ISSN: 2695-1975
AKSUJAEERD 2 (2): 61 – 72, 2019 AKSU Journal of Agricultural Economics, Extension and Rural Development.

ANALYSIS OF INCOME INEQUALITY AMONG COCOA FARMERS IN ABIA STATE, NIGERIA

***Kanu, Ifeanyi. M and Amusa, Taofeeq. A**
Department of Agricultural Economics
Michael Okpara University of Agriculture Umudike, Abia State, Nigeria
***Correspondence:** +2348158007794; ifeanyikanum@gmail.com

Abstract
The study examined income inequality among cocoa farmers in three major cocoa producing Local Government Areas of Abia Stata, Nigeria. A total of 90 cocoa farm households were selected for the study in the ratio of 30 each from Ikwuano, Umuahia North and Bende Local Government Areas, respectively. Data were analyzed using descriptive statistics, Lorenze curve as well as the Gini Coefficient Index. Findings revealed that the major sources of funding available to cocoa farmers were equity/personal savings (76.67%), friends/ relatives (13.33%), bank loan (4.44%), cooperative organization (1.11%) and others (4.44%). Result of the income inequality analysis revealed a Gini Coefficient (GC) of 0.4243 in the study area (pooled), denoting that there was high inequality in income among cocoa farmers in the study area. Further breakdown of this analysis showed that income inequality was more severe in Umuahia North LGA (GC = 0.4458), followed by Bende LGA (GC = 0.3535 and was less severe in Ikwano LGA (GC = 0.3075). Findings further showed that the major constraints to cocoa production were lack of credit facilities (94.44%), poor road network (91.11%), higher cost of field maintenance and spray (84.44%), lack of access to marketing information (65.56%), high cost of nursery establishment (58.89%), pest and diseases problems (55.55%), high cost of labour, (53.33%), planting of low yielding varieties (47.78%) and limited land for expansion and soil infertility (45.56%). The study recommended the adoption of policies that will encourage farmers to venture into large scale cocoa farming such as formation of farmer's union as avenue to minimize income inequality in the study area.
Keywords: income inequality, lorenze curve, gini coefficient, cocoa farmers.

Introduction

Income inequality is defined as the disproportionate distribution of total national income among households (Todaro and Smith, 2009). Extreme income inequality results in economic inefficiency, poverty, undermining social stability and solidarity; and a significant indication of underdevelopment in a society.

Income distribution pattern over the years has been a major concern in the determination of the level of economic growth and development of any country; as high level of income inequality produces an unfavourable environment for economic growth and development. In order to reduce poverty, income inequality and food insecurity in developing nations, it is fundamental that economic policies should aim at promoting rapid agricultural growth (Bradshaw, 2006). For growth to have meaningful impact on poverty, that growth must occur in sectors in which large proportion of the poor derive their livelihood. Growth in incomes of the poor is strongly positively correlated with overall growth of the economy especially growth in the agricultural sector (Hoekman *et al*., 2001).

Research has shown that majority (> 70 %) of the smallholder farmers who live in the rural areas faced with extreme inequality and poverty coupled with the use of obsolete tools and technology; devoid of social amenities (such as electricity, pipe borne water, hospitals and schools); with their income very low (Agwu and Oteh, 2014). High level of income inequality and poverty exists in most subsistence farming households in Nigeria. Canagarajah *et al*., (1997) submitted that most of the most smallholder farmers are at the bottom of income distribution chart, and are living in abject poverty. Since the source of livelihood and income generation of majority of the poor is agriculture, alleviating poverty entails boosting agricultural production. Poverty reduction and economic reform are the major challenges facing Nigeria today (Etim *et al*., 2010).

Efforts have been made over the years to reduce this poverty challenge but because of the linkage between income inequality and poverty and its effect on agricultural production, most of these efforts were abortive (Awoyemi, 2007). However, reducing income

inequality has become a major public challenge among agricultural developing agencies and poverty reduction experts (Babatunde, 2008). It is therefore imperative to note that there is an interdependent relationship between income inequality and level of poverty which must be understood and exploited to improve the economic life of the cocoa farmers. This is because an adequate knowledge of income distribution patterns, consumption expenditure and total accruable income to cocoa farming is capable of improving resource allocation, reducing poverty levels and promoting equitable distribution of income among the Cocoa farmers.

Cocoa farming is one of the means of solving poverty problem of cocoa farming households in the major cocoa producing area in the country. This study is therefore aimed at analyzing income inequality among cocoa farmers in Abia State, Nigeria which would serve as a guide for poverty reduction policies. To reduce the level of poverty and income inequality among cocoa farmers, policy makers first need to know the patterns of income distribution, their poverty status/depth, and major constraints limiting optimization of cocoa production. Therefore, understanding income inequality and its consequences in cocoa production especially on how to improve the status of the chronically poverty trapped cocoa farmers is the major concern and focus of this research. Given the foregoing, the study specifically aimed at analyzing the patterns of income distribution among cocoa farmers and identified constraints limiting cocoa production in Abia State.

