EFFECTS OF TRACTORIZATION ON PRODUCTIVITY OF MAIZE/CASSAVA FARMS IN ADAVI LOCAL GOVERNMENT AREA OF KOGI STATE, NIGERIA

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ABSTRACT

Manual land preparation involves a lot of stress and inefficiency. It reduces the productivity of labour considerably but conserves the soil. On the other hand tractorization has been associated with increased profits and increased labour productivity, even though the soil (particularly the fragile soils of tropical Africa) becomes exposed to harsh and damaging conditions. So tractorization can improve farm productivity but can also jeopardize the long term sustainability of the soil. This paper is a report of an investigation into whether tractorization really makes a difference in farm productivity in Nigeria. If it does how much?. Finally what is the implication of this for the agricultural soil environment? This paper investigates these questions using primary data collected from forty food crop farmers in Kogi State, Nigeria. Twenty of the sampled farmers practiced tractorization and twenty did not. Net profit analysis, productivity ratios, difference of means, and regression analysis were used to answer the questions posed by the paper. The study concludes that the productivity of mechanized farm is significantly higher than that of non- tractorization farms. It however cautions that a large scale adoption of tractorization by food crop farmers in Nigeria may put a negative pressure on the soil environment.

KEYWORDS: Tractorization, Farm Productivity and Environment.

INTRODUCTION

State of Food Production in Nigeria

Nigeria agriculture has been severely handicapped in its attempt to meet the historical challenge of providing the basic needs of the people. Since 1982 the country's agricultural production level has declined greatly to the extent that it is unable to provide the citizens with cheap and adequate food and necessary raw materials for her agro-allied industries. Firstly, majority of primary food producers in Nigeria are the small scale farmers with farm sizes ranging from 0.10-5.99 ha and their output constitute about 90% of the total food available for consumption

(Agunbiade, 1994). Furthermore, the nations agricultural sector has suffered low production due to the neglect of the sector, poor production techniques, subsistence level of production, low extension network, pest and disease prevalence as well as rural-urban migration of young men. It is now obvious that food production is increasing at a decreasing rate thereby creating a gap between population growth and food supply.

Tractorized Agriculture in Nigeria

Despite the vast human and natural resources in the nation, Nigerian agriculture has been based largely on rural labour force using simple traditional implements such as hoe and cutlass on small and scattered farm holdings. In the beginning, operations such as land clearing and other tillage practices are done manually with the use of cutlasses and hoes. Manual land preparation involves a lot of stress and inefficiency on the field. It wastes a lot of time and lesser areas or land can be covered within a limited time compared to when tractors are used. The productivity of labour is reduced on non-mechanized small farms, labour involvement in all operations is about 90.0% while the labour requirements in mechanized farms constitute 50-60% of farm operations. Arnon (1999) opined that this kind of agriculture based on abundant cheap labour doing back-breaking work perpetuates a low standard of living. Later improvement was made upon the manual method by the introduction of animal traction, that is the use of animal drawn implement. This is most prevalent in northern part of the country.

Today, farmers are taking serious look at the possibility of mechanizing their farming activities in an effort to increase their productivity. Mechanization is conceived in different light by different authors. According to Nwoko (1998) the Nigeria policy makers had accepted agricultural mechanization basically as tractorization and the use of tractors to execute farm operations. Arnon (1999) defined Agricultural Tractorization as the composition of farm operation within minimum use of resource within the shortest time, at a low cost and increasing quality, while Culpin (1994) defined Agricultural Mechanization as "The art and scientific application of mechanical hands for increasing production and preservation of food and fibre with less drudgery and increased efficiency." In his own contribution, Anazodo (1996) stated that agricultural mechanization is the process of development and introduction of mechanized assistance of all forms and at any level of sophistication in agricultural production in order to reduce human drudgery, improve timeliness and efficiency in various farm operations bringing more land into cultivation, preserve the quality of agricultural products and provide better rural sector.

The traditional agricultural production pattern cannot sustain the people. Thus agricultural production has to be mechanized for increased output. Tractorization leads to increase in profit and also saves time. There is also a sociological need to take much of the hard and tedious labour out of agriculture and give it a modern image to attract young educated people and stop the drift to the towns.

