

GROSS MARGIN ANALYSIS OF CASSAVA ENTERPRISES BY PROJECT AND NON--PROJECT WOMEN FARMERS IN BENUE STATE, NIGERIA

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Abstract

This study has undertaken a comparative analysis of cassava enterprises by women farmers involved in the Benue Agricultural Development Project (ADP) and non-ADP women farmers. The main objective of the study was to assess the contribution of the Benue ADP to rural welfare and poverty reduction in the study area. Primary data for study were obtained using structured questionnaire administered to 87 ADP and 87 non-ADP respondents within the study area. Data analysis was through descriptive statistics (arithmetic mean, frequency distribution, and percentages), gross margin analysis, and the ordinary least square multiple regression technique. Comparative analysis of respondents' gross margins using t-tests showed that there was a significant difference between ADP and non-ADP gross margins because calculated t-value (108.4) was greater than critical value (1.645) at 5% level of significance. Significant variables in ADP respondents' gross margin regression were amount of output (Q), price of output (Pq), processing costs (Cp) and transport costs (Ct). Similarly, significant determinants of non-ADP respondents' gross margin were output (Q), price of output (Pq) and transport costs (Ct). Consequently, enabling respondents' access to better transport and processing facilities, better prices for their output and provision of production inputs would tend to maximize gross margin, improve welfare and reduce poverty in the study area.

Key words: gross margin, cassava enterprises, women farmers, agricultural development project

Introduction

Poverty is the overwhelming challenge to Nigeria's development efforts. Empirical evidence

indicate that despite Nigeria's great resource endowments, Nigerians are among the poorest people in the world (UNDP, 2005; Nsikakabasi and Ukoha, 2010), with over 70 per cent of the people living below the poverty line (Ogungbile, 2008). Not even the much celebrated improved macroeconomic performance since 2004 has positively impacted living standards in Nigeria (Eboh, 2011). Poverty in Nigeria, like in other developing countries has a predominantly female face, with women in the rural areas of the country suffering the harshest deprivation and extreme vulnerability to poverty (Dauda, 2002). Hence the International Monetary Fund (2004) concluded that women in Nigeria are likely to be poorer than men and have fewer options for escaping poverty.

Studies indicate that poverty trend and performance of the agricultural sector are somehow associated (Eboh *et al.*, 2006; Ayoola, 2009). Rates of poverty reduction have been very closely related to agricultural performance and countries that have increased their agricultural productivity the most have also achieved the greatest reductions in poverty. In Nigeria, Eboh *et al* (2006) confirmed this trend and established that negative annual agricultural growth from 1981-85 was accompanied by increase in poverty from 28% in 1980 to 43% in 1985. When, from 1986-90, the country recorded higher annual average agricultural growth of 6.7%, poverty reduced from 43% in 1985 to 34% in 1992. Later, a decline in annual average agricultural growth of 2.4% per annum in 1990-1996 was followed by increase in poverty from 34% to 65.6% in 1996. Consequently, IFPRI (2010) concluded that as the single largest employer among sectors employing about 70 percent of labor force (NBS 2006), and a key driver of recent growth in the country, the agricultural sector holds the most promise in reducing poverty in Nigeria.

Within the agricultural sector in Nigeria, women are the key stakeholders (Arene and Omoregie, 1991; Ijere, 1991; Ogbimi and Williams, 2001; Okoli and Umehali, 2008) contributing 60-80% of agricultural labour force, producing two-third of food crops and 80% of the food among others (Beets, 1990; World Bank, 1994). Their significant contribution to the Nigerian agriculture notwithstanding, the widespread assumption that men and not women make key farm management decisions has prevented women from benefiting significantly from resources released for agricultural development in Nigeria (Ijere, 1991; IFAD, 2001). This has constrained optimization of agricultural production in the country and ensured that majority of the women farmers remain poor, grossly overburdened, under empowered and underutilized (Okoli and Umehali, 2008).

