European Journal of Business and Management
ISSN 2222-1905 (Paper) ISSN 2222-2839 (Online)
Vol 4, No.19, 2012

www.iiste.org

Determinants of Productivity among Firms Producing Agribusiness-Based Raw Materials and Those Using Them for Production in Abia State, Nigeria

Onwumere, J., [1] A. Oko-Isu[2] ., A.U. Chukwu[3]

Department of Agribusiness and Management, [1, 2]

Department of Human Resources Management, [3]

College of Management Sciences,

Michael Okpara University of Agriculture Umudike, Abia State, Nigeria.

Email: meetjoe64@yahoo.com[1]; Okoisu.anthony@yahoo.com[2] and Chukwu.agnes@mouau.edu.ng[3]

Abstract

The study was designed to analyze the determinants of productivity among firms with specialization in producing and using agricultural products respectively in Abia State, Nigeria. Data were collected with structured questionnaire from 72 randomly selected firms comprising firms using and producing agricultural products respectively. Data were analyzed using simple descriptive statistics, chi-square and multiple regression analyses models. Results show that majority (56.25%) of firms using agricultural products are experienced and acclimatized to the investment climate of the area, 68.75% and 71.42% of the firms using and producing agricultural products respectively never borrowed their start-up capital, 87.7% and 100% of the firms producing and using of agricultural products in the study area have asset worth of N1-N10 million naira respectively and, there is a deep impression that marketing problems in conjunction with capital inadequacy (68.75%) have profoundly constrained the productivity of both firms. It further revealed that there is a significant difference between employee qualification and productivity and also a significant difference between on-job training and productivity of the firms. The multiple regression analysis showed that taxation and amount paid to employees was significant and negatively related to productivity whereas, amount invested in manpower and working condition of employees was significant and positively related to productivity. On the basis of the results, the study recommended among other factors, improved and good wages and salaries incentives to employees as a panacea for their continual stay with the firms. This will also boost their morale and enhance productivity.

Keywords: productivity, firms, producing, agricultural products.

Introduction

Global firm level agribusinesses may likely face multiple challenges over the coming decades. It must produce more food to feed an increasingly affluent and growing world population that will demand a more diverse diet, contribute

to overall development and poverty alleviation in many developing countries, confront increased competition for alternative uses of finite land and water resources, adapt to climate change, and contribute to preserving biodiversity and restoring fragile ecosystems. Climate change will bring higher average temperatures, changes in rainfall patterns, and more frequent extreme events, multiplying the threats to sustainable food security. Addressing these challenges requires co-ordinated responses from the public and private sectors producing and using agribusiness based in the countries at all levels of development.

Improving agribusiness productivity, while conserving and enhancing natural resources, is an essential requirement for increased global food supplies on a sustainable basis. The role of smallholder agribusiness in increasing agribusiness productivity growth sustainably will be crucial.1 Half a billion small farms firms produce most of the food consumed in developing countries but their productivity is generally lagging. The success of firms producing agribusiness based raw materials in increasing agribusiness productivity will have global implications in strengthening the resilience of food markets, enhancing food security, improving wellbeing, promoting sustainability and ensuring adequate raw materials for growing agribusiness enterprises (Interagency Report to the Mexican G20 Presidency **2012)**.

Given the population of firms at any given place, the effectiveness and efficiency are determined by the capacity to produce goods in form of raw materials, use the goods and services for consumption overtime. The capacity to produce goods and services depends upon three factors. Firstly, productive resources, secondly, the development of these productive resources and thirdly, the output produced by each unit of productive resources. It needs be noted that these factors are not independent. All organizations try to make the best use of these factors.

The growing global demand for food, feed and biofuel is well established. It is estimated that the world population will be 9.1 billion persons by 2050, up from the current population of 7 billion. More importantly, income growth will increase the quantity and change the composition of agribusiness commodity demand. The use of agricultural raw commodities in the production of biofuels will also continue to grow. Significant increases in production of all major crops, livestock and fisheries will thus be required. Estimates indicate that by 2050, agribusiness production would need to grow globally by 70% over the same period, and more specifically by almost 100% in developing countries, to feed the growing population alone, excluding additional demand for crops as feedstock by the biofuel sector (FAO, 2009a).