Methods

Study Area

This study was carried out in Abia State, Nigeria. Abia State is situated in the South-East geo-political zone of Nigeria. The state lies between longitudes 7° 23'E and 8° 2'E East of the equator and latitudes 4° 47'N and 6° 12'N North of the Greenwich Meridian. Abia State is located East of Imo State and shares common boundaries with Anambra, Enugu and Ebonyi States in the North West and North East respectively. On the East and South East, it is bounded by Cross River and Akwa Ibom States and by Rivers State on the South. Abia State is made up of 17 local government areas and most of the people especially the rural dwellers are engaged mainly in subsistence farming. They engage in arable crop production such as Cassava, Yam, Rice, Maize and sweet potatoes. Cocoa and Oil palm are among the major cash crops grown (Nwaobiala, 2013).

The climate of the state is a tropical one and usually humid all year round; with two seasons, the rainy and the dry seasons. The rainy seasons starts from March to October while the dry season starts from November and ends February/March (Agwu and Oteh, 2014). The predominant soil of Abia State is sandy loam while the natural vegetation is the tropical rainforest (Iheke, 2006). The mean annual rainfall ranges from 2000 mm to 2500 mm with the southern areas receiving more than the northern areas. The temperature ranges between 22^{oC} (minimum) to 31^{oC} (maximum). The vegetation is predominantly lowland rainforest (Okezie, *et al.*, 2011). Apart from agriculture, commerce is another major occupation of the people of Abia State. The Ariaria International Market Aba, which is one of the largest markets in the West African sub-region contributes greatly to commercial activities in Nigeria.

Sampling Technique and Size

A Multi-stage purposive sampling technique was adopted in selecting the respondents. Data were collected in stages. In the first stage, Umuahia Agricultural zone and Ohafia agricultural zone were purposively selected from the three agricultural zones in Abia state; because the two zones are the major cocoa production areas with the presence of higher number of cocoa farming households. In the second stage, three (3) Local Government Areas were purposively selected from the two agricultural zones; which were Ikwuano, Umuahia North and Bende Local Government Areas for the study. In the third stage, (3) three autonomous communities were purposively selected from each of the three (3) Local Government Areas; making a total of (9) nine autonomous communities. In the fourth stage, 10 (ten) cocoa farming households were purposively selected from each of the nine (9) autonomous communities. In all, a total of 90 cocoa farming households were selected as respondents for the study.

Estimation Procedure

Lorenze Curve

The Lorenz Curve is a tool used to represent income distributions as proposed by Lorenz (1905); it tells us which proportion of total

income is in the hands of a given percentage of population. This method is conceptually very similar to the method by quantiles. However, instead of ending up with income shares, the Lorenz Curve relates the cumulative proportion of income to the cumulative proportion of individuals.

The Lorenz Curve is obtained as follows:

The **x**-axis records the cumulative proportion of population ranked by income level. Its range is therefore (0, 1).

The **y**-axis records the cumulative proportion of income for a given proportion of population, i.e. the income share calculated by taking the cumulated income of a given share of the population, divided by the total income Y, as follows:

$$L\left(\frac{k}{p}\right) = \frac{\sum_{i=1}^{k} yi}{Y} \quad \ldots\ldots\ldots 1$$

Where:

k=1….n is the position of each individual in the income distribution;

i=1….k is the position of each individual in the income distribution;

P is the total number of individuals in the distribution;

y_i is the income of the i_{th} individual in the distribution

$\sum_{i=1}^{k} yi$ is total the cumulated income up to the k_{th} individual.

It is apparent that $\sum_{i=1}^{k} yi$ ranges between 0, for k=0, and Y, for k=n, therefore

$L\left(\frac{k}{p}\right) = \frac{\sum_{i=1}^{k} yi}{Y}$ ranges between 0 and 1

In Figure 1, the diagonal AB is the line of perfect distribution of income. The further away the *Lorenze curve* is from the line of perfect distribution of income, the more unequal is the distribution of income. The ratio of the shaded area to the total area of triangle is the index of concentration. The Gini ratio goes to zero as the actual income distribution approaches perfect equality. If there were perfect inequality, the ratio of the concentration would be 1.

Gini Coefficient.

The Gini Coefficients is: $G = 1 - \sum_{i=0}^{n-1} (X_{i+1} - X_i)(Y_{i+1} + Y_i)$ …….2

$G = 1 - \sum_{i=0}^{n-1} (X_{i+1} - X_1)(Y_{i+1} + Y_i)$,

Which reduces to $G = 1 - \Sigma XY$

G = Gini coefficient, Xi = Share of cocoa farmers in the *ith* group of recipients, and Yi = Share of cocoa farmers in the *ith* group of income

Figure 1 is a *Lorenze Curve* Showing Income Distribution. The horizontal section portrays the cumulative percentage of households while the vertical section portrays the cumulative percentage of income.

