



ECONOMIC VIABILITY AND CHALLENGES OF ARTISANAL FISHERIES IN NIGERIA

Omolehin, R. A., *Agunbiade, B. O. and Fakayode, S. B.

Department of Agricultural Economics and Farm Management, Federal University Oye-Ekiti, Nigeria

*Correspondance Email: agunbiadeolubunmi31@gmail.com

GSM: +234-8060223279

ABSTRACT

The study examined economic viability and constraints of artisanal fishing business in Nigeria with the aim of enhancing the potential gains from the business. Descriptive survey research design was employed while a multi-stage sampling technique was adopted to select 300 artisanal fish hunters from 3 maritime States (Lagos, Ogun and Ondo) in southwest Nigeria. The primary data collected through the instrument of questionnaire were subjected to statistical analysis using tools such as weighted mean, relative importance index (RII), gross margin and net farm income analysis. The results showed that the artisanal fish hunting was dominated by male (85.0%), who are in their active working age (mean =42.8 years) and with appreciable years of fishing experience (mean =18.5 years). All the profitability indexes [Profitability Index (2.15), Benefit Cost Ratio (2.18), Rate of Return on investment (2.10) and Capital Turn Over (3.10)] examined provide evidence that artisanal fishing business was highly profitable in these areas. The study concludes that artisanal fishing is very profitable in the study locations however the business is not without its constraints. Recommendations made based on findings include that responsible policy and legislation should be put in place and implemented to discourage water pollution through petroleum exploration and industrial waste to preserve aquatic resources for sustainable use.

Key words: Artisanal, Constraints, Economic, Fisheries and Viability

INTRODUCTION

The fisheries business in Nigeria, according to Kareem *et al.* (2012), can be divided into three major categories namely; artisanal fishing, industrial fishing, and fish farming or aquaculture. Artisanal fishing is a method of fishing for subsistence or commercial purpose using the traditional means of conventional or small-scale fishing gears such as traps, nets and hooks. The vessels used for the operation could be a non-motorized or powered type, such as canoes and dugout boats. It is usually labour intensive and requires low capital investment; the fishing trips are usually short or sometimes none at all and close to the shore while the fish caught are used for household consumption or offered for sale locally (Federal Ministry of Agricultural and Rural Development {FMARD}, 2021). Artisanal fishing activities are mostly carried out in the shallow continental shelf (coastline), lagoons, creeks, rivers, lakes and reservoirs (Ajao, 2006; Kareem *et al.*, 2012). Since artisanal fisheries mainly use open access resources, the only human involvement is generally in the harvesting of fish stocks.

Artisanal fisheries offered a significant means of livelihood to a vast majority of people around the world; Nigeria inclusive (Kareem *et al.*, 2012; Aderinola *et al.*, 2021). Artisanal fishing is important considering the vast number of people who are directly or indirectly involved in it. It provides individuals with a source of income, jobs, and other socioeconomic advantages and also serves as the main source of food for the people in riverine and coastal locations. It is believed that some 43.5 million people work primarily in fisheries sector globally; with the developing countries accounted for the great majority. This estimate was said to be higher when adding those who work



in associated processing, marketing, distribution and supply industries, thus fisheries sector reportedly supports nearly 200 million livelihoods around the world.

Artisanal fisheries are said to contribute up to 30% of the GDP of the third-world countries; just as about 5% of the population derive their means of livelihoods wholly or partly on fisheries sector. Scholars including Theophilus *et al.* (2015) reported that about 87% of animal protein intake of the Nigerian populace comes from fish and fishery products and that close to 90% of the people in the coastal communities live majorly on fishing and its associated activities for survival. Since aquaculture, which may supplement the fisheries, is not substantially established, artisanal fishermen in Nigeria currently contribute around 85% of the nation's fish production (FMARD, 2021). Considering the contribution of artisanal fisheries to human welfare, the present study therefore examines the economic viability and constraints of artisanal fishing in Nigeria with the ultimate aim of strengthening the sector through appropriate policy recommendations.

