

FACTORS INFLUENCING COMMERCIALIZATION OF FARMERS' COOPERATIVES UNDER COMMERCIAL AGRICULTURE DEVELOPMENT PROJECT IN CROSS RIVER STATE, NIGERIA

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ABSTRACT: *This study analyzed the factors influencing commercialization of farmers' cooperatives under Commercial Agriculture Development Project in Cross-River State, Nigeria. The extent of commercialization by the cooperatives was ascertained, and factors influencing commercialization as expressed by the marketed and marketable surpluses of the cooperatives analyzed. Data collected from 219 purposively sampled cooperatives using CADP list were analyzed using marketed and marketable surplus analyses and the Ordinary Least Square Multiple Regression Technique. The result indicated medium scale operation; with equal value for marketed and marketable surpluses (₦23,354,321,602.00). While marketed surplus was influenced among others by farm size ($t = 4.7064$) and access to export market ($t = 2.9713$) marketable surplus was influenced among others by age of cooperative ($t = -2.8102$) and expenditure on seed ($t = -3.4931$). Extension education campaign to encourage cooperative societies' formation and enlistment, and considering the identified variables as valuables for intervention and advocacy were recommended.*

KEYWORDS; Commercialization, Marketable Surplus, Marketed Surplus, Factors, Farmers' Cooperatives, CADP.

INTRODUCTION

The spate of global hunger, food and nutrition crises, malnutrition and poverty, occasioned by world politics, global economic meltdown/downturn, induced and natural disasters, global warming and climate changes among other changes; that seem to be pressing the world to a threshold, is far likely reaching a crescendo; as sustainable economic growth for most economies remain a mirage and far cry. Thus, despite sub-Saharan Africa being seen as the "last frontier of global agriculture" (Sitko and Chamberline, 2015) and African agriculture 'rediscovered' as an engine for economic growth, a panacea for poverty, and a key contributor to global as well as national and local food security (Kelly, 2015), yet the Nigeria's food system's ability to meet future food needs of the citizens remains uncertain.

Currently in Nigeria, dwindling oil economy; occasioned by world oil price crashes, troubles in the crude oil deposit region, amidst soaring youth unemployment, high levels of insecurity due to insurgency and militancy, natural and man induced disasters such as flood and erosion, as well as massive drift from agriculture and rural areas to other sectors in cities, tend to threaten not only food security, but the nation's sustainable economic growth. This perhaps

raised the fears of Utomi (2003) who warned that we cannot get out of poverty by just relying on oil and gas; but rather that agriculture should be embraced more confidentially as the true solution to our economic death. This again, may have informed the implementation of the Commercial Agriculture Development Project (CADP) in five states of Nigeria; Cross-River, Enugu, Kaduna, Kano and Lagos at its pilot stage in 2009; with emphasis on agricultural growth and diversification of the economy into the non-oil sectors through production along value chains by the World Bank.

Basically, man's food production to sustain his household's food need; subsistence, with virtually nothing to sell at this production level pervades. This culture has dominated most developing and under developed economies for long. However, with civilization and technology development, this orientation is gradually changing. Thus, there seem to be a paradigm shift from farming as a culture to farming as a business. This window of business opportunity, offered by production beyond subsistence, could be referred to as commercial. Thus, Nigeria's implementation of CADP; a project with commercial production outlook, may not be unconnected to the fact that commercialization and perhaps market orientation are trending; with most economies keying-in; as Sharma and Wardhan (2015) reported that Indian agriculture has become more commercial and market-oriented. The CADP in Nigeria with World Bank assistance was the first of its kind in Nigeria; and reflects the new emphasis on agricultural growth and diversification of the economy into the non-oil sectors (Battistin and Zac, 2014). According to them, it is an important attempt to make Nigeria's growth sustainable, increase employment and reduce poverty in rural areas, and boost investment in new technologies; thus the project, they concluded is comprehensive and ambitious in scope and involves significant investments in form of farmers' subsidies aimed at increasing agricultural production and improving access to markets through construction and rehabilitation of rural infrastructure.