Scale of the Lorenz curve: On the cumulative proportion of households (x-axis), 0.1 unit represents 10 cocoa farming households. On the cumulative proportion of income (y-axis), 0.1 unit represents ₦10,000.00k

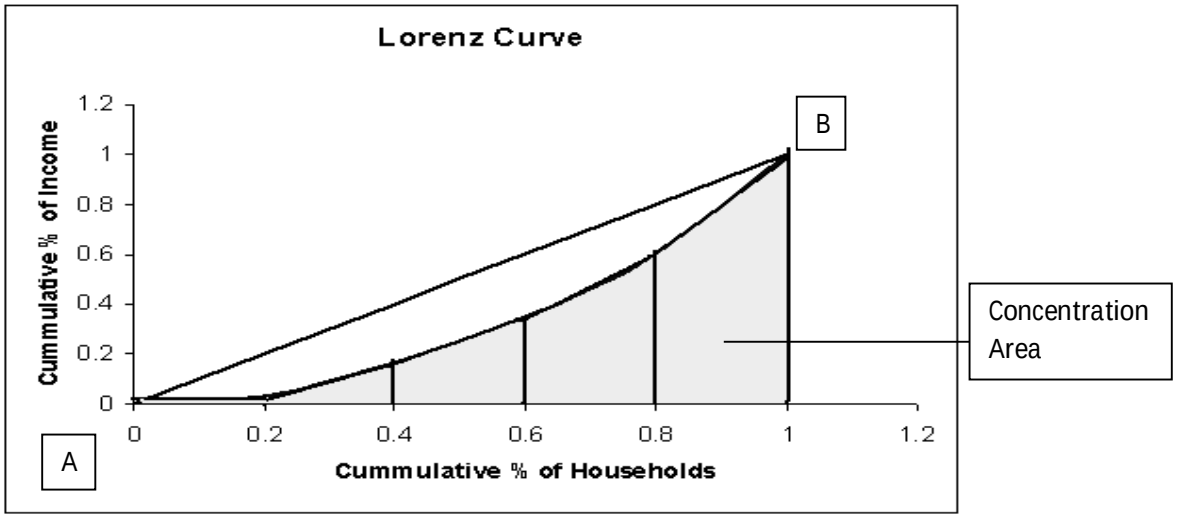

Figure 1: *Lorenze Curve* Showing Income Distribution

The Gini Coefficient in figure 1 was found by taking the ratio of the area between the line of perfect equality and the Lorenz Curve to the area under the line of perfect equality. The

value of Gini coefficient (from 0 to 1) reveals the degree of income inequality (from complete inequality to complete equality).

RESULTS AND DISCUSSION

Sources of Credits to Cocoa Farmers in Abia State, Nigeria

Table 1: Frequency and Percentage Distribution of Sources of Credit to Cocoa Farmers

Sources of Credit	Freq.	(%)
Bank Loan	4	4.44
Equity/Personal Savings	69	76.67
Relatives/Friends	12	13.33
Cooperative Organizations	1	1.11
Others	4	4.44
Total	**90**	**100**

Source: *Field Survey Data, 2016*

Credit helps farm firms to meet seasonal and annual fluctuation in income and expenditure and also for the adoption and acquisition of new technologies. The result in Table 1 showed that a total of 76.67% of the cocoa farmers use equity capital/personal savings, while 13.33% got their financial assistance from friends and relatives. The low bank loan (4.44%) can be as a result of unavailability of collaterals or credit unworthiness of the cocoa farmers. Lack of credit is generally recognized as one of the major constraints not only in expanding production but also in modernizing agriculture. Kanu (2012) observed that high frequency of personal savings implies that the institutional sources of finance were not well developed and advanced. Also, institutional agencies may not be eager to give loans to farmers due to the inherent risk associated with agriculture. Figure 2 further presents the pie chart showing sources of income among cocoa farmers in Abia State.

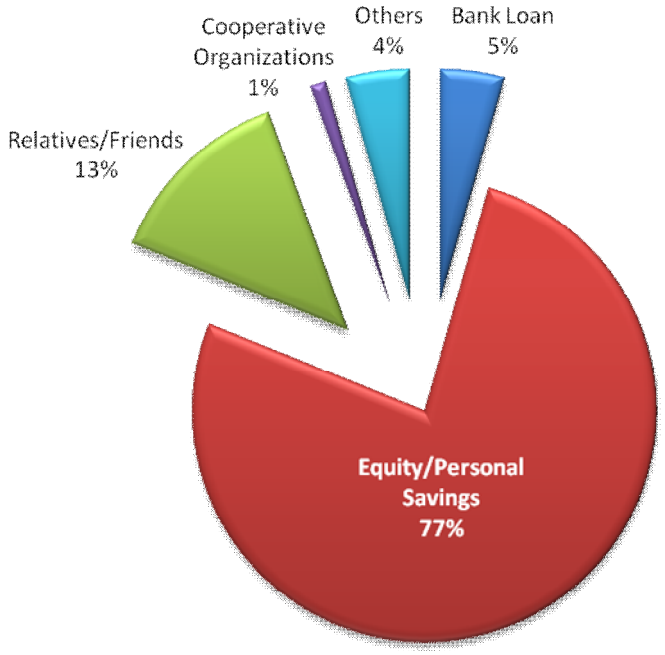

Figure 2: Pie chart of sources of income to cocoa farmers in Abia State
Source: Field Survey Data, 2016

Income Distribution among Cocoa Farmers in Abia State, Nigeria

The pattern of income distribution among the cocoa farmers in the study area was analyzed using Lorenz curve and Gini Coefficient analysis. Variables relating to income accruable from cocoa farming were subjected to the Lorenz curve and the Gini Coefficient analysis.