MATERIAL AND METHODS

The Study Area

The study was conducted in the Southwest Nigeria. There are six states in the zone namely: Ekiti Lagos, Oyo, Osun, Ogun and Ondo States. The southwestern geopolitical zone spreads between latitudes 6°21' and 8°37' N and longitude 2°31' E and 2°31' (National Bureau of Statistics, 2017). The area is known for its tropical climate environment, which typically has distinct dry and rainy seasons. The average annual rainfall is 1480 mm, with July and September seeing the highest amounts. During the dry season, the monthly temperature ranges from 18 to 24°C, whereas during the rainy season, it ranges from 30 to 35°C. According to the 2006 population census, there are roughly 38 million people living in the entire region. For most rural populations, agriculture is the primary source of income (The Civil Resource and Documentation Centre, 2023).

Sampling Procedure

The study employed descriptive survey research design and employed a multi-stage sampling technique to get a representative sample. In the first stage, three (3) States namely; Lagos, Ogun and Ondo States were purposively selected for the study. The reason for the choice of these three (3) States is due to the presence of various water bodies that contain fishes and other aquatic resources which make them suitable for fishing activities; especially that of artisanal fishing. At the second stage, Ikorodu, Kosofe and Badagry Local Government Areas were purposively selected in Lagos State while Ogun water-side Local Government Areas was selected in Ogun State; Ilaje and Ese Odo Local Government Areas were selected in Ondo State for the study based on the reason earlier mentioned. The third stage involved the random selection of 2 fishing communities in each of the six (6) Local Government Areas. The last stage was the random selection of 25 active artisanal fish hunters in each of the twelve fishing communities to ensure adequate and unbiased representation. In all, a total of 300 fisher folks were selected for the study. Primary data collected through the aid of questionnaire were subjected to relevant statistical analysis using frequency counts, percentages, weighted mean and regression analysis.

Method of Data Analysis

Relative Importance Index (RII)

The RII to classify the opinions of the fish hunters on the constraints to artisanal fishing is specified below:

$$RII = \frac{\sum W}{AXN} \quad \dots(1)$$

Where ΣW = sum of weights (Total weight assigned by respondents for each factor)

$$W = \sum_{i=1}^5 w_{ini} \quad \dots(2)$$

A= Highest weight (The maximum weight on the likert scale which is 5 in this case

N= Total respondents (Total number of respondents in the survey

Gross Margin Analysis (GM)

Gross margin is the difference between the gross farm income (i.e. total revenue in naira) and the total variable cost in naira.

Hence;

$$GM = GFI - TVC \quad \dots(3)$$

Where: GM = Gross margin, GFI = Gross Farm Income,

TVC = Total Variable Cost.

Net Farm Income (NFI)

This will give an overall level of profitability of a fishery enterprise by adding fixed and variable costs together and subtracting the cost from the total revenue in naira.

$$\text{Hence; } NFI = TR - TC \text{ (i.e. } TFC + TVC) \quad \dots(4)$$

Where: TR = Total Revenue {P = Unit price of output (Naira) multiply by Q = Total quantity of output (Kg)}, TC = Total cost

RESULTS AND DISCUSSION

Socio-economic characteristics of artisanal fish farmers

The results of socio-economic characteristics of artisanal fish farmers in the 3 study locations were very similar hence the pooled results for the three States were discussed. According to the age distribution of the fish hunters, over half (54.7%) were between the ages of 40 and 59, while 37.0% were between the ages of 18 and 39 (Table 1). Ages ranged from 16 to 80, with a mean of 42.82 years and a standard deviation of 12.80. These two groups were essentially young adults and youths who were strong enough to engage in fishing, which is typically associated with high levels of danger and stress. Age is believed to be one of the main factors influencing productivity; older persons may be less productive, particularly in activities that generate income, like fishing. This result was consistent with that of Amos *et al.* (2014), who found that 72.0% of artisanal fishers were between the ages of 18 and 60. On the other hand, the current study's results differed from those of Akinwumi *et al.* (2011), who found that a higher percentage of fishermen in Ondo State's coastal region were between the ages of 21 and 40.

The sex distribution demonstrates that on the whole, the male formed 85.0% of the fish hunters in the research locations. This finding shows that artisanal fishing is male dominance in the study locations. This result is expected given that fishing entails a high degree of danger, stress, and intricacy that only men are willing to engage in. It should be mentioned that, according to field observations, the few females who were into fish hunting did it in inland waters, dredges, and marshy bushy places where several fish species are located. In a prior study to describe artisanal fishing in the coastal region of Ondo state, Nigeria, Akinwumi *et al.* (2011) likewise found that men dominated the artisanal fisheries industry. The current results are likewise consistent with those of Amos *et al.* (2014), who found that men made up the majority (74%) of artisanal fishermen in a coastal region of Akwa Ibom state. According to Saadu and Tafida (2017) and Aderinola *et al.* (2021), men made up 91.3% and 83.0% of the fishermen in Niger State's Kainji Lake Basin and the Ganyingbo community in Lagos State's Badagry, respectively.