Obviously, the CADP; as the name implies, emphasizes commercialization or commercial production; which according to Nwokoye (2000) means to market a product on a large scale. Agricultural commercialization refers to the process of increasing the proportion of agricultural production that is sold by farmers (Pradhan, Dewina and Minsten, 2010). On the contrary, Gebremedhin and Jaleta (2010; 2010a) opined that commercialization entails market orientation and enhances the links between the input and output sides of agricultural markets. Nevertheless, World Bank (2013) while defining agribusiness indicated that it includes commercial agriculture that involves some transformation activities (even if they are basic); involving smallholders and micro-enterprises in food processing and retail to the extent that they are market oriented. Commercial agriculture offers exploration into production for sales. This regime therefore, necessitates production along the line and principle of comparative advantage; because of the uneven distribution of wealth and scarce resources among the peoples and nations of the world. To effectively achieve commercialization therefore, understanding and ensuring that the needs of consumers are met remain paramount. Thus, commercialization not based on market orientation may amount to nothingness; because market orientation is not only a strategy, but an organizational culture and climate that most effectively encourage the behaviors that are necessary for the creation of superior value for customers (Deshpande and Webster, 1989; Narver and Slater, 1990).

Nigerian farmers/producers may have achieved commercialization or commercial production in some areas; with the country ranking among highest producers of some crops. For example it was reported that in 2011, Nigeria's plantain production output doubled in the last 20 years

thus making the country one of the largest producers of plantain in Africa and the world; ranking first and fifth respectively and producing 2,722,000 metric tonnes (FAO, 2013; 2012; IITA, 2014). The question however, remains; how much of the commercial productions translate into marketed surpluses capable of enhancing farmers' profitability and by extension, business performance? Expressed in another way; at a competitive edge, would Nigeria's marketable surpluses be marketed? This question is important because increase in share of production being marketed; which is linked to the marketable and marketed surpluses, is one of the various ways identified by Sharma and Wardhan (2015) as dimensions that can be examined to assess the extent of commercialization.

Competition in producing food for the market should entail knowing the needs of the market (consumers) and aiming at satisfying the needs at reasonable profits. In other words, adding value to products to suit needs of customers at no loss. This is the culture expected of the farmers' cooperatives under CADP who operate value chain; since, the basic characteristic of a value chain according to Agriculture Nigeria Online Hub (2016), is market-focused collaboration. Value addition, brings to bear the issues of packaging and standardization. Unfortunately, these may have ousted Nigeria from the global market to her own economic detriment. This by no means is healthy for a country such as Nigeria let alone a project such as CADP in the global market place and among comity of nations; especially in realization of World Bank pledged assistance to Nigeria's CADP; to help Nigeria become one of the world's food exporters again (CADP, 2014). Globalization of markets according to Kyriakopoulos and Bekkum (1999) create new sources of competition that are not limited to domestic competitors; hence firms need not only stay abreast of local competitors but anticipate the move and competences of foreign competitors. Also, a shift from the competitive edge of bulky to customized production, according to Kyriakopoulos and Bekkum (1999) render the markets more dynamic and unpredictable; and as such organizations should stay close to the market to rapidly sense and anticipate changes and design actions to satisfy customers. The role of farmers' cooperatives perhaps in achieving and sustaining commercialization especially among resource poor farmers, may not be overstated even though their horizontal integration strategy alone according to Nilsson (1998) remains insufficient to provide competitive edge; as their main drive is to exploit economies of scale in a commodity type of business.

Cooperatives are business enterprises or organizations formed, owned and controlled by a group of people who are members; with the aim of rendering services for their mutual benefit (Adegeye and Dittoh, 1985; Youdeowei, Ezedinma and Onazi, 1986). According to Byerlee (2011), small and medium scale commercial producers; that are largely oriented to the market, dominated Africa's commercial agriculture farming. However, Kyriakopoulos and Bekkum (1991) questioned the effectiveness and efficiency of market-oriented coordination of the food chain in a traditional cooperative structure. Nevertheless, since the scale of operation is not the only thing considered in food and agribusiness; but the transformation of the market place also, participation of cooperatives; especially in commercial agriculture is considered worthwhile. Therefore, analyzing the commercialization of farmers' cooperatives and the factors that influence their commercialization has become imperative. Specifically, the extent of commercialization was determined and the factors affecting the commercialization of the farmers' cooperatives under CADP analyzed. Thus, the following hypotheses were analyzed;

1. The socio-economic/demographic characteristics of farmers' cooperatives under CADP do not influence significantly the marketable surplus from their production.

2. The socio-economic/demographic characteristics of farmers' cooperatives under CADP do not influence significantly the marketed surplus from their production.