Consequently, in recognition of the critical importance of the agricultural sector in Nigeria, and the need to reverse the negative trend in agricultural development, successive Nigerian governments have initiated and endorsed many national and international projects, programmes and policies aimed at rapidly growing the sector, and thereby reducing poverty (IFPR, 2010). Among these are the Agricultural Development Projects (ADPs). According to the National Agricultural Extension and Research Liaison Services (NAERLS, 1997), Atagher and Atagher (2014), the ADP strategy is based on the premise that a combination of factors comprising the right technology, effective extension, access to agricultural inputs, adequate market, and infrastructural facilities are essential to raise agricultural land productivity and improve the living standards of the rural dwellers (including women farmers).

Consequently, this study was undertaken to compare the gross margins of cassava women farmers involved in the Benue Agricultural Development Project (ADP women farmers) and others not involved in the project (non-ADP women farmers) to determine the effect of the project on poverty reduction in the study area. The hypothesis of the study was that there is no significant difference between ADP and non-ADP gross margins. GM is the excess of sales revenue over total variable costs or gross revenue minus total variable costs of selling or production. (Maroud et al, 2014).

Cassava (*Manihot esculenta* Crantz) was selected because of its identity as a women crop and the greatest poverty fighter among crops in Nigeria (Nweke, 2002; Fakayode *et al*, 2008), and a viable option for poverty reduction in Nigeria (Omokaro and Erhabor, 2006). Therefore, the cassava crop was found suitable for use in assessing the effect of the Benue ADP on welfare and poverty reduction among the women farmers, one of the most vulnerable groups in the study area. The main objective of the study was to compare the gross margins of cassava enterprises by women farmers involved in the Benue Agricultural Development Project (ADP) and non-ADP women farmers. This was to assess the contribution of the Benue ADP to rural welfare and poverty reduction in the study area. The hypothesis that guided the study was that gross margins from cassava enterprises of ADP and non-ADP women farmers did not differ significantly.

Methodology

Study area, sampling and data collection

This study was carried out in Benue State, Nigeria. The state with a population of 4,219,244

people (NPC, 2006) and a total land mass of 34,095Km² is located between longitude 8^oE and 10^oE, latitude. The state is in North central Nigeria and shares boundaries with Cross River, to the south, Enugu to the south West, Ebonyi to the south, Kogi to the west, Taraba and Nasarawa State to the East and North respectively. Benue State also shares an international boundary with the republic of Cameroon to the South East. Benue state is divided into 23 Local Government Areas and has three Agricultural Development Project zones. Benue State has abundant human and material resources since it is located in the rich agriculture land of the Guinea Savannah zone of the Nigeria. (BNARDA,2001). The primary data for study was obtained using structured questionnaire administered to 87 ADP and 87 non-ADP respondents within the study area.

Analytical technique

Data analysis was through descriptive statistics (arithmetic mean, frequency distribution, and percentages), gross margin analysis, and the ordinary least square multiple regression technique was used to identify the determinants of respondents' gross margin. Gross margin analysis is a kind of enterprise analysis which involves evaluating the efficiency of an individual enterprise or farm plan so that comparisons can be made between enterprises or different farm plans. Gross margin is one method of calculating profitability of small scale cropping enterprises (Olukosi, Isitor and Ode, 2006). The net farm income (NFI) is a measure of the total gross margin (TGM) minus the total fixed costs (TFC), but since fixed costs are usually negligible in Nigerian peasant agriculture, gross margin is just total value product minus total variable costs and can be used to measure farm income, and identify unprofitable enterprises (Nwosu, 2005). This study used gross margin analysis to determine and compare the profitability of farm enterprises operated by the ADP and non-ADP women farmers in Benue State.

Factors influencing respondents' gross margin from cassava enterprises were determined using the ordinary least square multiple regression model specified as: $GMCE = f(Q, Pq, TVCCp, Cp, Ct)$ e The implicit form is: $GMCE = (b_0 + b_1Q + b_2Pq + b_3TVCCp + b_4Cp + b_5Ct)$ e Where: GMCE =Gross margin from Cassava Enterprise (N),

Q = output in(N),

Pq = price of output (N),

TVCCp = total variable costs of cassava enterprise (N),

Cp = processing costs (N),

Ct = transport costs (N),

e = error term.

