

Determinants of Agricultural Labour Productivity in Nigeria's South-South Geopolitical Zone

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Abstract: The south-south geopolitical zone has the Economic potentials to contribute to Economic growth through agriculture. The standard of living of people in any country largely depends on productivity. Nigeria is currently facing recession and the oil price and production has gone down due to militants' activities in the Niger Delta. This paper discusses the determinants of agricultural labour productivity in the south-south geopolitical zone. The study reveals that the south-south geopolitical zone which is made up of Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers states have the potentials if government engenders friendly policies towards the diversification of the economy by encouraging the huge unemployed man-power to take up agro ventures.

It is therefore recommended that Governments at all levels in the south-south geopolitical zone should encourage youths and others into agriculture; create enabling environment to avert the rural urban migration in search of white collar jobs; provide good roads, electricity, hospitals to encourage farmers and potential farmers; provide credit facilities to farmers and establish Agro-based industries to make use of raw materials and produce farm implements.

Keywords: Agriculture, Labour Productivity, standard of living, south-south, geopolitical zone.

1. INTRODUCTION

Agriculture in Nigeria is a branch of the economy that provides about thirty per cent for the population as at the year 2010. This sector is further transformed by the revolution that took place such as; commercialization at the small, medium and large –scale enterprise levels. In recent years, interest in productivity measurement and enhancement has grown because it is recognised as an important indicator of economic growth and development.

This sector was the mainstay of the Nigerian economy before and after the independence until the discovery of Crude Oil in commercial quantity in 1958 through 1970s. This sector serves as the basic food supplier and foreign exchange earner for Nigeria. Today, the South-South Geopolitical zone which is made up of six (6) states; Akwa-Ibom, Bayelsa, Cross River, Delta, Edo and Rivers States are known to be predominantly farmers. They have in one way or the other contributed to agricultural out of Nigeria which is of interest to the nation. Hence, determining agricultural productivity is of importance to us.

The Nigeria's agricultural sector was indeed rendered less competitive overtime through the over-valued currency, inappropriate pricing policies and dearth of farm labour caused by the immigration of the youths to the urban centers in pursuit of wage employment in the non-agricultural sectors. Although there are a lot which has not been mentioned that militate against agricultural productivity (Ojo, M.O. (1994)

It is desirous of government at all levels to increase its agricultural productivity. Consequently, measures have been adopted to increase supply of locally produced primary food products to curb import of basic primary products which farmers in Nigeria are considered as priorities for reducing hunger in the United Nations Millennium Development Project in 2005 (UN-MDP, 2005). In Nigeria, the need to summersault agricultural productivity in a bid to achieve the

Millennium Development Goals (MDGs) cannot be overemphasised due to the fact that this sector has been the chief source of livelihood.

Olayemi (1976) posits that the agricultural sector provides employment for about 67 per cent of the active population. In the agricultural production functions the relevant factors of production are land, labour, capital, fertilizers and pesticides, seeds and others (S.S. Tombofa)

According to Angaye G.S (2016) Agriculture covers crop production, livestock, fishery, forestry and wildlife. Despite growing importance of petroleum, Nigeria is essentially an agrarian economy with agriculture accounting for a significant share of GDP as well as providing employment for the bulk of the labour force. With very little assistance from government, Nigerian agriculture was able to provide adequate food for an increasing population, raw materials for a budding industrial sector, increasing public revenue and foreign exchange for government and employment opportunities for an expanding labour force before the decade of the 1960s. In 1960, agriculture accounted for about 70 per cent of employed labour force.