LITERATURE REVIEW

Over-view of Commercial Agriculture Development Project (CADP) in Nigeria

The Commercial Agriculture Development Project; was an initiative of the World Bank in collaboration with the federal and state governments of Nigeria. CADP is supporting the Federal Government of Nigeria strategy options of diversifying into non-oil sources of growth and away from over dependence on oil and gas; by helping to improve access of participating commercial farmers to new technologies, improved infrastructure, finances, and output markets, to strengthening agricultural production systems and facilitating access to market for some targeted value chains among small and medium scale commercial farmers (CADP, 2014).

According to National Food Reserve Agency (NFRA) (2009), the main objective of this initiative; is to increase agricultural productivity and create linkages with markets. On the other hand, the objective of the CADP according to Earthguards (2007), is to contribute to the government's strategy for poverty reduction by improving the welfare and living conditions of many poor and vulnerable communities in the participating states, while the Project Development Objectives (PDO) are to strengthen agricultural production, processing, and marketed outputs among participating small and medium-scale commercial farms and agro-processors, thereby contributing to reduction of poverty, increased food security and achievement of a key Millennium Development Goal (MDG).

Again, Earthguards (2007), noted that the Project's objectives and incentives will promote cross-cutting values on equity, partnership, participation, gender, and transparency on commercial agriculture development; which will directly and/or indirectly support subsistence farmers and the poor with information, skills, technology, group organizing, and business opportunities that will allow them to pursue micro enterprises, self-employment, or other opportunities in commercial agriculture as well as assist them through training to become employed in market-chain activities. Thus at the designing stage, it was envisaged that positive impacts on social and gender development will occur by;

- i. expanding opportunities for the poor and women to engage in commercial activities,
- ii. reducing any vulnerability of disadvantaged groups arising from commercializing agriculture, and
- iii. enhancing capabilities to engage directly in or benefit indirectly from commercial agriculture.

Also, investment in local infrastructure in the form of access to feeder roads; adoption of appropriate agricultural technologies; access to market information and agribusiness and/or product improvement technology will be provided.

In another development, Economic Confidential (2017) reported that the Nigerian Export Promotion Council (NEPC), signed a Memorandum of Understanding (MoU) with the World Bank to stimulate the export and marketability of the targeted agricultural products of the five states of the project. Furthermore in the report, the Council stated that the objective of the MoU

is to ensure that finished products of the value chain selected for the project achieve tremendous success at domestic and international market. The project therefore has been structured in such a way that each participating state will be targeted with support activities and expertise fashioned to enhance the capability and competence of farmers, processors and marketers to achieve global competitiveness in selected value chains. The council therefore, pledged to pursue the successful execution of the MoU through organization and implementation of tailored and capacity building programmes, domestic and foreign markets intelligence studies, selected study tours, one-on-one mentoring, etc. The Council in this report opined that this initiative which has the capability of providing jobs, income opportunities, and strengthen national efforts towards achievement of federal government policy objectives on food security and millennium development goals, will also contribute significantly to meeting national food needs and strengthen trade link with other countries.

Agricultural Commercialization

In spite of the numerous challenges faced by the small farmers, some schools of thought, hold the view that the commercialization of the smallholder farmers; hold good prospects for both the farmers and the entire economy at large. They opined that, commercial orientation of smallholder agriculture leads to gradual decline in real food prices due to increased competition and lower costs in food marketing and processing (Jayne, Mukumbu, Duncan, Lundberg, Aldridge, Staatz, Howard, Nakaponda, Ferris, Keita and Sananankoua, 1995). These according to Adenegan, Olorunsomo and Nwauwa (2013), improve the welfare of smallholder farmers in two ways: low food prices increase the purchasing power for food of consumers while, to producers, a decline in food prices enables reallocation of limited household incomes to high value non-food agribusiness sectors and off-farm enterprises.

Agricultural commercialization has become most essential and even more critical for Nigeria following such reports by Byerlee (2011), that;

- sub-Saharan Africa has converted from a significant net agricultural exporter in the 1970s, to a significant net agricultural importer in the 2000s.
- Eighteen of the 24 countries with a population above 10 million have increased their share of global imports; as expected, the two largest importers are oil producers, Nigeria and Angola.
- Since 2000, global food and agricultural markets have expanded rapidly and Africa has missed opportunities to tap this export commodity boom, and at the same time has become more dependent on imports; thus, with projected strong market prospects, both domestic and global, Africa will continue to lose competitiveness on both the export and import sides, and
- Exports of palm oil (a crop that originated in Africa, but has been led by Malaysia over the past three decades), by Malaysia and Indonesia, now exceeds the value of all agricultural exports from sub-Saharan Africa.