The lead equation was chosen on the basis of the level of the coefficient of multiple determination (R^2), the level of significance of the F and t-statistic(s), the correct signs and magnitudes of the coefficients relative to a priori expectations about them.

Results and Discussion

Socio-economic characteristics of respondents

Results showed that 90.8% of the ADP and 70.1% of the non-ADP respondents were below 50 years of age. Thus, about 70-90% of all women farmers studied were below the age of 50. This implies that respondents were young and energetic enough to farm. The importance of age distribution of farmers is because agriculture especially in the study area relies heavily on the use of human power and younger stronger people are better able to cope. From the ADP group, 78.2% of the respondents were married while 70.1 of the non-ADP group respondents were married. Overall, 96.4% of all the respondents were married; divorced or widowed. This implies that respondents are people married with responsibility out to fend for their families. Table 1 gives the details about respondents' socio-economic characteristics:

Among ADP respondents, 63.2% of had formal education while 36.8% did not have any formal education. Overall, 60-80% of all cassava women farmers sampled were educated while 20-40% did not receive formal education. Oladeebo and Ambe-Lamidi (2007) asserted that educated farmers are bound to be innovative and productive. Cassava women farmers in the study area had moderate family sizes. Seventy-seven percent (77%) of the ADP and 74.7% of the non-ADP respondents had family sizes below 10 while about 20% of ADP and 23% of non-ADP respondents had family sizes between 10-20 persons. A large family size is important in the supply of farm labor in farming communities especially in Nigeria where farmers depend mainly on manual labour. About 82.8% of the non-ADP respondents have never belonged to any farmers association. This shows clearly that the better organisation of the ADP respondents and their better positioning for development assistance since such assistance is channeled through organisations rather than through individual farmers. Results further showed that 71.3% and 58.6% of the ADP and non-ADP cassava women farmers respectively had been farming for close to 10 years and must have acquired the necessary experience for successful cassava production.

Table 1: Frequency distribution of respondents' socio-economic characteristics

Source: Field data, 2010

Variable	ADP Respondents		Non-ADP Respondents	
	Frequency	Percent	Frequency	Percent
Age				
?20	3	3.4	3	3.4
20-29	23	26.4	14	16.2
30-39	38	43.7	23	26.4
40-49	15	17.2	21	24.1
50-59	6	6.9	20	23.0
=60	2	2.3	1	6.9
Marital Status				
Married	68	78.2	61	70.2
Divorced	4	4.6	12	13.8
Widowed	12	13.8	11	12.6
Single	3	3.4	3	3.4
Education				
Non formal	16	18.4	32	36.8
Primary	35	40.2	29	33.3
Secondary	22	25.3	15	17.2
Tertiary	14	16.1	11	12.6
Family size				
=10	67	77.0	65	74.7
11-20	17	19.6	20	23.0
21-30	2	2.3	2	2.3
>30	1	0.1	-	-
Membership of farmers' cooperative				
Never been a member	33	37.9	72	82.8
Once a member	15	17.2	5	5.7
Currently a member	39	44.8	10	11.5
Farming Experience (years)				
=5	30	34.5	21	24.1
6-10	32	36.8	30	34.5
11-15	15	17.2	16	18.4
16-20	7	8.0	8	9.2
>20	3	3.4	12	13.8

Comparison of ADP and non-ADP Gross Margins

Table 2 gives the comparison of the mean gross margins of ADP (₦16,523.87) and non-ADP respondents (₦3,777.56) respectively. The non-ADP values are small confirming Agbamu (2006) that most women do not adopt innovations perceived as advantageous because of cost.

