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Determinants of Productivity among Women in Development Activity: A Case Study of the Cassava Women Farmers of Benue Agricultural Development Project, Nigeria

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Authors' contributions

This research work was carried out in collaboration between all authors. Author AMM designed the study in conjunction with author ECO. Literature searches were jointly carried out by the authors. Author AMM collected data, carried out the analysis and wrote the draft of the manuscript. Author ECO supervised the work and edited the draft of the manuscript. All authors read and approved the final manuscript.

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ABSTRACT

The need to improve productivity and local production of cassava to meet internal demand, and the export drive in the Nigerian economy necessitated this study. Factors affecting productivity levels achieved by cassava women farmers of Benue agricultural development project (ADP) were investigated. Structured questionnaire were randomly administered to 87 ADP cassava women farmers across the three agricultural zones of the state. Data analysis was through descriptive statistics, total factor productivity and regression techniques. Results showed a total factor

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productivity of 2.66 across study farms implying that the respondents' farm enterprises were productive. Regression analysis indicated that the use of improved cassava stem cuttings (x_5), amount of agrochemicals used (x_6), farm size (x_7) and access to credit (x_9) significantly explained variations in the respondents' output. Therefore, the study recommends that enhancement of respondents' access to better farm sizes, credit, agrochemicals and improved cassava varieties would improve productivity across farms in the study area.

Keywords: Productivity; development activity; women farmers.

1. INTRODUCTION

Nigeria is a country with great natural and human resource endowments. The country has a population of 150 million, a land area of 98.3 hectares, other natural resources like petroleum, solid mineral deposits, and annual rainfall in the range of 300-4000 millimetres among others. These features imply that Nigeria is endowed with vast physical and human resource potential which could be harnessed for accelerated development of its agrarian economy [1,2]. Regretably, this has not been the case, as the agricultural and other potentials of the country have not been optimized particularly after the discovery of oil [3,4]. This coupled with the rapid rate of population growth have induced high levels of poverty in the country [5,2], such that over 70% of Nigerians are poor, and 67 million Nigerians live below the poverty line [6], with neither the means to produce food nor the income to buy food [7]. The agricultural sector has the highest concentration of poverty, as seven (7) out of every ten farming households in Nigeria are living below the national poverty line, and six (6) out of every ten (10) poor households are involved in agriculture [8].

To ensure the economy delivers on its potentials, the country has embarked upon several growth and development promoting initiatives with little or no success [9,10,8]. The apparent improved macroeconomic performance since 2004 has not translated into improved welfare for majority of Nigerians, a phenomenon which has been described as 'jobless growth' [8]. Hence, there remain huge challenges of sustainable growth, poverty reduction and the attainment of the millennium development goals (MDGs) [11].

Available evidence indicate that increasing agricultural productivity is perhaps the single most important determinant of economic growth and poverty reduction [12,13,1,2]. According to [14], raising the productivity of small farmers (such as Nigerian farmers) would not only increase their income and food security, but also stimulate the rest of the economy, and contribute to broad-based food security and poverty alleviation.

However, there is limited information to help economic planners and development partners to determine the factors that affect agricultural productivity in Nigeria. Such information can help identify major constraints to productivity growth and in formulation of suitable policies to overcome such constraints. This is particularly important now, that Nigeria is seeking ways to reverse past trends of poverty and economic stagnation to move the economy towards the path of accelerated economic growth and development. Studies show that women farmers contribute 60% of the labour force and 80% of food production in Nigeria [15]. Increasing the productivity of these women would make more food available both for consumption and export, providing the much needed income for national development. Therefore, this study has focused on identifying the determinants of productivity among cassava women farmers of Benue State Agricultural Development Project, Nigeria as a contribution towards poverty reduction and national development.

2. MATERIALS AND METHODS

2.1 Study Area, Sampling and Data Collection

The study area is Benue State, Nigeria. Benue State has a population of 4,219,244 [5] and a total land area of 34,095 km^2. The State lies between longitude 8°E and 10°E, Latitude 6°3°N and 8 °N. Benue State consists of 23 Local Government Areas grouped into three Agricultural Zones (A,B,C) [16]. The main crops grown in the State include cassava, yams, sweet potatoe, citrus, mango and oil palm. Other crops cultivated include rice, maize, millet, soyabean, beniseed, groundnut, sorghum, ginger, sugarcane among others. Benue State also

produces a great deal of livestock, forestry products and fish [17].

