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EXPORT SUPPLY RESPONSES OF NIGERIA'S MAJOR AGRICULTURAL COMMODITIES TO PRICE AND EXCHANGE RATE REGIMES

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CERTIFICATION

Ayichi, Damian, a post-graduate student of the Department of Agricultural Economics with registration number PG/PhD/88/6979 has satisfactorily completed the course and research work requirements for the degree of Doctor of Philosophy in Agricultural Economics. The work embodied in this thesis is original and has not been submitted in part or full for any other Diploma or Degree in this or any other university. We accept it as conforming to the required standard.

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DEDICATION.

This work is dedicated to our Lord Jesus Christ, the only begotten Son of God, our Saviour and the "Author and Finisher of our faith."

ACKNOWLEDGEMENT.

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ABSTRACT

The declining performance of non-oil exports in Nigeria since the mid-70s has largely been blamed on poor domestic policies and deteriorating external terms of trade. The central issue to the problem was the question of exchange rate misalignment. In response to the problems, the government embarked on the Structural Adjustment Programme (SAP) which aimed among others to stimulate agricultural exports.

The principal objective of this study is therefore to evaluate the responsiveness of export supply of major agricultural commodities (cocoa bean, palm kernel and natural rubber) to prices and exchange rate changes. In the line with the above, the study is set to describe the structure of Nigeria's export, identity the major export incentives and instiitutions, determine the impact of exchange rate, price, and trade liberalization regimes on export supply of leading agricultural commodities and make policy recommendations based on findings.

To address the objectives of the study, annual time series data (1970-1993) collected from various secondary sources on relevant variables were fitted into econometric models in linear, semi- and double-logarithmic functional forms using Ordinary Least Square technique.

The principal models specified that the quatity exported of a commodity is a function of the ratio of world prices to domestic prices, real effective exchange rate, local processing capacity, domestic production capability and trade liberalization policy.

The double-log functions produced the best results. The results show that the regression coefficients of price ratio, real effective exchange rate, local processing capacity, domestic production capability and trade liberalization policy are respectively 0.21, 0.91, -1.44, 0.36, 2.08 for the cocoa model; 0.13, 1.62, 0.29, 1.15, -1.06 for palm kernel model and 0.45, 0.46, -0.08, -0.01, 1.62 for natural rubber model. Except for trade liberlization policy, the regression coefficients are direct measures of export supply elasticities. Though the results are mixed, the overall picture is that export commodities are positively but inelastically responsive to prices and exchange rates effects. The implication is that a change in these variables will produce less than proportionate effect on export supply.

Based on the forgoings and other findings of the research, the following key recommendations are made:

(i) Government should make deliberate effort to guide against under-valuation of the Naira since export supply is inelastic to real effective exchange rate changes at least in the short-run. Furthermore, increased export volume does not necessarily translate to higher export revenue in the face of declining world market prices of primary commodities.

(ii) Agricultural export promotion efforts within the SAP framework should focus more on non-price policies like trade liberalization, streamlining and simplifying of export trade procedures, among others.

(iii) Structure of Nigeria's export in terms of trade direction should continue to be reviewed and diversified in order to encourage inter-African trade, and South-South trade relations.

(iv) Strengthening of incentive measures designed to encourage exports of non-traditional products including processed and semi-processed agricultural products so as to widen Nigeria's non-oil export base.

(v) Policies should be designed to enhance the domestic production capabilities of the farmers through generation of appropriate farm technologies, efficient extension services, provision of farm technologies and infrastructures, supply of agricultural credit, replanting of plantations with improved and high yielding varieties.

CHAPTER ONE

1.0   INTRODUCTION

1.1   Background of Study

Economic maladjustments have characterized most developing countries since the 1970s. This has resulted in serious socio-economic problems in most countries especially in the Sub-Sahara Africa (SSA). For instance, there now exists net out flow of capital from Africa arising from debt servicing and repayment of loans (Ditto, 1991). The resulting debt burden has been such that in some countries, debt service as a percentage of GDP and exports lied between 45% and 58% in 1980/81 (Koester *et al* 1990). For example, if Nigeria were to service her debt adequately, it would use about 50% of its foreign exchange earnings for that purpose for seven years.

This scenario has been linked to low domestic output and poor export performance over the years. Between mid-1970 and 1985, the Gross Domestic Product (GDP) per capita fell by 15% in the region (Jones and Kiguel, 1994), and some countries actually had negative per capita growth rate. Also between 1975 and 1985, the share of exports in GDP declined for most countries while the share for imports increased steadily; food production per capita declined greatly over 25 years (Koester *et al*, 1990). Prior to the 1970s, the SSA countries enjoyed steady economic growth. Many were self-sufficient in foreign exchange from agricultural exports and solid minerals.

The decline in domestic output and the poor exports performance have largely been blamed on both internal and external factors. Ogbu (1991) attributed the problem mainly to the poor macro- and sectoral economic policy environment and the consequent deterioration in the domestic terms of trade against agricultural sector. He also noted the importance of external terms of trade and declining world demand. He argued that the external terms of trade and the level of real protection were worsened by rigid exchange rate regimes, inflationary pressures created by reckless monetary and fiscal policies and trade regulation policies pursued by the SSA countries.

There is however, no consensus among analyst on the relative share of internal and external factors causing the current economic problems of the SSA countries. While some followed the International Monetary Fund (IMF) and World Bank position, which largely blamed the domestic factors and prescribed the removal of market distortions, returns to the neoclassical economic doctrine of free market determination of prices, exchange rates and less state intervention in resource allocation, others, mainly the structuralists argued that the problems lay majorly on unequal trade relations between the South and North, hence the demand for a New Economic International Order (UNCTAD, 1968). The latter's position is similar to the "Lagos Plan of Action for Economic Development of Africa 1980-2000" adopted by African heads of state and the Organization of African Unity (OAU). The Plan's main objective was to bring about self-sufficiency in food and a diminishing dependence on exports (Brown and Cummings, 1984).

