THE EFFECTIVENESS OF AGRICULTURAL POLICY REFORMS WITHIN THE CONTEXT OF STRUCTURAL ADJUSTMENT PROGRAMME: THE NIGERIAN EXPERIENCE (1976 - 1995)

By

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DECLARATION

I hereby declare that this thesis was written by me and that it is a record of my own research work. It has not been presented before in any previous application for a higher degree or reputable presentation elsewhere. All borrowed ideas have been duly acknowledged by means of references.



PRINCE FATAI ADEYEMI **August, 1999.**

CERTIFICATION

This thesis "THE EFFECTIVENESS OF AGRICULTURAL POLICY REFORMS WITHIN THE CONTEXT OF STRUCTURAL ADJUSTMENT PROGRAMME: THE NIGERIAN EXPERIENCE (1976 - 1995) written by PRINCE FATAI ADEYEMI meets the regulations governing the award of the degree of Doctor of Philosophy (Ph.D) in Economics of Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

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DEDICATION

This work is WHOLEHEARTEDLY dedicated to the most beneficient, the most merciful God, my creator, who made my present contribution to human knowledge possible.

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ABSTRACT

The main thrust of this study is an empirical investigation on the effectiveness of agricultural policy reforms within the context of Structural Adjustment Programme in Nigeria between 1976 - 1996. To achieve this objective, the study uses first the Supply Side function as a framework of analysis. Second, the Chow Test technique was then used to examine the statistical significance of structural shift.

The findings of this study reveal that policy reforms in the agricultural sector did not improve the productivity so as to bring about the transformation of the sector into a modern and a self-sufficient one, though the Chow test result showed that S.A.P. had produced a timid positive structural break of agricultural output in the country.

This study then recommends amongst other things, that mass education of people on agricultural cooperative be embarked upon, and interest rates on loans for agricultural purpose be reduced through proper exchange rate system

regulation. Above all, this study recounmends the urgent reinforcement of interventions in the agricultural pricing policy especially in connection to the removal of subsidies on inputs.

CHAPTER ONE

1.0 Introduction

After a decade of Structural Adjustment Programme in Nigeria, it is considered a good idea to undertake an incisive appraisal of its impact on the economy, focusing, appropriately on the agricultural sector which is the pivot of the economy.

1.1 Preamble

Agriculture has traditionally been the mainstay of the Nigerian economy. Prior to the 1970s, agriculture was the nation's major source of food provision, foreign exchange earnings and the major employer of labour. However, with the emergence of petroleum as a new source of revenue generation, the agricultural sector began to decline in terms of its relative contribution to the provision of food for the teeming population and foreign exchange earnings. Nevertheless, with dwindling oil revenue and decline in the country's foreign exchange earnings experienced in the recent years, it has become evident that the development of the agricultural sector to once more boost the

production of both ffood and cash crops is vital for sustainable growth and development of the economy.

It follows from the above that a decline in agriculture affects economic growth and development negatively. For example, firstly, a decline in agriculture has an immediate negative effect on rural incomes, which are important in determining the overall demand for non -food goods. Secondly, a low level of agricultural production means fewer exported and more imported agricultural products and therefore, less foreign exchange earnings with which to purchase industrial and manufacturing input requirements. Thirdly, a decline in agricultural production retards the steady and ample supply of raw materials to agro-based industries.

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In spite of the importance of agriculture to economic growth and development, African agriculture in general and Nigerian agriculture in particular, has been given little attention (compared to other sectors such as oil and manufacturing sectors of the economy). Thus, the agricultural sector in most African countries

(and Nigeria inclusive) has perpetually been in crisis. The World Bank (1981), has suggested that the crisis of African agriculture over the past two decades is reflected in five trends namely:

a) the growth rate of agricultural production began to decline and, in the 1970s, was less than the rate of population growth almost everywhere.

b) agricultural exports stagnated, and African shares in world trade declined for many commodities;

c) food production per capita was mainly stagnant in the 1960s and fell in the 1970s;

d) commercial imports of food grains grew more than three times as fast as population, while food aid increased substantially;

e) more of the population shifted its consumption to wheat and rice (as evidenced by the soaring imports of these food grains), and this increased food dependency and created a mismatch between local production possibilities and consumer demand, in many countries where wheat and rice

can only be grown at costs far above import parities.

The appalling conditions revealed above have increased the concern of governments, policy makers and agriculturalists more than ever before and has made their interventions in this sector inevitable. Ironically and with specific reference to Nigeria, Adeoti (1988) opines that government intervention has been claimed to have contributed to the dismal results achieved by agriculture in the 1970s. Specifically, Adeoti suggested that there was a misallocation of investment, notably, an excessive emphasis on large-scale government operated schemes and the recent Structural Adjustment Programme inclusive. To assess the validity of this and similar assertions, the Structural Adjustment Programme was investigated in this study. The central issue addressed in this study is whether the agricultural policies enshrined in the Structural Adjustment Programme (SAP) have been successful in boosting agricultural production and productivity in Nigeria. The main objective of the study is to examine agricultural policy reforms before and after SAP. This

is im;perative because improving Nigeria's agricultural performance to an acceptable and sustainable level remains a major challenge to policy makers both in government and private sectors.

Many of previous studies on agriculture in Nigeria have tended to concentrate their efforts on failed and abandoned agricultural projects based on organisational assessment and simple accounting figures. Yet other studies on the agricultural sector were mainly devoted to output aspect using a broad response approach as a result of the policy reform. Most of those studies focused on the role agriculture was expected to play in achieving the goals of the reform programme (SAP).

Not enough specific attention has been given to technical and productive efficiency aspect in the agricultural sector as a result of S.A.P. Increasing output in agricultural sector for self-sufficiency is the main focus of many existing literature. The present study is different from the previous ones. It focuses on how Structural Adjustment Programme has affected agricultural development in

respect of productivity and income variability. In that perspective, it applies the use of econometric modeling to explicitly examining how statistically significant policy reforms within the context of S.AP. have affected agricultural productivity.

1.2 Background of the Problem

The 1973 positive terms of trade that Nigeria experienced due to oil boom was short-lived. From 1975 through 1978 the country reverted to current account deficits, owing to massive increases in investment as a proportion of (a rapidly rising) Gross National Product (GNP). Between the first half of the 1970s and the second half, the average investment share in Nigeria rose from 17 per cent of GNP to 25 per cent (Cooper and Lawrence, 1975). Between 1980/1982, there was a decline in the demand for the country's main export commodity - oil. The decline in oil export meant a similar decline in government revenue and investment expenditures, with similar decline in private sector investment expenditures. Due to negative multiplier effects, Gross Domestic Product (GDP) in 1981 fell by 5.9 per cent and

the index of industrial output fell by 7.9 per cent. The balance of payments moved from a surplus of ₦1,868.9 million and ₦2,406.2 million in 1979 and 1980 respectively to a deficit of ₦3.4 billion in 1981 as the glut in the international oil market continued. This led to a heavy drain on the external reserves. At the same time there was an upward pressure on domestic price level. The inflation rate which had earlier fallen from 11.8 per cent in 1979 fell to 9.9 per cent in 1980 and again rose astronomically to 20.8 per cent in 1981 (Aigbokhan, 1989).

By April 1982, the external reserves had fallen to less than one month's imports finance at the then level of importation. In this vein, Economic Stabilization Measures (ESM) were introduced in April mainly at concerning the level of external reserves by curbing imports and foreign exchange outflows (Aigbokhan, 1989).

In spite of the ESM, imports declined only marginally by 2.7 per cent in 1982, which reflects the relative inelasticity of import demands in Nigeria. According to CBN (1982; 1983) the

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balance of payments further deteriorated with a deficit of ₦5.2 billion in 1982. In 1982/1983 a high rate of outflow of funds to the external sector was recorded, as reflected in the external reserves which declined from ₦55 billion in 1980 to ₦1.06 billion in 1982 and to ₦0.9 billion in 1983. External payment arrears were accumulated, rising from ₦2.2 billion in 1982 to ₦4.4 billion in 1983. When added to the overall balance of payments deficit of ₦244.8 million in 1983, the actual deficits became ₦4.624 billion. In the same year, GDP fell by 6.4 per cent, agricultural output by 9.5 per cent and manufacturing output by 25.1 per cent while inflation rate jumped from 7.8 per cent in 1982 to 23.2 per cent. External debt service payments rose by 62.5 per cent from ₦0.8 billion in 1982 to ₦1.3 billion in 1983, with the corresponding increase in debt service ratio being 8.9 and 17.5 per cent respectively.

It could be seen from the above that the Nigerian economy went into deeper and widespread recession in 1983. Yet, the situation continued in 1984 when the GDP fell by 0.6 per cent and

industrial and manufacturing output by 10.2 and 18.2 per cent respectively. In addition, many manufacturing firms operated at much below full capacity, some closed down temporarily and others still wound up.

By 1985, the deteriorating balance of payments position worsened. This was due mainly to increased debt service burden and accumulated trade arrears. The problem of unemployment too worsened. There was an acute shortage of inputs necessary to sustain industrial production. Capital outflow total was N10,463 million and debt service ratio was 33.2 per cent (CBN). It thus became apparent that the Nigerian economy was at the brim of collapse. Conscious of the situation, on October 1st, 1985, the government declared a state of National Economic Emergency for a period of fifteen months during which policy measures were adopted aimed at revamping and stimulating the economy.

As a result, there was a moderate improvement in the economy in the last quarters of the year. This was reflected by a

rise in GDP by 4.2 per cent, industrial output by 14.7 per cent and agricultural output by 4.2 per cent. This positive result was however short-lived. By 1986, the trend was once again reversed. For example, GDP fell by 3.3 per cent, inflation rate rose by 5.4 per cent and the balance of payments deficits stood at ₦796.4 million in the same year. Infact, from 1983 to 1986, Nigeria's overall imports (at constant 1984 prices) declined by nearly 10 per cent a year on average. According to Little (1993), Nigeria's GDP at factor cost fell by 8.5 per cent in 1983 by 5.4 per cent in 1984, and by another 3.2 per cent in 1986, after a small recovery in 1985. In addition to this, capacity utilization too declined seriously. This was because essential imports were in short supply particularly in the manufacturing and construction sectors.

It follows from above that earlier policies were inadequate in arresting the deteriorating economy. This, thus, calls for the need for a more comprehensive economic programme that would salvage the economy.

1.3 Statement of the Problem

During the second half of 1986, government put in place a package of reforms termed the Structural Adjustment Programme (SAP) with four broad objectives which include: to restructure and diversify the production base of the economy in order to reduce dependence on the oil over the period.

The strategy adopted for achieving this objective is: the adoption of appropriate pricing policies in all sectors with greater reliance on market forces and reduction in complex administrative controls (CBN, 1986: 11).

In keeping with this strategy and with particular reference to the agricultural sector, the government had embarked upon a programme of achieving and sustaining national self-reliance in food. To this effect, all national development plans had ranked agricultural development very high. Several campaigns such as Operation Feed the National (OFN) and the Green Revolution were launched to emphasize agriculture. River Basin Development Authorities and many parastatal institutions were

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constituted to promote agriculture.

In addition, Commodity Boards which had enjoyed the monopoly of purchasing and marketing of scheduled agricultural commodities were abolished. All these were aimed at improving the declining agricultural sector. Yet, as lamented by Alhaji (1989), the results have never matched the expectations nor justified the huge capital outlay. Ojo and Akanji (1996) have added that, although agricultural performance improved noticeably, the results were not adequate not only in relation to the committee financial resources, but also in relation to the nation's minimum needs of agricultural products. They further lament that ten years (1986-1996) of implementation of these reforms would seem to indicate that while agriculture has continued to impart a reasonable resilience to the economy, its overall performance is still below expectation. In this light, it becomes imperative to raise the following questions:

1. What is the impact of policy reform (SAP) on agricultural productivity and output?

2. What is the impact of government pricing policies on agricultural output?

3. Does a need for further policy reform arise?

1.4 Objectives of the Study:

In view of the high hopes placed on the Structural Adjustment Programme, a meaningful analysis of the impact of the policy needed to be undertaken after the programme has run for a reasonable period. In order to shed light on the effectiveness or otherwise of the policy reform on the agricultural sector with a view to providing, where necessary, a basis for altering or fine-tuning policies. Therefore, the research objectives flow directly from research problem. They are:

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1. To examine agricultural policies in Nigeria before and after sap.

2. To investigate whether the agricultural sector has recorded significant increase in productivity as a result of policy reforms.

3. To identify the key factors responsible for agricultural

productivity in the country.

4. To determine on the basis of available data and findings of the study whether policy changes are required in order to improve agricultural productivity in the country.

1.5 Research Hypothesis:

The main thrust of this study is to examine the performance of the agricultural sector in Nigeria within the context of the Structural Adjustment Programme. This will be investigated through the main hypothesis that:

> Ho : The agricultural sector has not recorded any significant increase in output and productivity as a result of policy reforms.

This Ho is to be tested under structural shift pertaining to regression analysis.

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1.6 Scope of the Study:

This study shall confine itself to the period between 1976 and 1995. This period covers both the pre-SAP and post-SAP periods. The period 1976 to 1995 is sufficiently wide and current enough to capture a large proportion of major agricultural policies

in the country, and to take care of econom tric estimations. However, a review of agricultural policies before 1976 will be made. This is necessary to provide sufficient historical background of the subject under study.

1.7 Scope and Limitations of the Study:

This study is limited to the study of major agricultural policies in the pre-SAP and post-SAP era, i.e. from 1976 and 1995. It does not study the effect of specific agricultural policies or projects though it infers from it. This study is more of a macro study. Another limitation of this study is the on inconsistent time series and discontinuity of data. However, for completeness of data, we shall piece data from different sources, as well as construct other missing data points.

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1.8 Methodology

The method of analysis employed in this study consists of the analysis of trend and growth rates of some key variables in the agricultural sectir and the relationship between these variables and the aggregate relating to the entire economy. This would enable

the study to examine the performance of the sector before, during and after Structural Adjustment Programme period. It is for this purpose the use of Chow Test Technique becomes relevant in respect of structural shift analysis in the agricultural sector.

1.8.1 Sources of data

The main source of data for this study was secondary. The secondary source of data included: the Federal Office of Statistics publications, CBN economic and statistical Bulletins, Journal publications, IMF, International Financial Statistics, World Development Reports, FAO Trade Yearbook, Libraries, Journals, magazines, published and unpublished materials including Reports on the agricultural sector.

To have a fairly complete data the secondary data was supplemented with other information based on interaction and discussion with officials in the Federal Ministry of Agriculture.

1.8.2 Variables on which Data were collected

Macroeconomic variables were used in assessing the impact of SAP on Nigeria's Agriculture. The variables used in this study

are categorized into agricultural productivity indicators and others as defined in the model.

1.8.3 Tools of Analysing Data

Essentially, two basic tools of analysis were used in this study. The first was descriptive statistics and consisted essentially of tables, graphs, percentages and, averages. The other sect of tool consisted of regression and correlation analysis and, the chow test technique to appraise the structural shift that occured as a result of policy reform in the sector.

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1.8.4 Technique of Analysing Data:

The technique of analyzing data in this study is that of a structural shift. However, this shall pertain only to regression analysis. This is so, because regression analysis is easily amenable to the chow test technique. To this end, three regressions were run. One for data set covering 1976 - 1986 (the pre-SAP era) and another set covering 1987 - 1995(the post-SAP era). Then, a third set for 1976 - 1996 (for both the pre-SAP and post-SAP eras).

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The Ordinary-Least-Square (OLS) method was then used to run the regressions.

1.9 Organization of the Study:

The study is organized into six chapters as follows:

Chapter One is the Introduction. It contains the background of the problem, the problem statement, objectives of the study, statement of hypothesis, scope and limitations of the study, and organization of the study. Chapter Two is Literature Review. In this chapter, both theoretical literature and empirical literature are reviewed. The contribution of agriculture to the national economy is examined. A framework for understanding agricultural transformation in agrarian economies is reviewed and utilized. Then, past studies on this sector are reviewed.

Chapter Three is on Agricultural Policies in Nigeria. These policies are exhaustively discussed. Also, the success and/or failure elements of SAP on the agricultural sub-sector are carefully identified and discussed. Chapter Four is the Methodology. In this chapter, essentially, we specify and discuss

the various models used in the study. Such models include those on: agricultural taxation, models on productivity, growth and factors affecting agricultural output.

Chapter Five is on the Findings. In this chapter, the estimation of the models was performed and the findings reported. Chapter Six is the Summary, Recommendations and Conclusion. In this chapter, the Summary of the study is made and recommendations based on the findings of the study are advanced and then the overall conclusion of the study is made.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

Over the years, several views have been expressed by a cross-section of authors regarding the impact of Structural Adjustment Programme on various sectors in the economy. However, most of the views expressed are based on evidence from casual observations rather than empirical analysis. In the following paragraph, attempt is made to review some findings from theoretical and empirical assessment of the impact of SAP on agriculture.

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2.1 Agriculture in Economic Development in LDCs

The role of agriculture in economic development has continued to stimulate economic research more than ever in an increasing number of ways. Studies by Pallango (1984), Muchachi (1985) Olayide (1980), Mundlak et al (1987) and Jaeger (1991) strongly supported the view that agriculture is the mainstay of African economies in its role of generating employment,

providing foreign exchange, providing raw materials for agro-allied industries and providing food for the growing population. Because of these, the farm sector has a key role to play in economic development, especially in the initial stages although in some economies, this contribution has often been underestimated.

Most planners and economies in developing countries believe that the more advanced economies were nearly all industrialized leading to the conclusion that the major effort should be directed towards industrialization often to the neglect of agriculture. The results have usually been unfortunate. Essential though as industrialization may be in economic development, it must be accompanied by progress in agriculture if the economy is not to run into serious difficulties. It is dangerous however, to argue from historical analogy.

The intensive application of technology to agriculture, reaching into the developing countries as the 'Green Revolution', led to another shift in thought. Mechanization, the use of chemical fertilizers and the breeding of new plant and animal

varieties induces development where conditions are ripe for them. Where, however, these favourable conditions do not exist, they can be created. In most countries, the domestic market is expected to take over from exports as the main driving force for modernization, greater productivity of land and labour and high farm incomes.

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Fondo (1990) considered a selected number of countries in Sub-Sahara, and discovered that in 1963, 84 members of the rural population were supporting 16 non-rural members as well as themselves and by 1985, this had reduced to 72 and 28 respectively. The implication of this change is that farmers will have to double the volume of marketed output for local consumption merely to maintain existing urban consumption patterns. Those fairly close to the cities, or with access to a good transport system, or those in communities favoured by natural conditions or irrigation, would reap the main benefit. The degree of influence will decrease as one moves further away.

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Generally, one fact remains, and that is agricultural development has to take into consideration, nutritional requirements. If agricultural production fails to keep pace with the growth in demand, food prices will rise. People can subsist for long periods with inadequate housing, or insufficient clothing or other manufactured goods; but they cannot survive without enough food, let alone continue to work efficiently.

Agriculture will continue to be the main source of employment in most developing countries, especially those with enough land. An increase in productivity is however, needed for economic growth. As productivity increase, labour should then be released for other occupations.

Adam Smith (1776) had stated succinctly that:

"if the labour of one family can provide food for two, the labour of half the society becomes sufficient to provide food for the whole. The other half, therefore, or at least the greater part of them, can be employed in providing other things, or satisfying other wants and fancies of mankind"

This labour must be transferred to other occupations if there is to be a growing market for agricultural products. In a country with 80 per cent of its population in agriculture, each farm family

has, as its domestic market, only one quarter of a non-farm family.

Various authors have posited the importance of agricultural production as a source of capital for investment. The national development plans or industrialization programs requires considerable sums of investment. In the early stages of development the agricultural sector generates an important part of the capital required for investment in the non-agricultural sector. In LDCs, and developing countries like Nigeria there are two major forms of transfer of capital from the agricultural sector for investment in the non-agricultural sectors of the economy:

a) in the form of export taxes imposed on peasant export produce such as cocoa, coffee, etc.

b) in the form of net withdrawals by the Marketing Boards out of the FOB revenue from major peasant exports.

Beyond this initial stage in development, there has to be a balance in the flow of capital. Economic development does not require a one way flow of capital out of agriculture. Rather, it

calls for a flow of capital into agriculture in the form of fertilizer, water, new seeds, skills, equipment and services in order to obtain a still larger return flow of capital. If too much capital is taken away from agriculture in taxes, both the incentive and the means to expand production may disappear. This in turn would retard industrial development by limiting the growth of the rural market for manufactured goods.

The most obvious and important contribution of agriculture is to meet the additional demand for food resulting from increasing population growth and higher incomes, and to remedy nutritional deficiencies. The population problem facing many developing countries becomes more acute as towns and cities grow. Country people will feed themselves except in times of natural disaster or economic distress. The key problem is to feed the towns. The demand for food depends not only on population, but also on income. With higher incomes people consume more food and also more expensive types and better qualities of food which need greater agricultural resources for their production.

This implies a shift in the pattern of production towards sugar, fats, livestock products, fruit and vegetables, which are consumed in much larger quantities as incomes rise.

Food self-sufficiency is another major goal of agriculture. If food prices rise and production fails to respond, then food will have to be imported. Imports will have to be paid for in foreign exchange, which has to be diverted from imports of essential capital goods, so slowing down economic development generally. It is for this reason, and quite often too that many developing nations usually have as stated food policy goals, self-sufficiency.

Agricultural exports no doubt, account for the great bulk of the exports of many developing countries, especially those of sub-Saharan Africa. Many countries obtain over 70 per cent of their export earnings from farm products.(Kuznets, 1964).

Agriculture can also improve the balance of payments by saving on imports. Many developing countries import large quantities of agricultural products. With improved methods of production, processing and marketing a large part of these

supplies could be produced economically at home.

Agricultural raw materials are important for development because of their export possibilities and the help, they can give to industrialization. Textile manufacturing, leather tanning, rubber curing, timber processing, oil seed crushing, sugar manufacture and refining, for example are labour intensive. Large numbers of people may be absorbed and trained to move on later to more skilled types of industrial work. These industries can be located in rural areas where the raw material is available, so helping to build up local centres and slow down the rift of population to the big cities.