Table 2: Distribution of Cocoa Farmers According to Monthly Agric. Income

	Ikwuano LGA		Umuahia North LGA		Bende LGA	
Monthly Income (₦)	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
5,000 - 15,000	1	3.33	2	6.67	2	6.67
16,000 - 26,000	2	6.67	2	6.67	1	3.33
27,000 - 37,000	1	3.33	2	6.67	1	3.33
38,000 - 48,000	3	10.00	1	3.33	3	10.00
49,000 - 59,000	5	16.67	1	3.33	2	6.67
60,000 - 70,000	3	10.00	3	10.00	5	16.67
71,000 - 81,000	-	0.00	1	3.33	1	3.33
82,000 - 92,000	4	13.33	4	13.33	3	10.00
93,000 - 103,000	2	6.67	-	0.00	1	3.33
104,000 - 114,000	-	0.00	2	6.67	2	6.67
115,000 - 125,000	3	10.00	3	10.00	3	10.00
126,000 - 136,000	1	3.33	5	16.67	1	3.33
137,000 - 147,000	2	6.67	-	0.00	2	6.67
148,000 - 158,000	1	3.33	1	3.33	1	3.33
159,000 - 169,000	1	3.33	-	0.00	-	0.00
170,000 - 180,000	-	0.00	1	3.33	1	3.33
181,000 - 191,000	-	0.00	-	0.00	1	3.33
192,000 - 202,000	1	3.33	2	6.67	-	0.00
TOTAL	**30**	**100**	**30**	**100**	**30**	**100**

Source: *Field Survey Data, 2016*

The result in Table 2 showed the distribution of cocoa farmers according to their monthly income. This distribution provides background information on the amount of income earned by an average cocoa farmer, which will later form the basis of inequality analysis. The result showed that the modal class income for cocoa farmers in Ikwuano LGA was between ₦49,000 - ₦59,000, while for Umuahia North LGA was between ₦126,000 – ₦136,000; and that of Bende LGA was between ₦60,000 – ₦70,000. Awe and Olawumi (2012) observed that the level of income is an important indicator of the degree of poverty. This implies that income inequality is a manifestation as well as a strong cause of poverty. Poverty is usually associated with low income. Consequently, cocoa farmers in the lower income group are more likely to be poor compared to those in the higher income group.

Figure 2 presents a Lorenze curve showing the distribution of income among cocoa farmers in Ikwuano LGA; with a Gini Coefficient of 0.3075. The Gini Coefficient are aggregate inequality measures and varies from 0 (perfect equality) to 1 (perfect inequality). The diagonal line in Figure 2 is a representative of 'perfect equality'. The more the Lorenze line curves away from the diagonal (line of perfect equality), the greater the degree of inequality represented.

Scale of the Lorenz curve: On the cumulative proportion of households (x-axis), 0.1 units represents 10 Cocoa farming households. On the Cumulative proportion of Income (y-axis), 0.1 unit represents approximately ₦10,000.00 kobo. The Lorenze curve in Fig 3 shows the cocoa farmers plotted on the horizontal axis and their income in the vertical axis; not in absolute terms but in cumulative values. The estimated Gini Coefficients indicated variability in the distribution of incomes among the Cocoa farming households. At point 'A' in Figure 3, the bottom 20% receives only 8% of the total income, while at point 'B' top 80% of the Cocoa farmers receives 60% of the total income. This result shows a deviation from the line of perfect equality meaning that income was unequally distributed among the cocoa farmers in Ikwuano LGA, Abia State. Hence, there was increasing gap between the poor and the rich cocoa farmers in the study area. Meanwhile, Todaro and Smith (2009) observed that countries/group with Gini coefficient of 0.20 to 0.35 have relatively equal income distribution. The Gini Coefficient of 0.3075 indicates that the incomes of Cocoa farmers in Ikwuano LGA were unevenly distributed.