However, it has now been widely realized that the crises of the SSA countries are

multi-dimensional in nature. Thus, in addition to the visible external and internal imbalances, there has been identified some invisible or structural constraints in the economic structures that contributed to the crises. The structural constraints tended to reduce the production and supply capacities. Quarcoo (1990) Koester *et al* (1990) and others identified the structural constraints that impeded supply in most SSA countries as follows:

(i) Excessive protection of private industries implemented through inward-oriented import-substitution development strategy using devices like tax exemption or holidays, accelerated depreciation, investment tax credit, and tariff concessions for imported raw materials, spare parts and equipment, thus discouraging local sourcing. These supplemented the extensive use of tariff and non-tariff measures such as import licensing and exchange controls.

(ii) Excessive government - leading to bloated public service, inefficiencies in investment and production. This was largely the cause of annual budget deficits that characterized most SSA countries which led to excess demand and inflation especially when the deficit was financed through monetary accommodation by the Central Bank.

(iii) Inefficient credit or financial systems that were unable to mobilize domestic resources and allocate same due to financial repression. The credit systems financed mainly the unproductive sectors and discriminated against the productive sectors-agriculture and small scale enterprises (Ayichi, 1987).

The internal imbalances manifested mainly in the gap between domestic investment requirements and available savings. The visible external gaps were manifested in perennial deficits in trade and current accounts of balance of payments, over valued local currencies with large parallel market premiums for foreign exchange. The above situation was caused by the price inelastic demand of the populace; over concentration on a few primary commodity exports; deteriorating barter terms of trade for these commodities; domestic pricing policy through commodity boards that reduced incentives to increase production; protective policies of the developed countries such as the European Economic Community (EEC) Common Agricultural Policy which placed import quotas on products like sugar, meat and substitution of agricultural raw materials with synthetics, higher tariffs on processed and semi-processed products from developing countries.

To reverse the foregoing economic maladjustments and imbalances, the IMF-World Bank supported Structural Adjustment Programmes (SAPs) were widely pursued in the 1980s by most SSA countries. The conventional and initial conception of structural adjustment policies in the SSA countries was built on the idea that the economic crises were caused by excessive consumption of importables, hence the orthodox prescriptions of SAP called for demand management through application of stabilization policies. The stabilization policies applied were essentially fiscal, monetary and exchange rate policies (Oyejide, 1989). The fiscal policies sought to reduce budget deficits by contraction of government spending and increased taxes. In the same vein, contractionary monetary policies were applied to reduce money supply. The monetary instruments used include

discount rate, credit ceilings, and raising of reserve ratio. At the center of stabilization policies was the exchange rate. As an instrument of stabilization, exchange rate policy of devaluation was designed to reduce import demand, raise producer prices, stimulate production and export supply of tradable especially agricultural commodities.

The failure of the stabilization policies to return the economies of the SSA countries to the path of growth in the short-to medium-term, was indicative of the fact that structural adjustment policies should be much more than demand management (Selowsky, 1987). Hence Koester, Schafer and Valde's (1990) rightly noted that structural adjustment policies should usually comprise a mix of policy measures from three categories: demand-side policies, supply-side policies and policies to improve international competitiveness. Similarly UNCTAD (1993) rightly stated that SAP should typically contain three sets of policies, namely:

(a)   expenditure-reducing (monetary and fiscal) policies to lower inflation and balance of payments deficits.

(b)   expenditure and production-switching (exchange rate and wage) policies to promote exports and imports substitution, and

(c)   supply-side policies (trade, sectoral, and institutional reforms) to remove structural rigidities that cause macro-economic imbalances.

It is argued that the structural rigidities and inefficiencies combined to limit the efficacy of the stabilization policies by constraining the production and supply-side

capacities of the SSA countries. The supply-side policies thus sought to improve the incentive system, ensure rehabilitation of basic infrastructures and create favorable economic environment to expand production and exports in order to close internal and external gaps.

Though Structural Adjustment Programmes have not been homogenous in content across SSA, some approaches tried by many SSA countries to address the issue of structural bottlenecks include mainly the following: trade liberalization, public enterprises and financial sector reforms (Quarcoo, 1990).

The ultimate aim of the foregoing policy measures has been to stimulate sustainable growth. In other words, the expectation has been that output will rise steadily as the reforms are implemented. Agricultural exports supply are particularly expected to grow. These expectations of the policy-reform actions of the various governments of SSA companies were predicated on the implicit assumptions that various economic agents would respond positively to the new economic environments by investing more in tradable goods especially agricultural exports for which the countries have comparative advantage (Oyejide, 1990). However, as rightly noted by Oyejide, the current state of these countries raise some concern and bring to the fore front the issue of export supply responses of the agricultural commodities to the regimes of prices, exchange rates and other adjustment policies. An empirical examination of these structural relationships becomes more warranted as the adjustment process has lasted about a decade in most SSA countries.

1.2   Statement of Problem

In the sixties agriculture was the pride of the Nigerian economy. During that period it contributed over 60% to the Gross Domestic Product, GDP (Famoriyo and Nwagbo, 1981) and met the foreign exchange requirements of the country (Oyatoye, 1981; Oluwasanmi, 1981; Aribisala 1983).

However, with the rise in crude petroleum prices in the early nineteen-seventies, the petroleum sub-sector gained prominence over agriculture. The agricultural sector was neglected (Ahmed, 1991) as crude petroleum earned over 80% of the foreign exchange and 90% of total government revenue as shown in Table 1.1 (Abolaji, 1985). Consequently, food importation became a significant part of the total imports into Nigeria, while the value of agricultural exports in the total exports declined consistently (Table 1.2). By 1980, the oil market weakened resulting in a glut, prices started to plummet. The immediate result on the economy was current account and fiscal deficits and a rapid drawdown on external reserves as the government and other economic agents persisted in their import dependent consumption and production behaviour (Afolabi, 1992). The external reserve declined from annual average of N3063.3 billion for 1976-1980 period to N1403.6 billion for the period 1981-1985. With the dwindling external assets (Table 1.3) and large scale accumulation of arrears on external trade payments, the nation began to lose its international credibility. The result was rising capacity under-utilization in all industries, rising rate of domestic inflation, unemployment rate, and increasing public debt.