Regarding educational attainment, the findings indicate that 72.6% of fish hunters had completed at least secondary school, while around 19.0% did not have access to formal education. Contrary to the widely held belief that artisanal fishermen typically had poor educational standing, the study found that the fishermen had high levels of education. One significant component that might impact production efficiency and increase revenue generation is education. Additionally, economic choices that will enhance general welfare might be influenced by educational attainment. For instance, having a high level of education can enable one to take pertinent steps that can assist reduce the effects of climate change and increase resilience. Additionally, it is anticipated that a significant level of education will affect the ability to diversify one's income, which is acknowledged as a veritable tool to reduce income fluctuations and failure and ultimately bring about poverty reduction.

Table 1: Socio-economic characteristics of Artisanal Fish farmers

Variables	Lagos Frq (%)	Ogun Frq (%)	Ondo Frq (%)	Total Frq (%)
Age category (years)				
18-39	39(26.0)	12(24.0)	60(60.0)	111(37.0)
40-59	92(61.3)	32(64.0)	38(38.0)	162(54.0)
60-74	10(6.7)	3(6.0)	0(0.0)	13(4.3)
75 & above	9(6.0)	3(6.0)	2(2.0)	14(4.7)
Minimum	30.0	20.0	16.0	16.0
Maximum	70.0	75.0	80.0	80.0
Mean	40.1	46.1	36.1	42.8
Standard Deviation	12.2	11.9	11.7	12.8
Sex				
Male	130(86.7)	44(88.0)	81(81.0)	255(85.0)
Female	20(13.3)	6(12.0)	19(19.0)	45(15.0)
Educational status				
Attempted primary education	28(18.7)	12(24.0)	5(5.0)	45(15.)
Completed primary education	19(12.7)	6(12.0)	3(3.0)	28(9.3)
Attempted secondary education	0(0.0)	0(0.0)	6(6.0)	6(2.0)
Completed secondary education	20(13.3)	6(12.0)	35(35.0)	61(20.3)
Attempted tertiary education	20(13.3)	6(12.0)	16(16.0)	42(14.0)
Completed tertiary education	20(13.3)	6(12.0)	30(30.0)	56(18.7)
Primary occupation				
Fishing	140(93.3)	47(94.7)	85(85.0)	272(90.7)
Agro-processing	10(6.7)	3(6.0)	0(0.0)	13(4.3)
Trading	0(0.0)	0(0.0)	9(9.0)	9(3.0)
Artisan	0(0.0)	0(0.0)	6(6.0)	6(2.0)
Fishing experience (year)				
1-5	13(8.7)	4(8.0)	5(5.0)	22(7.3)
6-10	7(4.7)	2(4.0)	27(27.0)	36(12.0)
11-15	24(16.0)	9(18.0)	21(21.0)	54(18.0)
16-20	66(44.0)	22(44.0)	23(23.0)	111(37.0)
21 & above	40(26.7)	13(26.0)	24(24.0)	77(25.7)
Minimum	5.0	7.0	4.0	4.0
Maximum	40.0	45.0	50.0	50.0
Mean	19.4	19.3	16.9	18.5
Standard Deviation	8.8	8.7	9.1	9.0

Source: Author's Computation, 2025

Adeparusi *et al.* (2003) and Igejongbo (2021), found out that 67.5% and 64.0% of artisanal fishers in Ilaje, Ondo State, had at least primary school education and, are comparable to the high



level of education of the fishermen found in this study. According to a survey by Amos *et al.* (2014), 96.0% of artisanal fishermen in Akwa Ibom state have some kind of formal schooling. However, the researchers found that just 5% of people had either a university degree (B.Sc.) or a Higher National Diploma (HND).