Sharma and Wardhan (2015) identified high market prices, changing demand, preferences for high-value agricultural products, adoption of new agricultural technologies, increased investment in agriculture, and export opportunities, etc. as important drivers of agricultural commercialization and growth; and increase in share of production being marketed, greater use of market purchased inputs and services, shift towards production of high-value crops and

diversification of agricultural exports as dimensions that can be examined to assess the extent of commercialization. To this end therefore, this work focused on the farmers' marketed and marketable surpluses to ascertain their extent of commercialization.

Marketed and Marketable Surpluses

Commercial production entails that products are to be marketed. Nevertheless, this depends on available surpluses. Consequently, two types of surpluses have been identified – the marketable and the marketed surpluses. Evidently, marketable and marketed surpluses are no new terms or concepts. While a farmer's original withdrawals for household social, religious, food and farm needs from his total production is taken to cumulate into a marketable surplus, marketed surplus could be taken as a part of the marketable surplus that translates into actual cash at hand (after sales). Marketed surplus may be more, less or equal to the marketable surplus, depending upon certain conditions of the farmer such as the socio-economic factors among others. Based on this, the conditions and relationships are explained thus;

- (a) **Marketed Surplus > Marketable Surplus:** The marketed surplus of farmers/producers could actually be greater than their marketable surplus. This occurs when the farmer keeps/retains a smaller quantity of his/her produce than his actual requirement for family and farm. Put the other way round, when he/she sells some of the family/farm needs for cash. This condition of selling more than marketable surplus is also termed distressed or forced sale, which is most common among small and marginal farmers; whose need for cash or money often times appear urgent and immediate. The fall in the price of a product could lead to increases in quantity of distress sales; thus, lower price entails a larger quantity sold to meet some fixed cash requirement.
- (b) **Marketed Surplus < Marketable Surplus:** The marketed surplus becomes less than the marketable surplus when the farmer retains some of the surplus produce. This could occur when large farmers sell less than their marketable surplus in speculation for better/higher prices in later periods; even up to the next production season. This is because of their better retention capacity, occasioned by advancement in storage utility. Again, variation in prices, could lead to substitution of one product for another either for family consumption or for farm need. Thus, a fall in price of a product relative to a competing product could make farmers/producers consume more of the first and less of the second product.
- (c) **Marketed Surplus = Marketable Surplus:** The marketed surplus equates or is in equilibrium with the marketed surplus when farmers/producers neither retain more nor less than their family and farm requirements; especially for perishable commodities. According to Sharma and Wardhan (2015), it indicates that farmers are not in a position to hold back their stocks as they need cash for the next crop or other purposes. The average farmer/producer or medium scale farmers/producers often practice this.

The marketed and marketable surplus according to Anonymous (undated) helps the policy-makers as well as the traders in the following areas;

- ❖ Framing sound price policies
- ❖ Developing proper procurement and purchase strategies
- ❖ Checking undue price fluctuations

- ❖ Advanced estimates of the surpluses
- ❖ Development of transport and storage system

Also, Kumar, Kannan, Chaudhary and Vishnu (2013) believe that both marketed and marketable surplus have tremendous potentials for ensuring prosperity in the agricultural sector, because efficient marketing of the generated surplus can boost up capital formation, real savings and real investment in the agricultural sector and ultimately raising the welfare of the country as a whole. Again, if marketed surplus is satisfactory, it can stop unproductive migration from rural to the urban sectors, where people migrate in search of better economic opportunities and petty jobs in towns and cities. Consequently, problems associated with slum conditions of living could be reduced (Hati, 1976; Kumar *et al.*, 2013).