In view of the above economic situation, an Emergency Economic Stabilization Act was promulgated by the government in 1982. The stabilization measure which in content mostly involved administrative controls could not correct the disequilibria in the economy. Hence, the demand and supply imbalances continued unabated. Thus, in 1986, like many Less Developed Countries (LDCs), Nigeria responded by embarking on a comprehensive IMF-World Bank supported Structural Adjustment Programme (SAP). As noted by Soludo and Ayichi (1987), the SAP was aimed at altering and re-aligning aggregate domestic consumption and production patterns so as to minimize dependence on imports. It also sought to enhance non-oil export base and bring the economy back to the path of steady and balanced growth.

The most potent instrument of the programme has been exchange rate policy which aimed at devaluing the local currency (Naira) to a more realistic free market level (Nwosu 1991; Obi, 1987). The extent of over valuation of the Naira was estimated as in Table 1.4. Devaluation of the Naira was expected to turn the terms of trade in favour of the exports and discourage importation. It was expected that SAP policies will occasion new prices in favour of non-oil exports especially agricultural commodities. The expansion of agricultural exports was perhaps the most important target of the export promotion component of SAP (Philips, 1986; FGN, SAP Document 1986). The implicit assumption was that higher Naira content of export proceeds occasioned by devaluation will encourage domestic production and stimulate export supply.

Much as the expectations of SAP appear to be theoretically plausible, an

empirical understanding of the relationships between agricultural exports and SAP policies especially prices, exchange rate and trade liberalization policies may be very instructive. Thus, the question that readily agitate the mind are as follows: Are there any relationship between the volumes of agricultural exports and export prices? In other words, will a change in domestic prices, international prices or both cause any change in the volume of export supply of a commodity? What is the effect of changes in exchange rate on domestic prices of the export commodities? How does currency devaluation or changes in exchange rate affect export supply? And finally what is the impact of trade liberalization on agricultural export supply within the frame work of SAP?

Therefore, the central problem of the study is to empirically verify the implicit assumptions of SAP, which is, that agricultural export supply is responsive to changes in export prices, exchange rates, and trade liberalization among others.

Put more specifically, the study is set to evaluate the effect of prices and exchange rate reforms and trade liberalization on export supply of cocoa beans, palm kernel and natural rubber.

1.3   Objectives of study

The core objective of the study is to evaluate the responsiveness of export supply of Nigeria's major agricultural export commodities to changes in prices, exchange rates and trade liberalization regimes within the context of the Structural Adjustment Programme.

The specific objectives of the study are therefore to:

i) describe the structure of Nigeria's export commodity composition and direction over the period;

ii) identify the major export incentives and institutions in Nigeria;

iii) determine the impact of exchange rate fluctuations on domestic prices of the selected export commodities;

iv) determine the impact of price, exchange rate changes and trade liberalization on export supply of Nigeria's leading agricultural export commodities;

v) suggest policy recommendations based on findings.

1.4 Hypotheses of Study

To capture the principal objectives of the study, the underlisted hypotheses shall be tested.

i) Exchange rate has no significant impact on domestic prices of the export commodities.

ii) Prices of the selected commodities do not have significant impact on export supply.

iii) Exchange rate does not have significant impact on export supply of the selected commodities.

iv) Trade liberalization has no significant impact on export supply of the commodities.

1.5   Justification of study

The relevance of this study can hardly be over emphasized. In the first instance, most researches on this subject, with respect to Nigeria covered mainly periods before 1970. Such works include Olayide, 1968 and 1972; Oni, 1969 and 1970; Olayide and Olatunbosun 1970 and 1972; and Owosekun, 1980. Thus, it could be right to say that the outcome of this study is one of such recent attempts to update the existing knowledge in the area.

It is also expected that the result of the study would aid policy makers in their effort to revamp the Nigerian economy through aggressive non-oil export promotion as the study attempted to demonstrate in quantitative terms, the relationship between volumes of export supply, and vital policy variables of the Structural Adjustment Programme (SAP). That is to say, the study yielded coefficients of elasticities which could guide policy makers in estimating the impacts of changes in prices, exchange rates and trade liberalization policies on export supply of the commodities. It showed to what extent selected individual commodities are responsive to Structural Adjustment Policies. Thus, it attempted to throw more light on some of the assumptions of Structural Adjustment Programme.

1.6   Scope of study

The study was focused on Nigeria's export commodity sub-sector using cocoa, palm kernel and natural rubber as cases. It examined the responses of domestic prices to changes in exchange rate and the impact of prices, exchange rate fluctuations and trade liberalization on export supply.

The study covered the period from 1970 to 1993. This is the period for which published data is available. The sub-periods 1970-1985, and 1986-1993 represent the non-SAP and SAP regimes respectively.

1.7   Limitations of study

The result of the study could be limited by the quality of data series available. Because of difficulties in data collection, more than one source was sometimes employed to obtain the data series.

Table 1.1: THE STRUCTURE OF NIGERIA'S EXPORTS, 1960 - 1993.

Year	Oil Exports (₦'Million)	Non-Oil Exports (₦'MIllion)	Total Exports (₦'Million)	Share of Oil Exports in Total Exports (%)
1960	5	345	350	1.4
1961	14	352	366	3.8
1962	21	364	385	5.5
1963	21	386	410	6.2
1964	40	423	463	8.6
1965	82	496	578	14.2
1966	111	488	599	18.5
1967	87	434	521	16.7
1968	45	422	467	9.6
1969	158	525	683	23.1
1970	510	544	1054	48.4
1971	953	669	1622	58.8
1972	1176	746	1922	61.1
1973	1894	837	2731	69.4
1974	5366	878	6244	86.0
1975	4563	890	5453	83.7
1976	6322	1518	7840	80.6
1977	6572	1909	8481	77.5
1978	5671	1457	7128	79.6
1979	9742	1144	10886	89.5
1980	10118	1090	11208	90.3
1981	10806	1222	12028	89.8
1982	8122	579	8701	93.4
1983	7292	579	7871	92.6
1984	8841	618	9459	93.5
1985	11224	497	11721	95.8
1986	8368	553	8921	93.0
1987	28209	2152	30361	92.9
1988	29293	3845	331338	88.4
1989	55017	2954.4	57971.2	94.9
1990	106627	3259.6	100886.1	97.0
1991	116857	4677.2	121533.7	96.2
1992	201385	4228.3	205613.1	97.9
1993	213779	4986.4	218765.2	97.7

Source: Central Bank of Nigeria: (i) Annual Report & Statement of Accounts (Various issues) (ii) Economic & Financial Review (Various issues).