Abayomi 1997 cited in Tombofa S. S., 2005 Niger Delta Economic Review Vol. 1, "Agriculture comprising of crop production, livestock, forestry and fishing is a prominent activity sector in the Nigerian economy. Prominent attention is given to the agricultural sector in any discussion of the structure as well as the development of the Nigerian economy. Nevertheless, stepchild attention has been given to the agricultural sector since the early 1970s as a result of the emergence of the oil sector as a major revenue earner for the federal government and a leading source of Nigeria's foreign exchange earnings. Yet the agricultural sector, among others, feeds the teeming population and provides some of the necessary raw materials for the industrial sector"

Evidence in Fulginiti, *et al.* (2004) suggests the situation might be much worse for several West African countries, with as much as seven out of the 16 countries in the subregion reported to have recorded negative total factor productivity (TFP) growth in their agriculture between 1962 and 1999. It is against the above background that this study was embarked upon to provide answers to the following research questions: i. what has been the trend in agricultural labour productivity in the Nigerian South-South Geopolitical Zone? ii. What policy action(s) are required to significantly raise agricultural labour productivity level in the Nigerian South-South Geopolitical Zone, and thereby lower poverty and hunger?

Consequent on the foregoing, this paper seeks to analyse the determinants of agricultural labour productivity. This paper shall x-ray the performance of the agricultural sector and its contributions to GDP in Nigeria. The work is divided into five sections. We shall consider first, theoretical issues, definitions of some terms and the importance of productivity. The second section is for review of related literature. The third section deals with the economic indicators of agricultural production in Nigeria. Section four shall take care of the empirical literature and section five shall climax it with some proposals to improve productivity, conclusions and recommendation.

DEFINITION OF TERMS:

a. PRODUCTIVITY: Productivity definition usually varies from economists and managers of business. To the economists, productivity is defined as a ratio of output to input produced by each unit of input, where outputs are measure in physical units. On the other hand, managers of business defined productivity as a measure of overall production efficiency, effectiveness, and performance of industrial organisation. They believe that productivity means quality of output, workmanship, adherence to standards, absence of complaints, customer satisfaction, absentee and turnover rates, absence of disruption, trouble and other evidence of difficulty in organisations, as well as such quantitative measurements as units produced or volume of sales.

Mathematically, production function takes this form;

$X = F(L_1, L_2 \dots L_n; K_1, K_2 \dots K_n; M_1, M_2 \dots M_n)$ where $L_1, K_1,$ and M_1 represents the various kinds of labour, capital, and materials that are used in the production of product X.

Productivity also refers to the efficiency in which production outputs are achieved through the transformation of inputs in the production process. It is defined as "a ratio of some measure of output to some indices of inputs" (Griliches, 1988). It measures the rate of technical progress in production (Chamber, 1988).

Labour productivity is essentially output per worker employed in a given enterprise. Thus, while working with national aggregate data, **agricultural labour productivity** is commonly measured as gross value added in agriculture (agricultural GDP) divided by the economically active population in agriculture (Griliches, 1988).

Two categories of productivity measures are identified in this literature – *total factor productivity* (TFP) and *partial factor productivity* (PFP) (Mao and Koo, 1996; Zepeda, 2001).

It is obviously essential state that poverty in the south-south is on the high side. This is because productivity levels among the economically active populace in the south-south geopolitical zone, which is made up of Akwa-Ibom; Bayelsa, Cross River, Delta, Edo and River States remains poorly low.

b. IMPORTANCE OF PRODUCTIVITY:

Economies over the world are bent on achieving economic growth and development. Samuelson & Nordhaus (2005) ‘Productivity is one of the most important measures of economic performance. Productivity is a concept measuring the ratio of total output to a weighted average of inputs. Two important variants are labour productivity, which calculates the amount of output per unit of labour, and total factor productivity, which measures output per unit of total inputs (typically of capital and labour)’

According to a New Zealand Productivity Commission’s online publication; ‘productivity is about how well people combine resources to produce goods and services. The higher the productivity of a country, the higher the living standards that it can afford and the more options it has to choose from to improve wellbeing’

II. LITERATURE REVIEW

This is to review existing related studies with a view to exposing the views of various scholars on the subject;

Reid, T.E and Dubas, S. P (1983), the efficiency or productivity of a programme may be defined as the ratio of output (e.g. Patent or immigration applications processed, pieces of mail delivered, licenses issued, cheques issued) and units of input. It also includes energy supplied, quantity and quality of manufactured goods and services produced by different organisations also consider productivity as high and less profit means that productivity is low.

