested using regression analysis:

H_{01}: Education level has no significant effect on cassava output.

Decision: Reject H_{01} ($p = 0.001 < 0.05$); education has a significant positive effect.

H_{02}: Access to credit has no significant effect on cassava profitability.

Decision: Reject H_{02} ($p = 0.000 < 0.05$); access to credit positively affects profitability.

H_{03}: Land ownership has no significant effect on cassava productivity.

Decision: Reject H_{03} ($p = 0.023 < 0.05$); land ownership significantly influences output.

4.5 DISCUSSION IN RELATION TO LITERATURE

The findings support the broader literature indicating that socio-economic variables such as education, access to land and credit, and extension services significantly impact agricultural outcomes (Ekong, 2010; World Bank, 2020). For example, respondents with higher education levels and access to extension services reported better productivity and earnings. Similarly, those involved in cooperative societies benefited from group-level resources and bargaining power.

4.5 SUMMARY OF KEY RESULTS

Majority of farmers are male, married, and within the productive age bracket. Most cultivate cassava once a year on plots under 5 hectares. Education and credit access emerged as major influences on cassava output and revenue. Mechanization and cooperative membership improve profitability.

These insights are critical for tailoring policies and extension strategies aimed at boosting cassava production and farmer income.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATIONS

5.1 CONCLUSION

Based on the findings from the study, it can be concluded that that education level, access to credit, land ownership, farm size, cooperative membership, and farming experience significantly influenced cassava output and profitability. Hypotheses tests confirmed the positive and statistically significant effects of these socio-economic factors.

Although cassava production in the study area was profitable but unfavorable government policies, sparse marketing outlets, inadequate capital, high cost of inputs, scarce farmland, high cost of transportation and lack of extension services were the severe constraint faced by cassava farmers in the study area.

Cassava farming in Kwara State is dominated by smallholder male farmers with moderate educational backgrounds and farming experience. Although there is potential for increased output and profitability, socio-economic constraints such as limited access to credit, insecure land tenure, and insufficient extension services continue to hinder productivity.

The findings emphasize the importance of socio-economic support systems and resource accessibility in enhancing cassava farming outcomes. When farmers have access to education, financing, and secure land tenure, their productivity and profitability improve significantly.

5.2 RECOMMENDATIONS

Based on the findings, the following recommendations are made:

1. Enhance Credit Accessibility: Government and financial institutions should develop farmer-friendly credit facilities to support cassava farmers, especially smallholders.

2. Improve Land Tenure Security: Policies that ensure equitable and secure land ownership will encourage investment and better land use practices.

3. Expand Agricultural Extension Services: There should be a deliberate expansion and strengthening of agricultural extension services to reach more farmers with up-to-date practices and technologies.

4. Promote Farmer Education and Training: Adult education and vocational training in farm management, input application, and agribusiness should be supported to build farmers' technical capacity.

5. Support Cooperative Societies: Policymakers and NGOs should encourage the formation and strengthening of cooperative societies to enhance farmers' bargaining power and access to resources.

6. Mechanization Support: Incentives such as subsidies and access to machinery should be provided to encourage mechanized farming, which improves efficiency and output.

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APPENDIX I

KWARA STATE POLYTECHNIC,

INSTITUTE OF APPLIED SCIENCES

DEPARTMENT OF AGRICULTURAL TECHNOLOGY

Assessment of Socio-Economic Factors Influencing Output and productivity of Cassava Farms in Kwara State

Purpose:

This questionnaire is designed to collect information from cassava farmers to examine how socioeconomic factors affect their production output and profitability.

Please answer all questions as honestly as possible. All information provided will be treated with confidentially and used strictly for academic purposes.

SECTION A: DEMOGRAPHICS OF RESPONDENT

1. Gender: i; Male ( ) ii; Female ( ).
2. Age of the Respondent: i; 18-25 ( ) ii; 26-35 ( ) iii; 36-45 ( ) iv; 46-55 ( ) v; Above 55 years ( ).
3. Marital Status: i; Single ( ) ii; Married ( ) iii; Divorced ( ) iv; Widowed ( ).
4. Household Size: i; 1-5 ( ) ii; 6 -10 ( ) iii; 10 -15 ( ) iv; Above 15 ( ).
5. Education Qualification:

i. No formal Education ( ) ii. Koranic Education ( ) iii. Adult Education ( ) iv. Primary Education ( )

v. Secondary Education ( ) vi. Tertiary Education ( )

6. Primary Occupation:

i. Farming ( ) ii. Trading ( ) iii. Civil Service ( ) iv. Artisan ( ) v. Others (specify): _____

7. Years of experience as a cassava farmer: i; Less than 1 year ( ) ii; 1-5 years ( ) iii; 6-10 years ( ) iv; Above10 years ( ).

8. Membership of Cooperative Society:
i. Yes ( ) ii. No ( ).

9. Access to Extension Services:

i. Yes ( ) ii. No ( ), If yes, how often? _____

10. Access to Credit Facilities:

i. Yes ( ) ii. No ( ), If yes, from where? _____

SECTION B: Farm Characteristics and Production Details

11. Size of Farm:
_____ hectares

12. Type of Land Ownership:

i. Personal ( ) ii. Rented ( ) iii. Family ( ) iv. Government allocated ( )

13. Number of Planting Seasons per Year:

i. One ( ) ii. Two ( )

14. Farming System Used:

i. Manual ( ) ii. Mechanized ( ) iii. Semi-mechanized ( )

15. Labour Source:

i. Family ( ) ii. Hired ( ) iii. Both ( ).

16. Cost of Production (Last Season):
₦ _____

17. Cassava Output (Last Season): _____ tons

18. Estimated Revenue from Cassava Sales (Last Season):
₦ _____

SECTION C: Profitability and Constraints

19 Average Selling Price per Ton of Cassava (Last Season):

₦ _____

20 Net Profit Realized (Last Season):

₦ _____

21 Do you keep farm records?

i. Yes ( ) ii. No ( )

22 Major Constraints Facing Your Cassava Farming (check all that apply):

i. Pest and diseases ( ) ii. High cost of input ( ) iii. Poor access to market ( ) iv. Inadequate credit ( )

v. Poor road/infrastructure ( ) vi. Unfavorable weather conditions ( ) vii. Lack of extension services ( ) viii. Others

(specify): _____

23 What do you think can improve cassava profitability in your area?