Table 1.2: **THE CONTRIBUTION OF AGRICULTURE TO EXPORTS AND GROSS DOMESTIC PRODUCT.**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Year	Value of total Exports (N'Million)	Value of Agric. Exports (N'Million)	Value of Total Imports (N'Million)	Value of food Imports (N'Million)	2/1	4/3	Agric GDP as a % of total GDP
1960	330.0	282.5	-	47.8	85.6	-	64.0
1961	346.0	283.0	-	45.4	81.8	-	61.9
1962	334.2	260.0	-	47.0	77.8	-	61.2
1963	378.0	285.9	-	43.8	75.6	-	61.5
1964	429.4	339.0	-	23.3	69.6	-	58.7
1965	536.8	322.4	-	46.1	60.1	-	55.4
1966	566.2	285.8	512.7	51.6	50.5	10.1	51.7
1967	483.6	257.2	447.1	42.6	55.1	9.5	52.7
1968	422.2	274.4	365.2	28.4	65.0	7.8	52.7
1969	636.4	288.2	497.4	41.7	45.3	8.4	47.5
1970	885.4	265.2	756.4	57.7	30.0	7.6	44.6
1971	1293.4	242.8	1079.0	87.9	18.8	8.2	42.0
1972	1433.2	172.8	990.1	95.1	12.0	9.6	37.0
1973	2278.4	250.1	1224.8	126.3	10.9	10.3	34.1
1974	5794.8	276.0	1736.5	155.0	4.7	8.9	30.5
1975	4925.5	230.6	3721.5	297.9	4.7	8.0	26.7
1976	6751.1	274.1	5148.5	440.9	4.1	8.6	24.1
1977	7630.7	375.7	7116.6	730.4	4.9	10.3	28.5
1978	6064.4	412.8	8211.7	1027.1	6.8	12.5	23.1
1979	10836.8	468.0	6169.2	766.5	4.3	12.4	21.4
1980	14186.7	340.4	8217.1	1437.5	2.4	17.5	20.6
1981	10876.3	180.8	12618.4	2111.5	1.1	16.7	20.1
1982	8182.1	178.9	10100.0	1755.6	2.2	17.4	23.0
1983	7494.5	277.8	6587.5	1377.9	3.7	20.9	23.2
1984	8717.1	254.8	4484.5	843.2	2.9	18.8	23.8
1985	11717.9	244.2	5536.9	940.6	2.1	17.0	26.2

Source: Central Bank of Nigeria: Annual Report & Statement of Accounts (Various Issues); Economic and Financial Reviews. (Various Issues); Federal Office Statistics (FOS).

Table 1.3: FOREIGN EXCHANGE (BUDGET AND DISBURSEMENT) AND EXTERNAL RESERVE POSITION, 1970 - 1993.

	Foreign Exchange Budget (N'Million)	Foreign Exchange Allocation (N'Million)	Change Between (2) & (1)	External Reserve (N'billion)
1970	-	934.6	+934.6	104.6
1971	1434.1	1318.2	-415.9	134.3
1972	2002.4	1732.8	-269.6	191.6
1973	1984.4	2415.7	+431.3	241.0
1974	4323.1	3921.1	-1194.0	3110.5
1975	8043.0	7336.0	-707.0	3385.5
1976	7347.5	8732.7	+1385.2	3057.6
1977	8745.7	9392.3	+646.2	2521.0
1978	10430.6	133817.4	+1386.8	1249.1
1979	10203.1	15580.4	+1377.3	3043.2
1980	11656.2	17325.3	+5669.1	5445.6
1981	20667.5	25316.0	+4648.5	2424.8
1982	14261.8	18879.2	+4617.4	1026.5
1983	9951.8	15094.5	+5142.7	781.7
1984	10468.0	11656.9	+1108.9	1143.8
1985	8964.8	11724.8	+2760.0	1641.1
1986	6844.3	6481.7	-362.4	3587.4
1987	4974.0	5270.3	+296.3	4643.3
1988	7104.0	6306.8	-797.2	3272.7
1989	6479.0	6729.5	+250.5	13457.1
1990	7489.2	9076.9	+1587.7	3495.1
1991	10369.2	12427.6	+2058.4	44249.6
1992	8998.0	12328.6	+3330.6	13992.5
1993	8930.0	7421.4	-1508.6	61852.4

Source: Central Bank of Nigeria: Annual Report & Statement of Accounts (Various issues) (ii) Economic & Financial Review (Various issues).

Table 1.4 : CHANGES IN U.S. DOLLAR VALUES OF THE NAIRA;

BASED ON PURCHASING POWER PARITIES. 1972 - 85.

Year	$P_y(1972 = 100)$	$P_x(1972 = 100)$	$(P_x/P_y)R_0$	R_t	% Over valuation of Naira relative to dollar (4/3-1)100
1972	100	100	1.5200	1.5200	-
1973	106	106	1.5200	1.5200	-
1974	119	118	1.5072	1.5904	6
1975	159	129	1.2332	1.6428	32
1976	194	136	1.0656	1.5959	50
1977	235	145	0.9397	1.5514	65
1978	287	156	0.8262	1.5745	91
1979	320	174	0.8265	1.6591	101
1980	352	197	0.8507	1.8997	115
1981	425	217	0.7761	1.6292	110
1982	458	231	0.7666	1.4854	94
1983	564	238	0.6414	1.3823	116
1984	788	249	0.4803	1.3085	172
1985	831	257	0.4710	1.1206	138

P_y = Nigeria's Consumer Price Index

P_x = US Consumer Price Index

R_0 = $1.5200 / Naira

R_t = Current Year $/N exchange rate

Source: Obi, A. W.(1987) "Distortions in the Pricing of Foreign Exchange: Empirical Measurement and Examination", in Proceedings of 1987 Annual Conference of Nigerian Economic Society, (NES), Figures are from IFS Year Book, 1986.