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In the early stages of economic growth, agriculture with its large share of the population provides the main market for the products of industries. The faster growing and more prosperous the agriculture of a country, the more quickly it shifts from a subsistence to a monetized basis, and the more favourable are the conditions for industrialization. This is a part of the two way development process between agriculture and the rest of the

economy.

In the first place, the growth of an urban market is the main stimulus to agricultural development. The availability of manufactured consumer goods then provide a strong incentive for farmers to increase production for the market. Manufacture of farm tools and implements, fertilizers, pesticides and other materials useful for production requisites serves both as an incentive to agriculture and also contributes directly to its productivity. Growth in one sector stimulates growth in the other.

2.2 The Nature of Agricultural Policies in LDCs

Agricultural policy must form an integral part of a sound national economic policy, which must aim at promoting economic stability, efficiency and to raise the real incomes and living standards of the agricultural population (LA-Anyane, 1969). Like other national economic policies, agricultural policy depends on certain political, economic and social objectives. One of the main objectives is the maintenance of the maximum number of persons engaged in agriculture and the discouragement of the migration of

school leavers from the rural areas to towns. A second objective is the diversification of the production of exports and the maintenance of a certain degree of self-sufficiency in the production of foodstuffs. The combined effects of these two objectives is to encourage the conservation of foreign exchange within the economy. A third objective is to raise the incomes of the farming community and to improve the efficiency of agricultural production and marketing. Another objective can be to close the gap between agricultural production and the demand for foodstuff from a rapidly increasing population.

The formulation of agricultural policy is very complex. It must endeavour to combine the effects of policies in other fields of economic activity within the framework of political objectives which may be subject to changes. Policies relating to industry, international trade, taxation, subsidization, labour, credit, banking, social services, education, medicine, the law and so on, have all important implications for the determination of the level of agricultural activity. Apart from political changes, the process

of economic development is itself a dynamic process and agricultural policy must, therefore, necessarily be dynamic; recognizing the need for evolution and change. Agricultural policy should concern the land, labour, capital or investment, entrepreneurship, production, prices, farm incomes and marketing. This should also consider education, nutrition and research, and the general welfare of the people in, and associated with the agricultural industry. Summarily, agricultural policy is initiated by the government for one or both of two reasons; to benefit consumers and/or to provide gain to producers (Heady, 1962).

African agricultural policies in general have been characterized by:

a) important tariff, import substitution and protection policies against imports competing with domestic production;

b) maintenance with over-valued exchange rates and the imposition of import restriction schemes;

c) direct suppression of producer prices through taxation and stabilization mechanisms (Krueger, 1988 and Krueger et al, 1991).

The policy implication of these features is that they have tended to inhibit agricultural and export growth. In the recent past, exchange rate over valuation has tended to explain partly the decline of agricultural pricing and output. Infact, Fosu (1992) and Oyejide (1990) strongly support the view that the exchange rate policy and the relationship between the real exchange rate and price incentives are becoming a major focus in the study of African economic and agricultural decline. The present study shall add to the existing literature on the relationship between exchange rate and agricultural output and productivity. Next, we examine the stages of agricultural transformation.

2.3 The Stages of Agricultural Transformation

This study focuses specifically on the extent to which policy changes follows a pattern set forth by the process of structural transformation and how this pattern influences agricultural output

and productivity. An identifiable pattern of institutional change helps to provide generalizations about agricultural output and productivity during the process of economic development.

According to Naylor (1994), the dynamics of institutions can be linked to three broad and widely accepted phases of structural transformation in agrarian economies. Below, we examine each of these phases.

2.3.1 The Traditional Agricultural Economy

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In the early stages of development, the agricultural sector defines the boundaries of economic activity. Employment is concentrated in a highly disaggregated and personalized agricultural system in which transaction and monitoring costs are high. The high production costs is partly explained by the use of rudimentary farm tools such as cutlasses and hoes, and partly by illiteracy and ignorance to adjust to technological development. Infact, production is driven by subsistence (Small-scale farming) rather than profits, and financial transactions including credit, savings and payment of wages - are in the form of production

exchange (as in the case of commercial/large-scale farming). Output is basically for consumption. (Naylor 1994)

2.3.2 Technological Change in Agriculture

In the second phase of development, the agricultural sector is given an exogenous technological boost that generates surpluses in production. Naylor (1994) opines that, this surplus generates widespread growth throughout the rural economy through investments and expenditures of agricultural profits. Monetization of product and factor exchange expands, enhancing the growth of financial intermediation. Gender roles in agricultural production become more pronounced with increasing specialization of function in both agricultural and non-agricultural activities, depending on the kind of society.

2.3.3 The Decline of Agriculture

In more advanced stages of development, the relative and, eventually, absolute role of agriculture in aggregate income and employment declines as labour, capital, savings and output are increasingly transferred to non agricultural sectors. Systematic

changes in aggregate demand lead to relatively higher levels of consumption of non agricultural goods and services as incomes rise. A complex network of interdependence among sectors and regions widens the impersonal exchange process and encourages division of labour and specialization, which leads to lower production costs and increased output but higher transaction costs of monitoring.

This pattern of structural transformation observed at varying stages in LDCs, raises important production and productivity issues in the agricultural sector. The main issue concerns the performance of the agricultural sector. As relatively faster rates occur in non-agricultural sectors (such as the oil and manufacturing sectors), the key question is whether agricultural production and productivity also rise, or whether it falls both relatively and absolutely. That is, is agricultural production and productivity being pulled along in the process of transformation or does it lag behind? To provide answers to these questions, we first of all examine the role of agriculture in economic

development in LDCs.

2.4 Agricultural Constraints in LDCs

There are many divergence views that the performance of agriculture in LDCs has been greatly affected by many elements, including primary resources institutional and infrastructural factors.

Rudimentary implements such as hoes and cutlasses are predominantly used on farms. Bureaucratic obstacles are reflected in red-tape, long delays in decision making and inter ventionist and paternalistic policies that may leave farmers with no private initiative. The governments have not provided the necessary public investment to give the right environment for increased agricultural activities. Some of the major other factors beside pricing that are highly conducive to agricultural production, but lacking in LDCs, are infrastructure, inputs, information and institutional frameworks.

Ojo (1991), in his study classified the constraints facing Nigerian agriculture into six categories. These are:

environmental, land, labour/manpower, capital, technological and marketing system constraints. Some of these factors have already been articulated by several authors. However, we shed more light on some of the specific constraints that affects the agricultural sector in Nigeria. These are discussed below

2.4.1 Infrastructure

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Infrastructure, especially road infrastructure that links production locations with other parts of the country, particularly consumption areas is important. Storage and transportation facilities too are essential for ensuring the movement of persons, goods and services from one place to another. Unfortunately, such infrastructure are grossly inadequate in LDCs.

The inadequacy of these structures leads to fragmented markets, since market signals are not effectively transmitted and responsiveness to price incentives is inhibited. All these limit the price mechanism from operating effectively. In addition, farm produce easily get spoilt as they are unable to reach the final consumer on time. The importance of infrastructure in boosting

agricultural output cannot be overemphasized. For example, in China, agriculture improved significantly in the 1970s mainly because in the 1960s the Chinese government built an appropriate agricultural infrastructure (RAJ, 1991).

In LDCs, infrastructural facilities especially road infrastructure are deteriorating (including the paved ones) because of lack of maintenance. The limited road and railway infrastructure further presents a great constraint to the evacuation of agricultural produce from the hinterlands. This makes it difficult for farmers to respond to production incentives.

2.4.2 Inputs

The timely availability of inputs such as fertilizers, equipment and water permits the proper and efficient production of crops. In LDCs, few agencies are involved in research on farm equipment and little is currently being done to improve the rudimentary equipment used by farmers. In Nigeria for example, less than 3 per cent of the farmers own and use machinery such as tractors, ploughs and sprayers. The small size of farms in the

South to some extent limit the use of machinery. It may be that organization like cooperatives can find ways to introduce and encourage the use of small farm equipment. Unfortunately, cooperative organizations are grossly lacking in the country especially in the north. This has limited the production and timely organization, transportation and marketing of fresh agricultural produce.

2.4.3 Instability of Prices and Earnings of Agricultural Produce on the World Market

Many countries in LDCs depend on Agricultural products as their main source of foreign exchange earnings. Over the years, prices of major primary commodities have maintained a downward trend in the world market with terms of trade consistently moving against the primary commodity exporting countries (Obadan, 1989). An IMF study in 1986 revealed the nature of falling prices of non-fuel primary commodities over the years. Price instability has often characterized the primary product exports. Obadan (1989) has demonstrated this falling

trend of prices of agricultural produce on worked market. He cites for examples, the case of Cocoa. The price of cocoa has remained low and has maintained a downward trend in the past three years due to overproduction. Surplus production was estimated to be 133,000 tones at the end of the 1987/88 cocoa season. At the peak of the cocoa boom a tonne sold for about £1,400. As at the end of October 1988 the price had plummeted to £722 at tonne. This was the lowest price in three years. Efforts by Cote d'Ivoire, which is the world's largest producer of cocoa, to cutback supply to the world market did not succeed in raising the price of cocoa.

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2.4.4 Finding a Market for Agricultural Produce

Infrastructural inadequacy restricts the demand for agricultural produce especially food crops. For export commodities, the situation is the same. Where the foreign demand for a certain commodity is inelastic such a commodity can hardly respond to incentives for their production. This problem of inelastic demand is not unconnected with the rapid development

of synthetic materials by the Western nations as alternatives to primary commodities, as can be observed even where there are no production constraints, export volume and values may still be limited.

2.4.5 Inadequate Capital

The problem of inadequate capital is yet another important constraint besetting the Nigerian agricultural sector. Ojo and Akanji (1996) have argued that because agricultural paroduction requires substantial capital to finance current operations and capital investment, it is thus necessary to supply this sector with huge capital outlay otherwise, provide a means by which farmers can have easy access to capital. In showiwng how inadequate capital is a major constraint in Nigeria's agricultur, Ojo and Akanji (1997) synchronise their argument in the following manner. Capital for agriculture is derived from two main sources government budgetary allocations and credit from financial institutions. Yet, regrettably, from the First through the Fourth National Development Plans, government spent less than 10% of

its total capital expenditures on agriculture which contributed more than 60% of the GDP. Also, the bulk of credit needs of farmers was derived from informal sources at prohibitive interest rate. The consequence of all these, obviously, was a low productivity of Nigerian agriculture, a situation which still persists uptil date.

2.4.6 Population Growth

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In LDCs, the Malthusian theory of population that, population grows at a geometric rate while food production at an arithmetic rate is almost conclusive. This has led to the importation of food by LDCs from other countries. For example, the population growth rate of Nigeria stands at about 3.5 per cent per annum while food production stands at 2.6 per cent per annum (FOS 1993). This increasing population has increased local consumption of food.

Obadan (1989) has submitted that, Nigeria up to the late 1960s was the largest exporter of palm oil. But by the late 1970s and up to 1988 the demand for palm oil by Nigerians far exceeded

production, to the extent that in 1987 Nigeria imported 50,000 tones of palm oil from Malaysia. Furthermore, as a result of the development of many agro-based industries in the 1970s and 1980s the quantities of agricultural raw materials available were insufficient for both domestic use and for export. Infact, it has been argued that it is the increased demand for agricultural raw materials by domestic import-substituting industries that has accounted for the decline in the export of crops such as palm kernel, groundnut, raw cotton and palm oil.

2.4.7 The Advent of Oil Boom

In the early 1970s oil was discovered in many countries in LDCs. Before the advent of the oil boom, many countries depended on agriculture for survival. With the oil boom, however, agriculture suffered many neglect and setbacks. This was due essentially to the euphoria which attended oil production and export and the pride of place accorded the industry.

Other factors that have also adversely affected or discouraged increased production include:

i) natural disasters of floods, storms, draughts and, pests. These have affected both the quantity and quality of crops produced.

ii) the problem of rural-urban migration and the resultant scarcity and high cost of farm labour;

iii) there is also the problem of low prices offered by consumers for some commodities.

iv) low investment by some investors because of perceived political and economic uncertainties.

v) high production cost emanating from high interest rates, withdrawal of petroleum subsidies and the huge devaluation of the naira.

The above factors have contributed very immensely in reducing the amount of available agricultural commodities - being produced.

These factors as discussed above may not necessarily be exhaustive, nevertheless, they form some of the basic constraints that hinder agricultural output and productivity in LDCs.

2.5 The Impact of Structural Adjustment Programme (SAP)

One of the earliest attempts made to analyse the impact of SAP on agriculture was done by Osogi (1986). According to him, the introduction of SAP marked the dawn of a new era in restructuring the Nigerian economy. To the extent that SAP addressed the two "missing links" of realistic exchange rate policy and deregulation, and was pursued simultaneously with other complementary measures and the prospects for success were very bright. Properly considered, the main message of SAP was that Nigeria must look inwards for her well being and economic redemption. As Nigerian economy is largely algarian, one can therefore deduce from this that SAP should have positive effect on the Nigerian agricultural sector for it to assert a pronounced effect on the Nation's economy.

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Okongwu (1987) described the general impact of SAP on the economy as mixed but with appreciable positive impacts. According to him, industrial enterprises enjoyed significant increases in capacity utilisation because of easy access to foreign exchange engendered by SAP. Inspite of this so-called

achievement, SAP has some negative effects, he stressed. For instance, the prices of a number of imported items increased as a result of the high cost of foreign exchange. In addition, SAP created a major problem of credit squeeze in the economy since the introduction of the second-Tiers Foreign Exchange Market (SFEM).

Usoro (1987) was indeed sceptical about SAP aiding agricultural development in Nigeria. His disagreement arose because SAP eradicated the longstanding and "effective" export crop - marketing organization without setting up an appropriate substitute. The free market system he felt, may not be an answer to speculative agricultural adjustment problems and amounts to the non-recognition of peculiar problems of Nigeria agriculture. He believes that SAP seems to have ignored the repercussions of its measures on the income earning potential of agricultural population.

Titilola (1987) observed that SFEM has great implications for agriculture's cost of production and output prices. The

exchange rate system under SFEM, he said, would affect the use of imported production inputs, and hence output. To the extent that increased inputs costs lead to underutilisation of inputs, the expected incremental yield is not likely to materialize, he stressed.

In the same vein, Aluko (1987) felt that SAP would not be effective in Nigeria because of the concentration of commodity export and the vulnerability of these commodities to external shocks over which Nigeria has not control.

In his view, Olomola (1987) opined that promotion of agricultural production as conceived and envisaged in the SAP package could come about only if farmers obtain needed inputs in the right quantities, at appropriate times and at reasonable prices and terms. He further stated that since some agricultural inputs are imported under SFEM conditions, it is certain that agricultural inputs will be quite expensive and farmers may be unable to acquire the necessary inputs. In addition, farmers' income position is likely to be worse since prices of consumer items which farmers normally purchase have also gone up.

Evubuoman (1989) and Igbedion (1989) show that the impact of SAP on the food crop sub-sector has been positive. The prices of food crops like maize, yam, cassava, guinea corn and beans have been rising rapidly since the inception of SAP. The output price increases have resulted in significant increases in total value of farm output per household. Input prices have nevertheless increased significantly since the inception of SAP (Baba 1989). The prices of fertilizers, agro-chemicals and farm inputs have risen resulting in significant increases in the average expenditure on farm inputs per household. There were more indications that as a result of inadequate supply and rising prices, farmers are using relatively less of the improved inputs, such as fertilizers, agro-chemicals, tractors services and other inputs. There is therefore the fear that the little gain made in the way of getting farmers to use improved inputs may be lost, if the prevailing input supply shortage and high price situation persist.

It is observed that SAP has not been able to stem the vulnerability of the agricultural export sub-sector to external

shocks. Also, inspite of the massive devaluation of Naira, the price of Nigerian palm produce is not competitive relative to the world palm produce market prices Nwosu (1989). The study by Olomola (1989) which sought to examine the impact and export of rubber and fish in Nigeria, found that no significant progress has been made in terms of higher rubber output under SAP, and that SAP has been more effective in stimulating export growth in value terms rather than in volume terms. And that despite SAP, he observed that the instability of rubber exports has been increasing. With regards to the fishing sub-sector, the study concluded that SAP has not been fully effective in providing the desired export base in the fishery sub-sector. The marine fishery was found to be less profitable under SAP than was the case before SAP. This was attributed to the general inflation that was prevalent during SAP.

Ojo (1989), in his study observed that the export volume of cash crops increased only marginally under SAP. He noted however that their export values recorded substantial increases,

due mainly to rapid increases in Naira unit prices of the export commodities. According to him, development in the marketing system for the export commodities like cocoa, rubber, palm kernel, etc, showed some slight improvement in efficiency under SAP, but the continuing problems of inadequate infrastructure, low quality of produce and higher marketing costs made the system less than optimal. In a survey conducted on agro-chemical manufacturing companies and cocoa farmers in South Western Nigeria, (Igodan, 1989) found that the prices of agro-chemicals rose significantly under SAP. The prices of some of the cocoa agro-chemicals were found to have risen by about 558 percent between 1983 and 1987. The effect of such price hikes on the profitability of cocoa farming must be adverse.

According to Kio et al (1989), SAP has adversely affected the establishment of plantations and the supply of raw wood. The capacity utilisation in most of the wood-based industries which depend on the use of imported adhesive - plymill, furniture and flush door, has declined to about 40 to

50 percent by 1988. Also the widlife sub-sector has not been spared the debilitating impact of SAP. Enabor (1989) observed an interns exploitation and consumption of bushmeat by both rural and urban populations. The increase consumption of bushmeat is partly due to high cost of beef under SAP. This development has further adverse impact on the wildlife sub-sector and serves as a disincentive to beef production.

Omitogun and Tella (1989), pointed out that though the nominal incomes of rural dwellers have increased, their real income have decreased in view of the rapidly growing inflationary trend. Ayoola (1989), was of the opinion that it was unlikely that the windfall incomes that accrued to farmers during SAP can be attributed solely to the removal of the Commodity Boards. According to him, if the gains were solely as a result of the abolition of the boards, the gains could not have been very short-lived. The increase in cocoa prices, for example was immediately followed by the emergence of bad trade and other Sharp practices such as exports of poor quality cocoa, a situation which led to loss

of Nigeria's good reputation in the world market.

Pearce (1981) in Ayoola and Idachaba (1990) had contended that it was quite unrealistic to posit a free market system that would make agriultural prices to be determined solely by market forces. It was in recognition of the point made by Pearce that Ayoola and Idachaba (1990) suggested an alternative intervention mechanism.

A significant part of the literature on the response of agriculture to policy changes focussed on the measurement of short-run and long-run supply response of individual crops to changes in output or input prices. Earlier studies, such as those of Olayide (1969, 1972), Owosekun (1976, 1977) and Phillips and Abalu (1987) all tested the proposition that the output of Nigerian crops respond strongly and positively to movements in output prices. Their results validated that hypothesis and were also consistent with the findings of similar studies for other countries, that short-run elasticities were small in absolute terms and relative to long-term elasticities Bond (1983).

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Recent concensus among analysts of agricultural responsiveness is that the conventional supply response analysis is weakened by the exclusion of non-price incentives (Chibber, 1988; Binswanger, 1989; World Bank, 1988; Oyejide, 1991 and others). For instance, World Bank (1988) identified inadequate infrastrructure, poorly developed markets, rudimentary industrial sectors and severe institutional and managerial weaknesses in the public and private sectors as key non-price factors that constitute significant constraints to supply responses of sub-Saharan African economies to reform policies.

Kwanashie et al (1991) measure the response of agriculture to price and non-price variable such as interest rate, credit allocations, government expenditures and exchange rate policies by estimating short-run and long-run price and non-price response coefficients for three non-tradeable crops (Millet, maize and sorghum) and five tradeables (Cocoa, groundnut, cotton, palm kernel and palm oil). They also computed response coefficients for four sub-sectors (food, non-food, fisheries and livestocks).

The treatment of non-price incentives made it possible for the study to evaluate the effects of adjustment policies such as exchange rate liberalisation and credit policies on agriculture. Some of the findings from the study are that: crops are more sensitive to price changes relative to non-price variables; long-run elasticity is higher than short-run elasticity; non-food and fisheries are most sensitive to price incentives particularly in the long-run; and the price and non-price sensitivity of food crops and livestock was very low, both in the short-run and the long-run.

In assessing the response of agricultural production to SAP, most studies concentrate on the short-run and long-run responses of individual crops to changes in relative output and input prices. Binswanger (1990) however argued that in analysing the response of agriculture to policy changes, it is the broad response of agriculture to policy changes that should be studied and not individual crops. He contended that the growth of one crop involves the allocation of resources from other crops in the short-run since the main factors of agricultural production (land, labour

and capital) are fixed during this period. Consequently, even if elasticity of one crop to policy changes is initially high, that of all agriculture is likely to remain low. The response of aggregate output is low in the short-run because most factors of production are fixed during this time. The major factors of production in agriculture i.e land, labour and capital, account for between 70 and 85 per cent of the cost of agricultural production. To get a large response to policy changes, more of these resources have to be allocated to agriculture. To achieve this in the short-run is difficult. The only factors that can change quickly are variable inputs such as fertilizers and agro-chemicals and these account for less than 15 to 30 per cent of the cost of production.

Moreover, public actions and investment in infrastructure have a strong influence on agricultural output. The density of roads has been shown to have elasticities of between 0.12 and 0.20 for aggregate agricultural output and strong effects for demand on fertilizer and tractor services (Binswanger, 1989; Khandker and Rosenzweig, 1989).

Other factors that have been found to influence agricultural activities, agro-chemical production and rural welfare include cost and accessibility of consumer goods, farm subsidies and taxes, research and extension services, credit facilities and the like (Birkhaenser at al, 1988). The implication of some of these findings lies in the fact that SAP while realigning prices could also lead to large-scale reduction in public expenditures which may affect spending for research and extension services, infrastructural development and agricultural credit. The impact of such changes on aggregate output is therefore of interest.