According to the classical economists; Adam Smith (1723 – 1790), David Ricardo (1772 – 1873), John Stuart Mill (1806 – 1873), broadened the definition of production to include manufacturing as an element in the process of wealth creation. They reserved the term production for the description of such activities as resulted from the agricultural and the extractive processes and from the manufacture of useful materials.

Solow (1956) he opined that the theory of economic growth differed significantly from the typical Keynesian concern with fluctuations in aggregate demand. He assumes full employment, both capital and labour as essential. Furthermore, the fixed technical coefficient of the production function of Sir Harrod and Domar is abandoned in favour of one that allows substitution to take place between factors. Solow stated that the basic construct ‘Y (t)’, which he stressed to be total output and part of it, is consumed and the rest saved and invested. He said that the fraction of output saved is a constant ‘S’. Then the rate of savings is:

$$S_y(t) \dots\dots\dots (1)$$

While the stock of capital is K (t), the net investment is dk/dt or \dot{K} which represents increase in this capital stock. The basic identity that follows at once is:

$$K = sY \dots\dots\dots (2)$$

Since this is supposed to represents a long run growth model he represents his production function as

$$Y = F(K, L) \dots\dots\dots (3)$$

If we substitute (2) in (3) we have

$$K = sF(k, L) \dots\dots\dots (4)$$

Equation (4) states that change in capital is a function of capital and labour multiplied by the saving ratio. If we proceed in the spirit of the Harrod Domar model and barring a technological change, we can write.

$$L(t) = L_0 e^{nt} \dots\dots\dots(5)$$

‘n’ represents the Harrod natural rate of growth. Labour in (4) stands for total employment while labour in (5) represent the available supply of labour. Inserting (5) in (4) we have:

$$K = sF(K, L_0 e^{nt}) \dots\dots\dots(6)$$

Equation (6) determines the time path of capital accumulation that must be followed if all available labour is to be employed.

Meade (1961) in his contribution to the neoclassical growth theory came up with a model of output as:

$$Y = F(k, L, N, t) \dots\dots\dots (7)$$

Where: K is capital

L is labour

N is natural resources including Land and

t as technical progress.

He further stressed that for a net output increase we will have:

$$\Delta Y = V\Delta K + W\Delta L + \Delta Y' \dots\dots\dots (8)$$

Where Δ represents an increase, V is the marginal products of capital, W marginal product of labour,

While Y' takes the place of 't'. He stressed further that growth in output is not necessarily the best yard – stick, but rather growth in per capita output which he represents as:

$$Y = Uk + QL + r \dots\dots\dots (9)$$

Where $U = V_k/y$ (the proportionate marginal production of capital)

$Q = W/L/y$ (the proportionate marginal product of labour)

In order words, the growth rate of output y is the weighted sum of three other growth rates, viz, the growth in the stock of capital, (K) plus the growth rate of population (L) plus the growth rate of technology (r) weighted by U and Q respectively. But the real of growth of any economy is actually, the growth rate of real income per head. If this is the case, we have

$$y-1 = Uk - (1-Q)L + r \dots\dots\dots (10)$$

Equation (10) exhibits diminishing returns tendencies; i.e, $(1-Q)L$. In a nutshell, as quantity of Labour is increased with a given amount of capital, there is a tendency for productivity to decline. Output is a function of two factors capital and labour. This paper is of the view therefore that for productivity to increase there is need for increases in capital, labour, natural resources and technical progress.