METHODOLOGY

This study was carried out in Cross River State. Cross River state is one of the Six (6) states in the South-South geopolitical zone of Nigeria. The capital is at Calabar. The state lies between latitude $5^{\circ} 32'$ and $4^{\circ} 27'$ N of the equator and longitude $7^{\circ} 50'$ and $9^{\circ} 28'$ E of Greenwich Meridian, and occupies an area of 20,156 square kilometers (7,782 sq mi); ranking 19th out of the 36 states of Nigeria, and shares boundaries with Benue State to the north, Enugu and Abia States to the west, to the east by Republic of Cameroon and to the south by Akwa-Ibom and the Atlantic Ocean (C-GIDD, 2008). According to the 1991 population census, the state has a population of 1,911,297, this according to C-GIDD (2008), has grown to 3,337,517 with a population density of 170/km² (430/sq mi); ranking 28th out of the 36 states in 2011. The population growth trend therefore shows a 9% growth rate (166,876 persons approximately/annum). Thus, a 2018 population figure for the state is estimated to be 4,505,652. The state is characterized by the tropical humid climate with an average temperature range of between 15^oC – 30^oC; and a high annual rainfall which varies within the delta; with a range of 1300mm-3000mm (Ibor, Okoronkwo, and Rotimi, 2015), and double maxima at July and September. According to CBN (2012), agriculture features prominently in the economy of the state; accounting for approximately 42% of the state GDP. Again, CADP (2015) reported that “Cross River State from the North to the central and down to the Southern part is undeniably blessed with abundant natural resources. These natural resources according to the report distinctively portray the high agricultural and ecological value of the state; for which agriculture is considered the mainstay of the economy of the state. The peculiar and favorable agricultural environment accordingly, provided the platform for the inclusion of the state among the other four states of CADP while the very rich alluvial soil that supports swamp agriculture and cultivation of oil palm, cocoa and rice; the priority focus of CADP in the area is a typical endowment for enhancing efficiency in the processing and marketing also (CADP, 2015). The state is acclaimed for large deposits of crude oil.

The State is composed of three major ethnic groups: the Efik, the Ejagham, and the Bekwarra; the Efik language is widely spoken in the state. The state has rich cultural heritage such as “The Cross River State Christmas Festival” observed annually from December 1st to 31st every year”. Other festivals of importance are; the Cross River State Carnival Float – 26th and 27th December yearly, the Yakurr Leboku Yam festival – 28 August annually, the Calabar Boat Regatta as well as the Anong Bahumono Festival. Important tourist sites of the state are; Obudu Cattle Ranch, the spiraling ox-bow Calabar River, Calabar Marina, Calabar Residency

Museum and the Calabar Slave Park, the Ikom Monoliths (a series of volcanic-stone monoliths of unknown age), the Mary Slessor Tomb, Calabar Drill Monkey Sanctuary, Cross River National Park, Afi Mountain walkway canopy, Kwa falls, Agbokim waterfalls, Tinapa Business Resort. These renowned cultural activities and tourists sites are important to the people of the area; but more importantly farmers' under CADP because they attract local and international tourists. These could offer business windows and opportunities to link-up markets and perhaps make inroads in both direct and indirect exports through tourists' demand of their products.

To ensure collection of apt and relevant data, adequate coverage, comprehensiveness and representation of the crops and farmers' cooperatives involved in the value chains, a purposive sampling method was used to select 219 farmers' cooperatives across the three value-addition chain lines of rice, cocoa and oil-palm; the priority focus of the CADP in Cross River State; identified from secondary source (CADP office). These were the value chain line cooperatives that had received full funding implementation from CADP. The secondary data obtained from the CADP office, Cross River State; were analyzed to obtain results on the extent of commercialization of farmers' cooperatives, as well as the factors influencing commercialization of farmers' cooperatives under CADP. The marketable and marketed surplus analyses were specified as follows:

$$(a) \text{ Marketable Surplus. } MS = P - C \dots\dots\dots 1$$

$$(b) \text{ Marketed Surplus. } M_{KS} = \Theta \dots\dots\dots 2$$

Where: MS = Marketable Surplus

P = Total Production

C = Total requirement of farm family/Retention

M_{KS} = Marketed Surplus

Θ = Actual Sales

Also the factors influencing commercialization of farmers' cooperatives under CADP; captured in the following Hypothesis 1; the socio-economic/demographic characteristics of farmers' cooperatives under CADP do not influence significantly the marketable surplus from their production, and Hypothesis 2; the socio-economic/demographic characteristics of farmers' cooperatives under CADP do not influence significantly the marketed surplus from their production, were realized using multiple regression analysis. The models are thus specified:

$$MS = f (X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, e) \dots\dots\dots 1$$

Where: MS = Marketable Surplus (Kg/₦)

X_1 = Sex (Dummy; Male = 1, Female = 0)

X_2 = Age (Years)

X_3 = Cooperative Size (Number of persons in the Cooperative)

X_4 = Size of Holding/Farm Size (Ha)

X_5 = expenditure on seed and feed (₦)

