

## ASSESSMENT OF FARMERS' PREFERENCE FOR AGRICULTURAL EXTENSION SYSTEMS IN NIGERIA

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**ABSTRACT:** *This study assessed farmers' preference for agricultural extension systems in Nigeria. The specific objectives included the description of socio-economic characteristics of farmers in the six geopolitical zones of Nigeria, determination of the number of farmers benefiting from public or private extension systems, farmers preference of extension delivery systems, etc. Data were obtained from primary and secondary sources. A random sampling technique was used in the selection of farmers. Descriptive statistics, likert scale were employed for analysis. The major findings of the study shows that, majority of the farmers were males and easily accessed agricultural extension services also, majority of the farmers have high preference for private extension system as is more relevance in addressing their problems. It is recommended that gradual steps be adopted in changing to private agricultural extension system and outsourcing of extension is require.*

**KEYWORDS:** Public, Private, Agricultural Extension.

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### INTRODUCTION

Agricultural change constitutes one of the most intractable aspects of economic development. There is no consensus as to what constitutes the right way to develop rural people. Approaches vary from planned and accelerated development of rural areas through self-help schemes to organization of rural improvement schemes. The agricultural sector is the salvation of Nigeria's economy. More than 70% of the country population resides in rural areas and relies on this sector (Ijere, 1992; Ekong, 2008).

Their livelihood and socio-economic provision revolves around agriculture and other allied agricultural activities. The agricultural sector is not only a dominant and dynamic fore for economic growth and food security requirements of rural populace, but is it also a supplier of basic inputs of raw materials for key agro-based industries such as textiles, sugar and food processing units. It is a vehicle for reinforcing and fostering diverse economic development, sustainable food security, employment generation, social stability and alleviates rural poverty. The country (Nigeria) agricultural sector is regarded as engine of Nigeria's economy, which contributes a positive role to alleviate poverty and had a lasting impact over the past four decades (Mengal, *et al.* 2012).

Agricultural extension can be defined as an advice and assistance given to farmers and their families through educational procedures on new farming methods and techniques in order to improve their production and income, bettering their level and uplifting the education and social standard of the farmers (Alabi and Mafimisebi, 2004; Adejo, Okwu and Ibrahim, 2012). Essentially agricultural extension provide farmers the scientific knowledge so that, they could solve their problems. It is also the primary means of change, the reason for

change, and the results you achieved. It helps the farmers to learn about what alternatives that exists in farming so that they can choose the best alternative for themselves (Bawa, Ani and Nuhu, 2009; Cary, 1993; Gelb and Levanon, 2008).

Diverse agricultural extension funding and delivery arrangements have been undertaken since independence in Nigeria by government. Public agricultural extension delivery is that which is funded and managed by government in the context of agricultural extension delivery. The government in this regard decides on the programme in terms of kind and scope, target and coverage, field personnel (number and qualification), finance, organizational structure, leadership and linkages (Amalu, 1998). Public agricultural extension system around the world is being force to adapt to new funding constraints and a changing agricultural sector. The global perspective on extension is no longer that of a unified public sector service but of a multi-institutional network of knowledge and information support for rural people. In Nigeria, after independence agricultural extension services propelled through public agricultural extension structure emphasized the introduction of more modern agricultural methods through farm settlements, cooperatives, plantations, supply of improved farm implements, etc.

Some of the specialized public extension schemes implemented in Nigeria include: farm settlement scheme, National Accelerated Food Production Programme (NAFPP), launched in 1972, Operation Feed the Nation (OFN) in 1976, River Basin and Rural Development Authorities established in 1976, Green Revolution Programme in 1980, The World Bank-Funded Agricultural Development Project (ADP) which was stated in 1974, that gave rise to the multi-state agricultural development projects in Nigeria, etc (Bassey, 2012). Private agricultural extension system is used in the broadest sense of introducing or increasing private sector participation, which does not necessarily imply the transfer of designated state-owned assets to the private sector. In fact, various cost-recoveries, commercialization, and other privatization alternatives have been adopted to improve agricultural extension in Nigeria.

Basically, private extension system involves extension delivery approaches that are not funded by government. These are approaches funded by Non-governmental Organizations (NGOs), Community-Based Organizations (CBOs), Multi-nationals, Faith Based Organizations, etc. Private sector involvement in agricultural extension services is based on the assumption that there is relevant technology to disseminate because if there happens not to be any, a change service provider can do nothing to increase the effectiveness of extension (Matanmi, Adesiji and Omokore, 2008; Oladoja, 2004; Ogunbameru, 2005).

Some of the private organizations providing extension services include: the shell petroleum company (Shell Petroleum Extension Project), the British American Tobacco (BAT), Women Advancement Network (WOFAN) in the North-West, Sasakawa Global 2000 working very close collaboration with ADPs in some states of the Federation like, Cross River, Kano, Kaduna, and Lagos States. There are changing trends and challenges facing agricultural extension delivery in Nigeria which has necessitated the growing campaign for increase in private sector participation and funding. The private sector needs to play a more active role in both funding and physical transfer of the available improved technologies (Oladoja, 2004; Ogunbameru, 2005; Ogunlade, Oladele and Babatunde, 2009; Omotoya 2004).

The improvement of agricultural productivity of rural poor farmers in Nigeria that constitute a significant population of the rural areas in the country requires sound information regarding

new and better farm practices. These have often been provided through public extension system delivery. The importance of public extension system will continue to be relevant to some farmers for economic and social reasons in many parts of the country. However, where private extension delivery is needed, it required strategies that are multi- dimensional, flexible and gradual if our resource poor farmers are to benefit.