III. ECONOMIC INDICATORS OF AGRICULTURAL PRODUCTION IN NIGERIA

The economic performance in any developing country like Nigeria strongly depends on maintaining a sustained increase in domestic output. See table 1 and 2 below;

Table 1: Gross Domestic Product At 1984 Factor Cost (N Billion)

| | | Annual Percentage Change | | | | | Percentage Share of Total | | | | | | | | |
|----|-------------------------------|--------------------------|-------|-------|-------|-------|---------------------------|-------|-------|-------|-------|------|-------|-------|-------|
| | (Growth rate) | 1994 | 1995 | 1996 | 1997 | 1998 | 1994 | 1995 | 1996 | 1997 | 1998 | 1995 | 1996 | 1997 | 1998 |
| | Activity Sector | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) | (11) | (12) | (13) | (14) |
| 1. | Agriculture (Crop Production. | 31.04 | 32.09 | 33.31 | 34.74 | 36.46 | 30.6 3 | 31.00 | 31.13 | 31.47 | 32.27 | 3.38 | 3.80 | 4.29 | 4.95 |
| 2. | Livestock | 5.22 | 5.44 | 5.60 | 5.74 | 5.89 | 5.15 | 5.26 | 5.20 | 5.20 | 5.21 | 4.21 | 2.94 | 2.50 | 2.61 |
| 3. | Forestry | 1.32 | 1.35 | 1.36 | 1.37 | 1.38 | 1.30 | 1.30 | 1.27 | 1.24 | 1.22 | 2.27 | 0.74 | 0.74 | 0.73 |
| 4. | Fishing | 1.12 | 1.23 | 1.48 | 1.65 | 1.88 | 1.11 | 1.19 | 1.38 | 1.49 | 1.66 | 9.82 | 20.33 | 11.49 | 13.94 |

Sources: Federal Office of Statistics (FOS), Lagos & national Planning Commission (NPC).

TABLE 2: INDEX OF AGRICULTURAL PRODUCTION BY TYPE OF ACTIVITY (1964 = 100)

| Sub-Sector | Percentage change Between | | | | | Average Growth Rates | | | | |
|---------------------|---------------------------|-------|-------|-------|-------|----------------------|-----------|-----------|-----------|-------------|
| | 1994 | 1995 | 1996 | 1997 | 1998 | (1) & (2) | (2) & (3) | (3) & (4) | (4) & (5) | 1994 - 1998 |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) | (10) |
| Crops | 249.4 | 255.5 | 270.0 | 277.7 | 288.0 | 2.4 | 5.7 | 2.9 | 3.7 | 3.7 |
| (a) Staples..... | 276.8 | 285.2 | 298.1 | 307.3 | 316.1 | 3.0 | 4.5 | 3.1 | 2.9 | 3.4 |
| (b) Other Crops ... | 146.0 | 143.7 | 176.4 | 166.5 | 182.4 | -1.6 | 14.4 | 1.3 | 9.5 | 5.9 |
| Livestock | 164.1 | 171.0 | 176.0 | 180.4 | 181.3 | 4.2 | 2.9 | 2.5 | 0.5 | 2.5 |
| Fishery | 67.0 | 77.6 | 89.4 | 99.5 | 105.7 | 15.8 | 15.2 | 11.3 | 6.2 | 12.1 |
| Forestry | 128.0 | 128.0 | 131.4 | 132.7 | 133.5 | 0.0 | 2.7 | 1.0 | 0.6 | 1.1 |
| Aggregate | 209.7 | 216.8 | 224.8 | 234.1 | 242.4 | 3.4 | 3.7 | 4.1 | 3.5 | 3.7 |

Revised

Provisional

Sources: Derived from data compiled by Federal Office of Statistics (FOS)

We have provided in the tables above, data of Nigeria's Gross domestic product at 1994 factor cost and Index of agricultural production by type of activity (1964 = 100). It shows that in 1998, the real Gross Domestic product (GDP) rose by 2.4 per cent compared with 3.2 per cent in 1997 and the average growth rate of 2.9 Per cent in the preceding three years. From available record, (see Table 2), aggregate domestic output increased at a lower rate in 1998 than in 1997 and 1996, (CBN 1998: 89).