X_6 = Production of Commodity (Kg)

X_7 = Price of the Commodity (₦)

X_8 = Extension Contact (Number of extension visits in a year)

e = Error Term

$M_kS = f(X_1, X_2, X_3, X_4, X_5, X_6, X_7, X_8, e) \dots\dots\dots 2$

Where: M_kS = Marketed Surplus (Kg)

X_1 = Cooperative Size (Number of persons in the Cooperative)

X_2 = Size of Holding/Farm Size (Hectare)

X_3 = Access to Export Market (Dummy; yes = 1, no = 0)

X_4 = Access to Roads (Dummy; yes = 1, no = 0)

X_5 = Access to Market Information (Dummy; yes = 1, no = 0)

X_6 = Price received of the Commodity (₦)

X_7 = Production of Commodity (Kg)

X_8 = Extension Contact (Number of extension visits in a year)

e = Error Term.

RESULT/FINDINGS

Level of Commercialization of Farmers' Cooperatives under CADP

The level/extent of commercialization of Farmers' Cooperatives under CADP was obtained by determining their marketable and marketed surpluses and comparing with standards. Consequently, using the Marketable Surplus and Marketed Surplus functions indicated in methodology therefore; with a total production value of Twenty-three billion, three hundred and eighty-two million, five hundred and thirteen thousand, two hundred and two Naira, fifty Kobo (₦23,382,513,202.50) and total retention value of Twenty-eight million, one hundred and ninety one thousand, six hundred Naira (₦28,191,600.00), the marketable surplus stood at Twenty-three billion, three hundred and fifty-four million, three hundred and twenty-one thousand, six hundred and two Naira (₦23,354,321,602.00). Again, the marketed surplus (actual sales) of the Farmers' Cooperatives under the CADP stood at a total amount of Twenty-three billion, three hundred and fifty-four million, three hundred and twenty-one thousand, six hundred and two Naira (₦23,354,321,602.00). This result indicates that all the surpluses were

actually marketed or sold; in other words, the marketable surplus was equal to the marketed surplus.

Factors influencing marketable surplus of farmers' cooperatives under CADP

Variables	Coefficients	Standard Error	T-Ratio
Constant	169.6546	0.0451	3761.7428
Sex Composition (X ₁)	-0.0387	0.0206	-1.8786 ^{NS}
Age of Cooperative (X ₂)	-0.0829	0.0295	-2.8102*
Cooperative Size (X ₃)	0.0953	0.0815	1.1693 ^{NS}
Farm Size (X ₄)	0.0547	0.0169	3.2367*
Expenditure on Seed (X ₅)	-0.0758	0.0217	-3.4931*
Production (X ₆)	0.0391	0.0107	3.6542*
Price Received (X ₇)	-0.0614	0.0209	-2.9378*
Extension Contact (X ₈)	0.0846	0.0251	3.3705*
R ² = 0.7916			
F-Value = 99.5473*			
NS = Not Significant, * = Significant at 5%			

Table1. Regression result of the factors influencing marketable surplus of farmers' cooperatives under CADP

Source: Field survey data, 2018.

The regression estimates of the factors influencing marketable surplus of farmers' cooperatives under CADP is presented in Table 1 above. The Double-Log functional form of the multiple regression models was chosen from the four functional forms of Linear, Semi-Log, Double-Log and Exponential as the lead equation. The selection was premised on more significant variables (six out of eight), highest R² (79.2%) and highest F-value of 99.5473. The result in Table1 indicated that Age (X₂), farm size (X₄), expenditure on seed (X₅), production/output (X₆), price received of the commodity (X₇) and extension contact (X₈) were the factors influencing marketable surplus of farmers' cooperatives. While the farmers' cooperatives' age (X₂), with a coefficient of -0.0829 and T-value of -2.8102, expenditure on seed (X₅), with a coefficient of -0.0758 and T-value of -3.4931 and price received of the commodity (X₇) with a coefficient of -0.0614 and T-value of -2.9378, have inverse relationships with their marketable surplus, a direct relationship existed between their marketable surplus and their farm size (X₄) with a coefficient of 0.0547 and T-value of 3.2367; production/output (X₆) with a coefficient of 0.0391 and T-value of 3.6542; and extension contact (X₈) with a coefficient of 0.0846 and T-value of 3.3705. The implication of this result is that marketable surplus of the farmers' cooperatives on one hand significantly increases with their increasing farm size, production/output and extension contact; and on the other hand significantly decreases with their increasing age, expenditure on seed and price received of the commodity. However, the variables; sex and size of cooperative were not significant. Thus they are not variables to be reckoned with in the farmers' cooperatives marketable surplus.