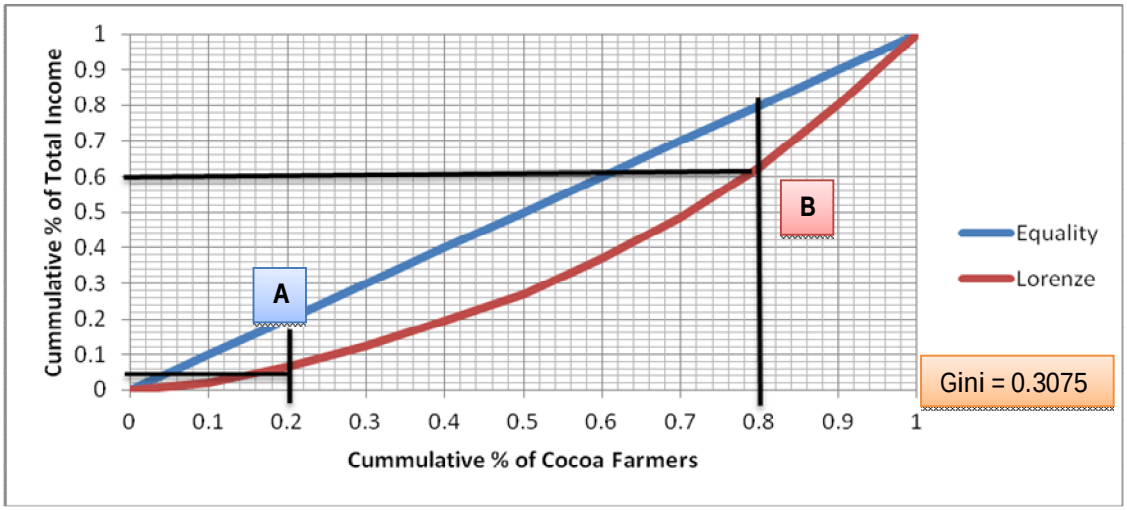

Figure 3: Lorenze Curve of Income Distribution of Cocoa Farmers in Ikwuano LGA.
Source: Field Survey Data, 2016.

Figure 4 is a Lorenze curve showing the distribution of income among cocoa farmers in Umuahia North LGA of Abia State; with a Gini Coefficient of 0.4458. The more the Lorenze line curves away from the line of perfect equality, the greater the degree of inequality represented.

Scale of the Lorenz curve: On the Cumulative proportion of Households (x-axis), 0.1 units represents 10 Cocoa farming households. On the Cumulative proportion of Income (y-axis), 0.1 unit represents approximately ₦10,000.00 kobo.

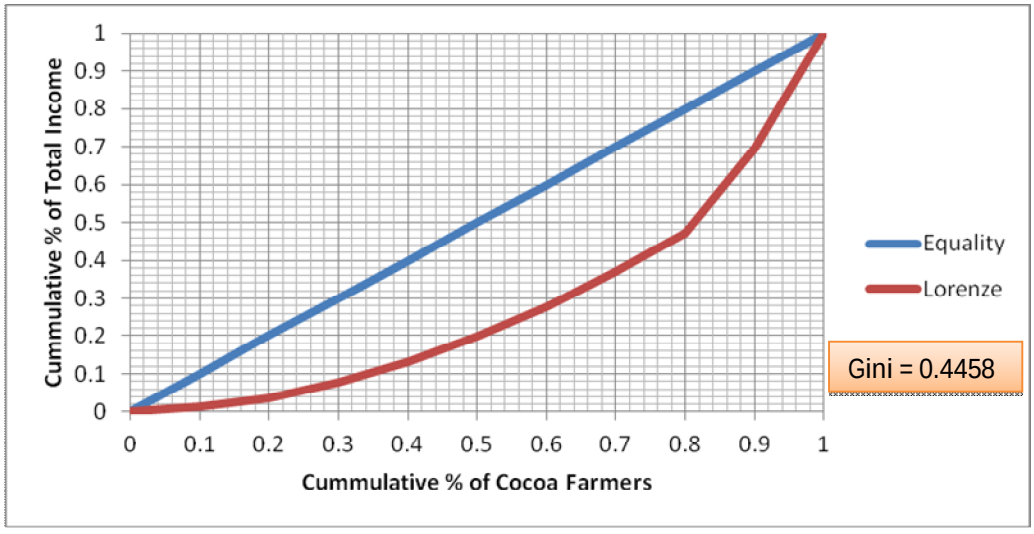

Figure 4: Lorenze Curve of Income Distribution of Cocoa Farmers in Umuahia North.
Source: Field Survey Data, 2016.

Income distribution pattern as seen from Figure 4 among cocoa farmers in Umuahia North LGA reveled that there was inequality in the distribution of income among the cocoa farmers. The Gini Coefficient of 0.4458 indicated that the incomes of cocoa farmers in the study area were widely dispersed. Bakare (2012) observed that there is income inequality in Nigeria. Incomes are concentrated in the hands of the few rich. Canagarajah *et al.*, (1997) in their extant study entitled 'Evolution of Poverty and Welfare in Nigeria' observed that most of populace are at

the bottom of the income distribution chart are living in abject poverty. Income were more unequal in Umuahia North LGA (Gini = 0.4458) compared to Ikwuano LGA (Gini = 0.3075). This could be as a result of higher infrastructural facilities found in Umuahia North LGA as compared to low or no infrastructure in Ikwuano LGA. The most essential infrastructural facility required in Ikwuano LGA is transportation.

Figure 5 is a Lorenze curve showing the distribution of income among cocoa farmers in Bende LGA of Abia State; with a Gini Coefficient of 0.3535. The Gini Coefficient are aggregate inequality measures and varies from 0 (perfect equality) to 1 (perfect inequality). The diagonal line in figure 4 is a representative of 'perfect equality'.