CHAPTER TWO

LITERATURE REVIEW

2.1 Gains From International Trade: From Theory to Empiricism

2.1.1 The Classical/Traditional Trade Theory

The classical economists, pioneered by Adam Smith in his work "Wealth of Nations", postulate that trade is both an "engine of growth" and a "vent for surplus". They are of the view that trade is better than autarky (Krueger and Sonnenschein, 1967). According to these classical economists, nations participating in trade enjoy the benefits of specialisation and through it more efficient production.

Traditional trade theory as enunciated by classical economists is fundamentally based on the doctrine of comparative advantage. Trade engenders international division of labour, specialisation and efficiency (Kravis, 1970). The basic proposition of classical trade theory can be illustrated hypothetically with two small countries and two commodities example. If country A has the comparative advantage for commodity X and country B has advantage for commodity Y, it will be mutually profitable for A to specialise in the production of X and B on Y, and for surpluses of X and Y in excess of domestic needs to be freely traded, provided that the international rate of exchange between the commodities lies between the domestic rates of exchange. As explained by Thirwall (1978), the increase in welfare that trade permits results from the opportunity to

obtain foreign products more cheaply, in terms of real resources foregone than the alternative of import substitution which means domestic production. As explained above, the comparative cost theory emphasises static gains from trade through international resources allocation and specialization. The dynamic gains from trade are not emphasised.

2.1.2 Macro-Dynamic Export-Based Growth Models

Export trade widens the total market for a country's producers especially if they are operating at levels of increasing returns to scale. It enables the producers to move to higher points in the production- possibility frontier or shift to higher curves. Foreign demand will encourage better use of under-employed and unutilized resources; cause expansion of economy of scales, reduce unit cost of production, raise income, savings, and capital accumulation and engender growth (Park, 1981; Lee, 1971). These are dynamic gains. Myint was one of those that tried to explain the dynamic gains of trade.

Myint (1958) in his `vent for surplus' theory also identified trade as an outlet for a country's surplus commodities. The theory contends that there is gain from trade only if the `surplus' export resources have no alternative uses and can not be switched to domestic uses. He argued that the vent for surplus theory provides more plausible explanation to the rapid expansion of export production in most countries in the 19th Century. He argued that

i)   if unutilized resources were not existing, the expansion process would have

        stopped;

ii)   comparative cost theory has no answers to why, when two countries possess similar endowments, one would have developed export sector and the other would not;

iii)   vent for surplus is more reasonable explanation for the start of trade.

In line with the foregoing Thirwall (1978) noted that there is a difference between the question of the "type of commodity traded and basis for trade, in the sense of what gets trade started". He believes that "vent for surplus explains better the original basis for trade, while comparative cost theory explains the type of commodity traded. It is, therefore, widely believed among economist that in addition to the static gains from trade, there are dynamic gains too.

Another "demand motored" macro-dynamic export-based growth model is what is known as Staple Theory of Growth (Meier, 1984). The theory postulates that if a staple economy discovers a primary product, production of which it has comparative advantage and which enjoys rising demand, then it can stimulate overall economic growth. It is believed that the export commodity discovered will provide the leading sector as enunciated in Rostow's growth process (Meier, 1984). This export commodity will have economy-wide impact as previously idle resources are brought into use, and under-employment and unemployment are reduced, increased rate of domestic saving and investment is induced, factor inputs are imported and linkages are established with other sectors.

Corden (1971), in his analysis of effects of trade on growth rate described a "supply-motor" model. The model centred on growth in factor supplies and productivity and identified the following spread effects: "impact effect", capital - accumulation effect", "substitution effect", "income - distribution effect" and "factor-weight effect". The impact effect is equivalent to the static gain from trade, (that is, current rise in real income due to trade), while capital-accumulation effect refers to increase in capital accumulation arising from reinvested static gain. Also Substitution effect may result if there is a fall in the price of investment goods relative to consumption goods due to importation of these investment goods. Income -distribution effect refers to the possibility of shift in income towards the most intensively used factor of production which may lead to increased overall savings and then capital -accumulation if there is differential in saving propensity between the factors or sectors. Finally, factor - weight effect relates to the relative productivity of capital and labour with respect to the export commodities and it is considered that export will rise if use is made of faster - growing factor of production.

In summary, the dynamic effects of trade include that it ·

i)   increase specialization and expands efficiency (Kravis, 1970) thereby serving as a stimulus to competition.

ii)   offers greater economies of scales due to enlarged and effective market size (Meier, 1980) and thus permits greater capacity utilization;

iii)   provides "fundamental educative effect", (Meier, 1980) through international contacts that injects new wants, attitudes, institutions, and allows acquisition of new

knowledge, skills, ideas and technology, technology transfer and perhaps accompanying capital flows.

iv)   finally, exports permit imports which could be more efficient in relieving domestic bottlenecks (Thirwalls, 1978).

Notwithstanding, the foregoing, it is believed among economists that the doctrine of comparative advantage is more relevant in explaining the past pattern of trade of the 19th century and not as a guide for today's or future pattern of trade as engine of growth. Hence, the argument that free trade theory may not serve a useful concept in the context of developing countries which are more concerned with long-term growth than short term allocative efficiency. In deed there is unresolved contention among economists on whether free trade is beneficial to the developing countries in view of the existing international economic order (Madalah and Zuberi, 1983). In the call for a new international economic order, the developing countries in various United Nations Conference on Trade and Development (UNCTAD) are seeking not merely more trade, but more trade at higher export prices. That is, to internationalize or invert protection in favour of the less developed exporting countries.

The comparative cost model, or put differently, free trade theory, is faulted as a long-run development strategy for the developing countries on the following grounds:

i)   · the doctrine does not recognise the effect of free trade on terms of trade and balance of payment;

ii)   the doctrine tends to ignore the fact that some activities are subject to increasing returns (e.g. manufactures) while others are subject to diminishing returns (primary production);

iii)   comparative advantage could lead to over specialization on narrow range of products, thus leading the economy to undue external influence,

iv)   comparative cost theory discountenances the fact that comparative advantage may change over time due to deliberate policy changes or feedback effects of trade;

v)   growth in export sector of some activity areas (like primary production) do yield very little impact on other sectors. This is what is described as economic dualism which characterised many developing countries (Ranis and Fei, 1961).