Table 2: Comparison of ADP and non-ADP Respondents' gross margins:

Variable	ADP Respondents			Non-ADP Respondents		
	Quantity(kg)	Price(N/kg)	Amount(N)	Quantity(kg)	Price(N/kg)	Amount
Akpu	255.27	20	5,105.40	144.45	20	2,889.00
Chips	486.98	23	11,200.54	205.39	23	4,724.16
Garri	189.78	45	8,540.16	168.95	45	7,602.75
GRCE			24,846.10			15,215.91
Variable costs (N)						
Planting materials			2,905.92			3,059.25
Fertilizer			1,900.30			1,850.10
Labour			2,000.30			3,000.00
Agrochemicals			400.00			570.00
Cost of Processing			516.00			1,448.80
Cost of transportation			600.00			1,500.20
TVCCE			8,206.23			9,479.35
GM(GMCE)			16,523.87			3,777.56

Source: Field Survey, 2010

In this study GM (GMCE) = GFR-TVCCE

Where: GMCE = Gross Margin from Cassava Enterprises

GRCE= Gross Revenue from Cassava Enterprises

TVCCE= Total Variable Costs of Cassava Enterprises

This is in line with Bello and Salau (2008) who reported that 49.7%, 26.0% and 16.4% of cassava women processors earned annual incomes between 15,000 Naira and above, 5,000-10,000 naira, and 10,000 -15,000naira respectively.

Comparative analysis of ADP gross margin and non-ADP gross margins using t- tests showed

that calculated t-value (108.4) was greater than critical value (1.645) at 5% level of significance. Therefore, the null hypothesis which stated that there was no significant difference between the gross margin of ADP and non-ADP cassava women farmers in Benue State was rejected and the alternative hypothesis accepted. This implies that there is a significant difference between the gross margin of ADP and non-ADP women farmers in Benue State. The significant difference in gross margin was attributed to the use of improved cassava production technologies and extension contact (provided by the Benue ADP) by the ADP cassava women farmers. This agrees with Odii (2003) that the use of improved agricultural technologies such as improved planting materials like cassava stems can improve farmers' productivity. This would tend to improve gross margin and reduce poverty particularly in the study area.

Significant variables in ADP respondents' gross margin regression were amount of output (Q), price of output (Pq), cost of processing (Cp) and cost of transportation (Ct). The coefficient for total variable costs of production (TVCCp) was negative and insignificant. This is in line with Erhabor and Omokaro (2008) that cassava can be produced profitably due to its comparative low labour requirements and tolerance of low nutrient levels among others. Besides, many farmers in the study area hardly weed or fertilize the crop sufficiently because of its tolerance to weeds, low fertility and adverse production environment, all of which significantly lowered production costs. Table 3 gives the summary of ADP Respondents' gross margin regression results.

Table 3: Determinants of ADP Respondents' Gross Margin

Variable	Coefficient	Standard error	t-value	Significance
Constant	2.512	1.430	1.757	0.083*
Output(Q)	0.573	0.101	5.647	0.000***
Price of Q(Pq)	0.061	0.016	3.855	0.000***
TVCCp	-0.119	0.092	-1.299	0.196
Proc Cost(Cp)	0.194	0.093	2.083	0.040**
Transpt Cost(Ct)	0.150	0.087	1.715	0.090*

R² = 0.478
Adjusted R² = 0.446
F- Ratio = 14.810

Source: Computed from Field Survey Data, 2010

The symbols ***, **, * means significant at the 1%, 5% and 10% levels respectively. The double –log function was selected as the lead equation for non-ADP respondents' gross margin. The Table 4 shows the results of non-ADP gross margin regression:

Table 4: Determinants of non-ADP Respondents'Gross Margin

Variable	Parameter	Standard Error	T-Statistic	P-Value
Output (Q)	0.115	0.015	7.67	0.000***
Price of output (Pq)	0.215	0.025	8.60	0.000***
Transport costs (Ct)	-0.115	0.015	-7.67	0.000***
Constant	13.282	1.000	13.28	0.000***
Adjusted R ²	= 0.444			
F-Ratio	= 13.282			

Source: Field Survey Data, 2010.