### **Statement of the problem**

Several efforts were made over the years and at present to increase the productivity of farmers across various value chains in Nigeria. Some of these efforts were through public extension delivery services, while other was through private extension delivery system. Against this background, governments in recent times have found that they are less able to continue providing all the services previously provided. With cost risings, limited resources and changing in the philosophy of the appropriate extent of government intervention, government of the Federal Republic of Nigeria and States have been slow to increase appropriation for publicly funded activities.

Some functions of government have been curtailed, and other has been privatized. Therefore, the public agricultural extension delivery is confronted with a number of possibilities for change. In Nigeria, agricultural extension services are free of charge by the government through government agencies both at Federal and States levels (Adejo, Okwu and Ibrahim, 2012). Anderson and Feder in 2003 observed that despite the fact that public financing for extension is often justifiable, the general trends towards fiscal restraint and a reduced role for the public sector has led to financial crisis in public extension services.

The challenge is that Nigeria is well reputed for putting in place policies without political will to sustainably implement them (Adejo, Okwu and Ibrahim, 2012). There are sometimes contradictions between national development policy and the interests of the vast majority of the rural poor who are engaged in agricultural production: Extension should be collaborative involving all stakeholders-public and private (Nnaemeka, Agwu and Nicholas, 2006). Productivity of farmers across the six geopolitical zones for the past two decades have been on the decline forcing the country to embarked on the importation of some food items and raw materials for households consumption and industries respectively. The resultant effects are high cost of food items, depletion of our foreign reserves. In some rural communities where private extension outfits are promoted, the challenge farmers are complaining of is their scope and coverage as their scope are narrow emphasizing one or few crops and small coverage.

In these mixed feelings of farmers, there is the urgent need to achieve a forward on which direction should we focused our energies in terms of extension delivery (Public or private) in Nigeria. The arguments in favour of public extension delivery services are free , broad based, etc, while private extension delivery services are not free, requiring some levels of financial commitments on the part of farmers. The problem of privatization in of developing countries,where funding by users fee may not be viable. The subsistence nature of farming by majority of farmers in Nigeria leads to a much stronger case for government intervention through public extension delivery system. However, studies have shown that farmers are willing to pay for extension services.

There is informal commercialization in Delta State of Nigeria, where farmers pay indirectly for extension services. These they do by paying for transportation, feeding and other

expenses as pronounced by extension agents (Uzokwe and Ofuoku, 2006). Farinde and Atteh (2009) found that most farmers studied in Adamawa State strongly agreed that privatization and commercialization will help improve extension services. Based on the foregoing, this study addressed the following questions:

- i. What are the socio-economic characteristics of farmers in the six geopolitical zones?
- ii. What is the number of sampled farmers benefiting from public or private or both extension delivery systems?
- iii. What is the relevance of extension delivery services provided by public and private delivery organizations?
- iv. What are farmers' perceptions regarding frequency of visit, teaching methods by public and private extension field staff?
- v. What is the preference of farmers' regarding public and private extension delivery systems?

### **Objectives of the study**

The main objective of this study is to assess farmers' preference for agricultural extension systems in Nigeria.

The specific objectives are to:

- i. describe the socio-economic characteristics of farmers in the six geopolitical zones
- ii. determine the number of sampled farmers benefiting from public or private or both extension delivery systems
- iii. determine the relevance of extension delivery services provided by public and private organizations
- iv. assess farmers perception regarding frequency of visits and teaching methods by public and private extension field staff
- v. identify farmers preferred extension delivery system regarding public and private extension delivery systems.

### **LITERATURE/THEORETICAL UNDERPINNING**

Due to the emerging global dynamics in environmental, social and economic conditions, many countries seem to have adopted changes in both philosophies and methodologies of extension delivery in terms of its organization and management and in particular the funding of extension services. Farinde and Atteh (2009) in their study of arable crop farmers of Niger State, indicated that farmers are willing to pay for extension services with the sum N15, 133.84 (Nigerian Naira) per farmer per year through the yam grower association, cooperative societies and the service provider themselves.

According to Adejo, Okwu and Ibrahim (2012), Nigeria stands a chance of undertaking a gradual or partial privatization of extension and that private extension services appear to provide timely and appropriate services in terms of the farmers' need. Advocates of private extension services like Saliu and Agi, (2009); Aderson and Deder, (2003) observed that private extension services improve efficiency, encourages competition and private sector participation. In 1990, the Netherlands privatized approximately one half of its public

extension service by transferring field extension personnel, with initial government financial support, to the farmer associations (LeGouis, 1991). The elements of extension service responsible for linking research and the privatized extension services, policy preparation, implementation, and promotion and regulatory tasks remained under the control of the Ministry of Agriculture (LeGouis, 1991). According to Proost and Roling (1991), the privatized extension service in Netherlands is governed by a board on which farmers' organizations and the governments are equally represented.

Wilson (1991) indicated that a pervading development in new forms of financial support for extension is the trend to mixed sources of funding, reflecting strategies to gain access to additional sources of funding. In several developing countries, public-private extension coordination is already established. Alternative patterns indicate a fostering of private cooperate initiative, encouraging cooperative ventures by farmers, coordinating public-private extension services, privatizing the public system of extension.

Privatization is becoming a widely accepted organizational change and response that can offer alternative opportunities for efficiency, effectiveness and sustainability in extension service delivery. Policy formulation and implementation by the government on agricultural extension be a collaborative effort involving all stakeholders. It should include the operational linkages and partnership between extension and relevant service institutions such as related to research and information technology. In so doing, there is the tendency of achieving higher productivity in the agricultural sector in the country.