It is against the above background that the relevance of comparative cost or free trade theory as a strategy for economic development of the developing countries is being queried, hence, the emergence of new trade theories.

2.1.3 The New Trade Theories:
2.1.3.1 The Prebisch - Singer Thesis:

Since after the world war II, research interest on the relevance of international trade to economic development has continued to rise. The studies essentially centre on the relative gains from trade between developing and undeveloped countries. The new trade

theorists are opposed to the traditional arguments for trade by the classical and neo-classical economists.

It is argued among the classical economists that the manufacturing sectors have the tendency to face declining prices due to specialization and technical progress. While, on the other hand they argue that, primary commodity sectors enjoy rising prices due to population pressure and attendant diminishing returns that characterise the sectors. The corollary to their argument is that while the industrial countries face falling prices for their manufactures, the developing countries stand to enjoy rising prices for their primary commodity exports. Hence, Clark (1942), Lewis (1952), explained the secular deterioration in terms of trade of Britain in the early 19th century as a consequence of technical progress in the production functions of the primary producing sectors.

However, the post-world war II studies pioneered by Prebisch (1950; 1959) and Singer (1950), came to a different conclusion. Their studies showed that there is a tendency for long-term secular deterioration in terms of trade of primary commodities and primary commodity producing countries in relation to manufactures and industrialized countries respectively. This notion is popularly known as Prebisch - Singer thesis of secular deterioration of terms of trade of developing countries.

The Prebisch - Singer thesis is fundamentally supported by the structuralism argument (Mkandawire, 1989; Ndulu, 1990; Toye 1994; Little et al 1993). In line with the thesis, the structuralist argue that changes in prices of developing countries' exports and imports have adverse effects on their terms of trade (Myrdal 1957, Chambers and

Gordon 1966). The bone of contention of the Structuralist is similar to the notion of dependency theory. The dependency theorists and Marxists are also of the view that there is a basic inequality between the "centre" (developed countries) and "periphery" (developing countries) which results in the transfer of re-investible surplus from the latter to the former. This is what Emmanuel (1976) described as "Unequal Exchange". He argues that the benefits of technological progress in the periphery are transferred to the centre through secular deterioration in terms of trade enjoyed by the periphery. Thus over time, he contends, trade leads to immiseration as international income inequality increases. This mechanism of transfer of surplus wealth through trade is equally shared by Frank (1967) and Amin (1976). The radical structuralists are of the view that autarky or de-linking whether full, selective or partial is required to break the vicious circle of poverty of the developing countries (Rodney, 1972).

The Prebisch - Singer thesis is widely criticized by the neo-classical economists. Most of the critics query the statistical and empirical validity of such generalization of secular deterioration in the terms of trade of primary -producing countries made by Prebisch by what they called "mere inversion" of the improving terms of trade of Britain. The arguments against the thesis are aptly summarised in Sakaf (1986). Notable among the critics are Kuznets (1967), Streeten (1974) and Schloss (1977).

· Schloss (1977), for instance argued among others, that it is not self evident that declining terms of trade are necessarily undesirable. He noted that the effect of higher export prices on the balance of payments of a single country may be different from the

effect on a group of countries exporting the same commodity. Concluding, he argued that a country may become more efficient in production, enabling it to lower prices to sell more. In a situation like that, he wondered whether an improvement in efficiency is to be deplored on the ground that it will lead to decline in the terms of trade. Commenting on the debate, Batra and Pattanaik (1970) stated that there is at least a tacit agreement on the point that deterioration in terms of trade itself is undesirable and that it leads to a decline in national income, but added that such does not necessarily result in loss of welfare especially if factor markets are imperfect.

However, commenting on the seemingly widely accepted Prebisch -Singer thesis of secularly worsening net barter terms of trade of primary commodity exporting countries relative to the manufacturing countries, Grilli and Yang (1988) contend that it needs to be qualified in both extent and significance. Apparently, they are of the view that there is non-homogeneity in the secular behaviour of primary commodity prices. Their analysis indicated that non-fuel commodity prices have fallen considerably between 1900 and 1986 with a cumulative trend of decline at about 40% while that of all primary commodities (fuels inclusive) is put at 36% over the same period. The long run trends in the relative prices of the major subgroups of non-fuel primary commodities are however not uniform. Their study shows that agricultural raw-materials appear to have experienced the highest sustained reduction in purchasing power. Since 1900 it is put at over 50% relative to manufactures.

From the foregoing, one could conclude that the actual magnitude of the real

income effect of deterioration of net barter terms of trade over time depends critically on export volumes, and compositions. The negative effects of declining real export prices could be mitigated by productivity growth in the export sectors. Thus, not all producers of primary commodities experienced the same falling trend, in the purchasing power of a given volume of their products over the past decades. The export product mix has made some significant difference.

2.1.3.2 Export - Led Growth Model

Though export- led growth model explains the process of development in many countries, African and Asian countries inclusive, it has been criticised as defective by some development economists for some reasons. For instance as in Essang (1981) the model assumes a perfectly elastic export demand for agricultural export, thereby ignoring the obvious questions of demand and market access for agricultural exports of the developing counties arising from competition from synthetics, the declining income demand elasticity for agricultural commodities, and protectionist policies of consumer (developed) countries. Also as noted by Essang (1981), the model has little to offer policy makers in their attempt to grapple with the problem posed by the trade-off between export crop production and food crop expansion. It also offers no guide in a growing economy where there is competition for agricultural raw materials between export market and domestic agro-allied industries.

Following from the foregoing survey of literature, the questions that agitate the mind are :

(i)   Should a developing country participate in international trade at all ?

(ii)   If yes, in what commodities and with which countries ?

However, the problem of the developing countries is not necessarily to trade or not to trade but in what commodities and how to ensure that the terms on which they trade with the developed countries are favourable.

The answer is said to lie in a change in the structure of production, export and trade relation of the developing countries (that is, more south - south trade relations).