Multi stage sampling technique was adopted for the study. Stage one was the purposive selection of Benue State for the study since it is the largest cassava producing state in Nigeria [18]. Stage two was the purposive selection of two cassava producing local governments from each of the three agricultural zones in the state giving a total of six local governments. Stage three was the random selection of twenty-nine ADP cassava women farmers from the two local governments in each zone giving a total of 87 respondents. Data were collected on the respondents' personal characteristics such as age, level of education, marital status, household size, years of education, input and output data among others.

Descriptive statistics, total factor productivity and multiple regression techniques were used to analyse the data. The ordinary least square regression model was employed to estimate determinants of respondents' productivity. This was similar to the procedure adopted by [19]. The explicit form of the model was:

$$Y_c = bo+b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 +b_5X_5 + b_6X_6 + b_7X_7 + b_8X_8 + b_9X_9 + b_{10}X_{10}$$

Where

Y_c = Output of cassava in kilogrammes (kg), Xi = farming experience in years
X_2 = Years of education, X_3 = family size of respondent
X_4 = Amount of fertilizer applied (kg), X_5 = use of improved cassava stem cuttings
(dummy, 1 = improved, O otherwise)
X_6 = Amount of agrochemicals used (Litres), X_7 = farm size (hectares),
X_8 = Total amount of labour used (man-days),
X_9 = Access to credit (dummy, 1 = Credit access, O otherwise)
X_{10} = Access to extension advice (dummy, 1 = access, O otherwise).
b_0 = intercept, bi = regression coefficients of the various inputs used.
e = error term.

2.2 Concept of Agricultural Productivity, Its Measurement and Importance

Agricultural productivity is measured as the ratio of agricultural outputs to agricultural inputs used in production. Though individual outputs are measured by weights, their varying densities make measuring overall agricultural output difficult. Therefore, output is usually measured as the market value of final output [20]. Output values can be compared to different types of inputs such as capital, land and labour. These are called partial productivities measures. Commonly used measures are land productivity (yield) or output per unit of land. Labour productivity (output per economically active person (EAP) or agricultural person- hour). Yield is used to assess the success of new production practices or technology. Labour productivity is often used to compare productivities of sectors within or across economies. It is an indicator of rural welfare or rural living standards [21]. Agricultural productivity can also be measured by what is called total factor productivity (TFP) which is defined as the ratio of value of output over the values of inputs used in production. According to [22], total factor productivity or total productivity is the ratio of valued output (Q) to total variable costs of production (TVC). TFP=Q/TVC. Alternatively, TFP=Q/$\sum$ P_i X_i where $Pi_=$ unit price of the ith variable input, X_I = quantity of the ith variable input, $\sum$ = summation sign. On the importance of productivity to the economy, [23] maintained that increase in productivity can contribute to economic growth in several ways. Aside from providing more food, increasing the productivity of farms affects the country's prospects for growth and competiveness on the agricultural market, income distribution and savings, and labour migration to other sectors. Productivity increase can mean higher profits for management, transport and more revenue for government. When agricultural producers' income rises, they spend the money on non-agricultural items, thereby creating jobs for others throughout the economy. Similarly, [24] quoting International Food Policy Research Institute (IFPRI) sources stated that for every US $ 1.0 increase in agricultural output in developing countries, the overall economy grows by US $ 2.3.

3. RESULTS AND DISCUSSION

Personal Characteristics of Respondents

Table 1 shows that 3.4% of the respondents were below 20 years, 9.2% were above the age of 50 years while majority (87.3%) of the respondents were within the age category of 20-49 years. This implies that most of the respondents were in their active age and could successfully carry out agricultural activities. This

conforms to [25] that people between this age range are considered active and can still contribute to a productive enterprise. Table 1 further showed that altogether 96.6% of the respondents had been married at one point or the other, only 3.4% were single. This shows that the respondents in the study were married and thereby had family responsibility. The effect of this could enhance the determination to succeed in farming in order to provide for their family's needs.

