

Effect of Socio-economic Characteristic on Maize Farmers in Zing Local Government Area, Taraba State, Nigeria

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Received:- 05 August 2021/ Revised:- 13 August 2021/ Accepted:- 19 August 2021/ Published: 31-08-2021

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Abstract— *Smallholder farmers are one of the most important stakeholders in Nigeria's agrarian economy. This study examined the effect of socio-economic characteristic on maize farmers in Zing Local Government Area, Taraba State, Nigeria. This study adopted descriptive survey design and used primary and secondary data. Questionnaires were used to elicit information from the respondents. Five (5) wards were purposively selected out of ten (10) wards in the study area. Data was analyzed using descriptive statistics. The findings of the study reveal that men are more involved in farming activities in the study area than women because of their ability to handle complex farming operations such as land preparation (clearing bushes and creating mounds and ridges). The study findings reveal that 33.73% of the respondents were in their prime age, between 20-30 years. As much as 63.86% of the respondents have small farm holdings between 3 to 5 hectares and 42.77% of the respondents acquire their farmlands through inheritance, 28.31% bought their farmlands, 19.28% rent their farmlands while 9.64% obtain their farmlands by lease. The study reveals that 34.64% of the respondent's income ranges between ₦10,000 to ₦20,000. This income is very low, thereby forcing the local people to take to other alternative sources of livelihood such as commercial cyclist riding, carpentry, welding and petty trading. In terms of labour, 43.97% of the respondents use family labour exclusively in their farming operation, 27.11% used hired labour, 21.69 used mechanical power in form of tractor and 7.23% use animal draught in their farming operations. The poor socio-economic characteristics of the farmers contribute greatly to increasing decline in maize production in the study area which also translate to low income of the rural farmers. Based on the findings, the study recommended the need to assist the rural farmers to organize themselves into cooperatives and increase provision of up-to-date information and technology by extension workers to improve the skills of the rural farmers in modern agronomic practices.*

Keywords— *Maize farmers, Smallholder farmers, Socio-economic characteristics and Zing.*

I. INTRODUCTION

Smallholder farmers are one of the most important stakeholders in Nigeria's agrarian economy. Even though the contribution of agriculture to Nigeria's GDP continues to decline, about half of the populations are still employed in the sector (Food and Agriculture Organisation [FAO], 2015). Maize is one of the staple foods for some one billion people in 105 countries of the world over, where a third of the caloric needs of the people are met (OECD-FAO, 2015). The importance of maize to Africa's age-old problem of food insecurity cannot be overemphasized. It is believed that maize could help protect the food and energy security needs of poor countries, especially in Sub Saharan Africa now threatened by volatile food prices (FAO, 2008). Maize in Nigeria is largely produced by smallholder farmers on marginal and often degraded lands of the humid tropics. The crop is cultivated on fragmented land holdings where the farmers produce to feed their family and sell surplus produce for income. Nonetheless, the smallholder sector plays crucial role as far as livelihoods for the vast rural population is concerned.

Its production is influenced by several factors ranging from geographical to socio-economic. The production levels of the crop have been increasing on a yearly basis and constitute a significant percentage of Nigeria's agricultural Gross Domestic Product [GDP] (FAO, 2013). For sub-Saharan Africa (SSA), maize is regarded as one of the most important crops due to its general acceptance and less input demand. However, socio-economic factors continue to play crucial role in determining the levels of crop production and the sort of crops planted accross Nigeria. The production levels are not the only areas affected

but also the way agricultural businesses are managed which put the socio-economic characteristics of the farmers into consideration (von Braun & Mirzabaev, 2015). Previous studies have showed that if support is to be extended to crop farmers in production locations, their basic characteristics are worth studying to fully understand their needs for need-driven intervention. For instance, Mwaniki (2006) stressed that, boosting agricultural production capacity of farmers requires that adequate information about the demographic and socio-economic characteristics of the farmers become part of the wider strategy to improve production. Many rural farmers often missed out from supports due to their geographic and socio-economic characteristics and this influence their production output levels. The well to do farmers are easily identified because they have voices to be heard while the poor farmers remain voiceless. Primary areas of interest identified in earlier studies consist of a mixture of some socio-economic and demographic factors.