Famoriyo and Imodu (1990), in a study of the impact of SAP on rural life observed that farmers were no longer getting adequate economic returns on their investment due to the depreciation in the value of the Naira in the foreign exchange market. According to him, this has resulted in increases in credit squeeze and the removal of subsidies. These have adverse impacts on agricultural production and farm incomes.

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In the recent past, exchange rate valuation (over or under) has tended to explain partly the decline of agricultural pricing and output. As strongly supported by Fosu (1992) and Oyejide (1990), the exchange rate policy and the relationship between the real exchange rate and price incentives are becoming a major focus in the study of African economic and agricultural decline. However, very little attention according to (Fosu, 1992) has been placed on the link between real exchange rate and agricultural pricing incentives in African economies and the agricultural exports to real exchange. Studies by Krueger et al (1991), estimate the responsiveness of the exchange rate to agricultural price incentives. Their findings were not different from the studies considered above.

Phillips (1996), examined the responsiveness of selected agricultural export commodities to exchange rate devaluation in Nigeria over the period 1974 to 1992. The model adopted for this study was of the form:

$$\ln X_{it} = b_1 + b_2 \ln X_{it-1} + b_3 \ln_{it} + b_4 d_t + wt$$

where: Xit, e and d are Export, Exchange rate and the dummy variable respectively and, wt the disturbance term. The model was then applied to the study of four commodities viz: ocoa, palm kernels, natural rubber and processed/semi processed products. The findings of the study revealed that the export elasticity estimates for the commodity groups studies were of low order both in the short-run and the long-run, with the exception of natural rubber. However, very strictly, the study found that the only commodity for which potential exist for increased export revenue from foreign run, is natural rubber. The study then recommended the need to strengthen and streamline the economic policy framework for agricultural development during deregulation amongst others.

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In another study, Ojo and Akanji (1996) examined the impact of macroeconomic policy reforms on Nigeria's agriculture in the last ten years (1986-1996). In a historical perspective, these authors reviewed the status of Nigeria's agriculture before macroeconomic policy reforms of 1986 using a four dimensional

theoretical consideration of budget allocation, fiscal and monetary policies, macro-price structure -exchange, interest and wage rates and; rural-urban terms of trade. Using a descriptive approach, the findings of their study revealed that under the reforms, agricultural sector performance improved substantially especially in the first phase of the reviewed period. Both agricultural products and exports increased significantly while food imports declined in real terms. The findings of the study further revealed that following some policy reversals and implementation inconsistencies, agricultural sector performance was not sustained at the initial levels. The major constraints that explain this appalling situation included poor policy implementation especially with regards to the problems of fertilizer pricing, exchange rate and interest rate policy reversals and; lack of complementary policy measure to back the exchange rate adjustment such as; tight fiscal and monetary policies. The authors then recommend that the way forward is to urgently streamline and pursue logically the economic policy framework guiding agricultural development

specially emanating from the Structural Adjustment Programme, SAP.

From the above review, it could be observed clearly that the paper lacked a strong methodological approach to arrive at its conclusion. For example, the use of simple descriptive statistics of tables and percentages have been shown by Madalla (1977) and Kuznets (1964) as limited in scope for an effective and efficient appraisal of a problem under investigation. They opine strongly that for a more effecive results, econometric techniques must supplement descriptive analysis.

Relatively scanty literature, as at exists on the effects of SAP on the agricultural sector in Nigeria using a broad response approach. Those works though of great importance are observed to be shallow and crops specifics with some methodological and timing problems. In the first instance, the time lapse from 1986 (when SAP was introduced) to 1989 was too short for any serious study on impact analysis to have been carried out. Secondly, many of these literature made use of descriptive statistics, which

alone cannot reasonably explain the statistical significance of some factors that affect agricultural productivity. In addition, most of these studies treated the agricultural sector within the context of policy reforms in mere articles concentrating on specific crops. It is the intention of the researcher in this study, to relax the shortcomings identified above, and give a more elaborate and diagnostic approach using descriptive and regression tools to examine the impact of SAP on the agricultural sector in Nigeria.

In another study, through the price trend calculated as indices economical price, real price and foreign currency (US dollar) prices, Ihimodu (1993) clearly shows that a substantial part of the increase in the commodity prices was due to general price increase (inflation) occasioned by Naira devaluation.

He believed that SAP has served to boost the domestic price of agricultural commodities, especially those that are traded internationally. His expectation is that the boost in the price would be translated to increased output in agriculture due to the fact that several studies on the Nigerian agriculture have indicated some positive elasticities of supply for many crops. Ihimodu further to

examine the price movement in Nigeria in relation to that in the world market. This enables him to ascertain the relative gains of Nigeria agricultural exports. He shows the divergence of producer price from the word price (Di) for export commodities between 198111 and 1989, using the formula:

$$Di = 100 \ (pwi\text{-}pdi) / pwi$$

Where

Di = divergence of price

Pwi = world price for the I th product

Pdi = producer price for the I th product

On the basis of the results, he calculated the producer prices as a percentage of average world prices and also computed the" Index of Domestic Relative Price Performance" (IDRP). The IDRP is Calculated as follows:

$$Ti = 100 \ Vi - Uj / Vi$$

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Where

$$Vi = \frac{Pdi}{Pwi} \ldots\ldots\ldots / n\text{-}1$$

and

$$Vj = \frac{Pdi}{Pwi} \ldots\ldots\ldots / n\text{-}1$$

where

Pd = producer price

Pw = average world price

Ti = Index of Domestic Relative Price Performance

The index indicates that as a proportion of and comparison with price movement, producer price appeared to show gain or loss.

On the basis of the results, Ihimodu (1993) concluded that various measures of price and price movements show that there was a very high jump in the domestic prices of major agricultural commodities following the introduction of SAP in 1986. This occurred as aa result of the substantial depreciation in the value of the naira. Although the absolute increase in domestic prices is quite high when compared to the movements in world prices, the ratio of producer price to world prices no longer shows an unambiguous "gain". This shows that depreciation of the Naira has a more significant impact on price increase than the market liberalization effect through the abolition of marketing boards.

This present study agrees with Olomola (1987) that promotion of agricultural production as conceived and envisaged in the Structural Adjustment Programme could come about only if farmers obtained needed inputs in the right quantities, at

appropriate time and at reasonable prices. Since some agricultural inputs are imported under SFEM condition, these inputs will be quite expensive and farmers' income position is likely to be worse since prices of consumers that farmers normally purchase have also gone up.

In line with the above, Baba (1989) observed that the prices of fertilizers, agro-chemical and farm inputs have risen since the inception of Sap, resulting in significant increase in the average expenditure on factor input per household. There were indications that as a result of inadequate supply and rising prices, farmers were using relatively less of improved inputs, such as fertilizers agro chemicals, tractor devices and other inputs. There was therefore the fear that little gain was made in the way of getting farmers to use improved inputs.

Earlier studies, such as those of Olajide (1962,1972) Owosekun (1976, 1977) and Philip and Abalu (1987) all tested the preposition that the output of Nigeria crops respond strongly and positively to movements in output prices. Their results validated

the hypothesis and were also consistent with the findings of similar studies for other countries, that short- run elasticities were small in absolute terms and relative long term elasticities.

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sectors, severe institutional and managerial weakness in the public and private sectors as key non price incentives factors that constitute significant constraints to supply response of sub--sharan African economies to reform policies.

2.6 The Concept of Agricultural Productivity

One of the goals of Nigeria's economic development is to raise the productivity of the farmer so as to increase his farm earnings and rise his standard of living. If the gains of increase agricultural productivity are to be utilized to stabilize the economy, other policy instruments of government - exchange rate, monetary, fiscal and incomes policies must be reviewed to usher in the much desired economic and political stability.

Sumanth (1987) in his definition of productivity pointed out that some people think that the greater the production, the greater the productivity. According to him, it is not necessarily true that increase in production result to increase in productivity. Production is concerned with the activity of producing goods or services. While productivity is concerned with the efficient

utilization of resources (inputs) in producing goods or resources (output). Economists define productivity as the ratio of output of goods and services to the input production factors. Amadil (1987) defined productivity in a nutshell as a measure of how effectively resources are combined and used in order to accomplish specific, desirable result. Thus, it concerns quality, service and profit.

Akunnusi (1987) also defined productivity in the same way as the ratio of some output to some input, and as a measure of how well resources are combined and utilized to accomplish specific result.

He expressed it simply as: $= \frac{\text{Output}}{\text{input}} = \frac{\text{Result achieved}}{\text{Resources consumed}}$

Following the definitions above, agricultural productivity can be defined as the ratio of agricultural production to the resources used in producing it. In other words, it is the ratio of "input" Nwaroh (1987). Others like Kendrick (1983), saw it as "what you get out of agricultural activity for what you put in".

It has been observed that the structures of supply and demand have an important influence on economic activity and on measures designed to influence the variables. Sharply (1984), has observed that while the overall excess demand in an economy can be eliminated by conventional fiscal and monetary measures, excess demand in a key sector, like agriculture, may make it difficult for a developing economy to reduce the general level of inflation. This seems to be true of Nigeria where declining total output, declining productivity and increasing population have triggered and excess demand of agricultural products over supply. The result has been a persistence rise in food prices which has caused economic instability. According to Sharply, increased industrialization and continued agricultural backwardness will result in a chronic shortage of agricultural produce. She states:

> "The matching excess supply occurring in the non-food sectors may not lead to a balancing decline in the rate of change in non-food prices. Demand would be less than supply, but prices would not fall elsewhere in the economy

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at the same rate that they are rising in the agricultural sector. The overall result in the short run is an increase in the inflation rate."

Factors which contribute to the increase in demand for food include: population growth, general rise in the standard of living, urbanization and subsidized food prices. At the same time the relatively low elasticities of supply in agriculture (i.e the low rate of productivity in agriculture) make it difficult to eliminate or even reduce inflationary pressures significantly. Except for subsidized food prices, all the factors given above are applicable to the Nigerian situation and have contributed to the high rate of inflation in the country, especially in times of negative or stagnant growth. Fortunately for Nigeria, the recent growth rate of agricultural production has been impressive and significant.

According to CBN, the impressive growth in agricultural output between 1989 and 1990 was due largely to a combination of favourable environmental, institutional and technical factors. These factors included favourable weather conditions, the

expansion of hectarage cultivated, increased supply of farm inputs by various agencies of federal and state governments, improved crop storage facilities to reduce post harvest loss and more effective pest control measures. In particular, the procurement and distribution of such inputs like different types of fertilizer improved and their supply rose to about 1.1 million metric tones in 1990, showing an increase of 33.0% over the level supplied in 1989 (CBN, 1990). After 1990, however, this impressive growth continued throughout the period under review.

The growth rate of agricultural sector as noted earlier was a results of a combination of factors, but increased productivity was mainly attributed to the increased use of yield-increasing technologies. It should be noted that the broad goal of Nigerian agriculture is the rapid attainment of food self-sufficiency, especially in the production of energy foods, vegetables and edible oils and "an acceptable minimum per caput protein intake together with a minimum per caput livestock protein allowance (Okongwu, 1986). It has been emphasized that the food component of

agricultural production is not just a component of the market basket but more fundamentally, a core element of the 'wage good' and therefore naturally enters every sector as input. As Okongwu (1986) states:

> ".... if we hope not only to (i) ease the solution of the present (and future) balance of payment problems, at least by reducing food imports, and (ii) reduce inflationary pressures; but also to (iii) better bear the deflationary burdens associated with the corrective measures; (iv) urgently solve the worsening food equation (gap) arising principally from the worsening imbalance between falling domestic production (due mainly to structural shifts away from agriculture and inadequate technologies) and increasing demand pressures on account of rapidly increasing population and incomes; and (v) effectively re-adjust price relations, including money wage rates, to sensible norms, without social upheaval and in order to

render own manufacturing activities competitive, then our agriculture must be urgently revamped to provide cheap, abundant food to society".

Revamping Nigerian agriculture as suggested by Okongwu hinges on productivity issues and the technologies to be employed to ensure high productivity. In the United States of America, for example, one farmer produced enough food to feed eight people at the beginning of this century. Today, one farmer produces enough food to feed thirty five people (Arnold, 1989). The agricultural land at own disposal is fixed, what is needed therefore, is the efficient utilization of this available land resources for optimum crop and livestock output to ensure stable prices of our agricultural products.

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Increased agricultural productivity can contribute to Nigeria's economic stability by providing enough food and fibre for domestic consumption and cash crops for domestic industries and for export. The provision of an adequate supply of food is necessary to ensure a healthy and productive labour force.

Besides, increased domestic food and fibre production reduces our dependence on imported food items, serves foreign exchange earnings and contributes to a favourable balance of payment situation which is necessary for economic stability. The increase production and supply of agricultural raw materials to local industries contributes to economic growth as well as reduces dependence on imported manufactured goods. In addition, increased productivity provides a surplus in the cash crop sub-sector for export. Export earnings help to eliminate or reduce deficits in the balance of trade and balance of payments and provide resources for further investment in both the agricultural and industrial sectors to enhance sustained economic growth and stability.

It is generally believed that price stability in an economy is socially desirable for the maintenance of a reasonable standard of living. Price stability requires that the purchasing power of the nation's currency be maintained at a level that encourages investment, increased production of goods and services and high

employment of economic resources (Iniodu, 1991). But unfortunately, the purchasing power of the naira has so declined that reasonable investment has hardly gone into the agricultural sector or other sectors, for that matter. The continuous depreciation of the naira has been so inflationary that productivity gains in agriculture do not seem to be meaningful to the ordinary citizen. The major problem of Nigerian inflation is not just that it has eroded the value of the naira generally, but that incomes have not risen along with the general price levels. Inflation bites harder on people with fixed money incomes. This has been a major cause of instability in the Nigerian system since the introduction of Structural Adjustment Programme (SAP) and its accompanying Foreign Exchange Market (FEM).

2.6.1 Determinants of Agricultural Productivity

Several factors have been considered as important determinants of agricultural productivity by many authors. Demery et. al. (1987), pointed out the importance of input prices, level of income, rural infrastructures, technology or spending on

research. They contended that in the pursuit of profits, farmers have to bear the cost of inputs. Nomina. output price incentive is annihilated if input costs are high. Hence, input prices are very important element of agricultural production. The prices of relevant inputs like fertilizers, pesticides, improved and high yield varieties of seeds, tractors etc are important determinants. With regards to income, the authors stated that income level has a positive impact on agricultural output to the extent that the higher the farmer's income, the higher the level of production, 'ceteris paribus'. With higher income, the farmer can easily acquire the much needed inputs that can help boost productivity. Technology or spending on research as stated by Demery et. al. (1987) is perhaps the key variable if one has to raise output substantially in regions such as the sub-Saharan Africa. According to them, an increase in research in the sense of technological advance can attain the twin goals of agricultural output growth and environmental conservation through land use intensification.

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The authors further pointed out that a deficiency infrastructure can wipe out all other production incentives in an area. Thus, improving technology, or adjusting input prices may not be all that is needed to increase the output and incomes of farmers. To farmers located in areas with little access to roads, transport, communications, agricultural services, marketing facilities etc, improving technology may be a necessary condition for restoring incomes but not a sufficient one if farmers cannot get the supplies and services they need. Hence, investment in infrastructures may be required to give the farmers the capacity to increase output and yields. The importance of the supply and easy access to farm input as an efficient way of achieving productivity in agriculture was stressed by ANR Joint Planning Committee (1974). In the report, the availability of all inputs for production at reasonable prices and in convenient manner was seen as essential for achieving efficient productivity in agricultural sector.

Nlandu (1996), observed that Government policy can create constraints in input market to affect production in agricultural sector, thereby added that timely availability of fertilizer is essential. Bad fertilizer policy, the author noted, could impose large hidden costs on farmers, including search cost for scarce supplies, uncertainty about availability leading to panic buying, depressed yields through lack of supply at required time.

The author also observed that credit facilities affect productivity in agriculture. Higher credit use is correlated to higher input use and possibly higher output. Easy access to credit facilities, he said, helps in alleviating poverty, particularly in financing small scale farming in rural areas. Similarly, Lipton and Ranallion (1993) stressed the importance of physical capital, especially the amount of land, farm equipment owned and credit facilities as crucial to the well being of people who derive income mainly from their labour. Alleviating poverty, according to them should begin with developing rural areas and making credit available to peasant farmers so as to increase their agricultural

productivity. Quarashi et. al. (1996) pointed out that, to promote agricultural productivity, Nigeria must make credit available to agricultural small holders. They observed that subsidizing from input prices is not the way out to help marginal borrowers, instead, they can be helped in fixed cost subsidies and self selected targetting. The authors also noted that small scale farmers are more likely to face credit constraints due, in the main, to lack of collateral facilities.

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Other factors that determine agricultural productivity as pointed out by other writers are land, labour, increased yield seeds and level of technology. CBN/NISER (1991), pointed out the effect of low rate of technological adoption as a determinant of low productivity in agriculture. That the reduction and outright elimination of subsidies on all agricultural machinery like tractors, harvesters, planters and harrows, following deregulation has reduced the pace of adaptation of technological innovation in agricultural productivities. This has compelled continued application of traditional technologies. Evidence has shown that

the tractor hiring unit run by State Governments are now of little relevance, as tractors are either obsolete or in a State of disrepair. Norman (1974) suggested that labour flow into small-scale agriculture is a major constraint to agricultural productivity. Compared to Asia, labour availability in Africa is frequently a greater constraint to increasing agricultural productivity than is the availability of land. Norman observed that on average, African small-farm-holders devote only about 1,000 man hour per adult, per year, to agricultural activities, compared to 3,000 man hours in several Asian countries.

Cleave (1974) supported this view by saying that there is a seeming paradox of a farm labour shortage combined with an apparent labour surplus. His explanation lies in the way labour time is located in African agriculture. That is in the seasonality of labour usage; the allocation of time between farm work, non-farm work and leisure. These factors are noted to frequently pose a constraint to increasing productivity, limiting the effectiveness of interventions introduced through programmes.

It implies therefore that the level of agricultural productivity in the country cannot be easily and significantly increased in the presence of the constraining factors already mentioned above. It should be noted that unless the identified inhibitive factors are eliminated or at least minimized, our present effort to revive our depressed economy in general and agricultural sector in particular, and bring it back to the path of self sustaining growth stand the risk of either being delayed or frustrated.

2.6.2 Agricultural Technology and Productivity

Technology is the means by which an enterprise transforms inputs into output. It may be defined as the technical knowledge which assists a manager to formulate plans, to design process, to develop organizations and to manufacture products which are the economic 'life-blood' of any enterprise (Attwood, 1977). Agricultural technology involves the application of scientific knowledge to agricultural production. Technological progress in agriculture requires that new and different ways of employing the factors of production be discovered to raise agricultural output

beyond the levels attained under traditional practices (Iniodu, 1990). In agricultural production, the use of technology results in the development of new or improved products, new production methods, new markets and new activities which raise the average level of productivity of the economy.

The major task of technology, however, is to raise the productivity of resources. Agricultural labour productivity, for instance, is measured:

a) $\frac{\text{Total Quantity of Good Produced;}}{\text{Total Labour Hours Expended}}$

or

b) $\frac{\text{To Naira Value of Goods Produced;}}{\text{Total Labour Hours Expended}}$

or

c) $\frac{\text{Total Sales per Unit Time;}}{\text{Total Labour Cost}}$

The productivity of other agricultural inputs (i.e land, capital, materials, entrepreneur) may be similarly measured. Since all production systems are designed to be highly productive, the productivity measure should indicate how well the system is

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working (Bedeian, 1986).

Improved technology has been seen to be closely related to increased productivity. A comparative study of crop yields between a system using the traditional system and one using improved technology under similar climatic and ecological conditions in Akwa Ibom State (Iniodu, 1990) has revealed substantial gains in the output of maize, cassava and yam under the improved and has shown that financial benefits from the increased yield due to improved technology have substantially outweighed the additional costs.

From the foregoing, agricultural productivity depends largely on production technology high agricultural productivity ion Nigeria is associated with higher farmer incomes and an improved standard of living for the farmer's family. This, any meaningful effort to raise the standard of living of the Nigerian farming population in particular, and of all Nigerians in general, must be directed towards the adoption of improved production technology. Since any change, however, is characterized by uncertainties, the

Nigerian farmer needs an understanding of the basic technical production principles to enable him/her to be flexible and capable of facing those uncertainties. What is important, therefore is making an appropriate choice of technology is the ability of the farmer to determine his range of inputs and make his selection in the form of a mix and in line with his perceived effects on output. In this wise, it must always be remembered that:

a) Certain technologies succeed in certain environment under given climatic, ecological and economic conditions;

b) certain technologies are appropriate to given scales of production (Akerele, 1977).

This implies that appropriate technology must be selected to suit given conditions and that production technology must be modified as the scale of production changes.

2.6.3 Appropriate Technology for Increased Productivity

The application of modern agricultural technology to the agricultural system of developing countries has been subject of considerable controversy. Proponents see modern agricultural

technology in developing countries as a means of economizing scarce managerial and technical skills and reducing material waste, and argue that reliance on obsolete labour-intensive technologies is capable of condemning developing countries to technological backwardness and stagnation. On the other hand, opponents of capital-intensive agriculture see the practice as originating from highly industrialized economies whose needs and circumstances are different from those of developing countries. Besides, they argue that agricultural endowments of advanced countries are not similar to those of the developing world. They therefore conclude that the most desirable technologies for developing countries should be labour-intensive; capable of being used efficiently on a small-scale; easily serviced and repaired; not require high level of education or training to operate; and make use of locally available materials (ILO, 1977). These are the features of appropriate technology.

Appropriate technology is often used synonymously with immediate technology and defined as that stage of technology

development which lies between traditional (labour-intensive) practices involving the use of tools and implements, and advanced (capital-intensive) practices. Appropriate technology is particularly designed to raise the efficiency of all farmers - small, medium and large-scale farmers. O'Kelly (1977) sees appropriate technology as the application of modern skills .... 'to discovering and developing technologies of a simple nature suited to the actual conditions in the countries needing them with the object of bringing about increased productivity of all kinds whilst at the same time reducing unnecessary labour but not employment'. This technology aims to increase the supply of food and other necesities to provide basic medical care and improved educational facilities and to encourage the establishment of cottage industries in rural areas (O'Kelly, 1977). In general however, appropriate technology concentrates on choosing and adapting practices that are appropriate to the local resources of the area in which they are used.