Problems Statement

According to literature, land availability has not been a serious constraint to hectarage expansion in most parts of Nigeria (Alimi, 2001 and Aromolaran, 2002). Despite this, the production of food and the area of land put to cultivation of food crops have been on the decline.

Corroborating this view, Okuneye (1996) reported that most Nigerian farmers cultivated between 1-3 hectares of land. Table 1 provides information on tonnage and hectarage of major food crops in Nigeria between 1985 and 2000.

Table 1: Output (000 tones) and area (000 hectares) of major crops in Nigeria 1990 - 2007

Crops	1990		1995		2000		2005	
	Qty	Ha	Qty	Ha	Qty	Ha	Qty	Ha
Maize	1332	1771	612	675	1190	559	2205	2066
Millet	2550	4250	2354	3784	3684	3786	3365	3270
Sorghum	2920	4867	3346	5286	4991	4718	4019	3680
Rice	504	293	105	53	196	91	461	230
Cassava	2324	232	942	103	1378	122	3675	289
Yam	8620	776	5248	450	47738	335	7813	732
Coco yams	504	89	208	34	205	36	631	123
Potatoes	28.0	2.0	40.0	2.9	42.0	3.0	54.0	3.8
Plantain	1016	93	1042	95	1113	1016	1972	180
Groundnut	449	1477	674	709	621	621	862	985
Cowpea	858	4663	510	1065	611	1275	1354	2827
Soya beans	65.0	170.0	75.0	195	60.0	2050	146.0	418.0
Tomatoes	N.A	N.A	N.A	N.A	N.A	N.A	642	52
Wheat	18.0	12.5	24.0	14.9	27.0	12.2	303	216
Vegetable	1302	409	972	305	1120	351	1761	553
Melon	208	290	94	131	147	205	208	290
Total area	19394.5		12902.8		12420.8		15862.8	
% of total available land	26.4		17.55		16.90		21.58	

Source: Central Bank of Nigeria Statistical Bulletin Vol.1 No.1 & 2, 2006

From Table 1, it could be seen that the total area of land put to cultivation of food crops in Nigeria was on the decrease between 1985 and 1995 but picked up fairly between 1995 and 2000 due probably to increased adoption of mechanized farming. According to Durojaiye (1989), the introduction and subsequent adoption by farmers of certain mechanical innovation can alleviate the problem. Mechanical innovation increases hectarage cultivated per farmer. This had motivated the Kogi State Government two years ago to acquire twenty one tractors, which were distributed among the Local Government Areas in the state. Most farmers could not afford to buy the tractors. Hence tractor hiring units were thus established. The management of these units was however varied, in some cases the unit provides the equipment and the farmers paid a fixed rate per hectare or hour of service while in others, the tractors were hired out to contractors.

Moreover, farmers would only be attracted to tractorization if there were enough economic justification for it. It is, therefore, worthwhile to find out whether farmers who tractorized actually have economic advantage over those who do not and to consider the environmental implications of this economic advantage if it exists. This study was directed at maize/cassava mixed crop farmers being one of the most commonly practiced.

The Study Objective and Hypothesis

The study set out to assess the impact of tractorization on productivity and economic efficiency on food crop farms and its implication on the environment. The major null hypothesis to be tested is that: "there is no productivity difference between tractorized and non-tractorized food crop farms in Kogi State"

Tractorization, Food Production and Agricultural Productivity in Nigeria.

Evolving large-scale agricultural production via mechanization is basically a developmental process and therefore will require an all embracing strategy on the part of the government and the entire citizens of this nation, for its effective realization. However, before any meaningful progress can be made, there is the need to identify and appraise the "state of the art" as regards the concept of mechanization/ tractorization in Nigeria. Anazodo (1990) and Aderounmu (1997) support the purpose of mechanization as it increases land area cultivated, greater yields, reduced labour requirement, reduced losses, removal of drudgery and heavy demand on human muscle as energy source, reduction in cost of production, planting at optimum dates resulting from timely operation, increased dignity of farming and increased agro-service activity among others. Kline et (1999) asserted that there is a great demand for the use of improved tools and machines by farmers in all the countries of Africa. Aderounmu (1997) was of the view that no realistic change can be expected from the present native Nigeria agriculture or from the drudgery attached to the existing hoe and cutlass technique of cultivation. Agunbiade (1994) observed mechanization as the only acceptable element in the country's programme of rural development. According to him, rural development involves a wide range of innovations; suitable among them, he observed was mechanical farming. He identified mechanization as a technological innovation aimed at improving agricultural productivity, increase marketable surplus and cash incomes. He however hoped that by mechanized farming the rural region income differential and associated rural/urban drift will be alleviated with increased per capita income.