Significant variables in non-ADP respondents' gross margin were output (Q), price of output (Pq) and transport costs (Ct).

Observations from both ADP and non-ADP were pooled together and regressed against similar variables as above. The semi-log model was selected for the combined (pooled) gross margin. The F-ratio was 3.561 (P=0.004) and the coefficient of determination (R²) was 0.96. Significant variables of the pooled gross margin are output and cost of processing as shown in Table 5.

Table 5: Determinants of Respondents' Pooled Gross Margin.

Variable	Coefficient	Std. Error	t-value	Significance
Constant	-147031.556	56827.666	-2.587	0.011**
Output(Q)	7387.713	3660.181	2.018	0.045*
Price of Q (Pq)	610.436	727.830	0.839	0.403
TVCCp	-1291.893	4643.881	0.278	0.781
Proc. Cost(Cp)	10768.209	4596.092	2.343	0.020*
Transport Cost(Ct)	1638.339	1684.789	0.972	0.332
R ²	=0.964			
F- Ratio	= 3.561			

Source: Field Survey Data, 2010

Implication of the results

Combined gross margin regression of ADP and non-ADP respondents showed that only the coefficients of output and cost of processing are significant. This implies that at higher levels of production, 96.4% of variations in gross margin is explained by only the quantity of output produced and processing of that output. The implication is that any policy that will increase output and processing will also tend to increase gross margin and *vice versa*.

The regression coefficient for amount of output (Q) was positive and highly significant in all the regressions ($P \leq 0.01$) implying the positive significant contribution of amount of output to gross margin of respondents. This implies that producing more output will tend to increase gross margin among respondents and *vice versa*. Therefore, any policy that would enable women farmers to increase their output would tend to increase their gross margin and reduce poverty.

The coefficients for price of output (Pq) was positive and highly significant in both ADP and non-ADP regressions. The implication of this result is that appropriate pricing of cassava

output is necessary to improve farmers' gross margin, welfare and to reduce poverty.

The coefficient of total variable costs of cassava production (TVCCp) was negative and insignificant in all the regressions. This confirms empirical evidence that cassava can be cultivated profitably with low labour inputs (labour being a major component of production inputs) and has superior ability as a poverty fighter than other crops (Nweke, 2004; Omokaro and Erhabor, 2006; Fakayode *et al*, 2008). The implied policy is to encourage cassava production among low income rural dwellers in the country to reduce their poverty.

The coefficient of cost of processing (Cp) was positive and significant in all the three regressions implying the positive significant contribution of processing to gross margin. The policy implication here is that provision of more and better processing facilities would positively affect processing and gross margin. This suggests that provision of better processing opportunities for cassava women farmers will tend to reduce poverty and increase their standard of living.

The coefficient of cost of transportation (Ct) was positive and significant in both ADP and non-ADP regressions but not significant in the pooled regression. This implies that as volume of output increases, transport costs cease to significantly influence gross margin. This implies that respondents stand to enjoy cost economies in producing and transporting higher volumes of output.

In the combined gross margin regression, only the coefficients of output and cost of processing are significant. This implies that at higher levels of production, only the quantity of output produced and processing of that output significantly influence gross margin. The implied policy is to increase farmers' gross margin and reduce poverty among respondents through provision of production inputs and better processing facilities.

Respondents (ADP and non-ADP) identified poor pricing of output (44.3%), processing problems (43.1%), lack of credit (40.8%), soil fertility problems (38.5%), poor market infrastructure (30.5%), labour problems (29.9%), transportation problem (27.6%) as the major constraints to improved gross margin and welfare among them.