Scale of the Lorenz curve: On the cumulative proportion of households (x-axis), 0.1 units represents 10 cocoa farming households. On the cumulative proportion of income (y-axis), 0.1 unit represents approximately ₦10,000.00 kobo.

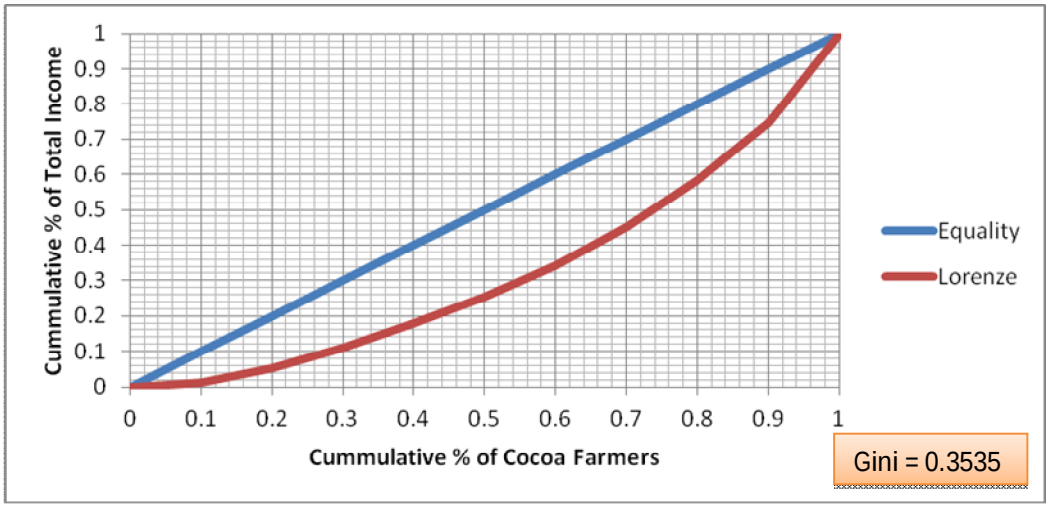

Figure 5: Lorenze Curve of Income Distribution of Cocoa Farmers in Bende LGA.
Source: Field Survey Data, 2016.

From Figure 5, it was observed that the income of cocoa farmers in Bende LGA was unequally distributed. Bende LGA (Gini = 0.3535), has relatively equal income distribution compared to Umuahia North LGA (Gini = 0.4458). This is because the Lorenz curve is curled away from the diagonal (perfect equality line). This also shows that there is an increasing gap between the poor and the rich cocoa farmers in the study area. Awopeju (2014) posited that, to effectively overcome the undesirable and humiliating social menace, it is crucial to ask questions such as: who are the poor and how remote are they from the poverty line? Which population group are worst hit by poverty and how much economic resources would be required to move them out of severe poverty?

Figure 6 is a Lorenze curve showing the distribution of income among Cocoa farmers in Abia State; with a Gini Coefficient of 0.4243.

Scale of the Lorenz curve: On the Cumulative proportion of Households (x-axis), 0.1 units represents 10 Cocoa farming households. On the Cumulative proportion of Income (y-axis), 0.1 unit represents approximately ₦10,000.00 kobo.

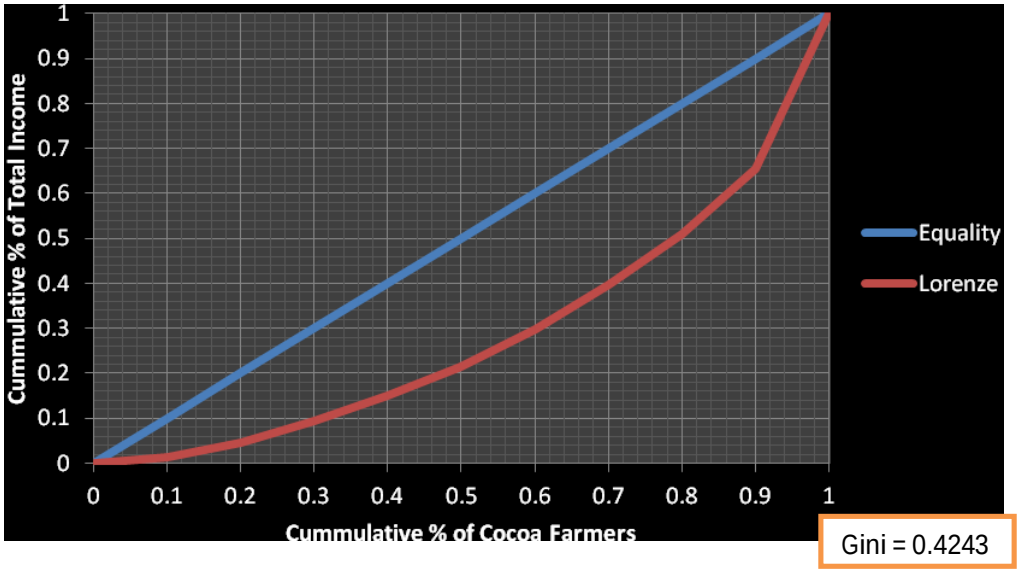

Figure 6: Lorenze Curve of Income Distribution of Cocoa Farmers in Abia State.
Source: Field Survey Data, 2016