Also as noted by Meier (1984) it is necessary for the developing countries to raise the productivity of their agriculture so as to make their primary commodity more competitive in the world market. Also of special significant is the liability of these countries to take advantage of export opportunities in the processed and semi-processed products.

2.1.4   Export Performance and Economic Growth: Empirical Evidence

Empirical studies showing the casual relationships between export performance and economic growth abound . In this regard, Chenery and Stout (1966)have argued that there is hardly any country which has a sustained economic growth rate higher than its export growth rate. Maizels (1968) Michealy (1977), Balassa (1977), Fajana (1979), Tyler, (1981), Feder (1983) and Elliot (1984) corroborate this argument. They all established

that there is a positive relationship between export growth and the growth of Gross National Product, GNP. Krueger and Truncer (1980) and Nishimizu and Robinson (1984) have shown that growth in factor productivity is enhanced by export expansion while import substitution has a diminishing effect.

One feature of these studies is that most of them used data covering various groups of developing and developed countries in cross-section models. For instance, Balassa's work covered 11 semi-industrialized countries for the period 1960 - 1973; another of his work covered a sample of 43 developing countries for the period 1973 -1979. The work by Feder was based on data on 31 semi-industrialized countries from 1964 to 1973 . Tyler worked on data for 55 middle-income developing countries covering 1960 - 1977, while Michealy used 1950 - 1973 data for 41 developing countries. Another feature which appears to be common to the studies is that they used production functions approach in which export variable is treated as input. Notwithstanding the usefulness of estimates obtained from inter-country comparisons, Ram (1987) rightly noted that there is evidence of tremendous parametric variation across countries in regard to estimates of the growth equations typically used in such contexts. Imposition of a common structure in the form of cross-section models can mask some differences in the estimates even when the samples chosen look fairly homogenous with reference to certain prior criteria. It seems important, therefore, to make a beginning towards an assessment of the export growth nexus for individual countries on the basis of time-series data (p.52). One simple case of cross-sectional work is the study by Emery (1967) in which he sample 50 countries, regressed

export growth on real per capita income (GPN) to obtain the following results:

Real GNP/Capita $=$ 0.663 + 0.330X
$\qquad\qquad\qquad\quad$ (1.156) $\quad$ (0.033)

$\qquad\qquad$ R $\quad=$ 0.82; $\quad R^2 \quad = \quad$ 0.67

Where, $\quad$ X $\quad=$ export growth rate;

$\qquad\quad R^2 \quad=$ coefficient of multiple determination

Figures in parentheses are standard errors.

Tyler (1981) in his study tried a more rigorous approach by incorporating other explanatory variables in a cob-douglas model specified as follows:

$\qquad\qquad Y_i \quad=$ $\quad A_i \ K_i \ L_i \ E_i$

Where, $\qquad$ Y $\quad=$ $\qquad$ Gross National Product

$\qquad\qquad$ K $\quad=$ $\qquad$ Capita Stock Services

$\qquad\qquad$ L $\quad=$ $\qquad$ Labour Force Inputs

$\qquad\qquad$ E $\quad=$ $\qquad$ Exports

$\qquad\qquad$ A $\quad=$ $\qquad$ Technological Constant.

His Ordinary Linear System (OLS) estimation yielded the following equations

$\qquad$ Yi $\quad=$ $\quad$ 1.997 + 0.254K + 0.981L + 0.570E
$\qquad\qquad\qquad\qquad\quad$ (5.921) $\quad$ (2.576) $\qquad$ (1.694) $\;$ (All middle income
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ developing countries)

$\qquad R^2 \quad=$ $\quad$ 0.706

$\qquad$ Y_i $\quad=$ $\quad$ 2.036 + 0.246K + 0.955L + 0.055E
$\qquad\qquad\qquad\qquad\quad$ (5.671) $\quad$ (2.477) $\qquad$ (1.604) $\;$ (Non-OPEC Middle
$\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad\qquad$ income developing countries)

$\qquad R^2 \quad=$ $\quad$ 0.706.

The t-values appear in parentheses beneath the regression coefficients. All regression coefficients are significant at 10% level of confidence.

In a similar study, Lal and Rajapatirana (1987) estimated OLS regression for 18 low-income countries to obtain the equation stated below:

$$Y = 2.25I + 0.0231 - 0.963L + 0.152X$$

Where, Y	=	GDP growth rate, 1973 -84
I	=	Investment share of GDP 1984
L	=	Growth rate of Labour Force
X	=	Growth rate of Export Share of GDP 1965 - 73.

In the same vein Ram (1987) estimated models of export-growth linkage for 88 developing countries using annual time-series from 1960 to 1987. He also treated export variable as an "input" in a production function framework. The result showed that the coefficient of the export variable is positive for over 80% of the sampled countries. He also noted that the positive sign and the strength of statistical significance is more in the middle income group that in the low income. This point agrees with the findings of Michaely (1977).

Michaely in a study of 41 countries, grouped into two-developed and less developed, found a positively significant relationship between per capita income growth and increase in the ratio of export to GNP for development countries and negative correlation coefficient for the less developed countries. Hence, he concluded as follows:

The positive association of the economy's growth rate with the growth of the export share appears to be particularly strong among the more developed... This seems to indicate that growth is affected by export performance only once countries achieve some minimum level of development (p. 52)

In a similar analysis, Fajana (1979) using Nigeria data series, 1954 -1974, had some interesting findings. He partitioned the data into two sub-periods - 1954 to 1964; and 1965 to 1974 representing times when exports were mainly agricultural produce and petroleum products respectively. His findings showed a weak and negative association between income growth and export for the period, 1954 - 1974. This shows that the `spread effect' of exports increases as a society departs from agrarian or subsistence economy. This corroborates the assertion of Tyler (1981) that "some basic level of development is necessary for a country to benefit most from export oriented growth particularly involving manufactured exports"

From the foregoing empirical studies, it is evident that there is a positive relationship between export performance and economic growth. In other words, export growth significantly impacts on aggregate economic growth. However, caution should be exercised in interpreting the estimates derived from models applied across countries no matter how homogenous the country groupings appear .