The majority of fish farmers (90.7%) used fishing as their primary source of income, according to the distribution of fish farmers by primary occupation. This conclusion may be supported by the fact that fishing is the most common activity in the region due to the existence of bodies of water that provide locals with fishing chances. Consequently, this result suggests that fishing creates jobs for a significant number of individuals who may otherwise be unemployed, raising the employment rate in the nation. The money made from fishing could be utilized for socio-economic welfare, such as covering children's tuition, buying food, and maintaining their health. The aggregate mean years of experience was calculated to be 18.5 years based on the distribution of fishermen by years of experience. This result suggests that the farmers had significant years of fishing experience, which should aid them in learning the complexities and technicalities of fishing. The finding is comparable to Aderinola *et al.* (2021), who reported that 41.0% of the fishermen had more than fifteen (15) years of fishing experience.

Economic viability of artisanal fisheries

The result of the monthly costs and returns associated with fish hunting business among the farmers is presented in Table 2. It is observed that the average cost of fuel which was estimated to be ₦90, 000.00, ₦75, 000.00 and ₦85, 000.00 for Lagos, Ogun and Ondo states respectively accounted for the largest percentage of the total cost incurred during the operation. It formed 68.00%, 67.75% and 71.64% for the three study locations respectively. The total variable cost i.e cost of repair of fishing craft, cost of repair of fishing gear, cost of fuel and cost of labour formed 97.80%, 97.33% and 97.29% of the total cost of fishing among the sampled fish hunters in Lagos, Ogun and Ondo states respectively.

The fixed cost (depreciation on fishing craft, fishing gear and other fishing accessories) formed just 2.20%, 2.67% and 2.71% of the total cost among the sampled fish hunters in the three states respectively. Average total revenue per farmer stood at ₦394, 556.00, ₦363, 233.00 and ₦396,100.00 in the three states respectively. The gross margin was estimated to be ₦264, 455.31, ₦255, 433.00 and ₦280, 735.00 for Lagos, Ogun and Ondo states respectively. The net income was ₦261, 520.38, ₦252, 523.77 and ₦277, 514.90 for the farmers in the three studied states respectively. Estimated Profitability Index for the fish farmers was 2.01, 2.34 and 2.40 in Lagos, Ogun and Ondo states respectively; which implies that fishing business is profitable in the three states considering the fact that the value is greater than 1.

The Benefit Cost Ratio was 2.03, 2.37 and 2.43 for farmers in Lagos, Ogun and Ondo states respectively; each of the values is greater than 1 and this also provides strong evidence of high profitability of the business in the studied states. For every ₦1.00 invested into the business for example, it will generate ₦2.03, ₦2.37 and ₦2.43 for fish farmers in Lagos, Ogun and Ondo states respectively; Rate of return on investment stood at 1.97, 2.28 and 2.34 for fish farmers in Lagos, Ogun and Ondo states respectively; each value is positive and it indicates that the business is profitable; while the appreciable magnitude of the value implies exceptional profitability as well. Capital Turn Over was estimated to be 2.97, 3.28 and 3.34 for farmers in Lagos, Ogun and Ondo states respectively; this implies an efficient conversion of invested capital among the fish hunters.

On the overall, the average cost of fuel (₦85,714.29) accounted for the largest percentage (68.86%) of the total cost incurred during fishing operation. The total variable cost i.e cost of repair

of fishing craft, cost of repair of fishing gear, cost of fuel and cost of labour shared 97.55% while the fixed cost (depreciation on fishing craft, fishing gear and other fishing accessories) formed just 2.45% of the total cost. Average total revenue per farmer stood at ₦385, 527.59 while the gross margin was estimated to be ₦264, 103.52 and net income was ₦261, 045.11. Estimated Profitability Index was 2.15 while the Benefit Cost Ratio was 2.18, Rate of Return on investment stood at 2.10 and Capital Turn Over was estimated to be 3.10. All the profitability indexes examined provided evidence that fishing business is highly profitable in the three states. It should be noted however that the profitability of the business is dependent on many factors and is marked with wide fluctuations and uncertainties. The high level of profitability established compares well with that of other researchers on the subject matter. In a study conducted by Anyanwu *et al.* (2009), it was established that on the average, artisanal fisher got about ₦ 96,000 as gross margin on monthly basis. Igejongo (2021) also established that on the average, 58% of artisanal fish farmers in Igbokoda, Ondo State made between ₦10,000.00 and ₦ 20,000.00 per fishing day. Comparably, Aderinola *et al.* (2021) reported a weekly income of ₦32, 571.43 and ₦30,857.14 among artisanal fishers in Ganyingbo fishing community area of Badagry before and after the effect of climate change respectively.