Figure 6 shows the Lorenze curve and Gini coefficient of cocoa farmers in Abia State (Ikwuano, Umuahia North and Bende LGAs). The results of the analysis showed that there was inequality in the distribution of income among the cocoa farming households. The Gini coefficient of 0.4243 indicates that incomes of the Cocoa farmers in Abia State were relatively unequally distributed. Awoyemi (2007) observed that rising inequality threatens growth and poverty reduction targets. Correspondingly, Omonona (2009) detected that huge income inequality between the poor and the rich, bad governance, corruption, high unemployment rate, rapidly growing population and poor infrastructural developments contributes to the rise in income inequality and poverty in Nigeria. This implied that income inequality and poverty were relatively high among Cocoa farmers in Abia State. UNDP – United Nations Development Programs (2013) observe that to achieve reduction in poverty, income growth has to be equitably distributed.

Figure 7 shows the Lorenze curve for the Cocoa farmers in Ikwuano, Umuahia North, Bende LGA and all the Cocoa farmers in Abia State as a group respectively. The result shows that the four Lorenze curves demonstrate eccentricity from the diagonal line of equality. This portrays that income was unequally distributed among the farmers.

Scale of the Lorenz curve: On the Cumulative proportion of Households (x-axis), 0.1 units represents 10 Cocoa farming households. On the Cumulative proportion of Income (y-axis), 0.1 unit represents approximately ₦10,000.00 kobo.

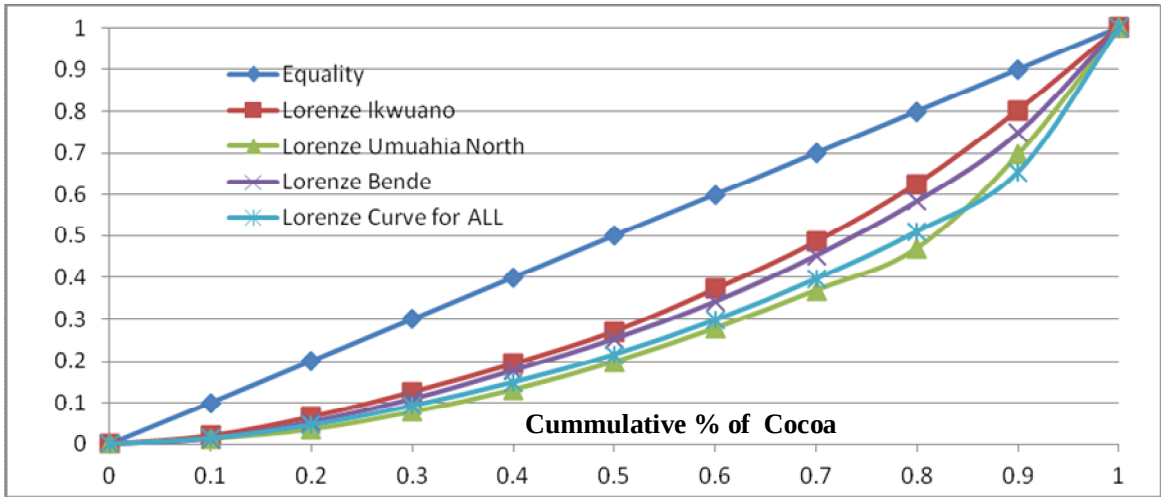

Figure 7: Lorenze Curve of Cumulative Income Distribution of Cocoa Farmers in Ikwuano, Umuahia North, Bende LGA and Abia State respectively
***Source**: Field Survey Data, 2016*

The Lorenze curves in Figure 7 shows a deviation from the line of perfect equality meaning that income was unequally shared by the cocoa farmers in the 3 cocoa producing Local Government Areas of Abia state. This results shows that there was an increasing gap between the poor and the rich Cocoa farmers in the study areas. Omonona (2009) in his study titled 'Quantitative analysis of rural poverty in Nigeria.' observed that the distressing poverty rates in Nigeria transcends low incomes, savings and growth thereby increasing the level of inequality attributable to unequal access to income opportunities and basic infrastructure; which contribute significantly to aggravation of poverty.

The Gini Coefficient for cocoa farmers in Ikwuano, Umuahia North, Bende LGA and all the cocoa farmers as a group were 0.3075, 0.4458, 0.3535 and 0.4243 respectively. These results confirmed that income inequality and poverty were high among the Cocoa among the 3 cocoa producing Local Government areas of Abia state but greater among Umuahia North and Bende LGA of Abia State. Bakare (2012) reported that the larger the coefficient ratio, the more unequal the distribution of income.