Apart from the negative environmental effects, mechanization in food crop production in Nigeria is confronted with numerous problems, which has restricted its wide adoption. Obrad (1999) itemized some of the constraints. First is the fact that agricultural commodity prices are too low to permit the purchase of heavy farm machinery. Secondly, farm plots are usually two small to allow for the use of farm machinery and thirdly, erratic fluctuation in prices of both fuel and spare parts often make the use of mechanized equipment difficult if not impossible. In view of these, Bineswanger (1998) asserted that mechanization is not profitable to conditions of small peasant agricultural production especially in relation to the small size of the farm. Mechanization should not be viewed as an end in itself but as a means to other ends. There is therefore the need to engage in the intensive study of mechanization as a means of increasing agricultural output in Nigeria.

RESEARCH METHODOLOGY

Study Area

The entire Adavi Local Government Area constitutes the study area. This is political and not geographic division. It is located in a valley with a landscape of picturesque and breathtaking hills.

The Local Government Area is made up of two administrative districts and seven wards: The districts are Adavi-eba which consist of Kuroko, adavi-eba, Ebogogo, Karaworo, Ipaku, Osisi Ohuogogo/Ateba words while Ogaminana district consist of Inorere, Nagazi uvete, Nageze eba, Oziokutu, idanuha, Okounchi and Itape wards: The inhabitants are predominantly the Ebira of Anebira race. There are some other tribes that co-exist together with the people in the local Government Area.an. However, the mountainous topography of most parts of the area has limited, to a certain extent, agricultural activities in the local government area.

Many food crops such as cassava, yam, maize, Beniseed, guinea corn, soya-beans, vegetable are grown in the study are: The local Government Area also boasts of some cash and export crops like cashew, palm-kernel, castor oil nuts etc.

Adavi, the local government headquarter is a cosmopolitan settlement with a densely clustered population and rightly referred to as the commercial nerve-centre of Kogi state with potentials to serve all the middle-belt zone in commercial activities.

The Local Government Area shares common boundaries with four Local Government Areas of Kogi State. It is bounded to the west by Okehi Local Government Area, to the East by Kabba Local Government Area, to the North by Okene Local Government Area and to the Sough by Lokoja Local Government Area.

The parliament of Kogi State recently established an operational entity known as Kogi State Land Development Authority in the study area. It is vested with responsibility of supplying mechanical as well as extension services to the farmers. In the year 200 when the State Government acquired twenty tractors, which was distributed to the twenty one Local Government Area of the State, including Adavi Local Government Area. The agency has a tractor hiring unit, which hires out tractors and equipment to the farmers for the execution of their farm operations at a particular amount. In the past, the amount paid depends on the nature of the work to be done; the hours of proposed usage and the time of the year. According to the farmers, there are times of the year when immigrant labourers are in abundance and execution of farming activities is cheaper using labourers than hiring of tractor. But now a specific amount has been put in place. The amount ranges from N4500 to N5200 for a full day of 8 hours and N2,250 to N2,600 for half a day for hiring tractor. The farmers are required atimes to supply 25 to 50 litres of diesel depending on the number of hours of rentage, N2,500 and N4500 are paid for half and full day respectively when diesel is supplied.

Sources of Data

Information for the study was obtained from both primary and secondary sources.

Primary data was collected through the use of structured questionnaire designed carefully to capture the objective of the study from the respondents. The questionnaire was designed to give adequate information on both mechanized farmers and non-mechanized farmers, who inter-planted maize with cassava. Information was also collected on socio-economic characteristics of the farmers. The secondary data were sourced from Kogi State Land Development Authority in Lokoja. Journals and other relevant literatures.

Sampling Technique and Sample Size

Stratified random sampling was used in selecting the respondents under tractorized and manual production of maize/cassava farms in the study area. Thus the farmers were given equal chances of being selected. This was due to the time constraint and the socio-economic situation of the country. The questionnaire was administered on twenty farmers employing tractorization of their maize/cassava farms, and twenty farmers employing manual labour only on their maize/cassava farms.