Table 2: Economic viability of artisanal fisheries

Cost Components	Lagos Average cost(₦)	%	Ogun Average cost (₦)	%	Ondo Average cost(₦)	%	Total Average cost(₦)	%
Repair of fishing craft/month	8,636.40	6.49	6,100.00	5.51	7,000.00	5.90	8,375.00	6.73
Repair of fishing gear/month	4,464.29	3.36	4,700.00	4.20	3,425.00	2.89	4,334.78	3.48
Fuel/month	90,000.00	68.00	75,000.00	67.75	85,000.00	71.64	85,714.29	68.86
Labour/month	27,000.00	20.00	22,000.00	19.87	20,000.00	16.86	23,000.00	18.48
Total Variable Cost (TVC)	130,100.69	97.8	107,800.00	97.33	115,425.00	97.29	121,424.07	97.55
Fixed Costs [FC]								
Depreciation on fishing craft	1,129.37	0.85	1,180.90	1.10	1,232.44	1.04	1,175.17	0.94
Depreciation on fishing gear	696.30	0.52	675.00	0.61	752.78	0.63	765.33	0.61
Depreciation on other fishing accessories	1,109.26	0.83	1,053.33	0.95	1,234.88	1.04	1,117.91	0.90
Total Fixed Costs [TFC]	2,934.93	2.20	2,909.23	2.67	3,220.10	2.71	3,058.41	2.45
Total Cost [TC]	133,035.62	100.00	110,709.23	100.00	118,645.10	100	124,482.48	100
Total Revenue [TR]	394,556.00		363,233.00		396,160.00		385,527.59	
Gross margin [GM] (TR-TVC)	264,455.31		255,433.00		280,735.00		264,103.52	
Net Income [NI] (TR-TC)	261,520.38		252,523.77		277,514.90		261,045.11	
Profitability Index (NI/TVC)	2.01		2.34		2.40		2.15	
Benefit Cost Ratio (GM/TVC)	2.03		2.37		2.43		2.18	
Rate of return on investment (NI/TC)	1.97		2.28		2.34		2.10	
Capital Turn Over [CTO] (TR/TC)	2.97		3.28		3.34		3.10	

Source: Author's Computation, 2025

Challenges Faced by Artisanal Fish Farmers

Prominent constraints to fishing activities as identified by the fish hunters are as presented in Table 3. The estimated Relative Importance Index (RII) shows that in Lagos state, high cost of fishing crafts and gears scored the highest (0.9). This is closely followed by pollution of water bodies through oil exploration and industrial waste (0.8), high cost of fueling for fishing operations (0.8), disturbance of fishing operations by climatic extremes (0.8) and lack of storage facilities (0.6). Similar results were obtained for Ogun state, with high cost of fishing crafts and gears having the RII of 1.0 and this is followed by pollution of water bodies through oil exploration

and industrial waste (0.8), high cost of fueling for fishing operations (0.8), disturbance of fishing operations by climatic extremes (0.8) and lack of storage facilities and lack of storage facilities (0.7). The results for Ondo state followed the same pattern with that of the other two States earlier reported; high cost of fishing crafts and gears had the RII of 0.9 and this is followed by high cost of fueling for fishing operations (0.8), disturbance of fishing operation by climate extremes (0.8), pollution of water bodies through oil exploration and industrial waste (0.7) and lack of storage facilities (0.7). On the overall, the RII for each of the identified challenges was high, ranging from 0.7 to 0.9. These findings attest to the fact that the fish farmers faced some challenges in the pursuit of their means of livelihood. The findings in this study align with that of Amos *et al.* (2014) who established lack of finance as one of the important challenges facing artisanal fish farmers in coastal area of Akwa Ibom State in Nigeria.

Table 3: Challenges faced by artisanal fish farmers

Challenges	Lagos	Ogun	Ondo	Total
Pollution of water bodies through oil exploration and industrial waste	0.8	0.8	0.5	0.7
High cost of fueling for fishing operations	0.8	0.8	0.9	0.8
High cost of fishing crafts and gears	0.9	1.0	0.9	0.9
Disturbance of fishing operation by climate extremes	0.8	0.8	0.7	0.8
Lack of storage facilities	0.6	0.7	0.9	0.7

Source: Author's Computation, 2025.