Table 2, also shows that the oil sector GDP which accounted for 11.6 per cent of total GDP declined by 7.6 per cent, in contrast to the 1.4 per cent increase in 1997. According to CBN report (1998:89), the non-oil GDP which accounted for 88.4 per cent of total GDP was wholly responsible for the increase in total output. It rose by 3.8 per cent, which represented a modest improvement over the 3.4 per cent increase recorded in the previous year. The non-oil sector from indication is playing a significant role in the economy.

Table 2 shows that there was a sharp decline in oil sector GDP. The major reason for this was the drastic decline in world demand for oil and prices during the year. Furthermore, in 1998, the main sources of growth of the aggregate domestic output were agriculture, finance and insurance, as well as wholesale and retail trade. The performance of agricultural sector was encouraging in 1998. Agricultural production continued to record modest growth, though lower than in 1997. The major reason for this performance was attributed to favourable weather conditions (CBN Annual Report and Statement of Account 1998).

3.1 AGRICULTURAL PRODUCTION:

We have said above that the agricultural sector had maintained its centre stage as the major foreign exchange earner in Nigeria. The sector was the mainstay of the Nigerian economy, accounting for more than one-half of the Gross Domestic Product (GDP) and more than three – quarter of export earnings. This sector also provided enough food for the teeming population. The contribution of the agricultural sector to GDP was 50 per cent in 1970 and was reduced to 38.8 per cent in 1991 and 32 per cent in 1995 (see Table 2).

By mid 1980s, Nigeria moved from a position of self-sufficiency in basic foodstuffs to one of heavy dependence on imports, as much emphasis was shifted to the petroleum sector. Thus, the noticeable drop of relative share of agriculture in aggregate output reflects the period of windfall from petroleum income when farm production was depressed by the massive urban boom and movement of rural workforce to cities (Abudu, 1999). The sudden stepchild attention to the agricultural sector by mid 1980s was the origin of our economic woes. The heavy dependence on import of food has created economic disadvantage - balance of payment difficulties.

It is important to state that, the importance of food production for nutritional, health, political and economic reasons cannot be over-emphasized. However, it is the insufficient and low yield production for the domestic market that is the major cause of the growing scarcity and high price for food items in Nigeria.

The export of agricultural products is very important for the foreign exchange earning capacity for the economy. Agricultural exports will provide enough revenue to government. In this period of economic recession, the sustained increase in local agriculture cannot be overemphasized. The sector plays an increasingly greater role as driving force of economic expansion.

IV. IMPEDIMENTS TO AN INCREASED AGRICULTURAL PRODUCTIVITY IN THE SOUTH-SOUTH GEO-POLITICAL ZONE

Agriculture still remains the preoccupation of the people in the south-south geopolitical zone of Nigeria. This farming includes; crop production, livestock farming, fishing and forestry.

It is very important that we identify some challenges which serve as impediments to agricultural productivity in the South-South zone of Nigeria. The reason behind highlighting these problems is to acquaint policy makers, peasant farmers and researchers the issues militating against productivity in the agricultural sector.

According to Nwosu (1980:143), Ogunfiditime (1996), cited by S.I. Udabah, the major constraints on agricultural production in Nigeria include:

- (i) Shortage of capital which includes shortage of credit facilities, farm infrastructure, and transport services, high cost of production etc.;
- (ii) Shortage of qualified manpower in key areas;
- (iii) Inadequate supplies of agricultural inputs;
- (iv) Inadequate and haphazard extension service (including the insincerity and lack of commitment of official);
- (v) Inadequate or lack of effective supporting services such as farm credit to genuine farmers, marketing facilities, etc.;
- (vi) The poor condition of federal roads and other transport facilities;
- (vii) Management oriented problems such as the problem of land ownership, land and water management, crop management, energy management problem, inadequate farming systems, etc. Our land tenure system inhibits investment, expansion, effective utilization and increased food production. There is need to allow small farmers to have more access to land in order to boost their output;
- (viii) The problem posed by increasing labour shortage in the rural areas in consequence of rural urban migration;
- (ix) The problem of diseases and pest control
- (x) Nature oriented problems like drought, desert encroachment, as lack of dependable water resources constitutes an obstacle to agricultural productivity.
- (xi) Problem of Technology. There is need to develop and encourage appropriate technology for rapid development of the agricultural sector.
- (xii) Inappropriate policies by government. There is need for sustainable policy towards favourable conditions for farmers.
- (xiii) Neglect of irrigated agriculture
- (xiv) The instability in the price of agricultural products discourages farmers.