Analytical Procedure

The tools employed in the analysis of the data collected include the following.

(a) Descriptive statistics such as percentage and frequency tables.

(b) Net farm income analysis

(e) Test of significant difference of means of profit between the mechanized and non-mechanized modes of production.

(d) Efficiency ratio analysis

(e) Profit analysis.

Efficiency/Productivity Analysis

The following ratios were estimated:

Total productivity = Total value of product (N)/Total of value input (N)

Labour Productivity = Total of product (N)/Total value of labour (N)

Capital productivity = Total value of product (N)/Total value of capital (N)

Profitability Analysis

Profit was estimated by the formula

NF1 = TR-(TVC+TFC) = TR-TC=II

Where:

NFI = Net farm income (N) per hectare; TFC = Total fixed Cost (N); FVC = Total variable cost (N); TR = Total revenue (N); 11 = profit (N), TC = Total Cost (N)

Profitability ratios were estimated using the following formulae:

Profit/Naira invested = profit (N)/input (N)

Profit/manday of labour input = profit (N)/labour (mandays)

Multiple Regression Analysis

This helps to determine the positive and negative relationship between total productivity and some explanatory variables. Using the data obtained, the model was estimated in three functional forms, using the ordinary Least Square approach. These are linear, Semi-log and double log functions.

The implicit form of the model is given as

$$Y=F(X1,X2,X3,X4,X5,X6,X7,X8).$$

Where:

Y= Total value of output (N)

X1= Land area ha

X2= Seed (N)

X3= Educational level (years)

X4= Farming experience (years)

X5= Hired labour (manday

X6= Family labour (manday)

X7= Other cash input (N)

X8= Mechanization (dummy): 1-tractorized farm, 0-non tractorized farm.

RESULTS AND DISCUSSION

Mechanization characteristics of respondents

Land Clearing: Majority of the farmers do not use tractor to clear their land, instead they employ the services of labourers. Some of them had the believe that continuous use of tractors on the farm makes manual clearing more difficult.

Ploughing: This seems to be basically the reason for mechanization. Majority of the farmers plough their land, in fact the entire sampled respondents under mechanization practiced second ploughing and it is usually done three weeks after the first ploughing. According to the farmers, ploughing reduces erosion and growth of weeds.

Harrowing: Majority of the farmers do not harrow their land. Instead they prefer to plough the second time. The farmers held the view that harrowing encourages faster growth of weeds and soil erosion.

Ridging: A very low percentage of the farmers use tractors for ridging. Majority believe it is a share waste of time and resources.

Operations such as planting, weeding and harvesting are not mechanized. Mechanization of weeding and harvesting is rather impossible under this production system (mixed cropping).

SOCIO ECONOMIC CHARACTERISTICS OF RESPONDENTS

Table 2: Summary of Socio-Economic Characteristics

Character-Istic	Tractorized					Manual				
	Mean	Std dev	Mode	Freq. of Class	% distribution	Mean	Std dev	Mode	Freq of class	% distribution
Sex	-	-	Male	20	100	-	-	Male	20	100
Major occupation	-	-	Farming/ Civil servant	17	85	-	-	Farming	13	65
Minor occupation	-	-	Farming	11	55	-	-	Artisans	13	65
Place of origin	-	-	Non native	11	55	-	-	Native/non native	20	100
Membership of farmers association	-	-	Members	12	60	-	-	Non member	13	65
Farming experience	24	7.86	20.29	10	50	19	6.51	15-24	14	70
Age	46	7.65	40-49	11	55	44	8.48	40-49	10	50
No of extension contact	-	-	>12	11	55	-	-	None	11	55
Education level	-	-	No formal education /pri. Sch.	15	75	-	-	No formal education	11	55
House hold size	7	1.87	4-6	12	60	7	1.67	4-9	11	85

Source: Field Survey, 2007

The average age of farmers with tractorized farm is 46 years and with non-tractorized farmer is 45 years. Average household size of both categories of farmers stood at 7 persons.