Conclusion

This study was carried out to determine and compare the gross margins, and identify the determinants of gross margins among women farmers involved in the Benue Agricultural Development Project (ADP) and non-project respondents. This was to determine the effect of the project on respondents' welfare. Cross sectional data randomly collected from 87 ADP and

87 non-ADP respondents drawn from the three agricultural zones in Benue State were analysed using descriptive statistics, gross margin and regression analyses. Results showed that there was significant difference between the gross margin of ADP and non-ADP respondents because calculated t-value (108.4) was greater than critical value (1.645) at 5% level of significance. Therefore, the null hypothesis that there is no significant difference between the gross margins of ADP and non-ADP women farmers in Benue State was rejected and the alternative hypothesis accepted.

Therefore, based on the findings of the study and the need to improve gross margin and living standards in the study area, the following recommendations are made:

Since the study found that the amount of output produced, price of output and costs of processing have highly significant positive effects on gross margin. Therefore, this recommends that cassava farmers should be provided with adequate production inputs, processing facilities and appropriate prices for their output to improve their gross margin and reduce poverty.

In addition, provision of credit, transport, market and other infrastructure would tend to improve gross margin and welfare on cassava farms in the study area and the nation at large.

References

- Agbamu, J.U. (2006) Adoption and diffusion processes for Agricultural innovation. Essentials of Agricultural communication in Nigeria. Malthouse Press Limited Lagos, pp47-81.
- Arene, C. J. and Omoregie, E.M. (1991). The place of Women in Agricultural Labour Force in Nigeria. *Beitrirop.I.andwirtsch.Vet.med.*29(1991)H.3.277-282.
- Atagher, M. M. and D. M. Atagher (2014). Assessment of availability of rural infrastructure, agricultural credit and cooking fuel among project and non-project women farmers in Benue State, Nigeria. *Journal of Agriculture and Veterinary Science (IOSR-JAVS)* Vol. 7, Issue 5 Ver III (May 2014) PP07-12.
- Ayoola, G. B. (2009). *Prodigies of Agricultural Economy and Policy. An inaugural lecture*, University of Agriculture, Makurdi. Inaugural Lecture Series No. 9
- Beets, W. C. (1990). *Raising and Sustaining the Productivity of Small Holder Farming Systems in the Tropics*. Agbe Publishing, Alkmaar Holland.
- Bello, M, and Salau, E. S. (2008). Resilience of indigenous knowledge as source of income generation and employment among rural women processing cassava in Doma Local Government Area of Nassarawa State NorthCentral Nigeria.
- Benue Agricultural and Rural Development Authority (2001) "The impact of Benue State Agricultural and Rural Development Authority on agriculture and rural development in Benue State". BNARDA Makurdi, Nigeria.