Table 1 also showed that 18.4% of respondents had no formal education, 40.2% had primary education while 25.3% and 16.1% had secondary and tertiary education respectively. This shows that altogether 81.6% of the respondents were educated while 18.4% had no formal education. This is higher than the national average level of education and it is not surprising since the respondents were selected from women involved in innovative agricultural production (Benue agricultural development project). This high level of education among respondents could have a positive effect on productivity. This is in line with [26] that educated farmers are bound to be innovative and productive. Data analysis also showed that 77% of respondents had a family size of below 10 persons while 23.0% and 3.4% had family size from 10-19 and above 20 persons respectively. This indicates that the families are large enough to provide family labour especially during critical periods in cassava production.

Table 1 also indicated that 37.93% of the respondents had never belonged to any farmers' association while 62.07% had belonged to a farmers' association at one point or the other. Currently, 44.83% of respondents are members of farmers' association. This implies that respondents are aware of the benefits of farmers' associations and have suitably positioned themselves to receive development assistance since such assistance is normally channeled through farmers' groups. This is not surprising since involvement on an agricultural development project might have exposed the respondents to extension teaching on the benefits of belonging to farmers' associations. Belonging to a farmer's association is expected to contribute positively towards productivity improvement.

Table 1 shows that 34.5% of the respondents had been farming for not more than 5 years while 36.8% had been farming for 11-15 years, 17.2% of respondents had been farming for 16-20 years. Only 11.4% had been farming for more than 20 years. This indicates that majority of the farmers had been in cassava farming for many years and can be said to be experienced in cassava production.

Table 1. Frequency distribution of personal characteristics of respondents

Age of respondents (years)	Frequency	%
<20	3	3.4
20-39	23	26.4
30-39	38	43.7
40-49	15	17.2
50-59	6	6.9
≥60	2	2.3
Total	87	100.0
Marital status		
Married	68	78.2
Divorced	4	4.6
Widowed	12	13.8
Single	3	3.4
Single	87	100.0
Total years of education (years)		
No formal education	16	18.4
Primary education	35	40.2
Secondary education	22	25.3
Tertiary education	14	16.1
Total	87	100.0
Family size		
≤ 10	67	77.01
10-19	17	19.54
≥ 20	3	3.45
Total	87	100.0
Membership of farmer's association		
Never been a member	33	37.93
Once a member	15	17.24
Sill a member	39	44.83
Total	87	100.00
Farming experience (years)		
≤ 5	30	34.5
6-10	32	36.8
11-15	15	17.2
16-20	7	8.0
> 20	3	3.4
Total	**87**	**100.0**

Source: Field data, 2010

4. COSTS AND RETURNS OF RESPONDENTS

Table 2 shows the frequency distribution of average costs and returns (per hectare) of respondents in the study area. Planting

materials, labour, fertilizer and processing costs (in that order) constitute 89.3% of the total variable costs of production. The implied policy is that any reduction in these major items of cost would improve farmers' profit margins and welfare *ceteris paribus.*

Table 2. Frequency distribution of costs and returns of respondents

Item		Percentage
1. Sale of various cassava products	**(₦)**	
A. Akpu	5,105.40	20.55
B. Chips	11,200.54	45.08
C. Gari	8,540.16	34.37
Total valued output(q)	24,846.10	100.00
Costs		
I. Planting materials	2,905.92	31.2
Ii. Fertilizer	1,900.01	20.4
Iii. Labour	2,000.30	21.4
Iv. Agrochemicals	400.00	04.3
V. Processing costs	1,516.00	16.3
Vi. Transportation costs	600.00	06.4
Total variable costs (tvc)	9,322.23	100.0
Gross margin	**15,523.88**	

Source: Field data, 2010

4.1 Total Factor Productivity Analysis

Table 2 indicates a total revenue (Q)=₦24,846.16 and ihe total variable costs of production as (TVC)=₦9322.22.Therefore, total factor productivity (TFP)=Q/TVCC= ₦24,846.16/₦9322.22 =2.66. This result indicates that respondents' farm enterprises are productive and could contribute positively to respondents' welfare and poverty reduction since the benefits are close to three times the total variable costs of production. This result agrees with [27,28,29] that cassava generates high income for farmers and it is in line with [22] that cassava is the greatest poverty fighter among the various crops in Nigeria.