Majority (60%) of farmers with tractorized farm are members of farmers association while majority (65%) of farmers with non-tractorized farm are non members of farmers association. Membership of farmers association may have contributed to their adoption of mechanization. Adopters seem to be more experienced than non-adopters. The average years for farmers with tractorized farm was 24 years as against 19 years for farmers with non-tractorized farm. While only 25% of tractorized farm farmers had no contact with extension agent. As much as 55% of non-tractorized farm farmers have never had extension contact. None of both categories of farmers sourced credit from commercial banks and government organizations. About 30% of tractorized-farm farmers against 10% of non-tractorized farm farmers sourced credit from the cooperative society.

The average land holdings of tractoized farm was 2 hectares ranging between 0.3 and 6 hectares, while that of non-tractorized farm farmers was 0.8 hectare, ranging from 0.2-1.0 hectare.

Total amount of labour used per hectare on non-tractorized farms was 70.98 mandays/hectare and that of tractorized farms 54.93 mandays/hectare. Thus the amount of labour utilized on tractorized farms is about 77% of that used on non-tractorized farms.

Analysis of Productivity and Profitability Ratios

Table 3 presents estimated productivity ratios.

Table 3: Productivity Ratios

Productivity ratio	Tractorized	Manual
Total productivity (TP/TC)	2.06	1.90
Labour Productivity (TP/value of labour)	3.54	3.21
Capital productivity (TP/value of capital)	5.00	4.70

Sources: Computed from field survey data, 2007

Total labour and capital productivity ratios were consistently higher for tractorized farms. This implies that tractorized farms are technically more efficient than the non-tractorized farms. thus mechanization has the potential to improve efficiency of resources use on cassava/maize farms.

The tractorized farms has slightly better performance that, the non-tractorized farms.

Table 4: Profitability Analysis

Analysis	Tractorized	Manual
Profit/ha	23622	21272
Profit/naira input	1.360	1.010
Profit/Manday of labour	430	300

Source: Computed from field survey date 2006

Table 4 shows that the three profitability ratios estimated support the influence that tractorized farms are more profitable non-tractorized farms. The implication is that the tractorized cassava/maize farms in Adavi Local Government Area are more economically efficient that the non-tractorized farms.

Regression Analysis

Table 5: presents the result of the regression equation estimated to further confirm the existence of productivity difference between tractorized and non-tractorized farms.

Table 5. Regression Coefficient of the estimated production functions for Maize/Cassava Farmers

Functional form	B0	B1	B2	B3	B4	B5	B6	B7	B8	R^2	F^2
Linear	40886.1*** (9.50)	1227.5*** (-2.95)	-117.9 (-0.5)	-38.95 (-0.27)	-0.092 (-0.001)	99.90 (1.51)	0.539 (0.35)	1.174** (2.34)	13367.4*** (4.33)	0.60	5.86
Semi-log	111862.9 (3.73)	250.16 (0.13)	-293.3 (-0.305	-3711.7 (-1.14)	242.3 (0.166)	1920.2* (1.89)	-10421.2 (-2.54)	667.4 (0.41)	228849.1***	0.57	5.19
Double-log	11.89*** (20.63)	0.0012 (0.03)	-0.0521 (0.28)	-0.072 (-1.14)	-0.0015 (-0.54)	0.033 (1.68)	-0.190*** (-2.41)	0.021 (0.654)	0.430*** (5.95)	0.57	5.14

Source: Computed from field survey date, 2006

Figures in parenthesis represent t-values

***represents coefficients that are found significant at 1%

** represents coefficients that are found significant at 5%

*represents coefficients that are found significant at 10%

The result shows that the dummy variable for tractorization (X8) is a very important variable. Although the linear functional form of the estimated equation shows the highest R^2 (0.60), the literature repeatedly supported the fact that the best equational form for production functions is the double-log equation. Therefore, the double log equation is selected for further explanation of the estimated production function,. The variable sets contributed about 57% (R^2) = 0.57 to the variation in the dependent variable, total value of output (Y). the negative sign of the coefficient of X1, X2, X3, X4, and X6 shows negative relationship between these independent variables and the dependent variable, for example increase in the quantity of seed used (in value term) implies decrease in the total value product of the output,. This, subjectively, may suggest that optimum seed rate has been exceeded, getting to the diminishing returns zone: On the other hand, variables X1, X5, X7 and X8 carried positive sign with their coefficients.