## **METHODOLOGY**

The study was carried out in Nigeria, the most populous country in Africa, is situated on the Gulf of Guinea in West Africa. Its neighbors are Benin, Niger, Cameroon, and Chad. Swamps and Mangrove forests border the Southern Coast, inland are hardwood forest. The country has a total land area of 910,771sq. km with a total area of 923,768 sq km (National Bureau of Statistics, 2014; National Population Commission, 2006). According to the 2014 estimation, Nigeria has a total population of 177,155,754 persons with growth rate of 2.47%; birth rate of 38.03/1000; infant mortality rate of 74.09/1000 and life expectancy of 52.62 years (National Bureau of Statistics, 2014; National Population Commission, 2006).

The country consists of six geopolitical zones. The six geopolitical zones are North Central consisting Benue, Kogi, Kwara, Nasarawa, Niger and Plateau States. North East zone consist of Adamawa, Bauchi, Borno, Gombe, Taraba and Yobe states. North West zone consist of Jigawa, Kaduna, Kano, Katsina, Kebbi, Sokoto and Zamfara States. South East consists of Abia, Anambra, Ebonyi, Enugu and Imo States. South -South Zone Consist of Akwa Ibom, Cross River, Bayelsa, Rivers, Delta and Edo states, while South West Zone consist of Ekiti, Lagos, Ogun, Ondo, Osun and Oyo States (NPC, 2016).

Major crops grown in Nigeria include beans, sesame, cashew nuts, cassava, cocoa, groundnuts, gum Arabic, kola nut, maize (corn), melon, millet, oil palm, plantain, rice, rubber, soya beans and yam. The agricultural sector is being transformed by commercialization at the small, medium and large-scale enterprise levels. Large-scale agriculture is not common. Agriculture contributed 32% to GDP in 2001 and provides employment for about 30% of the population as of 2010 (National Bureau of Statistics, 2010). The sample size of this study was made of 3600 farmers drawn across the various value chains in Nigeria at the rate of 100 farmers per state.

A random sampling technique was employed for the selection of the sample size. The essence of the sample size was to ensure that farmers from each state of the Federation have their responses captured in relationship to their preference for public or private extension services delivery. Sampling was drawn from the list of farmers compiled by Agricultural Development Programme (ADP) in each state of the Federation. Data for this study were obtained from two sources, namely primary and secondary sources. Primary data were obtained through the use of a structured questionnaire which was used as interview guide. Secondary data were obtained through the use of relevant literature, journals, official documents, publications, etc.

### Method of Data Analysis

Objective 1 and 2 were analyzed using frequencies and percentages. Objectives 3, 4 and 5 were analyzed using four-point likert scale with 2.5 mean decision rule. The likert formula =  $X = \Sigma f/n$

Where: X = Critical mean score

f = Total scale score (that is 4, 3, 2 and 1), n = scale points. The four-point scale of strongly agreed, agreed, disagreed and strongly disagreed were scored as follows: strongly agreed = 4, Agree = 3, Disagreed = 2 and strongly disagreed = 1.

### RESULTS/FINDINGS

This section focuses on the results of analysis of objective one to objective five formulated for this study.

#### Socio-economic Characteristics of Respondents

Table 1 show that 71.33% of the respondents are males, while 28.67% are females. Majority (50.16%) of the respondents are 51 years and above in North central zone of Nigeria, 16.67% are within the age range of 41-50 years, 11.67% are below 21 years of age, while 11.33% are within the age range 21-30 years. Slightly above 10% of the respondents are 31-40 years of age. With respect to household size, 47.33% have household size of 11-15 persons, 16.67% have 1-5 persons, 14.33% have 6-10 persons, while 8.33%, 7% and 6.34% have 16-20 persons, 21-25 persons and 26 persons and above respectively. Seventy-five percent of the respondents in North Central Zone of Nigeria have formal education ranging from primary to tertiary level of education, though majorities (49.33%) have only primary education.

With respect to nature of farming, 81.50% are full time farmers, while 18.50% are into farming as part time business. Majority (91.83%) of the respondents are married, while 8.17% are single or not married. Also, 98.17% of the respondents are members of local organizations available in North Central zone, 35.67% reported having annual income less than N1m Naira, and 31% have annual income ranging from N1m – N5m Naira. Twenty-nine percent have annual income ranging from N6m – 9m Naira, while 4.33% have annual income  $\geq$  N10m Naira. Majority (94.33%) have access to agricultural extension relating to their agricultural activities

**Table 1: Socio-economic Characteristics of Respondents in North Central Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	428	71.33
Female	172	28.67
<b>Total</b>	<b>600</b>	<b>100</b>
Age (Years)		
Below 21	70	11.67
21-30	68	11.33
31-40	61	10.17
41-50	100	16.67
51 and above	301	50.16
<b>Total</b>	<b>600</b>	<b>100</b>
Household size		
1-5	100	16.67
6-10	86	14.33
11-15	284	47.33
16-20	50	8.33
21-25	42	7.00
26 and above	38	6.34
<b>Total</b>	<b>600</b>	<b>100</b>
Level of education		
Informal education	150	25.00
Primary education	296	49.33
Secondary education	100	16.67
Tertiary institution	54	9.00
<b>Total</b>	<b>600</b>	<b>100</b>
Nature of farming		
Part time	111	18.50
Full time	489	81.50

<b>Total</b>	<b>600</b>	<b>100</b>
Marital status		
Single	49	8.17
Married	551	91.83
<b>Total</b>	<b>600</b>	<b>100</b>
Membership of local organizations		
Yes	589	98.17
No	11	1.83
<b>Total</b>	<b>600</b>	<b>100</b>
Annual income (Nm)		
<1	214	35.67
1-5	186	31.00
6-9	174	29.00
≥10	26	4.33
<b>Total</b>	<b>600</b>	<b>100</b>
Access to agricultural extension services		
Have access	566	94.33
No access	34	5.67
<b>Total</b>	<b>600</b>	<b>100</b>

Source: Field Survey, 2016.