On demographic characteristics, empirical studies have shown that educational level of farmers tend to increase their output levels through increased knowledge of the production processes and the ability to easily understand recent research findings on new agronomic practices (Seyoum, Battese & Fleming, 1998; Hassan & Ahmad, 2005). Further, the magnitude of time and efforts needed to convince producers to undertake innovative and improved farming practices are reduced with literate farmers. Illiterate farmers on the other hand, are sometimes trivial and unnecessarily focused on the personality of the extension personnel rather than the message (Onubogu, Esiobu, Nwosu and Okereke, 2014). Of late, there is burgeoning concerns for farm size and output level relationship.

Conventionally, age and experience are directly proportional in the smallholder farmer operations. The relationship between age of farmers and their potential output levels has engaged and continue to engage the attention of scholars at least for some time. The argument surrounding age as far as efficiency, productivity and output potentials are concern gathered momentum and show no sign of ending anytime soon. Depending on the effects of other demographic and socio-economic factors on age, it can either enhance or reduce the output levels of farmers in production process. According to some studies, age influences output levels positively because farming is an activity that requires prolonged practice before attaining perfection. (Abdul-kareem & Isgin, 2016; Oren & Alemdar, 2006; Erhabor & Emokaro, 2007). Other studies argued otherwise as young farmers being more positioned to realise higher outputs than older farmers (Latruffe, 2010; Samuel, Debrah & Abubakari, 2014). They hold the view that older farmers may be reluctant to change and sometimes their unwillingness or inability to adopt new innovations could affect their production abilities leading to low level of outputs realised.

The gender of farmers according to studies has some production implications. Many studies have concluded that male farmers are likely to obtain higher outputs than their female counterparts from the employment of the same factors of production (Abdulai, Nkegbe & Donkoh, 2013; Asante, Osei, Dankyi, Berchie, Mochia, Lamptey, Haleegoah, Osei & Bolfrey-Arku, 2013; Onumah, Onumah, Al-Hassan & Brummer, 2013). They contend that in some geographical localities, the culture of the people will likely exclude women in extension information dissemination because they are not considered as farmers like their male counterparts. Also, due to gender alignment issues, extension information content may not address the needs and conditions of women producers. Few studies have shown that the women off-farm time could be used to gain more knowledge and information thereby increasing their knowledge of the production process (Latruffe, 2010; Onumah, Al-Hassan & Onumah, 2013).

On the socio-economic characteristics, empirical literature is flooded with arguments for and against farm sizes in productions. Many studies have concluded that the larger farm size is preferable to smaller farm size in terms of outputs obtainable from the production process (Hassan & Ahmad, 2005). However, findings of other studies in the same area have argued otherwise (Badunenkeno, Fritsch & Stephen, 2006; Masterson, 2007). Their conclusive assertions lend credence that farms with smaller land sizes produce higher output than their larger size counterparts. There has not been a consensus on this matter, but quite strangely, the approach adopted by scholars from both sides of the block raises more questions than answers. Importantly, one thing that is driving the debate in a subtle manner is the productivity level of the land or the fertility level of the land under cultivation. That is to say how much is obtained from a parcel of land is a function of several factors rather than just the number of acreages engaged. Additionally, in making a case for either of them, there is always some unintended neglect of the influences of other factors of production in the production process which may lead to erroneous conclusions of one being preferable to the other (Masterson, 2007).

Despite the popularity of maize as staple food in Zing Local Government Area of Taraba State, there is low productivity of this crop. This may be due to factors such as sowing of poor quality variety, late sowing, inaccurate spacing, inappropriate fertilizer application, (at the right time and quantity), non-use of chemicals to control pest and diseases, poor knowledge of appropriate moisture content of maize to be harvested and stored. Other factors include non-adoption of some farming

practices such as dig and cover method of fertilizer placement, measurement of seed quantity to be planted and measurement of spacing between hills were considered too labour intensive and unnecessary. The major constraints to adoption were found to be lack of capital, high cost of fertilizer and lack of market for produce. Moreover, non-adoption of improved maize production practices negatively affects maize production in the study area.