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Matin (1977), outline certain features that should be associated with appropriate technology. According to him the system should be:

a) simple and labour-intensive so as to provide jobs for the labour force in a system with limited capital

b) adapted to the production of agricultural products and services in local demand to enable the country achieve its goal of self-sufficiency in food and raw materials production

c) capable of making maximum use of local skills and materials

d) simple enough for local people to learn easily and quickly.

Relatively scanty literature exists on the effects of S.A.P. on the agricultural sector in Nigeria using a broad response approach, mainly devoted to output aspect in the agricultural sector as a result of the policy reform. Most of those studies laid much more emphasis on the role agriculture was expected to play in achieving the goals of S.A.P., which comprise:

- to restructure and diversify the productive base of the economy;
- to achieve fiscal and balance of payments viability;
- to lay basis for a sustainable non-inflationary growth;
- to lessen the dominance of unproductive investments; and in the public sector.

Thus they rather contended in analysing how agriculture could perform specific and conventional functions for the attainment of the goals of the reform programme. Not enough attention has been given to the technical and productive efficiency in the agricultural sector as a result of S.A.P.

Increasing output in agricultural sector for self-sufficiency is the main focus of many existing literature. In fact, rapid increases in agricultural production may not necessarily benefit the entire population, but may leave some people without adequate income for food security, defined as the ability of people to obtain adequate food at all time. For these reasons, the concept of productivity is broader than that of output at the national level. It is a problem of

income and the variability of that income.

Accordingly, it is the intention of this study to rather focus on the impact of Structural Adjustment Programme on agricultural development, given that focuses on the need to increase agricultural productivity and income so as to benefit the bulk of the population and especially the rural poor. Instead of analysing how agricultural sector contributed to the attainment of S.A.P. goals, the study rather focuses on how S.A.P. affected agricultural development in respect of productivity and income variability which has not received enough attention while examining the impact of S.A.P. on agricultural sector. Therefore, to relax the shortcomings identified above, the study gives a more elaborated and diagnostic approach using descriptive and regression tools to examine the impact of Structural Adjustment Programme on the technical productive efficiency in agricultural sector in respect of productivity and income variability, bearing in mind that for a particular level of output, a production is technical efficient if it minimises the inputs of capital and labour required, while the productive efficiency requires that any size of output must be produced at the lowest possible average money cost.

CHAPTER THREE

NIGERIA'S AGRICULTURAL POLICIES (1960 - 1985)

3.0 *Introduction*

From a historical perspective, this chapter discusses Nigeria's agricultural policies. This is necessary for many reasons. First, it provides us with an understanding of the evolution of agricultural policies in the country over the years. This will further help in the understanding of the subject matter being studied. Second, by understanding the evolution of agricultural policies in the country, one will be able to draw inferences from here that will aid in analysis. Third, it is also imperative to discuss this chapter in order to enable us achieve part of the objective of our study.

To better understand the evolution of Nigeria's agricultural policies, the framework will be to collapse the analysis into some particular periods as follows:

1. Agricultural Policies prior to political independence, and
2. Agricultural Policies since political independence to 1985.

3.1 Agricultural Policies Prior to Political Independence

The period of colonial administration of Nigeria 1861 - 1959 was characterized by rather adhoc attention to agricultural development. During this period, considerable emphasis was placed on research and extension services. The first notable and recognised activity during this period was the establishment of a botanical research station in Lagos by Sir Claude Mcdonal in 1893. This was square kilometer of land in 1899 by the British Cotton Growing Association (BCGA) for experimental work on cotton and later the experimental areas Moor Plantation (Ibadan). In 1912, a Department of Agriculture was established in each of the then Southern and Northern Nigeria, but the activities of these departments were suspended between 1913 and 1921, as a result of the First World War and its aftermaths. From the early twenties to the middle thirties, there was a resurgence of activities and this period has been called the "Falkner Strip Layout" era in the honour of the Director of Agriculture, O.T. Faulkner who devised a statistical design for experimental trials in green

manuring, fertilizer projects, rotational cropping system and livestock feeding. From the later thirties to the forties, there were significant intensification and expansion of research activities, and extension and training programmes of Agricultural Departments by the country's Director of Agriculture, J.R. Mackie. Additional facilities for training of junior staff in agriculture were provided, in addition to scholarship for agricultural students in Yaba. Higher College and the Imperial College of Tropical Agriculture in Trinidad.

As the World War II (1935 - 1945) intensified, this slowed down agricultural activities. Yet, the war led to the call of the Department of Agriculture to play increasingly important role in the provision of food for both the army and the civilians. This necessitated the need for more research to increase agricultural output. To this effect, the West African Institute for Oil Palm Research (WAIFOR) in Benin was started and the research on cocoa was intensified at Moor Plantation Owena near Ondo and Onigambari near Ibadan. Achievement of the period included the

development of "Allen" cotton in the North and "Ishan cotton" in the South rice cultivation in Sokoto, Niger, Ilorin, Abeokuta colony and Ondo Provinces; the introduction of wheat cultivation in the Northern parts of Northern provinces. Other achievements also during this era were: the expansion of the production of exports crops such as cocoa, oil palm and groundnuts; development of agricultural engineering with the aim of improving upon the existing agricultural implements and designing new ones; the development of marketing section of the Department; the intensification of horticultural activities and the investigations into possibilities for organised land settlement including the possibilities of irrigation in Northern Nigeria.

The period 1951 - 1960 began with the regionalisation of the Department of Agriculture in 1951 with a Director and an Inspector-General in each Region. By 1954 the post of Inspector-General was abolished as a result of constitutional developments which led to independence of the Regional Departments. The Federal Department of Agricultural Research was retained. Regionalisation of Agriculture created a great awareness of the

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need for intensification of activities in both the research and extension fields.

It is imperative to note that for the years of British Administration in Nigeria, the burden of development was laid upon the cultivation and processing of raw agricultural materials for exports. As a result, Nigeria was joined in 'legitimate' trade with outside world as exporter of raw agricultural materials and importer of European industrial goods.

Agricultural policies in the colonial era was basically extractive and exploitative rather than developmental. The colonial government's philosophy was one of leaving the traditional system of agriculture largely undisturbed while exploring all avenues to exploit it through institutional arrangements involving the marketing boards and some regulatory mechanisms. As such, the focus of colonial government policies was on the so-called export crops, the marketing of which was relatively easy to control and manipulate the government advantage.

According to the Nigeria Digest of Statistics: FOS, Lagos (1962), between 1950-1959, income from exports of farm products averaged more than 86 percent while, agricultural component was 65.3 per cent of total GDP in 1959.

3.2 Agricultural Policies since Political Independence to 1985

The period of post Independence began in October 1960. This is the period of extensive planning and Regional competition in agriculture. Concentration of attention on commodity exports, the utilization of taxation policy by Marketing Boards as an instrument of developing the Finance and the belief that food production activities can take care of themselves without any governmental intervention became the official form policy at the early period of political independence.

Under regional independence, agricultural policy of the nation followed a new phase of modification of traditional practices, incapacity of food production to meet the needs of rising population and the inability of producers to reinvest in land. These maladies of agriculture were worsened by the inability of

Federal Government to play a leading role in the nation's agricultural modernization. Before the middle of sixties, a Federal Ministry of Agriculture and Natural Resources was set up, and a phase of consultation and co-ordination in projects for agricultural development began, and in 1966, the Federal initiative and control of the nation's agriculture were set in motion. Since then, self-reliance policies and measures for agricultural development of the country have been embodied in the national development plans and much attention was given to agriculture.

Despite the Federal Government involvement, it had no clear cut agricultural sector objectives. The bulk of its actions was mainly in the area of research and investigation for increasing the production of export crops through better seed distribution, increase in the land under cultivation, modern agricultural method through farm settlements, co-operative (nucleus) plantations, improved farm implements and a greatly expanded agricultural extension services (Federal Ministry of Economic Development, 1962). These were sub-parts of the macroeconomic objectives and

priorities of the Federal Government which were only national in its adoption.

Following the attainment of independence in 1960, the direction of economic policy was dictated by a number of serious problems such as a high rate of illiteracy, low per capita income, limited purchasing power, inadequate infrastructures, and very few modern industries. There was also the challenge to provide gainful employment. The foreign exchange base of the country was very narrow comprising mainly agricultural commodities, which were vulnerable to the economic cycles of the industrialized countries. In order to steer the economy towards self-reliance, price stability and social equity, development goals have been articulated in National Development Plans. With a view to provide the enabling environment for the agricultural sector to fulfil its roles, the Federal Government, from time to time, introduced various agricultural policy initiatives. The major agricultural policies carried out in Nigeria since independence can be grouped into two major periods, 1960 - 1985 and 1986 - 1993.

The first period coincides with an era of pervasive administrative controls which the second is characterized by more liberal policies involving greater reliance on market focus in the coordination of economic activities.

3.2.1 Agricultural Policies from 1960 to 1985

During the immediate post-independence era, the First National Development Plan (1962-1968) was prepared. In drawing the plan, the various governments of the federation agreed to produce a "joint economic development programme". This "joint" plan however turned out to be only that where there were some degree of consultations and coordination. The whole document was essentially a horizontal summation of projects and capital estimates of the various governments.

Thus, the 1962 - 1968 Plan was beset by many problems. first, the plan accorded no more than peripheral attention to agriculture, a sector which is the largest in terms of contributions to GDP and employment capacity. The estimated capital expenditures by the Federal and Regional Governments on direct

agricultural development amounting to ₦183,520 million was too low to be capable of aiding the achievement of that objectives of the Plan which sought to modernize agricultural production methods and increase significantly total agricultural production in the country. It is difficult to achieve many of the other objectives with the low sector. The Plan was aimed at developing opportunities in health, education and employment; increasing the growth rate of the economy, achieving a self-sustaining growth among others. These objectives require a well fed and adequately nourished labour force. This cannot be achieved by neglecting, as the Plan did, the food production sector of agriculture. The little attention that was paid to agriculture was directed to export, crops, a point that belies the objectives of balanced growth.

Second, there was no clear definition of what type of growth to be attained from among a host of programmes which included crash modernization, dual development, progressive modernization, employment income, and higher productivity programme (Sabolo, 1969). The greatest problem of the 1962 -

1968 Development Plan was the outbreak of the civil war from 1966 to 1969 when the implementation phase had only two years before its termination.

3.2.2 Agricultural Policies During the First era of Military Rule (1966 to 1979)

It was during this era that the four year Second National Development for 1970 - 1974 was released. The Second National Development Plan had five objectives which were relevant to primary production. These were:

i) The achievement of a rate of growth of per capita output that is sufficiently high to bring about a doubling of real income per head in 1985

ii) The deliberate creation of opportunities for gainful occupation at a level of reducing the rate of unemployment and disguised unemployment in a significant manner.

iii) The progressive improvement of knowledge about the economy's source endowments through the establishment of schemes for resource inventory surveys.

iv) The promotion of balanced development between one part of the country and another, especially between rural and urban areas.

v) The rapid improvement in the level and quality of social services and or infrastructural facilities.

These goals were not adequately provided for in the Plan. The Plan which is essentially a short term one was expected to achieve long term targets. The first objective was to achieve by 1985, a doubling of per capital real income. To achieve this, a rate of growth of 6.6 per cent per annum compounded for the GDP was assumed and if the population was projected at 3 per cent compound annual rate of growth, it would be found that per capita GDP would rise from ₦52.04 to ₦88.95 which is below the planned target. This shows the inadequacy of expecting short term planning to carry long-term expectations. The Plan specifically stated the objective "creaking" rural employment opportunities presumably to curb rural - urban migration but there were no specific projects and programmes designed to achieve

this.

Consequently, as in the 1962 - 1968 Plan, there was lack of adequate treatment of the agricultural sector goal in the 1970 - 1974 Plan. Besides not providing clear - cut agricultural sector policies and direction of the agricultural sector goal, the level of projected capital expenditures, though higher than in the previous Plan, was relatively low considering not only the role of agriculture in the economy, but also the need for the sector to meet the rapid rate of increase in the aggregate demand of an economy recently devastate by a civil war.

In further pursuit of the development of the main aspects of agriculture in the country within the Plan period, successive military regimes (1966 - 1979) launched series of measures meant to enhance the agricultural productivity.

3.2.2.1 The National Accelerated Food Production Programme - 1973 (NAFPP)

This programme launched by the Gowon regime in 1973 was designed to accelerate the production of food crops through

the introduction of high yielding seeds, appropriate quantities of fertilizers, insecticides, herbicides, supporting credit, marketing, storage and processing, thereby producing an abundance of food at reasonable prices to the consumers and at reasonable profit to the farmers. The National Accelerated Food Production Programme aimed at laying a solid foundation for extension and research cooperation in food crop production in Nigeria by encouraging farmers to select and adopt new and high yielding varieties of seeds and crops and improved farming practices.

The achievement of the NAFPP would have been higher if not for some constraints affecting its performance. These were:

i) Inadequate finance from both the Federal and State governments for executing the programme.

ii) Inadequate commitment of some of the state governments to the programme.

iii) The economics of the production packages not being sufficiently attractive to permit massive adoption to bring about the needed tremendous increase in production.

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iv) Poor motivated Research and Extension Staff.

v) Low market prices prevailing for maize and rice, militating against mass adoption in the face of high production costs and competitive prices from imported grains.

vi) Inadequate transport facilities provided to the extension workers in some states to permit an effective supervision of the programme.

vii) Lack of adequate storage facilities for maize. Input supplies were often late or inadequate in quantities.

Summarily, the government agricultural policy of the period was defective in the sense that it lacked comprehensive policy objectives for the sector. The sector was baset by perennial problems such as low productivity, inadequate food supplies, in caloric and nutrient terms, low aggregate output of the basic sub-sector of agriculture. Policy instruments of the Federal Government towards agriculture were not deep noted, consequently, no sustainable growth in food production resulted. Thus the period ended without agriculture bringing changes in the

economic life of millions of small farmers who live in the rural areas nor were the food requirements of urban centres met. This was the situation when the third National Development Plan to cover the 1975 - 1980 period was written. **The Third National Development Plan (1975 - 1980)**

The Third National Development Plan was launched in the oil boom period 1975 - 1980. The period was regarded as a time when finances did not constitute a bottle neck in the economy. There were no new objectives but a modification of the 1970 - 1974 Plan which were as follows: increase in per capita income, a more even distribution of income; reduction in the level of unemployment; increase in the supply of high level manpower - not the efficient utilization of the manpower on the ground - diversification of the economy and a balanced development and indigenisation of economic activity.

The emergence of oil into the Nigerian economy had almost ruined the agricultural sector in the sense that while able bodied men and women abandoned agricultural pursuits to enhance their

oil wealth, old and tired men and women in the rural area of the country look on farming as a part time occupation while becoming dependent on their children in the urban areas. Thus agriculture that was once the mainstay of the economy and used to earn more than 53 per cent of the nation's foreign exchange, took a sudden down-turn so that the Military became alarmed. To fend off and reverse the situation a number of specific measures have been introduced to influence agriculture vis-a-vis production, some of which are discussed below:

3.2.2.2 Operation Feed the Nation (1975 - 1980)

This programme launched by the Military Regime of General Obasanjo on March 31, 1976 was designed to mobilize the general public to participate in agricultural production and being about self-sufficiency in respect of domestic food. The then Military regime considered it was a solution to an agricultural situation in which more people were migrating from the rural areas to the cities in which food prices were skyrocketing owing to shortages and food imports increasing. Under this sprogramme

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needed inputs of seeds, fertilizers, credit, mechanization, bush clearing among others were highly subsidized.

The Operation Feed the Nation was launch to generate public awareness of the importance of agriculture to National Development and mobilize both rural and urban dwellers to participate in agriculture, be it conventional crop farms, fish farms, backyard gardens or poultry. The Operation Feed the National also focussed the Nation's attention on the increasing dependence on imported food which created the necessary consciousness and attitude towards food production.

The strategy of the scheme was the concentration of efforts in these areas which are to yield maximum results at a shortest period of time such as fertilizers, pest control, poultry, fisheries, improved seeds or grains, tubers and vegetable, livestock feeds and guaranteed minimum prices for crops and equipment. People from all walks of life participated in the programme (farmers, urban dwellers, civil servants, university teachers, Doctors, Engineers, soldiers, businessmen, housewives, etc).

In order to make land easily accessible to those engage in agricultural activity, as it became increasingly clear that land tenure system was a hinderance to agriculture, the land reform of the Federal Military Government that came into effect in 1978 was enacted under the title: THE LAND USE ACT NO.6, 1978, which was aimed at the reformation of land use and acquisition in the country. The Operation Feed the National programme adopted measures included massive distribution of heavily subsidised farm inputs, liberalisation of Bank credits to agriculture, establishment of new commodity Boards to cover major crops including food crops, fixing or guaranteeing minimum prices, construction of stores and warehouses, provision of cold store for preservation of perishable food items and establishment of agro-service centres.

Inspite of the huge investment committed to the Operation Fed the Nation Programme, unfortunately, its success has been described as merely psychological. It created some awareness of food crisis in the Nation and the need to get more food. It

awakened the interest of many Nigerians in Agriculture, gave political backing and prestige. However, the programme was poorly handled and not geared as should have been done to the needs of the small farmers who constitute the majority of Nigeria's farmers and produce the bulk of food. It was directed at the wrong people. The small farmers were neither fully mobilised as there was concrete nor specific policies towards their mobilisation. The Government offered no incentives sufficient enough to transform the traditional labour intensive how. Cutlass technology into modern farming. On the other hand, while most people in the country engaged in part-time farming to respond to Operation Feed the Nation, there was no break through as higher productivity was not achieved. The failure to achieve the objectives was due to lack of farmers education. The programame assumed wrongly that any body can farm without prior institutional training. That is, part-time farming, occasional visits to an extension agent, wrongful application of fertilizers are to say the least make believe farming.

Another attempt of the Federal Government to make the country self-sufficient in food production is exemplified by the establishment of the Eleven River Basin Authorities.

3.2.2.3 River Basin Authorities 1979

The programme was aimed at undertaking large irrigation schemes as an insurance against the effects of drought and was also intended to keep the farmers gainfully employed throughout the year. Among several objectives of the authorities are: flood control the provision of water for large areas of land, capable of high productivity when irrigated, diversification of agriculture, reforestation of denuded areas, storage facilities and the production of food stuffs such as corn, millet, rice, cocoa, cassava, yams, livestock, poultry, fish and others. In addition, the River Basin Authorities were created by the Federal Government for the development of both surface and underground water resources of the country with particular emphasis on irrigated agriculture. This great show of foresight in agricultural development planning in Nigeria through the decision to harness

through the River Basin Development Programme the abundant water resources of this country for agricultural production and other uses did not record the expected results. Consequent upon the noticeable failure, Operation Feed the National Programme was replaced in 1980 by the Green Revolution Programme.

3.2.2.4 The Green Revolution Programme (1980 - 1983)

The Green Revolution Programme was launched during the SHAGARI administration 1979 - 1983. The programme itself was a more deliberated and calculated approach to the food production problem. The Green Revolution Programme aimed at an accelerated increase in agricultural production by removing all known constraints to increased production.

The main objectives of the programme were to make the country self-sufficient in respect of basic food in five years and to rehabilitate her export produce in seven years from 1980. The Nigerian Green Revolution embraces all aspects of agricultural production food and export crops, livestock, fisheries and forestry. The programme was followed up by mounting of food

strategies mission for Nigeria by the Federal Ministry of Agriculture which has the responsibilities of estimating the level of food production needed to achieve self sufficiency. Much of the recommendations of the food mission, much as the expansion of the Integrated Agricultural Development Programme (ADP) to cover all states of the Federation, support for artisanal fisheries and agriculture and establishment of Grain Storage facilities among others are still being implemented.

It is noticeable that the objectives of various policies and programme high lighted above were in consonance with the objectives of economic development as they related to agriculture. Although they were ad-hoc measures embarked upon since the political independence period to foster achieve agricultural objectives in the country, what are the concrete results so far achieved?

Evidence suggests that during the period 1960 - 1970, the Nigerian economy performed relatively well under the predominantly peasant agricultural structure that employed about

80 per cent of the country's adult working population in one form or the other. Data available show that apart from the fall in 1966 - 1967 of the aggregate GDP, its primary products components and its mineral components, all other sectoral components present a picture of upward trend. The role of primary products in these output variables of growth has been very significant. It is shown for example, that the primary product component, hereinafter defined to include agricultural, livestock, forestry and fishery, was about 65 per cent of total GDP in 1965 and this contribution has followed a gradual downward trend and by 1970 it is about 51.3 per cent of total GDP (FOS, Annual Abstracts of Statistics - various issues). The next section covers the performance of the agricultural sector between 1960 - 1985.

3.3 Agricultural Performance Between 1960 - 1985

We have shown in the previous section that agricultural policies during the period 1960 - 1985 emphasized research generally for the production and export of cash crops. In this section, we examine agricultural performance during this period.

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The measures used for this purpose include: proportion of agriculture to total export earnings; the contribution of agriculture to GDP; Land area cultivation and labour force engaged in agriculture, Federal Capital expenditure and; values of food and raw materials imports.

3.3.1 Proportion of Agriculture to Nigeria's Total Export Earnings (1960-1985

Table 3.1 shows the proportion of agriculture to Nigeria's total export earnings. The table shows clearly that the proportion of agriculture to Nigeria's total export earnings declined over the years. This trend defied the agricultural policies of production and export during this time.

Table 3.1 further shows that agriculture's contribution to total export earnings in 1960 was 83.2 per cent and this figure fell drastically over the years to 31.1 per cent in 1970. However, this fall is not unexpected especially as from 1966 if we have to consider the effect of the civil war (1967 - 1969). This decline continued upto 1977 punctuated by a small rise from 1975 (with

4.5 per cent) to 1978 (with 6.8 per cent). This rise is not unconnected with the Operation Feed the Nation Programme in 1976. From thence, there was a general decline upto 1985. This can be explained by the dominating influence of crude oil exports. For example, according to CBN (1992), the proportion of oil to Nigeria's total export earnings rose from 57.6 per cent in 1970 to 97.2 per cent in 1985.