Table 2 reveals that 90% of the sampled respondents in the North East Zone of Nigeria are males, while 10% are females. Fifty percent of the respondents are within the age range of 31-40 years, 17% are within the age range of 21-30 years, 15.67% are respondents within the age range of 41-50 years, while 9.66%, 7.67% are respondents within the age ranges of 51 years and above, below 21 years respectively. With respect to household size, 35% have household size of 11-15 persons, 27% have 1-5 persons, 24.33% have 6-10 persons, 9.67% of the respondents have household size of 16-20 persons, while 2.33%, 1.67% have household sizes of 21-25 persons and 26 persons and above respectively.

Majority (72.67%) have formal education with 38.33% having primary level of education, while 27.33% are without formal education. Full time farmers (61.50%) accounts for majority of the respondents, 38.50% are into farming as a part time business. Also, 88.67%



of the respondents are married, while 11.33% are not married. In North East zone of Nigeria, 96.33% belong to local organizations available in the region. Majority (35.67%) reported having annual income less than N1m Naira, 33.33% have annual income ranging from N6m – N9m Naira. Fourteen percent have annual income  $\geq$ N10m Naira. Ninety nine percent have access to extension services relating to their farming businesses, while one percent reported not having access to extension services be it public or private delivery system.

**Table 2: Socio-economic Characteristics of Respondents in North East Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	540	90.00
Female	60	10.00
<b>Total</b>	<b>600</b>	<b>100</b>
Age (Years)		
Below 21	46	7.67
21-30	102	17.00
31-40	300	50.00
41-50	94	15.67
51 and above	58	9.66
<b>Total</b>	<b>600</b>	<b>100</b>
Household size		
1-5	162	27.00
6-10	146	24.33
11-15	210	35.00
16-20	58	9.67
21-25	14	2.33
26 and above	10	1.67
<b>Total</b>	<b>600</b>	<b>100</b>
Level of education		
Informal education	164	27.33
Primary education	230	38.33
Secondary education	178	29.67
Tertiary institution	28	4.67

<b>Total</b>	<b>600</b>	<b>100</b>
Nature of farming		
Part time	231	38.50
Full time	369	61.50
<b>Total</b>	<b>600</b>	<b>100</b>
Marital status		
Single	68	11.33
Married	532	88.67
<b>Total</b>	<b>600</b>	<b>100</b>
Membership of local organizations		
Yes	578	96.33
No	22	3.67
<b>Total</b>	<b>600</b>	<b>100</b>
Annual income (₦m)		
<1	214	35.67
1-5	102	17.00
6-9	200	33.33
≥10	84	14.00
<b>Total</b>	<b>600</b>	<b>100</b>
Access to agricultural extension Services		
Have access	594	99.00
No access	6	1.00
<b>Total</b>	<b>600</b>	<b>100</b>

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Source: Field Survey, 2016.

Table 3 shows that 87.43% of the respondents in North West zone of Nigeria are males, while 12.57% are females. Out of the sampled respondents, 38.14% are within the age range 31-40 years, 25.86% are within 21-30 years, 15% are within the age range of 41-50 years, 14.29%, and 6.71% are within the age ranges of 51 years and above and below 21 years respectively.

Majority (35.14%) have household size of 6-10 persons, 31.29% have household size of 1-5 persons, while 12.57% have household size of 16-20 persons. Also, 8.71% and 5% have household sizes of 11-15 persons and 26 persons and above respectively.

With respect to educational level, 77.71% reported having formal education ranging from primary to tertiary level of education, while 22.29% have no formal education. Majority (73.14%) are engaged in full time farming, while 26.86% are into farming as a part time business. Majority (88.43% of the respondents are married, while 11.57% are not married. With respect to membership of local organizations, 97.29% are members of local organizations available in North West zone of Nigeria, while 2.71% are not members of local organizations

Majority (44.43%) have annual income less than N1m Naira, 30.29% have annual income of N1m – N5m Naira, while, 22% have annual income of N6m – N9m Naira, 3.28% have annual income  $\geq$  N10m Naira. On access to agricultural extension services, 96.86% have access to extension services relating to their farming activities, while only 3.14% of the respondents reported not having access to agricultural extension services either public or private extension system.

**Table 3: Socio-economic Characteristics of Respondents in North West Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	612	87.43
Female	88	12.57
<b>Total</b>	<b>700</b>	<b>100</b>
Age (Years)		
Below 21	47	6.71
21-30	181	25.86
31-40	267	38.14
41-50	105	15.00
51 and above	100	14.29
<b>Total</b>	<b>700</b>	<b>100</b>
Household size		
1-5	219	31.29
6-10	246	35.14
11-15	61	8.71
16-20	88	12.57

21-25	51	7.29
26 and above	350	5.00
<b>Total</b>	<b>700</b>	<b>100</b>
Level of education		
Informal education	156	22.29
Primary education	218	31.14
Secondary education	286	40.86
Tertiary institution	40	5.71
<b>Total</b>	<b>700</b>	<b>100</b>
Nature of farming		
Part time	188	26.86
Full time	512	73.14
<b>Total</b>	<b>700</b>	<b>100</b>
Marital status		
Single	81	11.57
Married	619	88.43
<b>Total</b>	<b>700</b>	<b>100</b>
Membership of local organizations		
Yes	681	97.29
No	19	2.71
<b>Total</b>	<b>700</b>	<b>100</b>
Annual income (₦m)		
<1	311	44.43
1-5	212	30.29
6-9	154	22.00
≥10	23	3.28
<b>Total</b>	<b>700</b>	<b>100</b>

## Access to agricultural

## extension services

Have access	678	96.86
No access	22	3.14
<b>Total</b>	<b>700</b>	<b>100</b>

Source: Field Survey, 2016.