Family labour (X6) and tractorization dummy (X8) were significant variables in the estimation. While X6 is significant at 5% alpha (a) level, X8 were significant at 1% alpha (a) level. Thus the null hypothesis of equal productivity levels was rejected. The result implies that adoption of tractorization resulted in significantly greater productivity than non-adoption.

CONCLUSION

Based on the findings from this study it can be concluded that tractorized farms are more productive and more profitable than non-tractorized farms.

Implications of Result for the Environment

Despite its great potentials for agricultural development, tractorization has some negative effects that are inherent in its usage. Tractorization often results in soil compaction, which make soil prone to erosion. In addition too high capital demand, high fuel consumption and increases in weed growth due to harrowing are viewed by the local farmers as serious problems. Olayide (1990) emphasized that with adoption of agricultural innovation in the rural areas, increasingly skewed rural income distribution, deforestation and general ecological disequilibrium often distort growth, which lead to expansion of the farmland areas under tractorization. This will only not result in poor farm productivity but may also lead to further deterioration of the environment.

Policy Recommendations:

Based on the conclusion of this research work, the following recommendations are made:

i. Mechanization of farming activities should be encouraged by providing the tractor hiring units with more funds, so as to be able to acquire more tractors and technical personnel to serve the farmers more effectively.

ii. More extension agents should be drafted to the rural areas, this will avail the farmers the opportunity to have more frequent contacts with these extension agents so as to be able to discuss their immediate farming problems with them.

iii. Efforts should be made to ease the bureaucratic bottleneck usually involved in the acquisition of credit facilities from the commercial banks and other government financial agencies.

iv. In Nigeria, any policy aimed at encouraging wider spread practice of mechanization should also incorporate measures that will guarantee a sustainable environment.

REFERENCES

Aderounmu, O. A. (1997): Economic Assignment of some of Ogun-Osun River Basin and Development Authority Farmer Based Farmer Project Unpublished. B. Sc thesis, Department of Agricultural Economics University of Ibradan, Ibadan.

Agunbiade, J. B. (1994): "Appropriate Agricultural technologies and the Nigeria Local farmers". A paper presented at the first National conference of the Nigerian Association of Teachers of Technologies. NATT, July, 1994. Pg. 10-15

Alimi Taiwo (2001): "Influence of the Socio-Economics Charateristics of Small –Holder Farmers on Resource Availability in farming" J.A.R.D. Vol 4. Pg. 20 - 24

Anazodo, U.G.N. (1996): "Agricultural Mechanization as a catalyst for rural development" AMA Vol.2 No.1. pg. 30- 40

Arnon Isaac (1999): " Modernization of Agriculture in Developing Countries". Resources, potentials and problems. Second edition. A Willey Loterscemce publication (chapter ix). Pg. 60 - 65

Aromolaran, A.B. (2002): "Multi Objective and Resource Allocation Behaviour of Small Farmers in Ifedapo Local Government area of Oyo State, Nigeria. An unpublished Ph. D thesis, University of Ibadan, Ibadan.

Binswanger, H.P. (1998): "The Economics of tractors in South Asia: An Analytical Review: Agricultural Development Council, New York pg. 80 - 88

Clupin, L. (1994): "Farm Mechanization and Management in the tropics, Crosba, Lock wood and son Ltd. London. Pg. 66-70

Durojaiye R. C. (1989): "Mechanization of Agriculture in Kogi State at a glance. A paper presented at a stakeholder conference on Agricultural Mechanization in Lokoja. Pg. 20 – 25.

Nwoko, S. G. (1998): " A position paper on the Economics of Agriculture Mechanization in Nigeria" A paper Commissioned by F.A.C.V. Federal Ministry of Agriculture and Natural Development, Ibadan. Pg. 55 - 58

Obrad, I. (1999): "A plea for farm implements" Leras-F.A.A. Review Vol. 2, No. 1, 1999. Pg. 20 – 25.

Okuneye, P. A. (1996):"A potential of Local Government for Accelerating Commercial Farming in Nigeria". JARD Vol. 2, No.2. pg. 55 – 65.

Olayide, S. O. (1990):"Characteristics, problems and Significance of Farmers" in: Olayide, S. O., Ekwa, J.A., and Bello0Osagie, V.E. (1980) (eds): Nigeria Small Farmers problems and prospects in Integrated Rural Development Centre for Agricultural and Rural Development (CARD) University of Ibadan, Ibadan. Pg. 2-15.