Table 3: Analysis of Constraints among Cocoa Farmers' in Abia State, Nigeria

Constraints	Frequency	Perc (%)	Ranks
Lack of credit facilities	85*	94.44	1st
Poor road network	82*	91.11	2nd
High cost of field maintenance and spray	76*	84.44	3rd
Lack of access to market information	59*	65.56	4th
High cost of nursery establishment	53*	58.89	5th
Pest and disease problems	50*	55.55	6th
High cost of labour	48*	53.33	7th
Planting of low yielding varieties	43*	47.78	8th
Limited land for expansion and soil infertility	41*	45.56	9th

*Multiple responses
***Source:** Field Survey Data, 2016*

Challenges facing Cocoa Farmers in Abia State, Nigeria

This sub-section identified and analyzed constraints faced by cocoa farmers. The result in Table 3 showed identified lack of credit facilities, poor road network, high cost of field maintenance and spray, lack of access to market information, high cost of nursery establishment, pest and disease problems and high cost of labour among others as major challenges facing cocoa farmers in Abia State. Credit is important and necessary in agricultural production. It is a unique resource which provides the opportunity to use additional inputs and capital items now and pay the cost from future earnings.Credit helps Cocoa farmers to meet seasonal and annual fluctuation in income and expenditure. Ayinde *et al*., (2012) noted that access to credit should be made easier in order to help farmers produce at their optimum level. Provision of credit facilities is an integral part of the process of commercialization of the economy. It should be noted that credit is one of the essential factors of agricultural production in the World at large; with enough credit, other factors of production such as labour, entrepreneur and land can easily be acquired and manipulated. Akudugu (2012) observed that credit is a strategic empowerment tool that has the potential to change the life of a person, family or community from a situation of abject poverty to a more dignified life.

Poor road network/absence of motorable roads ranked the 2nd constraints limiting the efficiency of Cocoa farmers in Abia State. A total of 91.11% of the respondents indicated this scenario. High cost of field maintenance/spray, lack of access to market information and high cost of nursery establishment ranked 3rd, 4th and 5th respectively in the constraints scale. Consequently, pest/disease problems, high cost of labour, Planting of low yielding varieties and limited land for expansion/soil infertility contributed 55.55%, 53.33%, 47.78% and 45.56% respectively to the constraints limiting the efficiency of Cocoa Production in Abia State, Nigeria.

These findings corroborated with the study of Ugwu (2009) titled 'Problems and Prospects of Commercial Small and Medium Scale Cocoa and Oil Palm Production in Cross River State, Nigeria' He identified critical constraints associated with Cocoa production to include the use of low yielding varieties by most cocoa farmers, high cost of cocoa field maintenance or management, limited land for expansion and soil infertility due to erosion and leaching as well as high cost of plantation establishment. Other problems were lack of access to market information, price fluctuation and low quality of cocoa beans which forced prices down. Ugwu (2009) also observed that incessant rainfall for several weeks easily leads to wide spread of black pod disease which is very contagious and poses untold hardship to the farmers because it drastically reduce produce. Ugwu (2009) therefore recommended that producers can come together into effective producer groups that source for inputs and market outputs collectively. This will give farmers greater market power and counteract the powers of predatory middlemen. Producer associations can also be linked with other cocoa farmers within or outside the state for market information and establishment of larger processing mills that give higher economies of size.

Conclusion and Recommendation

Cocoa farming is one of the means of solving poverty problem of cocoa farming households in the major cocoa producing area in the country. This study is therefore aimed at analyzing income inequality among cocoa farmers in Abia State, Nigeria which would serve as a guide for poverty reduction policies. To reduce the level of poverty and income inequality among cocoa farmers, policy makers first need to know the patterns of income distribution, their poverty status/depth, and major constraints limiting optimization of cocoa production. Efforts have been made over the years to reduce this poverty challenge but because of the linkage between income inequality and poverty and its effect on agricultural production, most of these efforts were abortive (Awoyemi, 2007). However, reducing income inequality among farmers has at this point become imperative. Hence, this study empirically investigated analysis of income inequality among cocoa farmers using Abia State, Nigeria as a case study. From the data collected from 90 cocoa farmers in three major cocoa producing LGAs in the state, the study found that income was unequally distributed among the cocoa farmers in Ikwuano LGA; hence, there was increasing gap between the poor and the rich cocoa farmers. Also, income was more unequal in Umuahia North LGA (Gini = 0.4458)

compared to Ikwuano LGA (Gini = 0.3075). Similarly, the income of cocoa farmers in Bende LGA was unequally distributed as well. The results posit that cocoa farmers in Abia State were experiencing income inequality.

Major challenges facing cocoa farmers in Abia State are lack of credit facilities, poor road network, high cost of field maintenance and spray, lack of access to market information, high cost of nursery establishment, pest and disease problems and high cost of labour among others. Based on the findings of this study, it is recommended that policies designed to generate a more equitable distribution of income and related income earning opportunities should be given priority among the cocoa farmers. That is, policies that will encourage cocoa farmers to venture into large scale cocoa farming should be put in place so as to generate enough income capable of reducing the levels poverty and inequality. Consequently, cocoa farmers should be encouraged to form groups or farmers association for the purpose of access to farm inputs which will help to reduce poverty and income inequality. This will bring about uniform growth and development, thereby curtailing the gap between the rich cocoa farmers and poor cocoa farmers.

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