Throughout history, agribusiness productivity has shown high growth rates. Together with the expansion of the resource base, this has enabled food production to outpace population growth. For example, the Green Revolution resulted in an increase in food production from 800 million tonnes to more than 2.2 billion tonnes between 1961 and 2000 (FAO, 2011a).

Estimates of past and current productivity trends vary widely, and future productivity in the long run is difficult to project. The debate on whether global agribusiness productivity has slowed down or not has been taken up again as the need for significant increases in food production is more widely recognised. Some recent estimates suggest that total factor productivity (TFP), the most comprehensive measure of productivity reflecting the efficiency to turn all inputs into outputs, grew at an average rate of around 2% per year since 2000 across major world regions (Fuglie, 2012). The picture is more complex when looking at individual countries or sub-regions. Some large countries like Brazil, China, Indonesia, Russia and Ukraine have achieved much higher TFP growth rates than the corresponding regional average. Sub-Saharan Africa is lagging, but some countries like Cameroon, Congo, Kenya, Mali, Benin and Sierra Leone have achieved above average TFP growth rates in the 2000s, mostly attributable to policy changes (Yu and Nin-Pratt, 2011). The situation in Nigeria has feign not much better seeing the persistent lagging.

Productivity generally means different things to different people. Dance and Dransfield (1993) defined productivity of the system "as the amount of output that can be produced from a given set of inputs". They gave their definition as:

$$productivity = \frac{output}{input}$$

Furthermore, Imaga (1994) opined that "the output per unit of a factor of production is called the productivity". Druckker (1994) alluded that productivity means "the balance between all actors of production that will give the greatest output for the smallest effort", is productive if it achieves its goals and does so by transforming inputs to outputs at the lowest cost. As such, productivity implies a concern for both effectiveness and efficiency.

Following the overview of these various views of different authors, one can collectively define productivity operationally as it relates to the output per unit of input of manpower.

The factors affecting agribusiness productivity in Abia State has been articulated in in this paper. Abia State is almost wholly given to agribusiness activities and majority of the population are employed in this very activity. The overall objective of the study is to determine factors affecting agribusiness productivity. The specific objectives included to

i. determine the socioeconomic characteristics of the selected agribusiness enterprises
ii. ascertain the response of agribusiness productivity to manpower capacity development
iii. analyze factors that affect productivity

Methodology

The study area was Abia State of Nigeria which is located in the South Eastern Region of Nigeria. It lies within approximately latitude $4^{o}40^{1}$ and $6^{o}14^{1}$ North and longitude $7^{o}10^{1}$ and 8^{o} East. Abia State has 17 Local Government Areas and three agribusiness zones namely Umuahia, Aba and Ohafia. Two local governments from two agribusiness

zones were selected at random and they both captured both Urban and Rural areas. A total of 72 firms were selected randomly comprising firms producing and using agricultural products respectively.

Primary data were generated from well structured questionnaires, interviews and observations while secondary data were extracted from text books, magazines, seminar papers and reports. Data were analyzed with simple descriptive statistics, Chi-square and multiple regression analysis.

The chi-square analysis is presented as follows:

$x^2 = \frac{\Sigma(o-e)^2}{E}$ Where,

$O = observe$

$E = Expected$

$x^2 = symbol\ of\ Chi-square$

$\sum = summation$

Expected frequency, $e = \frac{row\ total\ X\ column\ total}{ground\ total}$

The model for the regression analysis is presented as follows:

$$Y = b_o + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + b_5x_5 + b_6x_6 + b_7x_7 + b_8x_8 + e$$

$Y =$ Agribusiness productivity measured in naira

$x_1 =$ Manpower capacity development (amount Spent in naira per man power capacity development)

$x_2 =$ Location (Urban =1, rural =0)

$x_3 =$ Number of Staff

x_4 = Salary (Naira)

x_5 = Technology (Modern =1, Old =0)

x_6 = Expenditure (Naira)

x_7 = Access to credit (Naira)

x_8 = Value of Asset (Naira)

e = Error term

b_0 = Intercept

$b's$ = Coefficient of Xs

Results and discussion

Socio-economic characteristics of the selected agribusiness firms

The socio-economic characteristics of agribusiness firms using agricultural products and firms producing agricultural products were analyzed and are hereby discussed in this section.