Factors influencing marketed surplus of farmers' cooperatives under CADP

Variables	Coefficients	Standard Error	T-Ratio
Constant	246.0755	0.0291	8456.2028
Cooperative Size (X ₁)	0.0829	0.0707	1.1726 ^{NS}
Farm Size (X ₂)	0.0513	0.0109	4.7064*
Access to Export Market (X ₃)	0.0318	0.0107	2.9713 *
Access to Roads (X ₄)	0.0694	0.0206	3.3689*
Access to Market Information (X ₅)	0.0742	0.0169	4.3905*
Price Received of Commodity (X ₆)	0.0937	0.0213	4.3991*
Production (X ₇)	0.0743	0.0614	1.2101 ^{NS}
Extension Contact (X ₈)	0.0669	0.0217	3.0829*
R ² = 0.7689			
F-Value = 87.3353*			
NS = Not Significant, * = Significant at 5%			

Table 2: Regression result of the factors influencing marketed surplus of farmers' cooperatives under CADP

Source: Field survey data, 2018.

The regression estimates of the factors influencing marketed surplus of farmers' cooperatives under CADP is presented in Table 2 above. The Double-Log functional form of the multiple regression model; was chosen from the four functional forms of Linear, Semi-Log, Double-Log and Exponential as the lead equation. The selection was premised on more significant variables (six out of eight), highest R² (76.9%) and highest F-value of 87.3353. Thus the result in Table 2 indicated that farm size (X₂), access to export market (X₃), access to roads (X₄), access to market information (X₅), price received of the commodity (X₆) and extension contact (X₈) were the socio-economic characteristics influencing marketed surplus of farmers' cooperatives. All the factors influencing marketed surplus of farmers' cooperatives; Farm Size (X₂), with a coefficient of 0.0513 and T-value of 4.7064, access to export market (X₃) with a coefficient of 0.0318 and T-value of 2.9713, access to roads (X₄) with a coefficient of 0.0694 and T-value of 3.3689, access to market information (X₅) with a coefficient of 0.0742 and T-value of 4.3905, price received of the commodity (X₆) with a coefficient of 0.0937 and T-value of 4.3991; and extension contact (X₈) with a coefficient of 0.0669 and T-value of 3.0829; had positive relationships with the marketed surplus of farmers' cooperatives. The implication of this result is that the marketed surplus of farmers' cooperatives significantly increased with increasing farm size, access to export market, access to roads, access to market information, price received of the commodity, and extension contact.

DISCUSSION

The relationship indicating equality of the marketable and marketed surpluses of the farmers' cooperatives means that the farmers' cooperatives under the CADP are average or medium scale farmers/producers who neither retain more, nor less than their family and farm requirements and/or do not hold back their stocks as they need cash for the next crop or other purposes. This condition holds mainly for perishable goods; which of course the range of products of the farmers' cooperatives under CADP belong to. This result conforms to the findings and opinion of some researchers and writers such as Bayerlee (2011), World Bank

(2013) who cited the dominance of small and medium scale farmers in Nigeria and Africa. This result however, could be considered inappropriate and unacceptable when reference is made to the CADP's target of small and medium scale farmers; because there seems to be no change of status and extent of their commercialization. There is need for a scale-up from this current status to a higher one. Market orientation strategy may be useful.

The results on the factors that influenced the marketable and marketed surpluses of the farmers' cooperatives under CADP could be explained by possibility of more concerted efforts and commitment by cooperatives. The inverse relationship exhibited by age of cooperative and their marketable surplus may be likened to the relationship between age and adoption; where in skepticism, the old may find it difficult to do away with old practices/technologies to embrace new ones, while on the contrary, younger ones are likely to eagerly embrace innovations. This may have been the case of the farmers' cooperatives under CADP, Cross River State that resulted in the negative influence of age on their marketable surplus. This result conforms to Nnadi and Akwiwu (2005, 2009). Also, expenditure on seed and price received of the commodity influenced negatively the marketable surplus of the farmers' cooperatives. When high expenditure on seeds/seedlings is recorded, farmers' may increase retentions to take care of the next planting and indeed, a reduction in marketable surplus is likely to occur. Similarly, low or unfair prices for commodities, is bound to dissuade farmers from increasing their marketable surplus. On the contrary however, price received of the commodity by the farmers' cooperatives under CADP positively influenced their marketed surplus. Fair/adequate prices; could trigger off more investment decisions and obviously more revenue. It could become good incentives or drives of horizontal and/or vertical expansions and investments for increased commercialization.