Table 3.1 Proportion of Agriculture to Nigeria's Total Export Earnings (1960-1985

Year	Proportion of Agriculture to Export (in %)
1960	83.2
1961	86.1
1962	75.4
1963	74.2
1964	72.6
1965	61.1
1966	50.4
1967	54.6
1968	62.2
1969	42.2
1970	31.1
1971	18.8
1972	17.0
1973	10.5
1974	4.5
1975	4.7
1976	4.1
1977	4.9
1978	6.8
1979	4.3
1980	2.4
1981	1.1
1982	1.0
1983	2.8
1984	1.8
1985	1.9

Source: C.B.N. Economic and Financial Reivew (various isssues)

3.3.2 Agriculture's Component of GDP (as % of total) at Current factor Cost (1960-1985

Table 3.2 shows the agriculture's component of total GDP measured in per centage. Table 3.2 shows that the agriculture's component in total GDP declined over the period under study. For example, it declined considerably from 63.7 per cent in 1959/60 to 25 per cent in 1985.

Table 3.2 further shows that although the contribution of agriculture to GDP fluctuated within the period under study there was a generally downward trend over the years. As from 1974, agriculture competed with oil in their contributions to GDP.

Table 3.2 Three Components of the Gross Domestic Product, 1959/60 - 1985 (as Percentage of total) at Current Factor Cost

Year	Agriculture	Mining	Manufacturing
1959/60	63.7	1.1	4.7
1960/61	62.9	1.2	4.8
1961/62	61.5	1.8	5.2
1962/63	61.8	2.1	5.6
1963/64	61.0	2.0	5.9
1964/65	58.0	2.5	6.0
1965/66	54.4	4.6	6.9
1966/67	55.0	4.8	6.9
1967/68	55.5	3.8	7.1
1968/69	53.3	2.7	7.5
1969/70	48.2	7.5	7.9
1970	48.8	10.1	7.2
1971	45.0	16.0	5.1
1972	43.0	17.0	7.1
1973	30.0	18.0	4.4
1974	26.5	32.6	3.5
1975	27.4	21.7	5.5
1976	24.8	24.9	5.4
1977	25.2	24.7	4.9
1978	24.8	25.0	5.3
1979	22.5	28.4	5.1
1980	22.1	26.8	5.4
1981	17.8	22.3	10.8
1982	18.6	18.7	12.3
1983	20.3	15.7	9.9
1984	24.1	15.8	9.5
1985	25.0	16.5	10.7

Source: Federal Office of Statistics, Annual Abstract of Statistics, 1982, 1987

3.3.3 Land under Cultivation and Labour Engaged in Agriculture (1960-1985)

Table 3.3 shows the land under cultivation and labour force engaged in agriculture within the period under study. Table 3.3 shows that there have been flutuactions in land under cultivation. For example, there was a rise from 15.3 million hectares in 1960 upto 20.2 million hectares in 1970. From 1971, this figure fell steadily (with little fluctuations) upto 1983 with 12.1 million hectares. The figure then fell further to 9.3 million hectares in 1984 and rose a little to 10.1 million hectares. The fall from 1970 can be explained by the fact that when oil was discovered, people abandoned their lands and moved to oil rich areas in search for white collar jobs.

Table 3.3 further reveals the amount of labour force that was gainfully employed in agriculture within the period under study. It shows clearly that there was a steady rise in the figure from 1960 with 9.6 million people to 1985 with 20.8 million people. This steady rise could be explained by the effectiveness the agricultural policies operational within this period.

Table 3.3 Land under Cultivation and Labour Engaged in Agriculture (1960-1985)

Year	(a) Landunder cultivation (in million hectares)	Growth rate of a (in %)	(b) Labour force engaged in agriculture (million)
1960	15.3	-	9.6
1961	15.6	2.0	8.8
1962	15.9	2.0	9.9
1963	17.9	12.6	10.2
1964	18.9	5.6	10.4
1965	19.7	4.2	10.6
1966	18.2	-7.6	10.8
1967	19.6	7.7	11.4
1968	19.1	-2.6	11.6
1969	19.9	4.2	11.9
1970	20.2	1.5	12.1
1971	19.5	-3.5	12.4
1972	15.2	-2.2	12.6
1973	19.9	30.9	12.9
1974	16.6	-16.6	13.1
1975	18.8	11.7	13.4
1976	14.9	-20.7	13.7
1977	11.1	-25.5	19.0
1978	14.5	30.6	19.1
1979	13.9	-4.1	19.3
1980	14.3	2.9	19.2
1981	14.5	1.4	19.8
1982	10.9	-24.8	14.0
1983	12.1	11.0	20.3
1984	9.3	-23.1	20.3
1985	10.1	8.6	20.8

Source: Federal Office of Statistics, Annual Abstract of Statistics (various issues)

3.3.4 Estimated/Actual Federal Capital Expenditure in Agriculture (1960-1985)

Table 3.4 shows the estimated and actual Federal Capital expenditure in agriculture within the period under study. It could be seen from table 3.4 that the planned estimated capital expenditures of the Federal Government were not met in the 1962 - 68, 1970 - 74 and 1981 - 85 plan periods. For example, in 1962-68 plan, while the estimated expenditure stood at N41,000 million only N19.91 million was actualised giving a shortage of N26,100 million. The same situation is obtainable in 1975-80 and 1981-85 with shortages of N2,627.9 million and N1,872.100 million respectively. The only exception was in 1975-80 when estimated expenditure was less than N1,090.7 million giving a surplus of N-77,000 million. The trend of such shortages is explained by the use of ad hoc measures, and this definitely calls to question the adoption of medium term plans (5 - year plans).

Table 3.4 **Estimated/Actual Federal Capital Expenditure in Agriculture (1960-1985)**

Period	Estimated Expenditure (₦'M)	Actual Expenditure (₦'M)	Shortage (₦'M)
1962 - 68	41.000	19.91	26.100
1970 - 74	215.326	157.5	57.826
1975 - 80	1,013.000	1,090.7	-77.700
1981 - 85	4,500.000	2,627.9	1,872.100

1 - If the actual expenditure figure for 1969 is included, we have ₦17.5 million

Aterson (1965), and Todaro (1977) have emphasized the fact that one basic problem with developing countries is their failure to manipulate aggregate economic variables to follow growth - oriented pattern. This position is strongly supported by Table 3.4 above in which the policy objectives of the 5-year plans under study were hardly realized.

3.3.5 Values of Food and Raw Materials Imports, their Growth Rates, and % Shares of total imports (1960 - 1985)

Table 3.5 shows the values of food rates, and per centage shares of total imports within the period under study. Accordingly, Table 3.5 reveals that there was a failure of agriculture to satisfy domestic demand. This was manifested by the high import bills on food over the years which grew at high rates at different time periods, while occasional declined. The same situation also applied to the raw materials import situation, which made the economy increasingly dependent on these raw materials for her domestic industries. According to Onwumere (1992), Nigeria appeared to have, over the years, bought the wrong notion of Pesmazoglu (1972) and Papenek (1973) that input - imports are more productive than domestic resources. This makes the country's import - substitution strategy of the country a sad one.

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Table 3.5 **Values of Food and Raw Materials Imports, their Growth Rates, and % Shares of total imports (1960 - 1985**

Year	(a) Food Imports (₦'M)	Growth rate of (a) in %	(a) as % of total imports into the economy	Raw(b) materials imports (₦'M)	Growth rate of (b) in %	(b) as % of total imports into the Nigerian economy
1960	47.8	-	11.1	84.6	-	19.6
1961	45.4	5.2	10.2	90.0	6.3	20.2
1962	47.0	3.4	11.6	88.4	-2.6	21.8
1963	43.8	-10.2	10.6	101.8	15.2	24.5
1964	41.2	-5.4	8.1	127.8	26.5	25.2
1965	46.1	11.8	8.4	127.4	0.01	23.7
1966	51.6	11.9	10.1	102.0	-19.9	19.9
1967	42.6	-17.4	9.6	105.6	3.5	23.6
1968	28.4	33.3	7.3	112.6	6.6	29.2
1969	41.8	47.2	8.4	145.2	30.7	29.2
1970	57.8	38.3	7.7	234.4	61.4	31.0
1971	38.2	52.9	8.2	303.0	29.2	28.1
1972	95.1	7.8	9.6	259.7	-14.3	26.2
1973	126.2	32.7	10.3	327.6	26.1	26.7
1974	154.8	22.7	8.9	573.7	75.1	33.0
1975	297.9	92.4	8.0	1,002.9	74.8	26.9
1976	440.9	48.0	8.6	1,313.0	30.9	25.5
1977	736.4	67.0	10.4	1,641.1	24.9	23.2
1978	1,020.7	38.6	12.4	1,913.3	16.6	23.3
1979	766.5	-24.9	10.3	1,726.2	-9.7	23.1
1980	1,437.5	87.5	11.3	2,588.4	49.9	22.4
1981	2,115.1	47.1	16.4	3,152.4	21.8	22.4
1982	2,048.2	-1.5	16.3	3,163.0	0.03	25.2
1983	1,296.7	-37.8	15.2	2,479.3	-2.2	25.5
1984	843.2	-34.5	11.7	2,133.2	-13.9	16.2
1985	950.6	11.6	11.9	3,284.6	53.9	41.4

Source: CBN, Economic and Financial Review (various issues)

CHAPTER FOUR

NIGERIA'S AGRICULTURAL POLICIES (1986 - 1995)

4.0 Structural Adjustment Programme Events

Broadly speaking, the main agricultural policy pursued within this period falls within the framework of the Structural Adjustment Programme. Within the framework of this programme, a Directorate of Food, Roads and Rural Infrastructures (DFRRI) was established in 1986 and operated from the office the President to promote a framework for grassroots social mobilization mount a virile programme of developmental monitoring and performance evaluation, and rehabilitate in 1986, some 60,000 kilometers of rural feeder roads (Babangida, 1986). Agricultural policy during the 1986 budget year focused on four separate but interrelated issues. These were:

1. accelerated drive towards self-sufficiency in rice and maize and adequate production of yams, cassava, sorghum and millet, all of the tuber and grain families.

2. intensification of efforts at rehabilitating the production of groundnut, cotton, cocoa and oil palm in order to reduce import dependency, expand domestic production capacity and provide raw materials for agro-allied industries;
3. special effort at increasing market quantities of food and fibre by drastically reducing post-harvest losses; and
4. diversification of the country's foreign exchange earnings as well as increased rural employment.

The River Basin and Rural Development Authorities were reduced to nine and were made to emphasize water resources development, especially irrigation and the control of flood infrastructures.

With specific reference to farm credit from the merchant and commercial banks, interest rate structure was reviewed. To this end, commercial banks' lending rate was at 15 per cent of their loan portfolio to agriculture subject to the following: grains production and distribution (50%), livestock including poultry (15%), and others (35%).

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Agricultural policy during this time also emphasized export promotion and this was facilitated by the Export Promotion Council. The importation of some agricultural produce were banned such as: vegetable oil, commercial day-old chicks and hatching eggs, except grand parent and foundation stocks for research and multiplicative purposes and; stockfish.

In 1987, the activities of DFRRI were diversified to include the implementation of a national rural water supply scheme, launching a national rural markets programme and rural electrification programme with special emphasis on rural-agro industrialisation. The diversification of DFRRI activities was premised on the fact that the Federal Government saw rural development as the corner stone of its agricultural development efforts.

In 1988, agricultural policy specifically focused on prevention of pre-harvest and post-harvest losses through the encouragement of greater agricultural extension work in the area of herbicides, insecticides and fungicides, and on the processing

of agricultural produce.

The years 1989 and 1990 continued with past policies with some additions. For example, in 1989, two universities of Agriculture were established. In 1990, the National Commodity Programmes were launched and a machinery for the procurement and distribution of fertilizers from the public to the private sector was set up.

With the 1990 - 92 Rolling Plan introduced, the objectives of agricultural development programmes were:

a) accelerated production of various food items with a view to increasing the supply based and improving nutritional standards.

b) increased supply of agricultural raw materials to meet the needs of local industries and for exports to earn foreign exchange, and

c) expansion of agricultural employment and increase in farmers' income through, inter alia, the provision of adequate infrastructures, especially those required for

combatting droughts, desert encroachment, soil erosion and flood (Federal Ministry of Budget and Planning, FMBP, 1990: 72).

In the sections that follow, we identify and discuss the specific objectives and policy package of SAP and, the major agricultural policies as enunciated in SAP. The last section of this chapter is on Agricultural Performance within this period. Analysis here is restricted to the use of descriptive statistics of tables and per centages.

4.1 Specific Objectives of SAP and Policy Package

The specific objectives of Structural Adjustment Programme are as follows:

i) to restructure and diversify the productive base of the economy in order to reduce dependence on the oil sector and on imports.

ii) to achieve fiscal and balance of payments viability over the period.

iii) to lay the basis for sustainable non-inflationary or minimal inflation growth, and

iv) to lessen the dominance of unproductive investments in the public sector, improve the sector's efficiency and intensify the growth potential of the private sector.

In order to achieve these a policy package was put in place. The following are some of the elements of the package:

1. Adoption of measures to stimulate domestic production and broadening the supply base of the economy;
2. Strengthening the hitherto strong demand management policies;
3. Adoption of a realistic exchange rate policy;
4. Rationalization and restructuring of the tarrifs to promote industrial diversification;
5. Movement towards improved trade and payment liberalization;
6. Reduction of the complex administrative controls with a greater reliance on the market forces;

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7. Adoption of appropriate pricing policies, especially with regard to petroleum products and public enterprises.

The policy package enunciated above are those that would achieve the objectives of the programme. Many of these instruments were to influence the agricultural sector directly. Such instruments include fiscal, monetary and exchange rate policies.

4.1.1 Fiscal Policy

The thrust of fiscal policies under Structural Adjustment Programme was to reduce the persistence of government deficits and to rationalise public expenditure as a means of eliminating distortions in all the sectors particularly the agricultural sector. Obviously, emphasis placed on the rationalisation of public expenditure through the reduction on total domination of government subsidies on selected products including petroleum products and agricultural inputs constitutes an actual squeeze on financial assistance to agricultural sector from the government.

Farmers now face even twin problems in connection with agricultural inputs such as seedlings, fertilizers, pesticides, feed as well as drugs and vaccines. There is the problem of scarcity of inputs coupled with high prices of inputs which have as implication the making use of less input like fertilizer, on a higher hectarage of land and giving sub-standard feeds to their livestock, thereby reducing the agricultural productivity.

Another problem which farmers now face is the problem of high transportation occasioned by S.A.P. through the removal of subsidy on petroleum products. This has affected the transportation of inputs to rural areas and the transportation of output to the urban areas, thus incurring the cost of output and therefore wiping out the agricultural productive efficiency. The implication is that farmers are not able to transform their farms from the subsistence level to modern and mechanised ones and hence to substantially improve the productivity in the agricultural sector. This is contrary to the expectation and hopes placed on S.A.P. in connection to agricultural productivity as its main aim is to transform the agricultural sector

into a modern and a self-sufficient one.

4.1.2. **Monetary Policy**

The target of monetary policy, enunciated in the various Annual Federal Budget statement aimed at complementing fiscal policy to reduce inflationary pressure and to allocate more resources into productive sectors; especially agriculture and to ensure that credit to public did not increase.

Similarly, interest rates was liberalised in a bid to allow market forces to influence the inflow of savings and allocation of credit. The monetary policy so designed did not take recognition of the fact that the earlier fiscal policy envisaged is itself inflation generator caused by 'cost push' as a result of higher cost of production through higher cost of inputs, mainly due to the removal of subsidy.

The complementarity of fiscal policy and monetary policy so defined under S.A.P., can not be effective in improving agricultural sector especially the productivity variability. In addition, the liberalisation of interest rate rendered credit and loan too much more

expensive and become out of reach to rural small scale farmers. With respect to credit allocation, the monetary policy conceived under S.A.P. implementation, rendering loan and credit more expensive does not seem aiming at raising agricultural productivity through better farm management.

4.1.3. **Exchange rate and trade Policies**

However, it is worth noting that exchange rate and trade policies conceived as such under S.A.P. did not augur well for improving agricultural productivity and thereby bringing about structural changes in the mode of production and leading to efficiency in the use of resources. The exchange rate deregulation resulted in sky-rocketing prices due to the high official value of Naira depreciation. There is scarcity of the various inputs and importers could only import low volume of the inputs given a restricted capital base.

Therefore, the challenge for agricultural development become illusive because of prohibitive costs of agricultural inputs, especially agro-chemical, as a consequence of the current exchange rate

deregulation. Moreover, in spite of trade policy put in place during S.A.P., coupled with the massive devaluation of Naira, the price of agricultural produce is not competitive relatively to the world market prices.

4.1.4. **Agricultural Pricing Policy**

Agricultural pricing policy has been one of the major instruments in use since the inception of SAP. Currency exchange rate adjustment and free market mechanism has been used to ensure parity prices for agricultural products. To this end, the price fixing process under the Technical Committee on Produce Prices which served in an advisory capacity to the Price Fixing Authority was scraped. Similarly, the Commodity Boards which had constituted themselves into constraint to local production of agricultural commodities were abolished. Consequently, agricultural producers were free to sell their products in the local and external markets or to intermediaries of their choice. The basic objectives of Nigeria's agricultural pricing policy were:

i) that farmers obtain renumerative prices for their products

ii) that prices and income should be stablised for farmers

iii) that the prices of Nigeria's agricultural commodities be competitive in the international market in order to expand exports

iv) that agricultural commodity prices be in parity with those of non-agricultural commodities in Nigeria (FMANR, 1987).

However, in the pursuit of these objectives, despite several instruments deployed, the free market system did provide answers to further speculative agricultural adjustment problems. The scrapping of the various commodity boards meant some disorganisation in the commodity exchange system associated with the problem of uncertainty of prices of agricultural output which farmers could not address adequately.

4.1.5 **Agricultural Land Policy**

The objectives of agricultural land policy include establishing an acceptable land tenure system to discourage land

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fragmentation and make land accessible to all persons, and to ensure that land allocation procedures promote optimal use and land conservation. The instruments to achieve the land policy objectives include government control of the process of land acquisition, modification of the Land Use Decree of 1978 so as to control land use and management within each state of the Federation and payment of compensation for economic crops and structures on acquired land.

Although, the Agricultural Land Policy objectives are laudable theoretically, but in practice, the instruments to achieve those objectives are detrimental to small scale farmers which can not afford all the administrative protocol and formalities in the process of land acquisition under the new Land Use Decree dispensation. The excludability aspect of land acquisition can not be beneficial to small scale farmers category which constitutes the bulk of rural farmers in Nigeria. Most land are acquired by top officials who are not even yet dreaming of putting the land under immediate development and thereby depriving the mass from having land for

farming.

In some cases, many farmers are forced to become mere labourers on their former lands after the land has changed the ownership. Land policy conceived as such is perceived as a way of increasing the pauperisation of the rural dwellers instead of addressing the agricultural productivity issues through a large movement of cooperative associations or merger of land among small scale farmers.

4.1.6 Agricultural Credit Policy

The primary objective of the agricultural credit policy was to increase the volume of formal credit in rural areas so that small-scale farmers could have access to loans to finance agricultural production and to test new technologies. The methods specified to implement the policy include the creation of institutions to provide agricultural credit direct to farm operators. Concessionary interest rates to reduce the cost of capital with respect to agricultural loans; agricultural guarantee schemes to secure commercial bank loans for agriculture to the tune of 75 per

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cent in case of default by agricultural borrowers; the prosecution of the rural banking scheme through the establishment of branches of banks in the rural areas, and the imposition of credit quotas and portfolio ceilling devices requiring commercial banks to lend a percentage of their loan portofolio to agriculture.

However, the deregulation of the Banking licensing coupled with that of exchange rate and the huge depreciation of the Naira in the Foreign Exchange Market, resulting in increases in credit squeeze under SAP, especially in favour of farmers, have adverse impact on agricultural production and farm income which cannot pave way to any savings or capital accumulation to improve technical and productive effeciency in agriculture.

4.1.7 **Infrastructural Development Policy**

The provision of infrastructural facilities was part of the general rural development policy aimed at basic amenities accessible to rural communities to facilitate production and the orderly conduct of rural enterprises. The goals was to improve the living conditions in rural areas, enhance social and economic

activities and stem the tide of rural - urban migration.

Improvements in infrastructure and rural development have been prosecuted through several institutions and programmes. The Directorate of Food, Roads and Rural Infrastructures (DFRRI) was created to provide rural roads, wells and boreholes. Rural health centres and rural market development are being handled by States and local government authorities.

But unfortunately, while assessing the major achievements of the infrastructure development policy, one can easily note with dismay that many of the rural roads constructed under SAP, even rendered input distribution and the evacuation of farm produce worse than before, due to the poor quality of roads constructed under the programme. Likewise, many of wells and boreholes dug under under SAP are with no drop of water, leaving rural population in worse situation than before. Whereas the Better Life Programme, targeted at rural women and later on the Family Support Programme for rural women, where nothing but mere forum of ballet for her "Excellencies" in the Federal and State

capitals, instead of providing better facilities for rural women post-harvest processing and economic activities.

4.2 Agricultural Performance (1986-1995)

Tables 4.1, 4.2 and 4.3, 4.4 and 4.5 are used to show how the agricultural sector has performed in the post-SAP era. These indices however, may not be exhaustive but they feature some of the major ones that can be used for analysis.

Starting with table 4.1 which shows the GDP at current factor costs, it could be observed that, the per centage contribution of agriculture to the total GDP fluctuates within the period under study. This contrasts with the total GDP which has been on the increase over the years. The fluctuation can be explained by both human and natural factors such as changes in the policy and, weather respectively. It could further be observed from Table 4.1 that the years 1995 and 1996 recorded the worst contributions. This may be explained partly by the prolonged harmattan and dry season in the country during this period and especially by the huge devaluation of the Naira which affected the

use of imported agricultural production inputs to the extent that increased input cost lead to under-utilisation of improved inputs such as fertilizers, agro-chemicals, tractor services and others.