Despite the economic importance and popularity of Maize to the teeming populace in Nigeria, it has not been produced to meet food and industrial needs of the country and this could be attributed to low productivity from Maize farms or that farmers have not adopted improved technologies for Maize production. Additionally, other factors like price fluctuation, diseases and pests, poor storage facilities have been associated with low Maize production in the country thereby causing a fluctuation trend in maize production.

This fluctuating trend in maize production threatens household food security and income sources. To reverse this trend and ensure increase maize in the study area and the country at large there is need to examine demographic and socio-economic characteristics that influences the poverty status of farmers and how their productivity can be improved upon. This is very important in order to ensure agricultural growth and development in Nigeria mostly in the rural areas where we have 70% of her over 140 million involved in agriculture production is addressed.

No doubt maize is in high demand both for local human consumption and preparation of animal feed. Nigeria is still importing maize to supplement local production. The major challenge is the dominance of smallholder farmers which leads to low output and insufficiency to meet the country's food need. There is therefore need to study how these demographic and socio-economic characteristics influences maize farmers in the study area. This will not only contribute to existing knowledge on maize farmer's productivity and their poverty status but will also help in formulating future strategies to improve maize farmer's productivity, increase productivity for effective economic development, achieve long run economic growth per person through increases in capital.

Although, there are studies on socio-economic characteristics of farmers in the Savannah zone, not many studies have been done on the effects of demographic and socioeconomic characteristics on maize farmers in the study area. Moreso, considering the importance of maize as local staple food to the country, basic demographic and socio-economic information of maize farmers would interest policy makers and provide a basis for other studies involving the staple crops in the country. It is against this background that this study examines the effects of the demographic and socio-economic characteristics on maize farmers in Zing Local Government Area, Taraba State, Nigeria.

Description of the Study Area

Zing Local Government Area is situated to the North-eastern part of Taraba State. It is bounded to the East and North by Adamawa state and to the West and South by Yororo Local Government Area. Zing Local Government Area lies between latitudes $8^{\circ} 45'N$ and $9^{\circ} 10'N$ and longitudes $11^{\circ} 35'E$ to $11^{\circ} 50'E$. Zing LGA has a total land mass of $1,030\text{km}^2$. The study area consists of 6 districts with 75 villages. Each village has approximately between 255-783 farm families (TADP, 2005). It also has a total population of approximately 127,362 according to the 2006 National census with annual growth rate of 3.0% (NPC, 2006). Ethnic groups found in the study area are Mumuye, Yendang and Fulani.

The study area has tropical climate marked by dry and wet seasons. The annual rainfall ranges between 819mm^2 to 1250mm^2 spreading over seven months, usually between April to October. Average rainfall is about 850mm^3 annually and mean temperature of 30°C . Temperature and evapo-transpiration are high for a greater part of the year (Oruonye, 2014). The study area falls within the Sudan Savannah woodland characterized by scattered deciduous tall trees with broad leaves and tall grasses. The major soil types are the hydromorphic and ferruginous tropical soils. The soil consist of mixture of loamy and sandy soils on hilly terrain and deep loamy soil in between the rocks.

The relief of the study area can be categorized into two zones, highland mountain ranges and lowlands. The highlands occupy the southern regions stretching from West to South in chains of mountain elevation, ranging from an average of 1,800 – 2,400 metres high, forming the Atlantica, Shebshi and Adamawa Massifs ranges. The lowlands which occupies about 60% of the region hosts most of the settlements in area.

Zing LGA is underlain by crystalline rocks of basement complex origin dominated by low rising hills and rock outcrops. The underground aquifer is poorly developed. The existence of basement complex rocks near the surface in the valleys results in poor aquifer since the rocks are mainly igneous and metamorphic and so impermeable.