Table 1 showed that 56.25 percent of the agribusiness firms (enterprise) using agricultural products had existed for 5-8 years. This implies that majority of the firms are experienced agribusiness firms following the number of years of existence. Also 48.21 percent of the firms producing agricultural products had existed for about 5-8 years. This implied also that the firms are acclimatized to the investment climate of the area and have experience having stayed for long years.

Table 2 shows that 68.75 the percent and 71.42 percent of the firms using and producing agricultural products respectively never borrowed their start-up and running capital. However, their capital was provided through owner means. This result indicates strongly that the firms are still far from the organized and formal systems of financial market transactions hence limited in capital access. This portends a serious backwardness from the current trend of

business operations. However, only 31.25 percent and 28.57 percent of the firms using and producing agricultural products respectively were involved in borrowing from organized financial institutions. Thus, far, only very few of the agribusinesses sourced and borrowed money formally from the financial markets.

Table 3 shows that 87.7 percent of the users and producers of agricultural product firms have asset worth of ₦1- ₦10 million respectively. The result implied heavily that majority of the firms have their asset value to the tune of ₦1-₦10million.

There are only very few (12.5percent) firms, being firms using agricultural products which have asset holdings worthing up to ₦44 million to ₦54million. This result impressed heavily that these agribusiness business firms are within the operating stages of small and medium scale enterprises. Thus a lot of effort is still needed to boost their capital to the status of large scale enterprises.

Analyses of the constraints hampering the productivity of firms producing and using agricultural products respectively

From table 4 there is a deep impression (68.75percent) that product marketing problem has greatly hampered the activities of the agribusiness firms using agricultural products in the area. The same factor inconjuction with capital inadequacy have profoundly constrained the productivity of firms producing agricultural products. The least (12.5 percent) limiting factors in terms of the productivities of the firms are taxes and levies burden for firms using agricultural products. Whereas, government policies, political environment and labour conflicts constituted the least (1.78 percent) limiting factors on productivity of firms producing agricultural products.

Analysis of the response of agribusiness productivity on manpower capacity development of firms specialized in producing and using agricultural products respectively

Table 5 shows that X^2 calculated (66.33) is greater than X^2 tabulated (23.7) indicating that there is significant difference between employee qualification and productivity. This difference could be as a result of the amount of capital, time, and skills invested in manpower development, which actually should enhance the productivity of the firm to attract reward to labour in future. Thus the result was expected.

Table 6 shows that X^2 calculated (37.556) is greater than X^2 tabulated (3.84) which indicated that there is significant difference between on- job training and productivity of the firms. This implied that more investment is made on on-job skill acquisition, thus experience is enhanced and also, productivity will improve also among the firms.

Analysis of factors that affect agribusiness productivity

To ascertain factors affecting agribusiness productivity, multiple regression analysis was used and the result is presented in the table 7

The value of R^2 which is 0.769 implying that 76.9 percent of the variation in the dependent variable is accounted for by the independent variables included in the model. Amount paid to employee and taxation was significant and negatively related to productivity while amount invested in manpower was significant and positively related to productivity. These results indicate that amount paid to employees increased, productivity. This result is consistent with management theorist assumptions on motivation which specifically stated that people are motivation by their desire for money, security and good working condition (Dada, 1991). However, the demerits of the assumption state that good pay and good working conditions were found to prevent dissatisfaction and loss of staff but did not increase performance in them (productivity). Amount invested in manpower development was significant at 5% and positively related to productivity. Increase in productivity could be as a result of the fact that management (owners) of firms involved in this research work are making efforts necessary for the achievement of goals of the agribusiness organization. This effort Obong (2007) called motivation which will subsequently enhance greater productivity and hence higher profit.

Working conditions was significant at 1 percent risk level and positively related to productivity. This indicates that as working condition of employees increased, the production also increased. The result is consistent with the findings of Obong (2007) who stated that people are motivated by their desire for money, security and good working condition. The greater the good working condition, the better the productivity.