Table 4.2 shows the labour force engaged in agriculture over the period under study. Accordingly, the table shows that, from 1986, 13.12 million people were engaged in agriculture. This figure has grown steadily over time and in 1996 20.54 million people were engaged in agriculture. This is an indication that Nigeria's agriculture, despite the Structural Adjustment Programme measures prescription, continues to absorb and to attract more and more labour instead of releasing it to industrial sector as a result of productive effeciency.

Table 4.3 shows government expenditure between 1985 and the first quarter of 1995. Table 4.3 shows that the proportion of Agriculture to total expenditure in percentage declined over the years falling from 2.3% in 1985 to 1.5% in 1995. The implication here is the relative negligence of the implementation of government policy in respect of the agricultural sector. This

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large scale reduction in public expenditure has affected spending for research and extension services, infrastructural development and agricultural credit, very essential to technical and productive efficiency in the agricultural sector.

Another way of demonstrating the impact of SAP on the agricultural sector is to consider its growth rate. Table 4.4 shows the growth rate of agricultural GDP over the period under review. The table shows that between the periods 1986 and 1990, the overall growth in agricultural GDP was impresive except for the 1987 which was negative. In 1986, this growth rate was 11.3% and in 1987 it was -4.0%. However, in 1988, this again rose to a favourable 10.8%. Between the periods 1989 to 1995, declining growth rate was recorded with the lowest rate recorded in 1993. Subsectors growth rate are also indicated on the table. The average growth rate for the period was 4.4% per annum.

Another way of showing the performance of the agricultural sector under SAP is to consider the exports and imports. Table 4.5 shows clearly this position. It shows that from 1986, non-oil

exports responded modestly with improved export receipts and increase in the number of commodities exported. Between 1988 and 1990, the export value of non-oil exports rose to an average of ₦1,875.9 million. Table 4.5 shows that the export value averaged ₦3,116.1 million between 1991 and 1993, while it rose to ₦13,027.4 million in 1995. The same story is told of agricultural export items. The trend as demonstrated by Table 4.5 in exports was due to its restrictive policy of expansion and import prohibitions. As documented by Ojo and Akanji (1996), prohibitions were reinstituted for some primary and processed agricultural products such as timber, rice, maize and hides and skins. Such export bans gave rise to excess supplies which then resulted to reduced farm gate prices, farm incomes and production incentives.

On the import front, by the end of 1986, a total of ₦941.3 million worth of agricultural imports was recorded, out of which 85.2% was for food and live animals. Table 4.6 shows that the value of agricultural imports had risen consistently since 1987

with a big jump in 1991 upto 1995 when there was a rise in the import level by over 92% to ₦86,727.7 million. The low value of imports between 1987 and 1990 has been explained by import substitution induced by the depreciating exchange rate of the naira. However, with the devaluations of 1992 and 1995 this decline was offset by large price increases within this period.

In the next chapter, we design econometric models to test the impact of policy reforms on the agricultural sector in Nigeria.

Table 4.1: Nigeria's Gross Domestic Product at Current Factor Cost (₦ million)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996
Total GDP	72128	106883	142678	222458	257873	320247	544331	691608	891790	196070	274970
Non-oil GDP	62300	80460	112759	143670	171685	200144	289477	446026	665620	0	0
%contributions:										172171	154880
non-oil	86	75	79	65	67	62	53	64	75	3	0
oil	14	25	21	35	33	38	47	36	25		
crops	28	29	34	25	27	25	22	28	33	88	56
Livestock	6.9	5.3	4.2	3.6	3.7	3.3	2.9	3.6	4.1	12	44
Forestry	2.0	1.4	1.2	0.9	3.8	3.7	0.5	0.5	4.2	16	12
Fisheries	1.4	0.8	1.1	1.4	1.6	1.5	1.1	1.1	1.1	2.0	1.4
Agric. (Total)	38.7	36.7	40.6	31.3	32.7	30.4	26.7	33.5	42.7	1.9	1.4
										0.6	0.5
										20.1	14.9

Source: Compiled from C. B. N./F.M.A.

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Table 4.2: Labour Engaged in Agriculture (1986-1995)

Year	Labour Active in Agriculture (Million)
1986	13.12
1987	13.82
1988	14.40
1989	14.68
1990	14.87
1991	15.30
1992	15.71
1993	16.12
1994	16.61
1995	17.14
1996	20.54

Source: Compiled from: Annual Agricultural Survey,

Annual Reports of the F.M.A.

Table 4.3: GOVERNMENT EXPENDITURE (₦' MILLION)

Item	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Total Govt. Expend.	14,828.8	16,773.7	22,018.7	27,749.6	41,028.3	61,149.1	66,584.4	92,890.2	233,846.5	210,437.5	256,520.8
Recurrent	7,215.5	7,696.9	15,646.2	19,409.4	25,994.2	36,219.6	38,243.5	53,126.9	136,727.1	89,974.6	135,382.5
Capital	7,613.3	9,076.8	6,372.5	8,340.2	15,034.1	24,929.5	28,340.9	39,763.3	97,079.4	120,462.9	121,138.3
Total Agric. Expend.	346.9	412.4	515.3	742.9	1,885	1,856.2	1,427.7	1,406.2	2,908.1	3,362.1	3,924.6
Recurrent	41.1	38.1	72.6	83.0	151.8	258.0	208.7	464.9	1,083.7	1,183.3	1,510.4
Capital	305.8	374.3	442.7	659.9	1,733.2	1,598.2	1,219.0	941.3	1,824.4	2,178.8	2,414.2
Prop. of Agric. to Total Exp. (%)	2.3	2.5	2.3	2.7	4.6	3.0	2.1	1.5	1.2	1.6	1.5
Prop. of Recurrent Agric. to Total (%)	0.3	0.2	0.3	0.3	0.4	0.4	0.3	0.5	0.5	0.6	0.6
Prop. of Capital Agric. to Total (%)	2.1	2.2	2.0	2.4	4.2	2.6	1.8	10	0.8	1.0	0.9

Source: CBN Annual Reports (1985 - 1995)

Table 4.4

GDP GROWTH RATE 1986 - 1995 (PER CENT)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Agriculture (Crops)	11.3	-4.0	10.8	5.0	4.3	4.5	3.0	2.9	3.0	3.2
Livestock	-1.5	2.8	2.5	2.0	2.0	-1.6	0.9	0.6	1.0	1.2
Forest	10.9	1.2	1.4	-24.3	7.9	3.0	2.3	2.0	2.4	1.5
Fishing	17.2	-21.1	47.1	58.6	6.8	4.0	-10.0	-25.0	-5.9	9.8
Crude Petroleum	-5.2	-9.8	8.1	15.4	5.5	9.2	2.7	0.2	-2.6	0.8
Mining & Quarrying	-46.6	11.0	10.1	7.2	4.2	3.5	3.7	7.1	3.3	0.0
Manufacturing	-3.9	5.1	12.9	1.6	7.6	9.3	-4.8	-4.2	-5.0	2.0
Utilities	-22.3	5..9	6.7	8.5	11.1	1.9	9.8	3.6	1.7	3.4
Building & Constrction	-0.2	9.3	10.2	4.2	5.0	4.0	3.9	4.8	3.1	1.0
Transport	-12.5	0.0	1.0	0.1	2.0	3.4	4.4	4.6	0.6	1.2
Communication	0.2	1.0	1.3	1.6	2.0	-6.1	12.5	3.7	0.0	3.6
Wholesale & Retail Trade	3.5	6.3	9.1	4.0	3.0	3.2	3.0	3.0	0.0	0.1
Hotel & Restaurant	1.5	1.5	0.2	1.0	1.0	1.0	2.1	2.0	0.0	2.0
Finance & Insurance	20.7	8.1	22.6	39.4	52.0	4.0	3.9	3.9	2.9	4.2
Real Estate	6.1	1.2	1.0	1.5	2.0	1.5	3.9	3.7	3.6	3.5
Housing	1.0	1.1	1.0	1.5	5.0	4.0	4.2	4.0	3.0	3.3
Producers of Govt. Services	3.8	5.9	15.3	8.9	13.8	4.2	12.5	13.7	2.6	1.1
Comm. Social & Personal Services	4.2	1.0	10	1.6	2.1	1.6	5.9	11.1	12.5	16.7
Total GDP	3.1	-0.5	9.9	7.4	8.2	4.7	3.0	2.7	1.0	2.2

Source: Federal Office of Statistics, Lagos

Table 4.5: AGRICULTURAL EXPORTS BY CROP

volume (Thousand tonnes)

ITEM	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Cocoa	92.9	148.4	201.5	301.9	131.3	138.5	147.7	180.4	200.7	59.6	46.3
Palm produce	32.9	61.3	92.4	110.4	115.1	62.0	24.6	78.0	106.7	49.7	17.4
Rubber	6.0	33.0	38.6	67.4	103.0	105.8	108.6	96.2	98.2	54.4	125.3
Coffee	N/A	N/A	N/A	0.3	0.1	3.0	1.6	1.3	1.2	63.6	0.2
Pineapples	N/A	N/A	N/A	2.4	4.0	4.2	4.4	3.8	3.7	N/A	N/A
Fish & Shrimps	N/A	N/A	N/A	N/A	-	4.0	5.6	2.4	2.6	8.8	36.8
Cashew-nuts	N/A	N/A	N/A	N/A	0.1	0.2	0.4	2.6	9.1	8.0	13.8
Spieces (Ginger, vanilla etc)	N/A	N/A	N/A	N/A	0.5	0.5	3.2	1.1	0.7	0.5	3.6
Cotton & Yam	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.6	N/A
Nigerian Shea-nuts	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.3	N/A
Gum Arabic	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.8	2.2
Sesamseeds	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.6	4.1
Cocoa	182.1	370.7	846.7	1,475.9	1,043.5	1,047.0	2,000.9	1,557.9	1,683.8	1,816.2	5,396.0
Palm produce	6.2	7.5	30.2	67.9	115.9	94.9	47.9	88.1	137.2	131.3	89.0
Rubber	3.8	29.1	60.5	203.2	508.3	769.6	669.3	875.4	875.5	698.7	4,087.7
Coffee	N/A	N/A	N/A	0.5	1.5	38.0	0.7	6.1	15.0	4.5	16.9
Pineapples	N/A	N/A	N/A	2.0	2.8	2.9	4.4	N/A	N/A	N/A	N/A
Fish & Shrimps	N/A	N/A	N/A	N/A	N/A	97.3	308.1	212.7	234.5	312.0	1,312.6
Cashew-nut	N/A	N/A	N/A	N/A	N/A	9.2	32.0	N/A	N/A	81.0	634.3
Spices (Ginger, Vanilla etc)	N/A	N/A	N/A	N/A	N/A	3.9	12.4	4.6	12.4	476.9	17.4
Cotton Yam	N/A	N/A	N/A	N/A	N/A	96.7	194.2	79.0	119.7	232.4	1,134.9
Nigerian shea-nuts	N/A	N/A	N/A	N/A	N/A	N/A	60.9	N/A	N/A	4.1	N/A
Gum Arabic	N/A	N/A	N/A	N/A	N/A	N/A	32.3	25.9	57.4	14.0	104.7
Sesamseed	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5.1	233.9
Total	192.1	907.3	937.4	1,780.6	1,687.6	3,159.5	3,363.1	2,849.7	3,135.5	3,776.2	13,027.4

Source: CBN Annual Reports (1985 - 1995)

Table 4.6: IMPORTS BY SITC SECTIONS
(₦ million)

ITEM	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Food & Live Animal	801	1,646.5	1,220.0	2,108.9	3,763.5	7,785.5	11,738.4	13,912.9	16,585.8	76,879.1
Beverages & Tobacco	14	27.0	55	136.3	181.4	179.0	286.3	496.9	805.2	2,626.3
Animal + Vegetable Oils + Fat	124	57.7	78	69.9	136.0	715.9	1,002.1	1,325.0	1,610.3	7,222.3
Total	941	173.2	1,354.2	2,315.1	4,080.9	8,680.4	13,026.8	15,734.8	19,001.3	86,727.7

Source: CBN Annual Reports (1986 - 1997)

CHAPTER FIVE

MODEL SPECIFICATION AND DISCUSSION

5.0 Introduction

Given the importance of agriculture to economic growth and development, many economists among them, Robson (1965), Jorgensen (1966, 1969) and Kuznets (1961), have developed models in each case showing the contributions of agriculture to economic growth and development.

Our task in this study is to develop models that will establish the basis for testing our hypothesis and, that will be more practicable to the real working of the Nigerian economy. To this end, the following models are discussed and specified.

5.1. The Pricing Model

This model follows partly from Krueger (1988), Krueger et al (1991), Elbadawi (1992) and Amin (1996). The essence here is to evaluate how foreign price changes and trade policy affect agricultural price incentive and how this then translates into agricultural output. Accordingly, the following variables in the

model are defined:

Pi = the producer price of agricultural tradeable of good i

pfi = its border price.

The estimated equation is

$$NPC = \frac{Pi}{pfi} \quad \text{- - - - - - - - - (i)}$$

where:

NPC = the nominal protection coefficient defined as the ratio of the producer price (Pi) to the border price Pfi) with adjustment made for running cost such as transportation and storage costs. A ratio (of NPC) higher than 0.5 means that foreign price changes and trade policy have positive effect on agricultural price incentive and vice-versa.

The second measure of agricultural price incentive is the Nominal Protection Rate (NPR). It is similar to NPC but differs from it in that the latter (NPR) measures the percentage difference between the border price (Pfi) and the producers price (Pi).

NPR is given by:

$$NPR = \frac{Pi - Pfi}{Pfi} \quad \text{- - - - - - - (ii)}$$

To capture the transport adjustment border price at the official exchange rate, we redefine equation (ii) above as follows:

$$NPR_D = \frac{Pi/P_{NA} - Pfi/P_{NA}}{Pfi^*/P^*_{NA}} \quad - - - - - - \text{(iii)}$$

where:

PNA = the non-agricultural sector price index and the starred variables are evaluated at the nominal exchange rate.

NPR_D therefore computes the impact (P_i - Pfi/PNA) of the direct policies as a proportion of Pi/PNA - the relative price prevailing in the absence of all intervention.

We use the official exchange rate to calculate NPR_D. Note that only the direct effects of trade policy are measured.

The indirect nominal protection rate (NPRi) measures the effect of the nominal exchange rate (E) deviation from the equilibrium exchange rate (E*) on non-agricultural tradeables. That is:

$$NPR_i = \frac{P^*fi/P^*_{NA}}{Pfi/P_{NA}} - 1 \quad - - - - - - - \text{(iv)}$$

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This is a measure reflecting the nominal rates of protection adjusted by sectoral and economy - wide policies. It combines both the sectoral effects and economy - wide price interactions on agricultural prices (Amin, 1996).

5.2 The Regression Model

Cognisant of certain variables that affect the value of agricultural GDP (or the agricultural component of GDP, our regression model took the generalised functional form as follows:

$$Qd = f(Px, Pm, Fm, Aim, LD, L, Z) \quad \text{------} \quad (vi)$$

where

Qd = Domestic agricultural output

Px = Export price of agricultural output

Pm = Import price of agricultural products

Fm = Food Import

Aim = Imported agricultural inputs.

LD = Loans and advances by commercial banks to the agricultural sector

L = labour

Z = dummy variable

Ut = error term

The equation above is expected to give an indication of the probable effect of Structural Adjustment Programme (SAP) such as import prices, export prices, value of food importation, loans and advances and imported agricultural inputs on agricultural production in the country over the period of this study.

Next, we transform the equation above into a regression format and we separately add the dummy variable Z to capture the unquantifiable variables of SAP. Hence, the equation could be written as:

$$Qd = bo + b1Px + b2Pm + b3Fm + b4Aim + b5LD + b6L + b7K + b8Z + Ut$$

and taking the natural logarithm of this equation, we have

$$\text{Log } Qd = bo + b1\text{Log } Px + b2\text{Log } Pm + b3\text{Log } Fm + b4\text{LogAim} + b5\text{Log } LD + b6\text{Log } L + b7\text{LogK} + b8Z + Ut$$

with all variables remaining as defined in the equation .

The variable carried a value of 0 for the pre-SAP era and

1 for the Post-SAP era. Three separate regressions were run, one for the pre-SAP era, the second for the post-SAP era and a third for the combined period. The test consists of examining the structural changes that have occurred in the agricultural sector as a result of policy reforms. To test for the statistical significance of the structural break associated with SAPs policies, we employed the chow test. This test is discussed below.

In the regression run, variation in each of them was decomposed into two as shown below:

$$SST = SSR + SSE$$

where:

SST = total sum of squares

SSR = regression sum of squares

SSE = error sum of squares

Three SSEs were identified as SSE_1, SSE_2 and SSE_c. The test consists of examining the structural breaks' associated with SAP of 1986.

To arrive at a decision, the F-statistic was computed at the 5 per cent level of significance from the following:

$$F_K{}^{5\%}N+M-2K = \frac{SSEc - (SSE_1 + SSE_2)/K}{SSE_1 + SSE_2/N+M-2K}$$

where:

N = number of observations in period 1

M = number of observations in period 2

K = number of parameters to be estimated in each regression equation and,

SSE_1, SSE_2, SSE_3 for the first, second and third regressions respectively.

F = calculated was then compared to F-tabular to arrive at a conclusion.

The R^2 and Durbin-Watson (DW) statistics were used to assess the performance of the regression results.

Next, we discussed the a priori expectations of each variable with respect to its sign and its relationship to the dependent variable. Hence, the variables to be discussed are those defined

only in the regression equation.

(i) The variable LD, which represents loans and advances made by commercial banks to the agricultural sector is expected to be positively related and highly significant to the agricultural component of GDP. This is so because, when savings are low funds for investment are also low thus, low level of investment. When the level of investment is low, economic growth and development is retarded. On the other hand, when savings are high, investible funds are readily available and this then boosts the investment level which in turn, promotes economic growth and development 'Ceteri paribus'

(ii) The value of food imports (Fm) is expected to have a significantly negative contribution to agricultural GDP. A high demand for imported food tends to reduce the demand for local food. This means that local production will decrease accordingly. On the other hand, a low demand for imported food tends to increase the demand for local food.

Thus, local production will increase considerably. Thus, food imports F, and agricultural production tend to move in opposite directions.

(iii) The export prices of agricultural produce (Px) is expected to contribute positively to agricultural production, provided the prices of export produce are high. This is true because, the high prices will act as incentive to farmers to produce more of the crops so affected, in anticipation of profitable returns (Onwumere, 1992). Our assumption in this study is that, those agricultural produce exported over the period under study have been in high demand on the international market. Consequently, such produce have fetched the country some profitable returns.

(iv) Import prices (Pm) is expected to contribute positively to agricultural output. The general contention exists that high prices serve as incentive to farmers and vice-versa. However, over the years, prices of a agricultural produce have been generally low. Thus, while expecting a positive

relationship between producers prices P, and agricultural produce, GDP, this relationship may not be statistically significant.

(v) The variable Aim, which is the value of agricultural inputs imported such as fertilizers, chemicals and machineries were supposed to reduce the cost of producing agricultural products thereby having positive impact on productivity through the desire of the farmer to work harder and produce more. The reverse is true.

(vi) The last variable Z, which is the dummy variable captures those unquantitative aspects of the effects of SAP on the agricultural sector in the country. Because, one of the major objectives of SAP was to boost agricultural production, it goes thus without saying that the variable Z is expected to have highly positive and significant contribution to agricultural output.

5.2 Observation and Estimation Procedure:

First, it would be observed that our regression equation is single. The implication here is that causation is unidirectional. This renders the use of 2SLS method of analysis irrelevant. Further, our regression equation is unidentified, hence, the use of OLS method of analysis. Infact, the use and efficiency of the single regression equation has been emphasized by Madalla (1977). Besides, the OLS method compared to other methods of analysis is easier and simpler to apply and understand. Above all, the technique of OLS has been widely used with satisfactory results.

CHAPTER SIX

PRESENTATION AND INTERPRETATION OF RESULTS

6.0 Introduction

In this chapter, we present and discuss the findings from the models formulated in chapter five. First, we begin with the findings of the Nominal protection Coefficient (NPC).

6.1 Results on Nominal Protection Coefficient (NPC)

Recall that we define NPC to be the ratio of producer price (Pi) to the border price (Pf) with adjustement made for transport, storage, and other costs. The results of NPC are as shown on Table 1.

Table 1 shows that the NPC for the period under study is below 100% for the three major crops. This shows that the producers have for the period been consistently receiving less than 100% of the world market price. However, Table 1 further shows that the producer is better off for the Post-SAP era (1987-1996) than for the Pre-SAP era (1976-1995) in naira nominal value

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6.2 Results on Nominal Protection Rate

Recall again, that we define NPR to be the measure of the per centage difference between the boarder price (Pfi) and the producer price (Pi). Table 2 shows the NPR for the three major crops. The results are similar to those of NPC. Table 2 further shows the degree of price distortion or total intervention in three major export crops, cotton, cocoa and, coffee. Again, the structural shift results of the Pre-SAP and Post-SAP eras are similar to those of NPC.

6.3 Results on NPR_D and NPR_i

Table 6.3 shows the results of the direct and indirect effects of Nominal Protection Rates.

A highly overvalued exchange rate coupled with trade and pricing policies results in a very strong discentive for the production of these agricultural export crops. Throughout the period under study, Table 3 reveals the fact that the indirect effects on the incentives are much greater than the direct effects and the effects are greater in the Post-SAP era than in the Pre-SAP

era. Combining the two effects, Table 3 reveals that the total effects are enormous. The direct effects emanate from trade restrictions and commercial policy while the indirect effects emanate basically from exchange rate misalignment. The high level of agricultural taxation results from exchange rate and trade policies that also induced high relative prices of domestic goods.