4.2 Determinants of Respondents' Productivity

The double log was selected as the lead equation for modeling respondents output. The value of the coefficient of determination (R^2) for the regression was 0.402 showing that 40.2% of the variation in output was explained by the variables included in the model. The value of F-ratio (7.619) was significant beyond 1% (*P* =.01) showing that the combined influence of the explanatory variables was strong (good fit). The major variables that explained variation in the output of respondents were use of improved cassava stem cuttings (*P* =.10), amount of agrochemical used (*P* = .05), farm size (*P* = .10) and access to credit (*P* =.05). Table 3 shows the determinants of respondents' output:

Table 3. Determinants of ADP respondents' output

Variable	Coefficient	t-value	Sig.
Constant	8.747	18.982	0.000
Farming experience (X_1)+	0.099	0.681	0.501
Years of Education(X_2)+	0.140	0.973	0.338
Family size (X_3)+	0.134	0.998	0.330
Amount of fertilizer (X_4)+	0.287	1.558	0.129
Improved cassava use(X_5)*	0.168	1.884	0.074
Amount of agrochemicals (X_6)**	0.326	2.478	0.018
Farm size (X_7)* +	0.247	1.917	0.064
Amount of labour used (X_8)+	0.222	1.123	0.270
Credit access (dummy) (X_9)**	-0.312	-2.093	0.044
Extension access (dummy)(X_{10})+	0.012	0.085	0.933

R^2 = 0.402, F- ratio = 7.619, Source: Field data, 2010

5. RESULTS

These results have a number of implications:

The coefficient of use of improved cassava stem cuttings (X_5) was positive and significant at 10% level. This implies that the use of improved cassava stem cuttings have a positive significant effect on output and productivity. This is according to a priori expectation since improved varieties are developed and distributed to farmers to raise their farm yields. This finding agrees with [30] that improvement in agricultural technology (such as improved seeds, stem cuttings) can lead to improvement in farm productivity. The policy implication is to develop and distribute more improved technologies to farmers to improve their farm yields, income and reduce poverty in the study area.

The coefficient of agrochemicals (X_6) was positive and significant at 5% level showing the positive significant contribution of agrochemicals (such as herbicides, pesticides etc) to respondents output. This also conforms with [30] who observed that use of agrochemicals can lead to output maximization. The coefficient of farm size (X_7) was positive and significant at 10%

level. This implies that unit increase in farm size will tend to increase output and vice versa. This result conforms to [31,32,33]. The result underscores the need for policies to enable women farmers to expand their farm sizes so that they can increase their production and reap the benefits thereof.

The coefficient of access to credit (X_9) was negative but significant at 5% level. This implies that the use of credit tends to reduce the output of respondents. This is contrary to a priori expectation of a positive relationship between access to credit and output. This result is contrary to [4] who reported a positive insignificant relationship between access to credit and output in their study of technical efficiency among women farmers in Kogi state, Nigeria. The reason for the negative result could be due to diversion of agricultural credit for non-agricultural uses. This was observed to be common in the study area where credit could be diverted to pay children's school fees, obtain chieftaincy tittles, perform burial ceremonies, pay hospital bills or even buy food for the family among others. This finding agree with [34] and [35] that women benefit little from agricultural services such as credit schemes, extension, land acquisition and technology that would improve their productivity. The policy implication here is mere extension of credit to farmers is not enough. There is a need for adequate supervision of credit recipients to ensure proper use of credit in order to achieve the desired objectives.

The respondents were also asked to identify the factors they consider as constraints to their productivity. They identified processing problems (46.%), poor pricing of output (37.9%), lack of credit (34.5%), soil fertility problems (31.0%), labour problems (28.7%), transport problems (27.6%) and poor market infrastructure (26.4%).