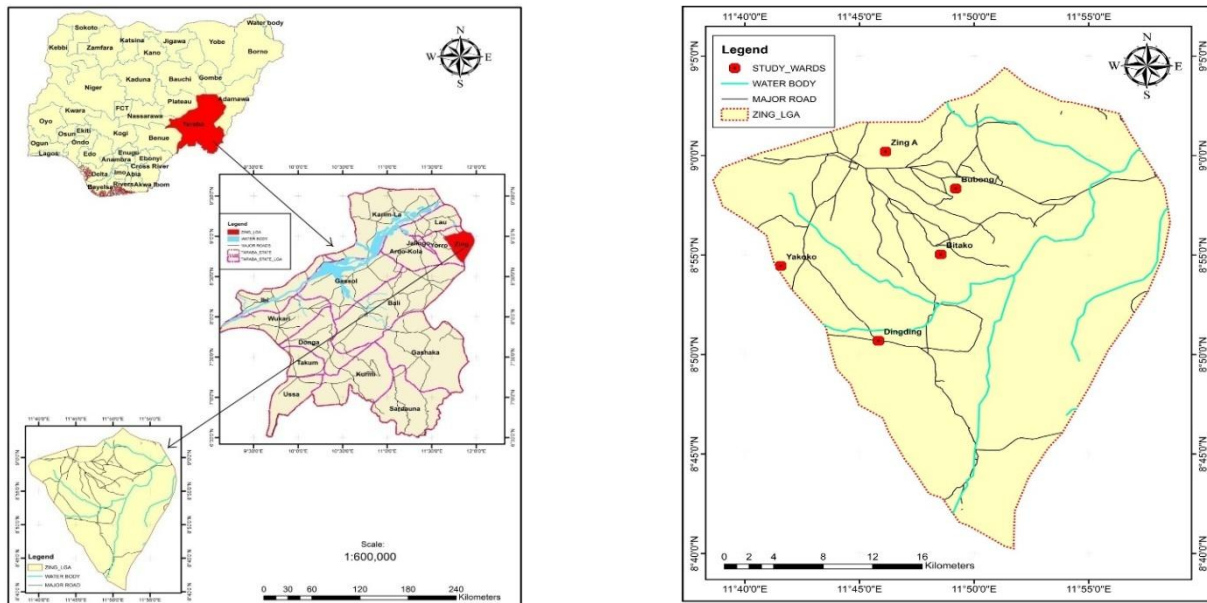


FIGURE 1: Map of the study area.

Source: Ministry of Land and Survey Jalingo (2018)

Agriculture is the dominant economic activity practiced by the vast majority of the people in the area. The major food crop cultivated in the area include, maize, yam, sorghum, bambara nut, groundnut, millet and rice. The recent relocation of the Taraba State College of Education from Jalingo to Zing town and its upgrade to a degree awarding tertiary educational institution has also increased socioeconomic activities in the area.

II. MATERIALS AND METHODS

This study adopted descriptive survey design. This study design was considered appropriate because it enabled data collection from the sample on the demographic and socio-economic factors influencing maize production among rural household in the study area. The type of data used in the study includes both primary and secondary data. The primary data was generated from questionnaires. The secondary data was generated from existing published materials which include journals, seminar papers, proceeding papers, newspapers etc.

The questionnaire used was closed-ended. The respondents were informed ahead about the purpose of the study. The questionnaire was subjected to validation by expert in the field to ascertain the content of the questionnaire, clarity of wordings and capacity of the instruments to generate the required information. The heads of the sampled farmer's household were given the questionnaires to complete. The questionnaires were then retrieved after some days.

Multi-stage sampling technique was adopted in this study. This involves the purposive selection of five (5) wards that are known for high maize production out of ten (10) wards in the LGA. In the five (5) wards selected, random selection was adopted in the selection of the actual respondents for this study. Proportionate number of farmers was selected from each ward because the number of maize farmers varies from one ward to another. The data collected was analyzed using descriptive statistics such as frequency tables and percentages.

III. RESULT OF THE FINDINGS

3.1 Demographic Characteristics of Maize Farmers

The results of the demographic characteristics of the respondents are presented in Table 1. The result shows that 55.12% of the respondents were male while 44.88% were female. This indicates that men are more involved in farming activities in the study area than women. This result is because of the fact that men carry out more complex farming operations such as land preparation (clearing bushes and creating mounds and ridges), while women and children perform lighter operations, such as planting, fertilizer application and weeding. The result in Table 1 shows that 33.73% of the respondents were between 20-30 years, while 25.0% are between 31 to 40years. This indicates that the bulk of the farmers were still in their prime age. The result in Table 1 further reveal that majority of the farmers (47.89%) were single, 37.05% are married, 9.64% divorced and 5.42% are widowed. The result shows that 8.73% had primary education, 25.9% had secondary education, 40.96% had National Certificate of Education and 17.47% had University education. This suggests that most of the respondents are

educated, which is good for information gathering. FAO (1993) reports show that agricultural knowledge transfer, procurement and use flourish in areas where farmers are well trained.