Table 6.1: NPC for Cocoa, cotton and palm kernels

Year	NPC_{co}	NPC_{Ca}	NPC_{pk}
1976	0.467	0.660	0.723
1977	0.765	0.594	0.700
1978	0.642	0.632	0.694
1979	0.248	0.630	0.586
1980	0.389	0.564	0.495
1981	0.536	0.472	0.386
1982	0.547	0.432	0.380
1983	0.523	0.394	0.420
1984	0.489	0.489	0.391
1985	0.296	0.526	0.390
1986	0.443	0.564	0.421
1987	0.521	0.623	0.418
1988	0.576	0.590	0.412
1989	0.673	0.485	0.389
1990	0.782	0.396	0.320
1991	0.790	0.394	0.341
1992	0.821	0.392	0.322
1993	0.846	0.421	0.245
1994	0.821	0.320	0.240
1995	0.726	0.310	0.200
1996	0.645	0.300	0.226

Source: Field Survey

Table 6.2: NPR for Cotton, Palm kernel and Cocoa

Year	NPR Cotton	NPR Palm kernels	NPR Cocoa
1976	-0.321	-0.361	-0.349
1977	-0.412	-0.251	-0.289
1978	-0.395	-0.379	-0.391
1979	-0.348	-0.618	-0.362
1980	-0.621	-0.592	-0.361
1981	-0.595	-0.591	-0.421
1982	-0.591	-0.600	-0.381
1983	-0.594	-0.612	-0.421
1984	-0.497	-0.482	-0.392
1985	-0.493	-0.592	-0.312
1986	-0.396	-0.481	-0.348
1987	-0.413	-0.478	-0.329
1988	-0.423	-0.432	-0.322
1989	-0.412	-0.428	-0.214
1990	-0.396	-0.392	-0.311
1991	-0.394	-0.412	-0.321
1992	-0.392	-0.391	-0.311
1993	-0.284	-0.387	-0.299
1994	-0.312	-0.372	-0.300
1995	-0.318	-0.368	-0.281
1996	-0.218	-0.291	-0.222

Source: Field Survey

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Table 6.3: Direct/Indirect effects of Cotton

Year	NPR_D (%)	NPR_i (%)	Total (%)
1976	-7.3	-21.3	-28.6
1977	-21.3	-30.3	-51.6
1978	-20.7	-40.21	-60.91
1979	-19.8	-39.05	-59.3
1980	-20.1	-33.65	-55.75
1981	-18.5	-36.12	-54.62
1982	-16.2	-19.20	-35.40
1983	-14.3	-21.32	-35.62
1984	-16.3	-20.12	-36.42
1985	-15.8	-26.21	-42.01
1986	-17.2	-25.12	-42.14
1987	-22.2	-30.21	-52.41
1988	-24.3	-35.14	-59.44
1989	-26.22	-32.41	-58.65
1990	-29.12	-30.13	-59.25
1991	-28.21	-31.22	-61.43
1992	-33.12	-33.33	-66.45
1993	-36.23	-29.45	-65.68
1994	-40.28	-32.21	-72.49
1995	-39.92	-33.48	-73.40
1996	-41.30	-37.91	-79.21

Source: Field Survey

6.4 Regression Results on Determinants of Agricultural GDP

Recall that a total of fifteen regressions were run and are presented below:

Loans/Advances (LD) equations:

Pre-SAP (1976-1985)

1. $\text{InQd} = 14.08 - 0.65\ \text{InL} - 0.21\ \text{InK} + 0.65\ \text{InLD}$
   $(-1.24) \quad (-1.32) \quad (+0.523)$

   $R = 0.89,\ R^2 = 0.82$

   $F = 50.2,\ \text{D-W} = 1.71$

   $N = 10$

Post-SAP (1986-1995)

2. $\text{InQd} = 12.06 - 0.68\ \text{InL} - 0.29\text{InK} + 0.85\ \text{InD}$
   $(-1.33) \quad (-1.34) \quad (+1.72)$

   $R = 0.91,\ R^2 = 0.89$

   $F = 49.8,\ \text{D-W} = 1.84$

   $N = 10$

Combined (1976-1995)

3. $\text{InQd} = 6.04 - 0.58\ \text{InL} - 0.42\ \text{InK} + 0.62\ \text{InLD} - 0.61\ \text{InZ}$
   $(-2.4) \quad (-1.92) \quad (+3.45) \quad (-2.48)$

$R = 0.72$, $R^2 = 0.68$

$F = 61.2$, D-W $= 2.12$

$N = 20$

Imports price (Pm) equations:

Pre-SAP (1976-1985)

4. InQd = 12.06 - 0.84 InL - 2.64 InK - 0.18 InPm
(-2.49) (-2.62) (-1.89)

$R = 0.76$, $R^2 = 0.71$

$F = 60.2$, D-W $= 1.84$

$N = 10$

5. **Post-SA\P (1986-1995)**

InQd = 9.09 - 0.72 InL - 0.42 InK - 0.28 InPm
(-0.34) (-2.15) (-1.26)

$R = 068$, $R^2 = 0.54$

$F = 71$, D-W $= 2.3$

$N = 10$

Combined (1976-1995)

6. InQd = 14.01 - 0.68 InL - 0.39 InK - 0.42 InPm - 04.2 InZ
(-2.21) (-2.40) (-2.32) (-2.15)

$R = 0.72$, $R^2 = 0.70$

$F = 81$, D-W = 2.41

$N = 20$

Exports (Px) equations:

Pre-SAP (1976-1985)

7. $\text{InQd} = 38.62 - 1.68\ \text{InL} - 0.32\ \text{InK} + 0.12\ \text{InPx}$
$\qquad\qquad\qquad\qquad (-1.28) \quad (-2.12) \qquad (+3.2)$

$R = 0.60$, $R^2 = .59$

$F = 66.1$, D-W = 2.4

$N = 10$

Post-SAP (1986-1995)

8. $\text{InQd} = 18.24 - 2.88\ \text{InL} - 0.45\ \text{InK} + 0.14\ \text{InPx}$
$\qquad\qquad\qquad\qquad (-1.82) \quad (-2.44) \qquad (+2.12)$

$R = 0.85$, $R^2 = 0.82$

$F = 72.3$, D-W = 1.84

$N = 10$

Combined (1976-1995)

9. $\text{InQd} = 22.12 - 1.94\ \text{InL} - 2.62\ \text{InK} + 0.49\ \text{InPx} - 2.13\ \text{InPx}$
$\qquad\qquad\qquad\qquad (-1.92) \quad (-2.84) \qquad (+2.12) \qquad\quad (-1.89)$

$R = 0.86$, $R^2 = 0.80$

$F = 69.5$, D-W = 1.94

$N = 20$

Imported input Prices (Aim) equations:

Pre-SAP (1976-1995)

10. $\text{InQd} = 16.24 - 1.92\ \text{InL} - 0.52\ \text{InK} + 0.31\ \text{LnAim}$
(-2.12) (-2.35) (+1.85)

$R = 0.64$, $R^2 = 0.60$

$F = 59.2$, D-W = 1.62

$N = 10$

11. $\text{InQd} = 12.72 - 2.12\ \text{InL} - 0.72\ \text{InK} + 0.38\ \text{InAim}$
(-2.01) (-3.21) (+2.12)

$R = 0.72$, $R^2 = 0.69$

$F = 60.21$, D-W = 1.86

$N = 10$

Combined (1976-1995)

12. $\text{InQd} = 21.25 - 0.28\ \text{InL} - 0.42\ \text{InK} + 0.87\ \text{LnAim} - 0.28Z$
(-1.84) (-1.23) (-2.12) (-1.94)

$R = 0.79$, $R^2 = 0.68$

$F = 50.2$, D-W = 1.99

$N = 20$

Value of Imported food (Fm) equations:

Pre-SAP (1976-1995)

13. InQd = 27.32 - 2.24 InL - 0.82 InK - 0.12 InFm
(-2.24) (-3.45) (-2.81)

R = 0.62, R^2 = 0.60

F = 54.6, D-W = 2.21

F = 10

Post-SAP (1986-1995)

14. InQd = 18.61 - 1.92 InL - 0.69 InK - 0.18 InFm
(-2.13) (-2.42) (-1.85)

R = 0.79, R^2 = 0.71

F = 71.3, D-W = 1.98

N = 10

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Combined (1976-1995)

15. InQd = 11.32 - 3.28 InL - 0.99 InK - 0.39 InFm - 0.72 InZ
(-4.28) (-2.69) (-3.24) (-2.91)

R = 0.88, R^2 = 0.83

F = 71.3, D-W = 1.58

In all the equations, figures in brackets represent the t-values, R = the multiple correlation coefficient, R^2 = the coefficient of determination, F = the calculated F - statistics, N = the number of observations and, D-W = the Durbin Watson Statistics.

In all the 15 regression equations above, it is observed that our R^2 are relatively high with the lowest being 54 per cent. It is also further observed that our D-W statistics in all the 15 regressions, each approximate to 2. The implication here is that our systems of equations are relevant for analysis.

Our regression results show that agricultural component of gross domestic product is strongly positively related to labour in all the equations. We found that, Nigerian agriculture was highly labour-intensive. Equations 1 to 15 in which the labour variable entered, show that in the Pre-SAP era, the contribution of labour to agricultural output was less than the Post-SAP era. This is to be expected. It could be recalled that in the 1970's (the Pre-SAP era), which is the period of oil boom, agriculture suffered much

neglect. In addition, as a result of government's urban-oriented strategy, many youths abandoned agriculture for white collar jobs in the urban areas. Hence, the aged and children who contributed little to farming were left in the rural areas. After the oil boom era, many people were back to agriculture. Hence, the relatively high per centage contribution of this variable to agricultural output in the Post-SAP era. For example, in equation 1 (Pre-SAP era) whereas labour contributed 65 per cent to agricultural output, in equation 2 (the Post-SAP era), the contribution was 68 per cent. Similarly, in equation 7 (the Pre-SAP era) whereas the coefficient of the labour variable was 1.68, in equation 8 (the Post-SAP era) the labour coefficient rose to 2.88.

On the overall, our regression results show that with particular reference to labour, if more people go into agriculture, agricultural output is bound to increase as more of the country's under-cultivated land will be put into use.

Our results also show that less loans and advances were made available to farmers in the Post-SAP era than in the Pre-

SAP era. This is evident by the fact that while the variable D, contributed 85 per cent in the Pre-SAP era to agricultural output (equation 1), the very variable contributed 65 per cent in the Post-SAP era to agricultural output (equation 2). Equation 3, is the combined regression for the entire period under study. It shows that loans and advances explain 62 per cent variation in agricultural output.

Equations 4 to 6 also meet our a priori expectation of the sign and significance of the variable food imports, F. This behaviour is to be expected as the food import bills generally increased over the years. High importation of food in the country has been encouraged by our preference for imported consumer goods, and the existence of over-valued currency. This calls into question the import-substitution strategy embarked upon by the government.

Again, following the structural shift analysis adopted in this study, our regression results reveal that food imports has increased in the Post-SAP era than in the Pre-SAP era.

As regards the variable exports, X, our regression results (equations 7 to 9) show a weak link between agricultural output and exports. Theoretically, though, we expect a strong positive link between exports and agricultural output. This is necessary so that exports would effectively promote agricultural output. Our findings contrast to that of Schatz (1968) who holds that agriculture is expected to significantly contribute to export earnings and in this way help in providing the necessary capital for rapid economic development. However, following from the positively signed coefficient of the export variable, it can still effectively contribute to agricultural output if the right export policy strategies are vigorously pursued.

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Further, equation 8, (the Post - SAP era) shows that whereas the variable X contributed 14 per cent to agricultural output, its contribution was only 12 per cent in the Pre-SAP era. This points to the affirmation that the export strategy under the Structural Adjustment Programme has made some meaningful contribution to agricultural output in Nigeria.

Another finding is that the imports play a positively significantly role in agricultural output. Over the years, there have been increases in producer prices over the years but they were not significant enough to effect significant producer income increases as to attract very many people into agriculture. The low coefficient of this variable, Pm, in equations 10 and 11, (the Pre-SAP and Post-SAP era respectively) show that this variable can still effectively contribute to agricultural output provided careful policy action are well nurtured and embarked upon.

Imported food values Fm as revealed from our regression results (equations 13 to 15) also contributed to agricultural output small though as the contribution may be. However, our findings from both the Pre-SAP and Post-SAP eras contradicts the fact that agriculture is the largest employer of labour in the economy and the existence of a modern sector where incomes are appreciating over time.

In the all the equations in which the dummy variable Z entered (combined Periods), the a priori expectation with regards to the sign and significance were met. This shows that SAP has

had a profound positive influence on the agricultural sector in Nigeria.

Now, turning to the test of whether the structural change was statistically significance, we perform operation on the chow test technique. We do this for the various equations of the variables, LD, Px, Pm, Aim and Fm. First, it was found that for the L D equation, the calculated F* value was 9.25 while the theoretical F-value at the 95 per cent level of significance was 6.58 with V1 = 10 and V2 = 10 degree of freedom. Thus, F* > F0.05 and hence we reject the null hypothesis. That is, the two functions (equations 1 and 2) do differ significantly. The economic relationship being studied changed over time. The same story is being told of the remaining variables. For variable F, the calculated F* value was 4.52 while the theoretical F-value at the 95 per cent level of significance was 5.84 with V1 = 10 and V2 = 10 degree of freedom. For X, the calculated F* value was 4.99 while the theoretical F-value at the 95 per cent level of significnance was 6.84 with V1 = 10 and V2 = 10 degree of

freedom. With regards to the variable P, the calculated F* value was 5.86 while the theoretical F-value at the 95 per cent level of significance was 4.33 with V1 = 10 and V2 = 10 degree of freedom. For the variable, I, the calculated F* value was 4.99 while the theoretical F-value at the 95 per cent level of significance was 5.20 with V1 = 10 and V2 = 10 degree of freedom.

We thus, posit here that, though the functions of agricultural output under study changed over time, this change has not been statistically significant at the 4 per cent level.

On the overall, the chow test results confirm that SAP did not produce a highly significant positive 'structural break' in agricultural productivity.

CHAPTER SEVEN

SUMMARY AND CONCLUSIONS

7.0 Introduction

The objective of this study is to highlight the impact of Structural Adjustment Progamme on the technical and productive efficiency in the agricultural sector in respect of productivity and income variability. The study seeks to determine whether the current size of agricultural output is being produced at the lowest possible average money cost.

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7.1 Summary of Findings

Concerning agricultural taxation, our study has shown that the agricultural sector has high level of price intervention which is mainly governmental. This high level of taxation is both direct and indirect.

The relation between the price of agricultural exports and the price of food also shows that food prices have increased relative to agricultural export prices. One would therefore expect a shift of resources towards the non-tradeable sector. This

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confirms the current trend of emphasis on the oil sector and the desire of the Federal Government to boost food production so as to keep pace with the growing population. The findings of the shift of resources to non-tradeable sector is in line with the findings of Krueger (1991); Wlebelt (1992); and Amin (1996). However, the degree of agricultural taxation in these findings tend to vary with the economy in question.

Our findings have revealed that labour and commercial bank loans are the dorminant explanatory variables of agricultural output in Nigeria. However, other factors such as capital and producers incomes are also contributing factors to agricultural output in the country.

Using the chow test techbnique, our study revealed that the Structural Adjustment Programme has produced a timid 'Structural break' in agricultural output, but the technical and productive efficiency aspects leaves much to be desired.

7.2. Conclusion

There are many alternative development paths or strategies. The strategies followed by an individual country at a particular point in time is, or at least, should be, influenced in part by its resources endowments and state of development. But the wrong choice of an appropriate path, given the existence of resource endowments and stage of development, can result in long-term stagnation of the economy. There are numerous examples of countries choosing the wrong development path and paying the price.

Nigeria's Structural Adjustment Programme is a rigorous proof of that situation, whereby agricultural sector, the most predominant sector of the economy, was expected to play a frontline role in the country's economy recovery process, without proper provision of measures to modernize the sector for enhancing technical and productive efficiency. The question arises whether a technologically stagnant agriculture can sustain a developing economy in which the urban population is expanding while farm population is declining.

Actually, the rather severe economic crunch that came with S.A.P. is still present. The need to institute measures aimed at improving the general economic and social welfare of rural people can not be over-emphasised.

Consequently, there must be a drastic revolution in agricultural practices before numbers of people can be advantageously diverted from agriculture to non-farm occupations as a result of improved technical and productive efficiency in agricultural sector.

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7.3 Policy Recommendation

To mitigate the pains of the Structural Adjustment Programme and to obviate its adverse effects on the Technical and productive efficiency in the agricultural sector, the study recommended that the exchange rate of the value of the Naira should be revalued. In particular, the study feels that the foreign exchange rate of the Naira should be raised and fixed. The floating nature of the currency does not give enough room to maximum and effective utilisation of imported agricultural production inputs.

Since the term of trade for agriculture has worsened, it is recommended the elimination of export taxation and other trade restriction on agricultural exports so as to improve the terms of trade for agriculture as a whole and change relative prices within the sector in favour of exports. This will ultimately accelerate and promote the overall development of the agricultural sector which will make the expected contributions to diversifying the foreign exchange earning base of the Nigerian Economy.

It was observed that the prices of agricultural inputs and basic consumer goods have increased astronomically since the inception of S.A.P. Since the cost and accessibility of agricultural inputs and consumers goods had been shown to influence real farm profit which in turn influenced the flow of investment into agriculture, the present study strongly recommended that government should subsidize the soaring prices of both agricultural inputs and basic consumer goods in the economy. This does not necessarily contradict the spirit of S.A.P. because, even in the industrialized countries of America and Europe, some form of subsidy is usually given to promote agricultural production and productivity.

With regard to the interest rate regime in the economy, the study recommended the application of discriminating rates in favour of agriculture. This could be done by giving some rebate to banks. The amount of rebate should be equal to the difference between the prevailing market rate and rate applied to agricultural loan by the banks. Moreover, Government should also strengthen the rural financial markets and institutions through an improved process of

establishing a well tailored and well monitored Community and People's Bank network. Also, the scope of these Banks should be redefined to emphasise more on rural agriculture and artisanship. It is, however, necessary to stress that in setting up these Banks, those characteristics of the conventional banks that reduce their accessibility to the small scale rural farmers should be avoided.

With respect to Labour, it is recommended that more effort should be made to provide functional literacy to farmers in the area of the use of agricultural research and extension services, because human capital has an impact on agricultural output and broader agricultural literacy would certainly boost productivity. Another social service that calls for urgent attention in the rural areas is health services. The study recommended that Government should increase subsidy to this sector because the people's health has a positive role to play on agricultural output and productivity.

Concerning Land variable, it recommended the intensification of a vast agricultural cooperative movement for pooling micro arable lands in the hand of small scale farmers into vast agricultural

domains in view of accelerating and promoting the Nigeria's agriculture mechanisation and hence improving the agricultural productivity.

Annex 2.1

% CHANGE IN PRODUCTION OF MAJOR CROP ('000 tonnes)

COMMODITY	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985
1. GRAINS	7340	7161	6959	5769	5656	6459	6970	7430	6858	10189	10119
Annual % Change		-2.4	-2.8	-17.1	-2.0	14.2	7.9	6.6	-7.7	101.7	5.0
MAIZE	1332	1068	650	658	488	612	720	766	594	2025	1190
Annual % change		-19.8	-39.1	1.2	-25.8	25.4	17.6	6.4	-22.5	72.6	16.1
MILLET	2550	2893	2579	2386	2366	2354	2682	2666	2783	3349	3684
Annual % change		13.5	-10.9	-7.5	-0.8	-0.5	13.9	-0.6	4.4	20.3	10.0
SORGHUM	2920	2950	3286	2409	2604	3346	3364	3740	3292	4608	4911
Annual % change		1.0	11.4	-26.7	8.1	28.5	0.5	11.2	-12.0	40.0	6.6
RICE	504	218	410	280	160	105	158	212	145	157	196
Annual % change		-56.7	88.1	-31.7	-42.9	-34.4	50.5	34.2	-31.6	8.3	24.8
WHEAT	18	18	20	20	22	24	26	26	26	27	113
Annual % change		0.0	11.1	0.0	10.0	9.1	8.8	0.0	0.0	3.8	318.5
ACHA	16	14	14	16	16	18	20	20	18	23	25
Annual % change		-12.5	0.0	14.3	0.0	12.5	11.1	0.0	10.0	27.8	8.7
2. TUBERS	11476	8818	8410	7702	6872	6438	6140	6297	4822	16649	17103
% change		-23.2	-4.6	-8.4	-10.8	-6.3	-6.4	2.6	-23.4	245.3	2.7
CASSAVA	2324	1786	1656	1620	1446	942	620	592	513	11800	12090
Annual % change		-23.1	-7.3	-2.2	-10.7	-34.9	-34.2	-4.5	-13.3	2200.2	2.5
YAM	8620	6470	6376	5866	5256	5248	5212	5385	4047	4600	4738
Annual % change		-24.9	-1.5	-8.0	-10.4	-0.2	-0.7	3.3	-24.8	13.7	3.0
IRISH POTATO	28	30	32	34	38	40	38	40	38	42	43
Annual % change		7.1	6.7	6.3	11..8	5.3	-5.0	5.3	-5.0	10.5	2.4
COCOYAM	504	532	346	182	132	208	270	280	224	207	232
Annual % change		5.6	-35.0	-47.4	-27.5	57.6	29.8	3.7	-20.0	-7.6	12.1
3. PULSES	923	797	478	570	697	585	638	698	625	769	671
Annual % change		-13.7	-40.0	19.2	22.3	-16.1	9.1	9.4	-10.5	23.0	-12.7
COWPEA	858	727	408	498	624	510	560	616	583	726	611
Annual % change		-15.3	-43.9	22.1	25.3	18.3	9.8	10.0	-5.4	24.5	-15.8
SOYABEAN	65	70	70	72	73	75	78	82	42	43	60
Annual & change		7.7	0.0	2.9	1.4	2.7	4.0	5.1	-48.8	2.4	39.5
4. PLANTAIN	1016	1022	1026	1032	1038	1042	1048	1054	1068	1086	1113
Annual % change		0.6	0.4	0.6	0.6	0.4	0.6	0.6	1.3	1.7	2.5
5. VEGETABLE	1303	1134	1025	976	931	972	986	1048	909	1120	1254
Annual % change		-13.0	9.6	-4.8	-4.6	4.4	1.4	6.3	-13.3	23.2	12.0

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Annex 2.1 (Cont'd)

% CHANGE IN PRODUCTION OF MAJOR CROP ('000 Tonnes)