6. CONCLUSION AND RECOMMENDATION

This study was carried to identify the determinants of productivity among cassava women farmers involved in a development activity (Benue Agricultural Development Project) in Nigeria. Regression analysis indicated that 40.2% of the variation in output was explained by variables included in the model, while the F-ratio (7.619) was significant beyond 1% ($P<0.01$) indicating that the model was properly specified. Variables that significantly influenced respondents' productivity were use of improved cassava stem cuttings (X_5), amount of agrochemicals used (X_6), farm size (X_7) and access to credit (X_9). Furthermore, the total factor productivity (TFP) of 2.66 among respondents' cassava enterprises indicates that their enterprises were productive and capable of reducing poverty and improving their welfare.

Based on the findings of this study, the following recommendations are made:

Policies geared towards production and distribution of more improved cassava varieties, agro-chemicals such as herbicides, pesticides and enhancement of women farmers' access to land would improve productivity on cassava farms across the state and the country at large.

Policies to ensure proper supervision of credit given to cassava women farmers in the study area to ensure proper use would improve their productivity and welfare.

Provision of basic infrastructure such as goods rural roads, water supply, rural electricity, market infrastructure and agro-processing facilities that are situated in the rural areas would improve rural life, and stem rural-urban migration which is among the factors responsible for labour shortages in the study area.

There is a need to put in place pricing policies to ensure that cassava women farmers get adequately compensated for their efforts in cassava production. This would serve as an incentive for increased cassava production in the study area and would contribute positively towards poverty reduction, economic growth and development in Nigeria.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Ogen O. The agricultural sector and Nigeria's development: Comparative Perspectives from the Brazilian Agro-industrial Economy (1960-1995). Nebula. 2007;4(1):184-194.
2. Ayoola GB. Prodigies of agricultural economy and policy. Inaugural lecture. University of Agriculture, Makurdi, Inaugural Lecture Series No. 9; 2009.

3. Central Bank of Nigeria (CBN). Statistical bulletin. Central Bank of Nigeria, Abuja. 2005:16.
4. Yusuf TM, Adenegan KO. Technical efficiency among women farmers in Kogi State: A data envelopment analysis (DEA) Approach. Proceedings of the10th Annual National Conference of the Nigerian Association of Agricultural Economist Agricultural Technology held at University of Abuja on October, 7th -10th; 2008.
5. NPC (National Population Commission). Population Census of the Federal Republic of Nigeria. Analytical Report at the National Level, National Population Commission, Abuja; 2006.
6. Ogungbile AO. Poverty reduction and access to agricultural inputs. In NAAE Economics and Policy Series. 2008;1(1):34-38.
7. Ogundari K, Ojo SO. An examination of technical, economic and allocative efficiency of small farms: The case study of cassava farmers in State of Nigeria. Journal Cent. Euro. Agric. 2006;7(3):423-432.
8. Eboh EC. Agricultural Economy of Nigeria: Paradoxes and Crossroads of Multimodal Nature, An Inaugural Lecture of the University of Nigeria delivered on January; 2011.
9. Idachaba FS. The nature of the Nigerian food problem. Journal of Agricultural Science and Technology, University of Agriculture, Makurdi. 1991;1(1):1–7.
10. Nnadozie BC, Nwaru JC. Strengthening the private sector for sustainable poverty alleviation in Nigeria. Nigerian Journal of Rural Sociology. 2002;4(7):125-133.
11. UNDP (United Nations Development Programme). Human Development Report. New York Oxford University Press, NY; 2008.
12. Thirtle CX, Irz L, Lin V, McKenzie-Hill, Wiggins S. Relationship between changesin agricultural productivity and the incidence of poverty in developing countries. Report commissioned by DFID. Department for International Development London, UK; 2001.
13. Eboh EC, Larsen B, Oji KO, Achike AI, Ujah OC, Odu M, Uzochukwu SA, Nze CCP. Renewable natural resources, sustainable economic growth and poverty reduction in Nigeria. AIAE Research Paper1. Enugu. African Institute of Applied Economics; 2006 .
14. Lipton M. The family farm in a globalizing world: International policy research institute. Washington DC 2005. Available at @ www.ifpri.org/../ vp40.pdf
15. Food and Agriculture Organization. A cassava industrial revolution in Nigeria; 2004. Available at http://www.fao.org/
16. BNARDA. The impact of Benue State Agricultural and Rural Development Authority on Agriculture and Rural Development in Benue State. BNARDA Makurdi, Nigeria; 2001.
17. Ater PI. A comparative analysis of productivity response and poverty alleviation among beneficiaries of and non-beneficiaries of World Bank assisted dry season fadama enterprises in Benue State, Nigeria. BNARDA; 2003.
18. Olasunkanmi MB, Afolabi M, Daramola F. Enterprise combinations in cassava based food crop farming systems in Nigeria: evidence from Ogun State. Greener Journal of Agricltural Sciences. 2012;2(1):013-20.
19. Alabi OO, Adebayo CO. Net income analysis of onion producers in Zaria Local Government Area of Kaduna State Nigeria. Proceedings of the 10th Annual Conference of Nigerian Association of Agricultural Economists held at University of Abuja, Nigeria; 2008.
20. Owuor J. Determinants of agricultural productivity in Kenya. Paper presented at the conference on Strategies for Raising Productivity in Agriculture' Egerton University/Tegemeo Institute of Agricultural Policy and Development, May, 12, Nairobi, Kenya; 1998.
21. Ohajiana DO. Gender, farm size and relative efficiency in rice production systems in Ebonyi State, Nigeria: A profit function. Unpublished Ph.D Thesis, Federal University of Technology Owerri; 2000.
22. Fakayode SB, Babatunde RO, Ajao R. Productivity analysis of cassava-based production systems in guinea savanna. American-Eurasian Journal of Scientific Research. 2008;3(1):33-39.
23. Food and Agriculture Organization. Agricultural investment and productivity in developing countries. FAO Economics and Social Development Paper, No. 148, FAO Document Repository; 2007.
24. Ayoola JB. Economic assessment of fertilizer use and integrated practices for sustainability and productivity in Sudan