TABLE 1
SOCIO-DEMOGRAPHIC CHARACTERISTICS OF MAIZE FARMERS

Characteristics	No of Respondents	Percentage (100%)
Gender		
Male	183	55.12
Female	149	44.88
Age (years)		
Less than 20 years	57	17.16
21– 30	112	33.73
31– 40	83	25
41– 50	46	13.9
51– 60	22	6.6
61– 70	11	3.31
Above 71	1	0.3
Level of Education		
Primary	29	8.73
Secondary	86	25.9
Nat. Cert. of Education	136	40.96
University	58	17.47
Post graduate	20	6.02
Marital Status		
Single	159	47.89
Married	123	37.05
Divorce	32	9.64
Widowed	18	5.42
Gender that Engage the Most in Maize Production		
Male	246	74.1
Female	86	25.9

Source: Fieldwork, 2020.

3.2 Socio-Economic Characteristics of Maize Farmers

Table 2 shows that 36.14% of the farmers had farm sizes between 3-5 hectares. This means that 63.86% of the maize farmers in the study area have small farm holdings. The Table 2 reveals that 38.55% of the farmers have farming experience between 3-6 years and 38.55% have farming experience of 7-10 years. This indicates that the majority of the farmers in the study area have extensive farming experience in their locality.

TABLE 2
FARM SIZE AND FARMING EXPERIENCE

Variable	No of Respondents	Percentage (100%)
Size of Farmland		
3 – 5ha	120	36.14
5 – 7ha	86	25.9
8 – 10ha	56	16.87
1 – 2ha	50	15.06
10 – 15ha	18	5.42
20ha and above	2	0.6
Level of Experience in Farming		
3 – 6 years	128	38.55
7 – 10 years	122	36.75
16 – 20 years	40	12.05
20 years and above	22	6.63
11 – 15 years	20	6.02

Source: Fieldwork, 2020

Table 3 reveals that 42.77% of the respondents acquire their farmlands through inheritance, 28.31% bought their farmlands, 19.28% rent their farmlands while 9.64% obtain their farmlands by lease. The result in Table 3 also reveals that 34.64% of the respondent's income ranges between ₦10,000 to ₦20,000. This income is very low, thereby forcing the local people to take to other alternative sources of livelihood such as commercial cyclist riding, carpentry, welding and petty trading. These activities are also important for reducing poverty since they provide some level of livelihood diversification. These practices, which are a part of their daily lives, were discovered to provide some income for maize farming.

TABLE 3
SOCIO-ECONOMIC CHARACTERISTICS OF RESPONDENTS

Land Acquisition Method	No. of Respondents	Percentage (100%)
Inheritance	142	42.77
Purchase	94	28.31
Rent	64	19.28
Lease	32	9.64
Income level (₦)		
10,000 – 20,000	115	34.64
30,000 – 50,000	94	28.31
60,000 – 100,000	67	20.18
100,000 – 200,000	35	10.54
300,000 – 500,000	10	3.01
500,000 and above	11	3.31
Income Level From Non – Agricultural Source (₦)		
10,000 – 20,000	150	45.18
30,000 – 50,000	100	30.12
60,000 – 100,000	44	13.25
500,000 and above	13	3.92
100,000 – 200,000	12	3.61
300,000 – 500,000	1	0.30

Source: Fieldwork, 2020

The result of the findings in Table 4 reveal that 43.97% of the respondents use family labour extensively in their farming operation, 27.11% used hired labour, 21.69 used mechanical power in form of tractor and 7.23% use animal draught in their farming operations. The result of the findings reveals that majority of the farmers in the study area depend so much on their personal labour and that of their family members, friends and relatives for farm labor to help them in their farming activities.