COMMODITY	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996**
A.2 CASH CROPS	4193.0	4211.0	4319.0	4937.0	5534.0	6114.0	6324.0	5573.0	5466.0	5889.0	6537.0
Annual % change	32.4	0.4	2.6	14.3	12.1	10.5	3.4	-11.9	-1.9	7.7	11.0
COTTON	100	195	194	187	276	309	346	192	218	308	328
Annual % change	-7.4	95.0	-0.5	-3.6	47.6	12.0	12.0	-44.5	13.5	41.3	6.5
GROUNDNUT	896	687	815	895	992	1361	1297	1416	1453	1579	1723
Annual % change	51.6	-12.3	18.6	9.8	10.8	37.2	-4.7	9.2	2.6	8.7	9.1
COCOA	180	205	253	256	244	268	292	306	323	326	399
Annual % change	20.0	13.9	23.4	1.2	-4.7	9.8	9.0	4.8	5.6	0.9	22.4
COFFEE	132	139	157	257	303	320	338	358	372	392	430
Annual % change	3200.0	5.3	12.9	63.7	17.9	5.6	5.6	5.9	3.9	5.4	9.7
SUGAR CANE	897	882	888	900	920	888	896	905	633	636	838
Annual % change	9.3	-1.7	0.7	1.4	2.2	-3.5	0.9	1.0	-30.1	0.5	31.8
PALM KERNEL	727113	824	545	939	1190	1203	1321	491	503	534	548
Annual % change	.8	13.3	-33.9	72.3	26.7	1.1	9.8	-62.8	2.4	6.2	2.6
SHEANUT	104	109	110	252	289	326	331	336	353	384	419
Annual % change	1.0	4.8	0.9	129.1	14.7	12.8	1.5	1.5	5.1	8.8	9.1
RUBBER	190	180	211	132	147	215	220	225	230	255	285
Annual % change	227.6	-5.3	17.2	-37.4	11.4	46.3	2.3	2.3	2.2	10.9	11.8
GINGER	Na	Na	Na	35	42	50	57	64	69	79	85
Annual % change	-	-	-	-	20.0	19.0	14.0	12.2	7.8	7.8	7.8
MELON	153	145	275	204	208	219	231	243	253	305	351
Annual % change	7.0	-5.2	89.7	-25.8	2.0	5.3	5.5	5.2	4.1	20.6	15.1
BENNISEED	35	34	36	40	44	46	49	52	56	60	64
Annual % change	12.9	-2.9	5.9	11.1	10.0	4.5	6.5	6.1	7.7	7.1	6.7
TOBACCO	25	26	27	30	31	20	19	20	21	22	25
Annual % change	78.6	4.0	3.8	11.1	3.3	-35.5	-5.0	5.3	5.0	4.8	13.6
PALM OIL	650	680	700	700	730	760	792	825	837	860	883
Annual % change	30.0	4.6	2.9	0.0	4.3	4.1	4.2	4.2	1.5	2.7	2.7
GROUNDNUTN	Na	Na	280	249	359	361	384	408	429	433	468
OIL	-	-	-	-11.1	44.2	0.6	6.4	6.3	5.1	0.9	8.1
Annual % change	104	105	108	110	118	129	135	140	145	149	159
COCONUT PALM	3.0	1.0	2.9	1.9	7.3	9.3	4.7	3.7	3.6	2.8	6.7
Annual % change											
TOTAL	4456	4475	4861	5444	6147	6727	6957	6227	6137	6560	7239
	17.0	11.6	87.8	13.2	10.4	51.8	-9.9	4.9	4.2	1.0	10.0

Source: F.M.A. Note: * = Revised
** = Projection/estimate
Na = Not available

Annex 2.2: Yield per Hectare of Selected Food Crops in Nigeria in Kilograms

Crop	State	1979/80	1980/81	1981/82
Cassava	Imo	11,300	9,286	7,000
Guinea Corn	Benue	2,156	829	1,815
Maize	Kaduna	794	1,471	680
Rice	Bauchi	500	366	2,000
Yam	Cross River	9,235	7,333	11,059

Source: Culled from Federal Office of Statistics, Nigeria National Integrated Survey of Households Report of Rural Agricultural Survey, 1981/82, January, 1983

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Table 2.3 Growth Rate of the Nigerian Agricultural Sector, 1986-1990 (1994 = 100)

Items	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Crops	398	12.1	5.1	5.0	7.8	7.9	8.1	8.0	8.2	8.6
Livestock	3.6	-3.9	-2.3	-0.6	0.5	0.3	0.5	0.52	0.8	0.9
Fishing	-3.3	6.7	16.1	13.6	2.4	3.4	3.5	3.8	3.9	4.3
Forestry	0.0	3.6	1.8	3.3	3.3	2.9	3.0	3.6	3.7	3.9

Source (1): (1986-1990) Computed from CBN, Annual Report and Statement of Accounts, 31 December 19990.

Source (2): (1991-1995) Computed from CBN, Annual Report and Statement of Accounts, 31 December 1997

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Annex 2.4: Comparative Crop yields between traditional and improved practices in tones per hectare

Crops	Tradition System		Improved Technology System		Average Increase	
	No of farms	Average yield in tonnes/ha	No. of farms	Average yield in tonnes/ha	Tonnes/ ha	% change
Maize	13	0.40	10	1.25	0.85	2.50
Cassava	13	6.75	10	16.75	10.00	148.15
Yam	10	4.40	7	10.5	6.10	138.64

Source: Computed from field survey and from P.U. Iniodu, Appropriate technology for improved agriculture and better rural living in Akwa Ibom State. Paper presented at the 6th Annual Conference of NRSA, Ibadan, Dec. 2 - 5, 1990. In: The National Question and Economic Development in Nigeria: selected papers of the 1993 Annual Conference. The Nigerian Economic Society.

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BIBLIOGRAPHY

Adeoti, J.A. (1988). Public Sector Investment In Food Production. In: A Developing Country: A case study of Bakolori Dam Irrigation Project. Nigerian Journal of Economic and Social Studies Vol. 30, No.3, November.

Aigbokhan, B.E. (1989). Monetary Policy in Nigeria and the Economic Crisis of the 1980s. Paper presented at the National Conference on 'The Financial System and Nigeria's Economic Recovery', Department of Economics, A.B.U. Zaria Nov. 20 - 23.

Akinrele, I.A. (1977). Application of Appropriate Technology to Production in Nigeria - Management Development In Nigeria: The Challenge of indigenisation - Udo Aka et al (eds) Oxford Univ. Press.

Akunnusi, D.E. (1987). The Role of Technology in Productivity. "Proceedings of the 1st National Conference on Productivity held in Owerri 1st - 3rd Dec. 1987. Organised by National Productivity Centre - Lagos.

Alhaji, A. (1989). Production in the Nigerian Economy. The Performance of Non-oil Exports. Being a keynot address of the proceeedings of the 1989 one-day Seminar. NES Journal

Aluko, S. (1987). The Burden of Economic Structural Adjustment: The Nigerian Scenario - Lecture given at the 1987 convocation ceremony of University of Ife, Ile-Ife.

Amadi, A.O. (1987). Recipe for Productivity improvement: see Akunnusi (1987) *op cit.*

Amin, A.A. (1996). The Effects of Exchange Rate Policy on Cameroon's Agricultural Competitiveness AERC March.

Arnold et al (1989). Education and Economic Development (Education and Agricultural Growth).

Attwood, P.R. (1977). Technology and the future Nigerian Manager. In: Management Development in Nigeria pp 144 - 147

Ayoola, G.B. (1990). Technological Progress in Agriculture: Some Issues - The Nigerian Economic Society Annual Conference Proceedings, May.

Baba, K.M. (1989). An Empirical Study of Agricultural Inoput and Output Price Changes under SAP - School of Agriculture, Abubakar Tafawa Balewa Univ. Bauchi.

Babangida, I.B. (1986). Budget of the Federal Republic of Nigeria 'In Federal Rep. of Niger. Government of the Federal Republic of Nigeria Approved Budget, 1987 Fiscal Year Lagos: Federal Government Printer.

Bedeian, A.G. (1986). Management. The Dryden Press, New York.

Birkhaeuser, D.R. et al (1988). The Economic Impact of Agricultural Extension: A review - New Haven Conn. Yale Univ. Processed.

Binswanger, H (1989). The Policy Response of Agricultural Sector. Proceedings of the World Bank Annual Conference on Development Economic

Central Bank of Nigeria, C.B.N. (various issues) on: Annual Report and Statement of Accounts and Economic and Financial Review

Cobb, C.N. and Douglas, P.H. (1928). A theory of Production American Economic Review Vol. 18 (supplement) 139 - 165.

Demery, L. and Addision, T. (1987). The Alleviation of Poverty under SAP. World Bank Publication Washington, D.C.

Elbadawi, I. (1992). Real Overvaluation, terms of trade Shocks and the cost to Agriculture. In Sub-Saharan Africa; the case of the Sudan. Journal of African Economies Vol. 1, No. 1, pp59 - 85.

Enabor, E.E. (1989). The Impact of Structural Adjustment Programme (SAP) on Forestry and Wildlife sub-sector in Nigeria. Paper presented at the National Conference on the Impact of SAP Nigerian Agricultural and Rural Life at NISER, Ibadan, Nov. 26 - 29.

Eubuomwan, G.O. (1989). "iImpact of SAP on the Food crop sub-sector of the Nigerian Agricultural sector.

Famoriyo, S. (1978). Problems Relating to Agriculture In National Development" Paper presented at the Conference on Industrial Take -off in Nigeria, A.B.U., Zaria.

Famoriyo, S. and Imoudu, P.B. (1990). Structural Adjustment and the Nigerian Rural Life. Paper presented at the National Conference on the Impact of SAP on Nigerian Agricultural and Rural Life at NISER, Ibadan Nov. 26 - 29.

Federal Ministry of budgeting and Planning, FMBP (1990).

Federal Ministry of Agriculture and Natural Resources (1974) "Agricultural Development In Nigeria 1973 - 1985 - Joint Planning Committee.

Federal Ministry of Agriculture. Agricultural Policy for Nigeria, FMANR, Lagos 1987.

Federal Ministry of Economic Development (1962). National Development Plan 1962 - 68, Lagos, Government Printer.

Federal Office of Statistics, F.O.S. (19789). Annual Astract of Statistics, 1998 Eddition: Lagos, Government Printer.

Forerst, T. (1981). " Agricultural Policies in Nigeria 1900 - 78. In: Heyer, J. et al (eds) Rural Development in Tropical Africa. MacMillan Press.

Fosu, Y.K. (1992). "The Real exchange rate and Ghana's Agricultural Exports. AERC Research paper 9 Oxford.

Heady, E.O. (1962). "Agricultural Policy Under Economic Development, Iowa State, University Presss, Ames, Iowa.

Igbedioh, S.O. (1989). The Import of Nigeria's Macro-economic Adjustment Policies on Food availability and Nutritional Status. A look at 1990s.

Igodan, C.O. (1989). Analysis of the Effect of Structural Adjustment Programme (SAP) on Agro-chemicals sale, distribution and use among cocoa farmers in Nigeria. Paper presented at the National Conference on the Impact of SAP on Nigerian Agriculture and Rural Life at NISER, Ibadan Nov. 26 - 29.

Ihimodu, I.I. (1989). "Agricultural Policy in the Development of the Nigerian Economy In Ben Turok (edit), Debt and Democracy: Alternative Strategies for Africa, Vol. 3 Institute for African Alternatives (IFAA) London.

Iniodu, P. (1990). "Appropriate Technology for Improved Agriculture and Better Rural Living in Akwa Ibom State" Paper presented at the 6th Annual Conference of the Nigerian Rural Sociological Association Ass. (NRSA) NISER, Ibadan, Dec. 2 - 5.

-------(1993). "Agricultural Productivity and the Nigerian Economic Stability. A National Question" Paper presented at the 1993 Annual Conference of the Nigerian Economic Society.

International Labour Organisation, ILO, (1977). Employment, Growth and Basic Needs, Praeger Publishers, N.Y.

Jaeger, W. (1991). The Impact of Policy on African Agriculture: An Empirical Investigation. PRE Working Papers: WPS 640 World Bank.

Jorgenson, D.W. and Grilliches, Z. (1967). "The Exploration of Productivity change" Review of Economic Studies, 34(9): 249 - 283.

Kendrick, J. (1983). In: Scot Sink (ed) "Much Ado About Productivity" Industrial Engineering Publication.

Kio, P.R.O et al (1989). The effect of the Structural Adjustment Programme on the local sourceing of law materials for wood based industries. Paper presented at the National Conference on the impact of SAP on Nigerian Agriculture and Rural Life at NISER, Ibadan, Nov. 26 - 29.

Koutsoyiannis, A. (1977). Theory of Econometrics Second Edition. MacMillan Press.

Krueger, A. (1988). "Measuring the effects of Sectoral and economy wide policies" The Wworld Bank Economic Review, Vol. 2 No. 3 pp 255 - 272.

Krueger, A et al (1991). "The Political Economy of Agricultural Pricing Policy: A World ank Comparative Study. Baltimore: The Johns Hopkins Univ. Press.

Kuznets, S. (1961). "Six Lectures on Economic Growth". The Johns Hopkins Univ. Press, Mexico City.

------- (1964). "Economic growth and the contribution of Agriculture in Economic Development. Eicher G.K. and Witt L.W. (eds). McGraw-Hill, N.Y.

Kwanashie, M., Ajilima, I. and Garba, Abdul-Ganiyu (1997). model for evaluating the response of Agriculture to Adjustment Policies in Nigeria.

LA-Anyanne, S. (1969). "Issues in Agricultural Policy in Ghana; Proceedings of a seminar organised by the Faculty of Agriculture, Univ. of Ghana - Legon.

Liedholm, C.E. (1966). "Production Function for Eastern Nigeria Industries". Nigerian Journal of Economic and Social Studies 8, Nov. 427 - 440.

Lipton, M. and Ravallion, M. (1993). "Poverty, Undernutrition and Hunger" World Bank Policy and Research Working paper. World Bank Publication, Washington, D.C.

Little, I.M.D. (1993). Boom, Crisis and Adjustment. Published for the World Bank, Oxford University Press.

Matin, F. (1977). Comparatives and Intermediate Technology. IFAP News 26(1): 4.

Muchachi, M.E. (1985). "The Biggest Challenge Facing Africa Today" Paper presented at the O.A.U. Summit in Addis Ababa, July.

Mundlk, et al (1987). "Effects of Economic Growth: Argentina 1983 - 1984 IFPRI Workshop on Agriculture, Annapolis Maryland.

Murti, V. (1963). "Production Functions in Indian Industry" Econometrica, Vol. 31.

Naylor, R. (1994). Culture and Agriculture: Employment Practices Affecting Women in Javas Rice Economy: Journal of Economic Development and Cultural Change Vol. 42, No. 3.

Nlandu, M. (1996). "How prices and macro-economic policies affect agricultural supply and the environment". World Bank Policy Research Working paper. World Bank Publication, Washington, D.C.

KASHIM IBRAHIM LIBRARY

Norma, D.W. (1974). "The Organisational Consequencies of social and economic constraints and policy in Dryland areas". Paper presented to the 2nd International Seminar on change in Agricultural Reading, U.K.

Nwaroh, J.U. (1987). "Productivity Measurement and Improvement" Proceedings of the 1st National Conference on Productivity held in Owrri, 1 - 3 Dec. 1987 Organised by National Productivity Centre Lagos.

Ojo, M.O. and Akanji, O.O. (1997). The impact of macroeconomic policy reforms on Nigerian Agriculture. In: C.B.N. Economic and Financial Review, Vol. 34, No. 2.

Olayide, S.O. (1980). "Agricultural Policy of Military Era, 1966 - 1979". Proceedings of the 1980 Annual Conference of the Nigerian Economic Society.

Olayide, S.O. (1992). Food and Nutrition Crisis in Nigeria, Ibadan University Press, 1982.

Olomola, S.A. (1987). "The Structural Adjustment Programme: Prospects and Implications for Rural Development" Paper presented at the Department of Agriculture on Nigeria's Economic Strategies Organised by the Faculty of Social Sciences, O.A.U., Ile-Ife.

Omitogun, O. and S.A. Tella (1989). Structural Adjustment and Rural Life. A situational Assessment.

Onwumere, J.U.J. (1992). "An Empirical Investigation into the Degree of Self-Reliance in the Nigerian Economy using Agriculture and Industry". Being an unpublished Ph.D. Thesis submitted to the Department of Economics, UNIJOS.

Osagie, E. (1986). "Encouraging Production in An Abnormal Economy". In: Ige, C.S. and F.E. Onah (eds). Production Problems in the Nigerian Economy Jos. Department of Economics of the University of Jos and University of Nigeria.

Osakwe, J.O. (1976). "Productivity and Labour Compensation in selected Industries CBN Economic and Financial Review Bank of Nigria, Vol. 12 December.

Obadan, M.I. (1989). "Constraints and Problems of the Non-Oil sector. In: NES Journal Proceedings of the 1989 one-day Seminar on Production in the Nigerian Economy. The Performance of Non-oil exports.

Odama, J.S. and Kazi, U.A. (1982). Rate of Capital Labour substitution in Time series Production Functions in the Nigerian Manufacturing Industry, 1962 - 75 Nigerian Journal of Economic and Social Studies, 24(1), March 34 - 60.

Ojo, M.O. (1989). "The SAP and Nigeria's Export crop sub-sector". Being paper presented at NISER National Conference on the Impact of SAP on Nigeria, Nov. 26 - 29.

O'Kelly, E. (1977). Intermediae Technology as an agent of change. In: Proceedings of the World Food Conference of 1976. The Iowa State Univ. Press, Ames, Iowa, pp 505 - 513.

Okongwu, P.S. (1986). "The Nigerian Economy: Anatomy of a traumatised Economy with some proposal for stabilisation. 4th Dimension Publishers and Enugu.

Olayide, S.O. (1976). Economic Survey of Nigeria 1960 - 75. Ibadan: Aromotaram Publishing Company Ltd.

Oyejide, T.A. (1990). "Supply Response in the Context of Structural Adjustment in sub-Saharan Africa". AERC special paper initiative Publishers, Nairobi.

-------- (1989). "On the Stability of Exchange Rate". The Nigerian Banker: Sept. - Dec.

Pallangyo, E.P. (1984). "Importance of Agriculture in Africa Economic Development". ECA/FAO, Agricultural Development of ECA Report.

Papanek, G. (1973). Aid, Foreign Privae investment, Savings and Growth in LDCs". Journal of Political Economy, Ma.

Penson, J.B. (1981). Nigeria, Strategy for Agricultural Growth. December 27, Report No. 7988 - UNI

Pesmazoglu, J. (1972). "Growth, Investment and Savings Ratios". Some Long-Run and Medium Term Assistance by Groups of Countries' Bulletin of the Oxford Institute of Economics and statistics, November.

Phillips, A.O. (1988). "Performance of the Economy under SAP. Business Vanguard, 3 July.

Phillips, D.O. and Abalu, G.O. (1987). Price expectation formation and revision in the Nwerlovian framework with application to Nigerian farmers. Journal of Agricultural Economics,Vol. 38.

Phillips, D.O. and Abalu, G.O. (1987). A general overview of SAP. The case of Nigeria, NISER 1987.

Qurashi, S., Ijaz, N. and Rashid, F. (1996). "Rural Finance for Growth and Poverty Alleviation World Bank Policy Research Working paper, World Bank Publication, Washington, D.C.

Raj, R.K. (1991). "Agricultural Growth in China and India: The Role of Price and Non-Price Factors' Economic and Political Weekly. Vol. 18, No. 3 pp 69 - 78.

Rausser, G.C. and Just, R.C. (1981). Principles of Policy modelling in agriculture. FRBKS, Modelling Agriculture for Policy Analysis in the 1980's Kansas.

Robson, A.J. (1965). "Can Economic Growth be based on Agriculture? The Indian Economic Journal Vl. XIII.

Sharply, J. (1984). The potential of domestic stabilisation measures in developing countries. In: The Quest for Economic Stabilization: The IMF and the Third World Tony Killick (ed). Heinemann Educational Publishers, London.

Smith, A. (1776). "An Inquiry into the Nature and Causes of the Wealth of Nations. London: W. Soyibo Stahan and T. Cadell.

Sumanth, D.J. (1984). "Productivity Engineering and Management. McGraw-Hill.

The Hunger Project (1980). African farmer, No. 3.

Thirlwall, A.P. (1978). Growth and Development with Special Reference to Developing Economies: London and Basing Stoke. The Macmillan Press Ltd.

Titilola, S.O (1987). "The Impact of SAP on the Agricultural and Rural Economy of Nigeria" SAP in a Developing Economy: The case of Nigeria - Phillis and Ndekekwu (eds). NISER - Ibadan.

Todaro, M.P. (1977). Economics for a Developing World: Hongkong: Longman.

Ukpong, G.E. (1993). Some strategies for the Development of Nigeria's Agricultural Sector in the 1990s in CBN Economic and Financial Review Vol. 31, No. 2, June

Usoro, E.J. (1987). "Development of Nigeria's Agricultural Sector within the Framework of SAP - Phillips and Ndekwu (ed). World Bank Report 1988, Washington, D.C.

Survey" Econometrica, 31(1-2), January - April: 1 - 66.

Wlebelt, M. (1992). "The Sectoral Incidence of Protection and Zimbabwean Agriculture". Journal of Agricultural Economics: Vol. 3, No. 2, pp205 - 17.

World Bank (19981) "Accelerated Development in Sub-Saharan Africa: An Agenda for Action. Washington D.C. International Bank for Reconstruction and Development.

-------- (1988). World Debt Tables, Washington, D.C. World Bank.

-------- (1989). Nigeria, strategy for Agricultural Growth. December 27, Report No. 7988 - NNI

-------- (1989). "Sub-Saharan Africa: From Crisis to Sustainable Growth - a Long Term Perspective study, IBRD.

-------- (1991). "The challenge of Development" World Bank Development Report (1992).

-------- (1994). "Nigeria, SAP, Policies, Implementation and Impact" - May 13, Report No. 13053 - UNI.

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