Savannah Zone, Nigeria. Proceedings of the 10th Annual Conference of Nigerian Association of Agricultural Economists held at University of Abuja, Nigeria; 2008.
25. Ogunlade I, Omokanye CG, Adeniji AA. An assessment of farmers' interest in university of ilorin poultry research result. Int. J. Poult. Sci. 2007;6:283-288.
26. Oladeedbo JO, Ambe-Lamidi AI. Profitability, input elasticity's and economic efficiency of poultry production among youth farmers in Osun State, Nigeria. International Journal of Poult. Sci. 2007;6:994-998.
27. Nweke FI. Cassava as a cash crop in Africa: A view point. IITA Research. 1997;14(15):26-27.
28. Enete AA. Middlemen and smallholder farmers in cassava marketing in Africa. TROPICULTURA. 2007;27(1):40-44.
29. Chukwuji OC. Corporate analysis of enterprise combination costs and returns in cassava based- food cropping systems in Delta State. Nigerian J. of Agric. and Biological Sc. 2007;127-31.
30. Odii MACA. Effect of improved technologies on gender productivity in cassava production. Journal of Agric. and Social Research. 2003:3(1).
31. Morris ML. How does gender affect the adoption of Agricultural innovations? The case of maize technology in Ghana. Journal of Agricultural Economics. 2001;(25):27-39.
32. Herath PHMU, Takeya H. Factors determining intercropping by rubber small scale holders in Sri Lanka: A logistic analysis. Journal of Agricultural Economics. 2003;29:159-168.
33. Damisa MA, Igonoh E. The adoption of integrated soil fertility management practice among women farmers: A logistic analysis. Journal of Agricultural Education and Extension. 2007;13(2):107 -116.
34. Chukwuone NA. Socio-economic characteristics of farmers affecting loan repayment in Enugu State of Nigeria. Unpublished M.Sc. Thesis, Department of Agricultural Economics, University of Nigeria, Nsukka; 2000.
35. Mbah. The role of women in the processing of rice in Ivo Local Government Area of Ebonyi State. Proceedings of the 10th Annual Conference of Nigeria Association of Agricultural Economics, 7 – 10th October held at University of Abuja, Abuja, Nigeria; 2008.

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