Ishola K.A (2011) identified some problems facing agricultural productivity. Among such problems are the following;

1. **The use of Crude implements:** Farmers still use traditional crude implements like hoes and cutlasses because agriculture has not been mechanized.
2. **Poverty:** Due to poverty, farmers cannot afford to embark on large scale farming, buy good implements and hire more labour that can increase their productivity.
3. **Lack of credit facilities:** Credit facilities like loans, seeds insecticides, pesticides etc. do not go to the real farmers but to emergency ones who are businessmen, who use the loans for their business and resell the seeds etc.

4. **Poor Marketing System:** Agricultural products are not put in good conditions before they are marketed. For instance, they are not graded and packaged in order to attract higher prices.
5. **Absence of Able Bodied Youths:** Migration from the rural to the urban centers, especially by the young school leavers, leaves farming in the hands of the very old men and women who cannot produce enough.
6. **Absence of research:** Farmers, because of their low level of education, do not carry out research on how to improve their productivity.
7. **Lack of Medical Facilities:** This results in poor health of the farmers which militates against their efforts.
8. **Poor Transportation:** This prevents the farmers from carrying their crops to areas where they can attract higher prices and are therefore forced to sell them within their vicinity where they attract low prices because, almost everybody is a farmer.

V. SOME PROPOSALS TO IMPROVE AGRICULTURAL PRODUCTIVITY, CONCLUSIONS AND RECOMMENDATION

The importance of productivity in agricultural sector to economic growth and development cannot be overemphasized. From our discussion above, our standard of living depends largely on the production. From our investigation, productivity in the South-South Geopolitical zone of Nigeria is quite poor. We have equally said that productivity is an essential and desirable feature of any economy as low productivity leads to poverty, low standard of living, low growth rate and eventual underdevelopment. We hence, recommend that government at all levels to encourage productivity in this sector. The south- south zone of Nigeria has the potential through the various types of agriculture – crop production, livestock farming, fishing and forestry to transform the woes of our country, especially in this recessionary period.

Based on the findings above, this paper proposes and recommends that;

1. Governments from the these zones should exhibit interest in agriculture
2. Governments should create the needed enabling environment for farmers to thrive towards achieving productivity.
3. Effort should be made by government to formulate and implement favourable policies that are necessary for agricultural productivity of farmers.
4. Government should provide economic infrastructure such as; good roads, electricity to encourage farmers move their produce from one point to the other.
5. Government should provide the necessary credit facilities to farmers to expand their scale of production.
6. Farmers should be encouraged by the government through supply of necessary inputs, marketing facilities, extension service Officers, and adequate farming technology.
7. There should be continuity of favourable agricultural policies.
8. Government should provide social infrastructure such as; hospitals and good houses in order to stop the drift from rural to urban areas of potential agricultural sector workers.
9. Government should swing into action through the reformation of land tenure system to encourage large scale farming.
10. Government should establish Agro-based industries to make use of raw materials and produce farm implements.

CONCLUSIONS:

Governments at all levels, considers improvement of agricultural productivity as a desirable task to be fulfilled. One thing is to desire agricultural productivity, another thing is to adopt workable policy that gives room to this desired goal. This paper has elucidated the relationship between standard of living, economic growth, economic development and agricultural productivity. Our investigation has also revealed that agricultural productivity is very low in the south-south, perhaps due to the heavy concentration on oil and a step-child attention towards the sector. It is also clear from our

findings that agriculture as the mainstay of Nigeria prior to the discovery of crude-oil which if proper attention is given can revamp our economy.

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