Table 4 reveals that 82.40% of the respondents from South East zone of Nigeria are males, while 17.60% are females. Majority (40.40%) of the respondents are within the age range 51 years and above, 25.60% are within the age range of 31-40 years, 20.20%, 8% and 5.80% are respondents within the age ranges of 41-50 years, 21-30 years and below 21 years respectively. Sixty percent of the respondents have household size of 6-10 persons, 16% have 1-5 persons, 9.20% have 16-20 person, 5.6% have 11-15 persons, while 5.2%, 4% have household sizes of 21-25 persons and 26 persons and above respectively.

With respect to level of education, 67.20% have formal education, While 32.8% have no formal education. Majority (83.40%) are full time farmers, while 16.60% are part time farmers. On married heads, 90.20% of the respondents are married, while 9.80% are not married. With respect to membership of organizations, 97.40% belong to local organizations in the region, while 2.60% are not members of local organizations. Majority (43.40%) of the respondents have annual income of N1m – N5m Naira, 42.60% have annual income less than N1m Naira, 12.80%, 1.20% have annual incomes N6m – N9m Naira,  $\geq$ N10m Naira respectively. Out of the sampled respondents in South East Zone, 98.20% have access to agricultural extension services, while 1.80% has no access to agricultural extension services.

**Table 4: Socio-Economic Characteristics of Respondents in South East Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	412	82.40
Female	88	17.60
<b>Total</b>	<b>500</b>	<b>100</b>
Age (Years)		
Below 21	29	5.80
21-30	40	8.00
31-40	128	25.60
41-50	101	20.20
51 and above	202	40.40

<b>Total</b>	<b>500</b>	<b>100</b>
Household size		
1-5	80	16.00
6-10	300	60.00
11-15	28	5.60
16-20	46	9.20
21-25	26	5.20
26 and above	20	4.00
<b>Total</b>	<b>500</b>	<b>100</b>
Level of Education		
Informal education	164	32.80
Primary education	204	40
Secondary education	122	24.40
Tertiary institution	10	2.00
<b>Total</b>	<b>500</b>	<b>100</b>
Nature of farming		
Part time	83	16.60
Full time	417	83.40
<b>Total</b>	<b>500</b>	<b>100</b>
Marital status		
Single	49	9.80
Married	451	90.20
<b>Total</b>	<b>500</b>	<b>100</b>
Membership of local organizations		
Yes	487	97.40
No	13	2.60
<b>Total</b>	<b>500</b>	<b>100</b>

Annual income (₦m)		
<1	213	42.60
1-5	217	43.40
6-9	64	12.80
≥10	6	1.20
<b>Total</b>	<b>500</b>	<b>100</b>
Access to agricultural extension services		
Have access	491	98.20
No access	9	1.80
<b>Total</b>	<b>500</b>	<b>100</b>

Source: Field Survey, 2016.

Table 5 shows that 73.33% of the respondents from South -South zone of Nigeria are males, while 26.67% are females. Majority (32.67%) of the respondents are within the age range of 31-40 years, 24.17% are within the age range of 41-50 years, 21.66% are 51 years and above, 14.67% are within the age range of 21-30 years, while 6.83% are below 21 years. With respect to household size, 33.67%, have household size of 6-10 persons, 32.67% have 1-5 persons, 19.66% have household size 11-15 persons, 6.67% have 16-20 persons, while 4% have household size of 21-25 persons.

Majority (87.67%) of the respondents have formal education ranging from primary to tertiary level of education, while 12.33% have no formal education. From the sampled respondents in South -South zone of Nigeria, 86% are into full time farming, while 14% are part time farmers. On married heads 84.33% of the respondents are married, while 15.67% are not married. With respect to membership of local organizations, 97.33% belong to local organizations in the region, while 2.67% are not members of local organizations. Fifty percent of the respondents have annual income of N1m – N5m Naira, 35.67% have annual income less than N1m Naira, 13.33%, 1% have annual incomes of N6m – N9m, ≥N10m Naira respectively. Ninety-nine percent of the respondents have access to agricultural extension services, 1% have no access to agricultural extension services.

**Table 5: Socio-economic Characteristics of Respondents in South -South Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	440	73.33
Female	160	26.67
<b>Total</b>	<b>600</b>	<b>100</b>
Age (Years)		
Below 21	41	6.83
21-30	88	14.67
31-40	196	32.67
41-50	145	24.17
51 and above	130	21.66
<b>Total</b>	<b>600</b>	<b>100</b>
Household size		
1-5	196	32.67
6-10	202	33.67
11-15	118	19.66
16-20	40	6.67
21-25	24	4.00
26 and above	20	3.33
<b>Total</b>	<b>600</b>	<b>100</b>
Level of Education		
Informal education	74	12.33
Primary education	310	51.67
Secondary education	167	27.83
Tertiary institution	49	8.17
<b>Total</b>	<b>600</b>	<b>100</b>
Nature of farming		
Part time	84	14.00
Full time	516	86.00



<b>Total</b>	<b>600</b>	<b>100</b>
Marital status		
Single	94	15.67
Married	506	84.33
<b>Total</b>	<b>600</b>	<b>100</b>
Membership of local organizations		
Yes	584	97.33
No	16	2.67
<b>Total</b>	<b>600</b>	<b>100</b>
Annual income (₦m)		
<1	214	35.67
1-5	300	50.00
6-9	80	13.33
≥10	6	1.00
<b>Total</b>	<b>600</b>	<b>100</b>
Access to agricultural extension services		
Have access	594	99.00
No access	6	1.00
<b>Total</b>	<b>600</b>	<b>100</b>

Source: Field Survey, 2016.