TABLE 4
SOURCE OF LABOUR IN FARM OPERATION

S/No.	Value	No of Respondents	Percentage (100%)
1	Unpaid family labour	146	43.97
2	Hired manual labour	90	27.11
3	Mechanical	72	21.69
4	Animal draught power	24	7.23

Source: Fieldwork, 2020.

Table 5 shows the age distribution of respondents that easily adopt new technology. This indicates that majority 54.53% of maize farmers between ages 20-30years easily adopt new technology. It also shows that 44.58% of maize farmers who have completed their college of education easily adopt new farming techniques. FAO (1993) and Zijp (1994) reports show that agricultural knowledge transfer, procurement, and use flourish in areas where farmers are well trained.

TABLE 5
ADOPTION OF NEW TECHNOLOGY

S/No	Value	No of Respondents	Percentage
1	Age Bracket that Easily Adopts New Technology		
2	20 – 30	181	54.52
3	30 – 40	90	27.11
4	40 – 50	43	12.95
5	50 – 60	11	3.31
6	Above 60	7	2.11
7	Education Level that Easily Adopt to New Farming Technique		
8	Primary	31	9.33
9	Secondary	77	23.19
10	College	148	44.58
11	University	56	16.87
12	Post graduate	20	6.02

Source: Fieldwork, 2020.

Credit is a valuable institutional service that helps poor farmers funds the purchase of farming inputs and eventually, the adoption of new technology. Some farmers, on the other hand, may not have taken credit because of issues with repayment and down payment in order to obtain input from formal sources. As a result, some farmers stop using farm credit. The result of the findings reveals that 58.43% of the farmers had ever access credit facility in carrying out farming operation as shown in Table 6. The result also shows that about 60.54% of the farmers does not belong to an organization or cooperative. This means that farmers do not have direct access to information that can aid their development. According to Adebayo and Adekunle (2016), farmers who belong to a party reap a lot of benefits and can achieve a lot more collectively than they can individually.

TABLE 6
ACCESS TO FINANCIAL AND CORPORATIVE MEMBERSHIP OF FARMERS

S/No.	Ever received loan	No. of Respondents	Frequency (100%)
1	No	194	58.43
2	Yes	138	41.57
3	Last Time You Took Loan		
4	Within the last one year	109	32.83
5	Within the last two years	21	6.33
6	Within the last three years	6	1.81
7	Four years and above	2	0.6
8	Do you Belong to an Active Farmer Group or Cooperative		
9	No	201	60.54
10	Yes	131	39.46
11	Do you think the Government can Assist Farmers with Affordable and Easily Accessible Credit?		
12	Yes	209	62.95
13	No	123	37.05

Source: Fieldwork, 2020.

IV. CONCLUSION

This study has examined the effect of socio-economic characteristic of rural farmers on maize production in Zing Local Government Area, Taraba State, Nigeria. The findings of the study reveal that men are more involved in farming activities in the study area than women because of their ability to handle complex farming operations such as land preparation (clearing bushes and creating mounds and ridges). The study findings reveal that 33.73% of the respondents were in their prime age, between 20-30 years. As much as 63.86% of the respondents have small farm holdings between 3 to 5 hectares and 42.77% of the respondents acquire their farmlands through inheritance, 28.31% bought their farmlands, 19.28% rent their farmlands while 9.64% obtain their farmlands by lease. The study reveals that 34.64% of the respondent's income ranges between ₦10,000 to ₦20,000. This income is very low, thereby forcing the local people to take to other alternative sources of livelihood such as commercial cyclist riding, carpentry, welding and petty trading. In terms of labour, 43.97% of the

respondents use family labour exclusively in their farming operation, 27.11% used hired labour, 21.69 used mechanical power in form of tractor and 7.23% use animal draught in their farming operations. The poor socio-economic characteristics of the farmers contribute greatly to increasing decline in maize production in the study area which also translates to low income of the rural farmers.

RECOMMENDATIONS

Based on the findings of the study, the following recommendations were made;

- i. Farmers should be assisted in forming viable and functional cooperatives by extension workers. This will allow them to combine their resources and generate opportunities for them to obtain loans to improve their production capacity.
- ii. Farmers should be provided with up-to-date information and technology by extension workers in order to improve their skills in modern agronomic practices especially in areas where they are lacking in relevant information.

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