- International Institute for Tropical Agriculture (IITA) (2004). Nigeria cassava industry: Statistical Handbook, Ibadan, Nigeria.
- Dauda, R.O.S. (2002). Rural poverty in Nigeria: characteristics, dimensions, and trends. Nigerian Journal of Rural Sociology Vol. 4 No1 Dec. pp5-17.
- Eboh, E.C., Larsen, B., Oji, K.O., Achike, A.I., Ujah, O.C., Odu, M., Uzochukwu, S.A. and NZE C.C.P.(2006), "Renewable natural resources, sustainable economic growth and poverty reduction in Nigeria" AIAE Research Paper1. Enugu. African Institute of Applied Economics
- Eboh, E. C. (2011). Agricultural Economy of Nigeria: Paradoxes and Crossroads of Multimodal Nature. An Inaugural Lecture of the University of Nigeria delivered on January 27, 2011.
- Erhabor, P. O. and C. O. Omokoro (2008). Comparative Analysis of Marginal Productivity and Resource use among Cassava Farmers in Edo State. A Mitigating Measure against Food Insecurity. Proceedings of the 10th Annual National Conference of the Nigerian Association of Agricultural Economists held at University of Abuja on October, 7th -10th.
- Fakayode, S. B. Babatunde, R.O. and Ajao, R. (2008). Productivity analysis of cassava-based production systems in guinea savanna. American- Eurasian Journal of Scientific Research 3(1):33-39.
- IFAD (2001). Nigeria. available at: <http://www.ifad.org/media/press>,
- IFPRI (2010). Agricultural growth and investment options for poverty reduction in Nigeria. IFPRI Discussion Paper 00954. Development Strategy and Governance Division, 2010.
- Ijere, M. O. (1992), Leading Issues in Rural Development, ACENA Publishers, Enugu.
- International Monetary Fund (IMF, 2004). Nigeria poverty reduction strategy paper. National Economic Empowerment and Development Strategy. IMF Country Report No.05/433, Washington D.C.
- Maroude, E.M., Makeem, A. M. & Tarig E.M. (2014). Gross Margin Analysis, Constraints, Resource Allocation and competitiveness of Millet production and food security situation for small holders farming system in Semi-desert area in North Kordofan State, Sudan. International Journal of Education and Research, 2(8) 323-330
- National Agricultural Extension & Research Liaison Services (1997): Evaluation of the Effectiveness of Impact of the Training and Visit System in Nigeria. A Research Report submitted to Agric Project monitoring and Evaluation Unit (APMEU) of the Federal Department of Agric. 1 – 157.
- National Bureau of Statistics (NBS). Poverty profile for Nigeria. NBS, Lagos 2006. Available on line: <http://www.nigerianstat.gov.ng/connections/poverty/POVPreliminary>.
- Nigerian Population Commission (NPC, 2006). Census figure Abuja, Nigeria.
- Nsikakabsi, A.E. and O.O. Okoha (2010), "Analysis of poverty profile of rural households: Evidence from South –South Nigeria", Journal of Agriculture and Social Sciences. available at: <http://www.fspublishers.org> accessed on 12/10/2011.

- Nweke, F.I., D.S.C. Spencer and J.K. Lynam (2004). The cassava transformation: Africa's best kept secret. Michigan State University Press, Michigan, USA pp 231.
- Nwosu, C. S. (2005). Comparative Economics of Resource Use by ADP and Non-ADP Cassava Farmers in Orlu Agricultural Zone of Imo State, Nigeria. Proceedings of the 39th Annual Conference of Agricultural Society of Nigeria, University of Benin, October 9th – 13th, pp 1 – 4.
- Odi M.A.C.A. Effect of improved technologies on gender productivity in cassava production. *Journal of Agric. and Social Research*. JASR; 2003:3(1).
- Ogbimi, G. E. and Williams, S. (2001), “Gender Sensitivity and Marginalized Groups: Assessment of the Availability of productive Assets to Woman in Agricultural Development”, in International Colloquium on Gender, Population and Development in Africa, Abidjan on 16-21 July 2001.
- Ogungbile, A.O.(2008). "Poverty reduction and access to agricultural inputs". *Nigeria Association of Agricultural Economists. Economic and Policy Series* Vol.1 No.1 October p34-38.
- Okoli, P.I. and Umebali, E.E. (2008), “Revitalizing the Nigerian agriculture to meet the challenges of the 21st century” in proceedings of the 10th annual national conference of the Nigerian Association of Agricultural Economics held at the University of Abuja, Abuja p432-438.
- Oladebo, J.O. and Ambe-Lamidi A. I.(2007). Profitability, input elasticities and economic efficiency of poultry production among youth farmers in Osun State, Nigeria. *Int. J. Poult. Sci.* 6:994-998.
- Olukosi, J.O., Isitor, S.U, and Ode M,O (2006) Introduction to Agricultural Marketing and Prices: Principles and Application. Livingbook series, GU publications Abuja 115pp.
- Omokaro, C. U. and P. O. Erhabor (2006). “ Efficiency of resource-use in cassava production in Edo State, Nigeria ”. *Journal of Agriculture , Forestry and the Social Sciences. Vol.4 No.1 pp22-29.*
- United Nations Development Programme (2008). *Human Development Report*. Oxford University Press, New York.
- World Bank (1994). Enhancing women's participation in economic development. A World Bank Policy Paper. The World Bank, Washington D.C. pp12-15.