Table 6 reveals that, majority (81.33%) of the respondents from South West geopolitical are males, while 18.67% are females. Majority (51.33%) are within the age range of 51 years and above, while 18.67% are within the age range of 41-50 years, 15.33% are within age range of 21-30 years, 8% are within the age range of 31-40 years while 6.67% are below 21 years of age. With respect to household size 34.83% have 11-15 persons, 19% have 6-10 persons, 13.33% have 16-20 person, 12.67% have 1-5 person, 11% and 9.17% have household sizes ranging from 21-25 persons and 26 persons and above respectively.

Majority (86.50%) have formal education, while 13.50% have no formal education. With respect to nature of farming, 80.17% are full time farmers, while 19.83% are into farming as a part time business. On married heads, 93.33% of the respondents are married, while 6.67% are not married. Out of the total respondents from South West zone, 98.50% are members of

local organizations within the region, while 1.5% are not members of local organizations. Majority (97.67%) have access to agricultural extension services, while 2.33% have no access to agricultural extension services.

**Table 6: Socio-Economic Characteristics of Respondents in South West Zone**

Variable	Frequency	Percentage (%)
Gender		
Male	488	81.33
Female	112	18.67
<b>Total</b>	<b>600</b>	<b>100</b>
Age (Years)		
Below 21	40	6.67
21-30	92	15.33
31-40	48	8.00
41-50	112	18.67
51 and above	308	51.33
<b>Total</b>	<b>600</b>	<b>100</b>
Household size		
1-5	76	12.67
6-10	114	19.00
11-15	209	34.83
16-20	80	13.33
21-25	66	11.00
26 and above	55	9.17
<b>Total</b>	<b>600</b>	<b>100</b>
Level of Education		
Informal education	81	13.50
Primary education	284	47.33
Secondary education	130	21.67
Tertiary institution	105	17.50

<b>Total</b>	<b>600</b>	<b>100</b>
Nature of farming		
Part time	119	19.83
Full time	481	80.17
<b>Total</b>	<b>600</b>	<b>100</b>
Marital status		
Single	40	6.67
Married	560	93.33
<b>Total</b>	<b>600</b>	<b>100</b>
Membership of local organizations		
Yes	591	98.50
No	9	1.50
<b>Total</b>	<b>600</b>	<b>100</b>
Access to agricultural extension services		
Have access	586	97.67
No access	14	2.33
<b>Total</b>	<b>600</b>	<b>100</b>

Source: Field Survey, 2016.

### Farmers Benefiting From Extension Delivery Systems

Table 7 reveals the number of farmers benefiting from extension delivery systems in Nigeria (Public and Private). A total 3,509 respondents have access to agricultural extension services available in the six geopolitical regions. Majority (59.84%) of the respondents have access to agricultural extension through both public and private extension services, 28.53% and 11.63% have access to extension through public and private agricultural extension delivery organizations respectively. From the above distribution, it implies that 97.42% of the sampled respondents (3,600 farmers) have access to agricultural extension delivery services, while 2.58% reported not having access to extension services (public or private).

**Table 7: Farmers Benefiting From Extension Delivery Systems**

Variable	Frequency	Percentage (%)
Public Extension		
Delivery System	1,001	28.53
Private Extension		
Delivery system	408	11.63
Both Extension		
Delivery systems	2100	59.84
(Public and Private)		
Total	3,509	100

Source: Field survey, 2016.

### Relevance of Extension Delivery Services

Table 8 shows the relevance of extension delivery services in Nigeria. The farmers were asked to assess the relevance of public and private extension delivery services. The rank order was calculated based on mean score using variables such as, essential to farming enterprise, timely to farming enterprise operations, solved farming problems adequately, training and back-up with credits and inputs.

The results show that, extension delivery (public and private) relevance to farming operations was ranked first by farmers. However, the mean score of public extension delivery was higher than that of private extension delivery at 3.80 and 3.60 respectively. Comparing other means outcome, under public extension system, timely delivery to farming enterprise operations (2.91) was ranked second, while under private extension system, (3.30), it was ranked third. The relevance of extension system in solving farmer's problem adequately, under public (2.67) ranked third, while in private (3.40) was ranked second. Relevance of training under public (2.62) ranked fourth, while private (3.40) was ranked equally fourth. Extension system backed-up with credits and inputs under public delivery (2.09) ranked fifth and insignificant since the mean score was far below 2.5 mean decision rule. Under private extension system backed-up with credits and inputs (3.13) ranked fifth and significant.

Cumulative mean of the five variables under public extension delivery system was 2.82; while private were 3.33 higher than that of public delivery system. The results based on farmer's assessment revealed the relevance of private extension delivery system more than that of public extension delivery system. In other words, the private extension delivery system is more relevance in solving the problems of the farmers than public extension delivery system.