Again, with increased farm sizes that could connote increased resource base and investment, increasing farm size would yield a corresponding increase in commercialization of farmers' cooperatives hence land as a critical resource in a predominantly economy of size rather than scale based production is very much required for meaningful commercial production; in so far as economies of size rather than of scale dominates developing economies. According to Nagayets (2005) many smallholders' plots, in developing countries, are too small to realize the economies of scale required for most of the available commercial farm machinery. In view of this, fragmented holdings pulled together, will make inroad for mechanized farming and production; hence increased marketable and marketed surpluses or commercialization.

Despite small and medium scale farmers' higher output per hectare and the significant contribution they make to food production, they often remain very poor; with low prices, unfair business practices and lack of transportation, storage and processing infrastructure contributing to this situation (United Nations Environment Programme (UNEP), 2011). Therefore, access to export market could guarantee increased revenue just as access to roads could reduce drudgery, spoilage and reduce cost of haulage and invariably lead to increased revenue. Thus, increased access to good infrastructure is capable of increasing the marketable surplus/commercialization

According to Nnadi, kainga, Nnadi, Okoroma, and Ebiwei (2014) knowledge is said to be power, and information remains the key to unlock this power. Adequate, appropriate and timely marketing knowledge and information remains key tool and driving force behind the wheel of progress in agricultural production and marketing. To this end, access to market information could engender innovativeness and access to markets. Although Sones (2016) posited that Nigeria's and indeed Africa's small-scale farmers' information needs have not and still are not

being adequately met, it is not impossible to achieve increasing commercialization with increasing information. With the increasing awareness and use of the avalanche and array of information platforms of the social media; for example short message service (sms), You Tube, WhatsApp, among others, farmers' cooperatives under CADP are bound to obtain adequate information and knowledge to achieve increasing commercialization. Moreover, the agricultural 'talebearer' – extension, when in frequent contact with farmers is bound to authenticate information and explain more or better where necessary; hence both the marketable and marketed surplus otherwise commercialization and extension contact increase at increasing rates.

However, the variables; sex composition (in the case of marketable surplus), size of cooperatives (in both cases) and production/output (in the case of marketed surplus) were not significant. They should be discountenanced in making investment decisions by interventionists when considering the variables of relevance.

Implications to Research and Practice

This research has implications both for theory development and for stakeholders in agriculture. The main contribution to theory development involves the confirmation of the relationship between marketable and marketed surplus and the hypothesized factors influencing marketable and marketed surpluses of farmers'. There are number of implications for stakeholders in agriculture. Formation and membership of cooperatives by farmers is imperative. Consequently, the factors that influenced the cooperatives marketable and marketed surpluses should be the variables of importance in determining their level of commercialization. The Federal Ministry of Agriculture through the States' Agricultural Development Programmes should embark on enlightenment campaign to sensitize farmers for enrolment in cooperatives and the sustenance of interest of farmers who are already members.

CONCLUSION AND RECOMMENDATION

Equality of marketable and marketed surpluses; indicating medium scale operation of commercial agriculture by the farmers' cooperatives, created worry as regards the improvement(s) made by the farmers on their level of commercialization as the project targeted small and medium scale farmers from the very beginning. While age, expenditure on seed and price received of commodities influenced the marketable surplus of the farmers' cooperatives under CADP of Cross-River State negatively, farm size production/output and extension contact positively influenced their marketable surplus. Also, cooperative size, farm size, access to export market, access to roads, access to market information, price received of the commodity and extension contact positively influenced the marketed surplus of the farmers' cooperatives under CADP, Cross-River State. Their inability to operate beyond their initial status of small and medium scale farming is worrisome. This calls for conscious and cautious efforts towards achieving effective and efficient implementation of the market orientation of the farmers' cooperatives to launch Nigeria back to the comity of food exporting nations. Extension education campaigns should be mounted for farmers' membership of Cooperatives.

Future Research

Future research could build upon this study through replication across other farmers' cooperatives under CADP in other states and different farmers' cooperatives across the

country. This study can serve as a basis for hypotheses formulation for future research in this area.

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