Taxation was significant at 5 percent risk level and negatively related to productivity. This indicates that as taxation increased, productivity decreased, vice versa. Taxation could be likened to a leakage from the agribusiness firms. The greater the leakage in form of taxation the less the amount available for investment. The less the amount available for investment and re-investment the less the quality of inputs to be used for further production. The less the inputs and motivational resources, the less the productivity.

Conclusions

The study analyzed the determinants of productivity among firms with specialization in producing and using agricultural products respectively in Abia State, Nigeria. The study revealed that productivity is influenced by, the years of existence of the firms, their borrowing behavior, asset worth and the constraints of product marketing. There is also a significant difference between employee qualification and productivity and also a significant difference

between on the job training and productivity of firms. It also affirms that amount paid to employee and taxation was significant and negatively related to productivity. However, amount invested in manpower and working conditions of employee was significant and positively related to productivity. Therefore, policies that tend to reduce tax incidence and burden on firms with specialization in producing and using agricultural products is necessary. Wages and salaries of employees of firms with specialization in producing and using agricultural products should also be increased because employees are very likely to move to another job with better pay and benefits.

References

(2012)

Dance Needham and Rob Dransfield (1993), Businness, London, Heineman Educational Books Publishing LTD

Drucker .F. Peter (1994), Management: Task, Responsibilities, Practices, London: Butterworth-Heineman Publishing LTD

Drucker .F. Peter (1999), The Practice of Management, London Butterworth-Heineman Publishing LTD.

FAO (2009a), Investment, High-Level Expert Forum on How to Feed the World, 12-13 October, Rome.

FAO (2011a), *Save and Grow: A policymaker's guide to the sustainable intensification of smallholder crop production*, Rome.

Fuglie, K.O. (2012), "Productivity Growth and Technology Capital in the Global Agricultural Economy", in Fuglie, K.O., S.L. Wang, and V.E. Ball eds (2012), *Productivity Growth in Agriculture: An International Perspective*, Oxfordshire, UK: CAB International.

Imaga E.U.L (1994), Theory and Practices of Production Management, Lagos: Ari-Trade International Limited (Publishers).

Interagency Report to the Mexican G20 Presidency With contributions by Bioversity, CGIAR Consortium, FAO, IFAD, IFPRI, IICA, OECD, UNCTAD, Coordination team of UN High Level Task Force on the Food Security Crisis, WFP, World Bank, and WTO.

Jones Govereh, T.S. Jayne, and James Nyoro smallholder commercialization, interlinked markets and food crop productivity : cross-country evidence in eastern and southern Africa. June 1999. Paper published by the Department of Agricultural Economics and the Department of Economics, Michigan State University (MSU).

Nwachukwu C.C (1988), Management Theory and Practice, Owerri: African Fep. Publishers Limited.

Obi E.C (2001), Management: Basic Theories and Practice, Aba: Matik Education Books.

Weihrichs Heinz and Harold Knontz (1994), Management: A Global Perspective, Hightstown: McGraw Hill Inc. (Publisher).

Table 1: Distribution of agribusiness firms according to the number of years of existence

	Firms using agricultural products		firms producing agricultural products	
Years of existence	Frequency	Percentage	Frequency	Percentage
1-4	5	3.25	19	33.93
5-8	9	56.25	27	48.21
9-12	2	12.5	5	8.93
13-16	-	-	2	3.57
17-20	-	-	1	1.79
21-24	-	-	2	3.57
Total	163.25	100	56	100

Source: Field Survey

Table 2: Distributions of firms by capital borrowing behaviour of agribusiness firms

	Firms Using Agricultural Products		Firms Producing Agricultural Products	
borrowing	Frequency	Percentage	frequency	Percentage
Yes borrowing	5	31.25	16	28.57

No borrowing	11	68.75	40	71.42
Total	16	100	56	100

Source: Field Survey

Table 3: Distribution of agribusiness firms according to asset worth

	Firms using Agricultural Products		Firms Producing Agricultural Products	
Asset worth (N)	Frequency	Percentage	frequency	Percentage
1-10,000,000	14	87.5	56	100
11,000,000-21,000,000	-	-	-	-
22,000,000-32,000,000	-	-	-	-
33,000,00-43,000,000	-	-	-	-
44,000,000-54,000,000	2	12.5	-	-
Total	16	100	56	100