**Table 8: Relevance of Extension Delivery Services (Using 4-point likert scale with 2.5 mean decision rule).**

Variables	Public extension system							Private extension system						
	SA	A	DA	SDA	CUM	CA	R	SA	A	DA	SDA	CUM	CA	R
Essential to farming 3.60 1 <sup>st</sup> enterprise (82)	1,802	198	80	20				1,612	194	212	82			
								1 <sup>ST</sup>						
		(7,208)	(592)	(160)	(20)				(6,448)	(582)	(424)			
Timely to farming enterprise operations		813	388	801	98				1,002	811	201	86		
					6,116	2.91	2 <sup>nd</sup>					6,929	3.30	3 <sup>rd</sup>
	(3,252)	(1,164)	(1,602)	(98)					(4,008)	(2,433)	(402)	(86)		
Solved farming problems 3.40 2 <sup>nd</sup> adequately	1,000	200	90	810				1,114	702	210	74			
								3 <sup>rd</sup>						
	(4,000)	(600)	(180)	(810)					(4,456)	(2,106)	(420)	(74)		
Training		1,004	96	190	810				1,214	346	323	308		
					5,494	2.62	4 <sup>th</sup>					6,666	3.20	4 <sup>th</sup>
	(4,016)	(288)	(380)	(810)					(4,856)	(1,038)	(464)	(308)		
Backed-up with credits and inputs	199	801	79	1021				1108	421	319	252			
					4378	2.09	5 <sup>th</sup>					6,569	3.13	5 <sup>th</sup>
	(796)	(2403)	(158)	(1,021)					(4,416)	(1,263)	(638)	(252)		

Source: Field survey, 2016.

The figures in parenthesis are the sum of frequency and the scale  
CUM = Cumulative, CA = Cumulative average and R = Ranking.

### Farmers Perception of Frequency of Visits and Teaching Methods by Public and Private Field Staff.

Table 9 shows farmers perception regarding frequency of visits and teaching methods by public and private field staff. Farmers were asked to give their perception about frequency of visits and teaching methods. Based on the farmers' perceptions, frequency of visits under public extension system with a mean score of 3.44 ranked first for irregular visits. This was further explained by their responses on quarterly visits (3.2) ranked second, fortnightly visits (3.2) ranked third, while monthly visits (2.9) ranked fourth. This implies that, field staff visits to farmers under public extension delivery service were not regular. Under private extension delivery system field staff fortnightly visits (3.14) ranked first, this was followed by monthly visits (2.34) ranked second. Quarterly visits and non-regular visits by field staff under private delivery system were insignificant with mean scores below 2.5 Mean

decision rule. This implies that, field staff under private extension delivery system conducts fortnightly or monthly visits regularly.

Under teaching methods, public field staff conducts extension teaching with exhibition always (2.70) ranked first. Other extension teaching variables such as regular conduct of Farmer Field Schools (FFS) and Focus Group Discussion (FGD), demonstrations and field trips were scored below 2.5 mean decision rule using four-point likert scale. This implies that farmers rate them not significant teaching components of public extension delivery system.

For private extension delivery system, all the four variables under examination with respect to extension teaching methods were rated significant. All teaching methods were rated significant with mean scores ranging from 3.17-3.60. However, regular conduct of farmer field schools (3.60) ranked first, arranging extension teaching with exhibition always (3.24) ranked second, conduct field trips regularly (3.23) ranked third and arranging extension teaching with demonstration regularly (3.17) ranked fourth. This implies that all the four variables are significant components of extension teaching methods under private extension delivery organizations. This makes private extension delivery more impacting than public extension delivery organizations.

**Table 9: Farmers Perception Regarding Frequency of Visits and Teaching Methods by Public and Private Field Staff (Using 4 -point likert scale with 2.5 mean decision rule)**

Variables extension system	Public extension system							Private							
	SA	A	DA	SDA	CUM	CA	R	SDA	A	DA	SDA	CUM	CA		
R															
Frequency of visits fortnightly	1,002 (4,008)	611 (1,833)	285 (570)	202 (202)		6,613	3.2	3 <sup>rd</sup>	1,241 (4,964)	324 (972)	116 (232)	419 (419)	6,587 3.14	1 <sup>st</sup>	
Monthly		984 (3,936)	1,008 (2,016)	42 (184)	66 (66)	6,102	2.9	4 <sup>th</sup>		648 (2,592)	311 (498)	249 (892)	892 4,915	2.34	
Quarterly		966 (3,864)	846 (2,538)	80 (160)	208 (208)	6,770	3.2	2 <sup>nd</sup>		411 (1,644)	526 (1,578)	8 (2,016)		4,393 2.10	3 <sup>rd</sup>
Irregular teaching methods (1,080)	1,204 (4,816)	712 (2,136)	83 (166)	101 (101)		7,219	3.44	1 <sup>st</sup>	441 (1,764)	248 (744)	331 (662)	1080 (662)	4,250 2.02	4 <sup>th</sup>	
Arranging exhibition	801	204	841	254		5752	2.7	1 <sup>st</sup>	1049	659	244	148	6809 3.24		

	(3204)	(2612)	(1682)	(254)				(4196)	(1977)	(488)	(148)			
Conduct demonstration regularly	409	808	27	856	4970	2.4	2 <sup>nd</sup>	1561	248	234	57	6647	3.17	4 <sup>th</sup>
	(1636)	(2424)	(54)	(856)				(948)	(606)	(491)	(55)			
Conduct field trips regularly	841	30	229	1000	4912	2.34	3 <sup>rd</sup>	854	912	302	32	6788	3.23	3 <sup>rd</sup>
	(3364)	(90)	(458)	(1000)				(3416)	(2736)	(604)	(32)			

Source: Field survey, 2016.

### Farmers' Preferred Extension Delivery System.

Table 10 shows farmers' preference for public and private extension delivery systems in Nigeria. Their ranking was based on the mean score using 2.5 mean decision rule of four-point likert scale. This was used to find out the relative preference of the farmers. The results revealed that, farmers preferred the private extension delivery system with mean score of 3.30 ranked first, while public extension delivery system (2.90) ranked second. This confirmed the glamour for serious involvement of private extension organizations in agricultural extension delivery in Nigeria.