Note: "RII" of [0.1-0.3] = Low (Less important), [0.4-0.6] = Moderate (Somewhat important), [0.7-1.0] = High (Very important)

CONCLUSION AND RECOMMENDATIONS

Artisanal fishing is very profitable in the study locations; however, the business is not without its constraints including high level of risks and uncertainties in terms of income fluctuations largely due to occurrence of climate extremes and other factors that influence fishing outputs. Based on the findings of the study, it is recommended that responsible policy and legislation should be put in place and implemented to discourage water pollution through petroleum exploration and industrial waste disposal to preserve aquatic resources for sustainable use. In addition, government should look into the issue of high fuel price so as to reduce its negative impacts on economic activities especially artisanal fishing.

REFERENCES

- Aderinola, O. J., Mekuleyi, G. O., Kusemiju, V., Adu, A. A. and Babalola, O. O. (2021). Climate change and fisheries: perspectives from small scale fishing community in Badagry, Lagos Nigeria. *Journal of Agriculture and Ecology Research International*, **22**(4):58-69.
- Adeparusi, E.O., Ajibefun, A. I. and Akeremale, E. O. (2003). Smoke-curing of fish by artisanal fisher folks in Ilaje, Ondo State, Nigeria. *Asset Series*, **3**(4):101-109.
- Akinwumi, F. O., Akinwumi, I. O. and Ogundahunsi, O. A. (2011). Characterization of artisanal fishery in the coastal area of Ondo State, Nigeria. *International Journal on Agricultural Science and Soil Science*, **1**(3):83-89.
- Ajao, A. O. (2006). *Economics of fish farming in Oyo State, Nigeria*. (PhD Thesis). Department of Agricultural Economics, Obafemi Awolowo University, Ile-Ife, Osun State, Nigeria.
- Amos, E., Akpan, U. and Ogunjobi, K. (2015). Households' perception and livelihood vulnerability to climate change in a coastal area of Akwa Ibom State, Nigeria. *Environ. Dev. Sustain*, **17**, 887–908. doi:10.1007/s10668-014-9580-3
- Anyanwu, D. C. Mkpado, M. and Ohaka, C. C. (2009). Economic analysis of artisanal fishing at River Niger Onitsha, Anambra state, Nigeria. *Agro-Science Journal of Tropical Agriculture, Food, Environment and Extension*, **8**(3):175 – 179.



- Federal Ministry of Agricultural and Rural Development (FMARD) (2021). *Effect of climate change on fisheries and aquaculture*. Accessed at <https://fdi.fimard.gov.ng/2021/10/21/effect-of-climate-change-on-fisheries-and-aquaculture/>. (Accessed Date: 15.12.2022)
- Igejongbo T. F. (2021). Socio-economic characteristics of artisanal fisher folks in Igbokoda Ondo State. *Association of Deans of Agriculture in Nigeria Universities (ADAN) Journal of Agriculture*, **2**(1):146-155. DOI:10.36108/adanja/1202.20.0141
- Kareem, R. O. I., Ayinde, I. A. I., Badmus, M. A., Bakare, A. H. and Alawode, O. O. (2012). Technical efficiency of artisanal fisheries in Ijebu Waterside of Ogun State, Nigeria. *Journal of Agricultural Economics and Development*, **2**(1):035-043.
- NBS. National Bureau of Statistics [NBS] (2017). National Bureau of Statistics: www.nationalbureauofstatistics.ng.org (Accessed Date: 17.05.2023).
- Saadu, M. and Tafida, A. A. (2017). Artisanal fisher folk's perception of the effects of variability in climatic factors on fish yield in Kainji Lake basin, Nigeria. *Journal of Agribusiness and Rural Development*, **4**(6):825-833. <http://dx.doi.org/10.17306/J.JARD.2017.00353>
- The Civil Resource and Documentation Centre [CIRDDOC] (2023). South West Zone. Available at cirddoc.org
- Theophilus, M. G., Anselm, A. E. and Stella N. C. (2015). Economic efficiency of artisanal fishing households under oil pollution environment in the Niger Delta Region of Nigeria. *Nigerian Journal of Agricultural Economics (NJAE)*, **5**(1):37- 45.