Source: Field Survey

Table 4: Distribution of agribusiness firms according to constraints category

	Firms using Agricultural Products	Firms Producing Agricultural Products

Constraints	Frequency	Percentage	frequency	Percentage
Exorbitant input cost	6	37.5	8	14.28
Labour conflicts	5	31.25	1	1.78
Product market problems	11	68.75	20	35.71
Burdens of levies and taxes	2	12.5	6	10.71
Capital inadequacy	6	37.5	20	35.71
Shortage of skilled labour	-	-	5	8.92
Government policies and political environment	-	-	1	1.78

Source: Field Survey

Table 5: Test of significant difference between employee qualification and productivity

Variable	X^2	X^2 tab	Df	Decision	Remark
Productivity	66.33	23.7	14	If X^2cal > X^2tab, reject H_O and accept Ha, otherwise reject Ha and accept Ho	significant

Source: Field Survey

Table 6: Test for significant difference between training and productivity

Variable	X^2	X^2 tab	Df	Decision	Remark
Productivity	66.33	23.7	14	If X^2cal > X^2 tab, reject H_O and accept Ha, otherwise reject Ha and accept Ho	significant

Source: Field Survey

Table 7: Result of estimation of factors affecting agribusiness productivity.

Variable	Linear	Exponential	Semi Log	+ Double log
Constant	658534.95	12.658	368468.64	11.867
	(1.649)*	(5.336)***	(0.340)	(2.911)***
Year of establishment	-6502.849	0.019	-17547.52	0.474
	(-0.292)	(0.146)	(-0.076)	(0.547)
Amount paid to employee	6.524	-1.87E-007	-39275.40	-0.374
	(3.980)***	(0.483)	(0.919)	(-2.333)**
Income	142	3.48E-007	54454.152	0.378
	(5.587)***	(2.3021)**	(1.507)*	(0.010)
Location	-59812.96	0.021	-113052.0	0.469

	(-0.349)	(0.021)	(-0.460)	(0.514)
Amount invested in manpower	1839.589	-00.001	166359.14	0.983
	(2.718)***	(-0.137)	(1.342)	(2.109)**
Working condition	322594.99	-3.818	-632041.7	5.738
	(8.700)***	(-2.712)***	(-1.745)**	(4.218)***
Taxation	-2.184	-3.83E-006	55572.94	-0.701
	(-4.144)***	(0.295)	(-0.076)	(-2.007)**
Borrowing	-157405.2	-0.833	80139.122	0.070
	(-0.975)	(-0.869)	(0.336)	(0.938)
R^2	0.657	0.491	0.313	0.769
R^{n2}	0.543	0.231	0.84	0.592
F–ratio	5.756***	2.894***	1.369	4.346***

Source: Field Survey

+=Lead equation

*=Significant at 10%

**=Significant at 5%

***=Significant at 1%

This academic article was published by The International Institute for Science, Technology and Education (IISTE). The IISTE is a pioneer in the Open Access Publishing service based in the U.S. and Europe. The aim of the institute is Accelerating Global Knowledge Sharing.

More information about the publisher can be found in the IISTE's homepage: http://www.iiste.org

CALL FOR PAPERS

The IISTE is currently hosting more than 30 peer-reviewed academic journals and collaborating with academic institutions around the world. There's no deadline for submission. **Prospective authors of IISTE journals can find the submission instruction on the following page:** http://www.iiste.org/Journals/

The IISTE editorial team promises to the review and publish all the qualified submissions in a **fast** manner. All the journals articles are available online to the readers all over the world without financial, legal, or technical barriers other than those inseparable from gaining access to the internet itself. Printed version of the journals is also available upon request from readers and authors.

IISTE Knowledge Sharing Partners

EBSCO, Index Copernicus, Ulrich's Periodicals Directory, JournalTOCS, PKP Open Archives Harvester, Bielefeld Academic Search Engine, Elektronische Zeitschriftenbibliothek EZB, Open J-Gate, OCLC WorldCat, Universe Digtial Library , NewJour, Google Scholar