**Table 10: Farmers' Preference for Extension Delivery Systems (Using 4-point likert scale with 2.5 mean decision rule).**

Variables	SA	A	DA	SDA	CUM	CA	R
Public extension System		816	414	611	259	5,987	2.9 2 <sup>nd</sup>
		(3,264)	(1,242)	(1,222)	(259)		
Private extension system		1,046	784	71	199	6,877	3.3 1 <sup>st</sup>
		(4,184)	(2,352)	(142)	(199)		

Source: Field survey, 2016.

The figures in parentheses are the sum of frequency and the scale.

CUM = Cumulative, CA = Cumulative average and R = Ranking.

### DISCUSSION

The result of the socio-economic variables indicates that the majority of farmers are males across the six geopolitical regions of Nigeria. The results revealed the dominance of male in agricultural activities in Nigeria. This further brings to the fore the problem of land ownership (Land tenure system) in Nigeria. In most rural communities in Nigeria, land ownership is more or less for the male folks

Majority of the farmers in the North East, North West and South-South geopolitical zones are within the ages of 31-40 years, while in the North Central, South East and South West Zones, majority are within the age ranges of 51 years and above. The high involvement of youths (31-40 years) indicates a young farming population that guarantees the labour supply

for agricultural activities for the next one to two decades in Nigeria and presents a picture of great hope for the country's agricultural sector.

With respect to household sizes majority have household size ranging from 6-15 persons. In North West, South East, and South-South zones majority of the farmers have household sizes ranging from 6-10 persons, while in North Central, North East and South West majority have household sizes ranging from 11-15 persons. Farmers with primary school level of education dominate the farming activities of the Country (Nigeria). However, reasonable percentage of farmers with tertiary level of education was recorded. This is in response to government years of encouragement for young graduates to take up farming as a business.

Majority of the farmers across the regions or zones are into farming as a full time business and are married and reported having low annual income. This calls for credit facilities for farmers. Majority of the farmers are members of local organizations available in their areas. This emphasizes the importance of cooperatives or groupings for easy access to credits from financial institutions. Significant percentage of the farmers reported having access to agricultural extension delivery services in the country. This indicates high agricultural extension coverage in Nigeria.

Majority (59.84%) of the farmers having access to extension services reported benefiting from both public and private extension organizations available in the country. Also, 28.53% have access to extension only through public system delivery organizations, while 11.63% reported having access through private system delivery organizations. This outcome indicates the need for clear demarcation and synergy between public and private system delivery organizations as to avoid conflicts and over concentration on some farmers. Farmers adjudged private extension system more relevance to their needs in solving their problems. This is explained by the fact that, all the issues raised for assessing the relevance of public and private extension systems, the cumulative mean of private system of extension (3.33), was far greater than that of public extension system (2.82).

Farmers perceived private extension system better in terms of frequency of visits and teaching methods by their field staff. Furthermore, farmers preferred private extension delivery services. This result is a reflection of farmer's glamour and subscription for private organizations that are involved in agricultural extension delivery services in Nigeria.

## **IMPLICATION TO RESEARCH AND PRACTICE**

The implication of this study is that agricultural extension policy makers, planners and those implementing extension programs should reconceived agricultural extension delivery mechanisms. The results necessitate a paradigms shift as governments have been slow to increase appropriations for many publicly funded activities. Some functions of government have been curtailed, and others have been privatized in Nigeria. Such changes will be relevant and significant in agricultural extension delivery services.

Introduction of private extension system through a gradual process will guarantees effective extension services that farmers are asking for in Nigeria. The need for improved and expanded extension activities, together with a strengthening philosophical view of less government involvement in national economics, has led to a number of strategies for changing the way extension services are delivered in many countries of the world. Therefore, the time is now for Nigeria to privatize its agricultural extension system. Other implications



of the result of this research to practice are, a more commercialized approach that will broadens the focus of extension personnel and makes an extension service more responsive to client needs and changing economic and social conditions, and the tendency to enhance large scale enterprise.

Also, extension privatization will lead to diminishing emphasis on public good information and advancement of knowledge as a saleable commodity; and the trend towards agricultural development services that cater primarily to large scale farming or farmers with capacity to pay for extension services.

## CONCLUSION

The study revealed that males dominate the agricultural sector of the economy as the study has shown that majority of the sampled farmers are males, within the age ranges of 31-40 years and 51 years and above, have formal education, low income, accessed agricultural extension services through public and private delivery organizations available in the country and have high preference for private extension system. For a shift to private extension system, this study therefore, makes the following recommendations:

- Gradual steps are adopted in the process of privatizing extension.
- Outsourcing of extension. This implies that the government extension agency will retain a core pool of extension project staff and “buy in” private sector professional services with skills that the agency considers unnecessary to maintain.
- Cost recovery approaches are adopted. This may be through credits attached to extension services, and certain percentage is charged for the services offered by the private extension outfit.
- Provision of regulatory framework to ensure fair competition and maintenance of quality standards.
- Effective coordination and linkages among agricultural research and private sectors are needed to bring joint actions so as to restore the self-assurance of extension clientele (farmers).

## FUTURE RESEARCH

Different framework and structures are adopted by different countries in implementing private extension system and therefore further study be conducted to ascertain the frameworks, structures and approaches suitable for Nigeria. Also, future research may addressed the cost implication and cost recovery mechanisms as private organizations may only invest if only the prevailing situation guarantees that, money invested can be recover and there is the livelihood of making profit.

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