2.1.5 Export Instability and Growth:

Export instability results from either fluctuations in export prices or quantities or both. Export instability of developing countries which manifests in deteriorating terms of trade are explained by the Structuralist and Marxists as resulting from low demand and prices of primary commodities (Glezakos, 1973). They argue that this trend is caused by the protectionist policies of the developed countries and the use of synthetics in place of agricultural raw-materials in their industries.

Though, the debate on whether export instability has deletrious effects on economic growth is yet inconclusive, Hock (1977), Love (1975) Voivodas (1974), Glezakos (1973) Kenen and Voivodas (1972), in their studies established that there is an inverse relationship between export instability and economic growth. In a similar vein Chenery and Ecksein (1970) and Applegate (1970) have indirectly shown that export instability limits growth. Their works respectively showed that foreign exchange is dominant constraint on growth of developing countries as it limits capacity to import needed capital goods. On the other hand, studies by Coppock (1962), Mac Bean, (1966) have claimed that there is no significant relationships between export instability and growth. However, Glezakos (1973) has argued that their studies seem to suffer from several methodological drawbacks. Maizel (1968) also argued that the result of Mac Bean would have been different if he had done his analysis on country by country basis instead of cross-sectional.

It is also our opinion that the export instability limits economic growth especially of

the developing countries   since it leads to poor export performance which results in

foreign exchange shortage and thus constraining import capacity.

2.1.6   Exchange Rates, Devaluation, Commodity Prices and Export Performance:

On the export performance of most sub-Saharan African (SSA), there are basically

two schools of thought - the classical/neoclassical and the structuralist. According to

Soludo (1995) the neoclassical economists seek to re-establish a presumption of the

`standard economics' for policy analysis.   They believe that the standard underlying

principle is to `get prices right' (Mkandawire, 1989). It is argued that most African

governments pursued domestic policies detrimental to growth, like overvalued exchange

rates, artificially low interest rates, taxes on export commodities. As in Elbadawi (1992),

the proposition is that real exchange rate, can have deleterious effects on tradable sectors

of the economy such as agriculture. Elbadawi (1992), Aitken (1992), Easterly and Wetzel

(1989) argue that due to high degree of tradability in agriculture, over valuation of local

currency will create a structure of incentives biased against agriculture in relation to other

sectors, especially the non-traded service sector. Krueger et al (1988) in agreement with

the foregoing opined that effect of over-valuation policy can undermine possible favorable

effects of direct forms of interventions.

In fact the traditional view of the World Bank as presented in Bergs Report (World

Bank, 1981) is that the declining shares of agriculture in total exports of SSA is related to

real appreciation and over-valuation of exchange rates. Ghura and Grennes (1991) put the

estimate of real exchange rate misalignment in SSA in excess of 28% per annum over the period, 1972 -1987. The extent of real overvaluation is also implicated by the booming parallel markets and rising black market exchange rate premium over the period, 1972 - 1987. The degree of overvaluation is put at 38% for all SSA in the period 1978 -1980 by Koester et al (1990).

On the relationship between devaluation and export performance, Scobie and Johnson (1979) noted that the magnitude of the price elasticity of demand for a country's exports is an important element in setting tariff and exchange rate policies. Put differently they are of the view that the magnitude of the price elasticity of demand for exports has been an important element in the debate concerning the efficacy of devaluation as a policy instrument for restoring external balance. They pointed out that where an export commodity is faced with inelasticity of demand, that it will pay the exporting country to reduce export supply via export taxes, quotas, differential exchange rates or distortion of domestic prices. Similarly, Thirlwall (1978) contends that if the price elasticity of the exports of a developing country is low and demand is slow in expanding, it would appear useless to push factor inputs into the existing export activities. This is the notion of immseration of growth which results from adverse movements in terms of trade (Bhagwati, 1958). Also Thirlwall pointed out that if the demand for a country's export is inelastic, then a decline in the barter terms of trade will also mean deterioration in the income terms of trade. Thus, the expected benefit of deliberately worsening of net barter terms of trade through devaluation is eluded.

However, Horner, (1952) criticised the approach of attempting to speak of the demand for a country's exports as a whole because of the inherent difficulties in conceiving of a "law of demand". This is because of the diversity of items that constitute the export lists of many countries and the diversity of price changes which would follow a variation of exchange rate. A change in exchange rate will affect prices of no two export commodities in the same proportion. The impact of change in exchange rate on commodity prices depends, among other things, on the proportion of the world market supplied by the country. Hence, he concluded that it is more appropriate to study the demand for exports for one commodity at a time instead of aggregate demand. Our present study of examining export supply responses at disaggregated level is motivated by same argument.

Now, the question is: what is the impact of a change in exchange rate on the exports of a commodity - in terms of quantity and price responses?. In this regard, Horner (1952) further noted that currency devaluation will cause export market price of the commodity in foreign currency to fall and more so, the more elastic is the supply in the devaluing country, and the less elastic is the export demand. Put differently the response of export quantity is partly determined by the price elasticity of export demand and the elasticity of supply in the devaluing country. It should be noted that export demand or supply of a devaluing country is also dependent on the response of other supplying countries to a change in the export market price, that is, on the elasticity of supply in other countries. In other words, a country with a world monopoly of commodity is only facing the demand

curve of the world market, whereas, another supplying a negligible proportion of a free export market faces a perfectly elastic demand curve.

In deed there is no consensus on how devaluation impacts on agricultural commodity exports. Kost (1976), Vellianitis - Fidas (1976) Johnson *et al* (1977), Balogun (1987) found that exchange rate devaluation impact very insignificantly on agricultural sector. On the other hand Schuh (1974), Krueger, Schiff and Valdes (1988) are of the opinion that exchange rate devaluation impacts significantly on agricultural exports. Chambers and Just (1979) in a critique of exchange rate treatment in agricultural models pointed out that export supply is not directly responsive to changes in the exchange rate but to changes in price denominated in the domestic currency of the suppliers. This view agrees with Fosu (1992), which opined that the real exchange rate does not influence agricultural exports directly. Rather it works through its effects on the incentive structure to influence agriculture. However, Batten and Bolongia (1986), Balogun (1987), Okyere (1989), CBN/NISER (1992), and Obadan (1993) in their various studies treated exchange rate as a direct exogenous variable.

2.2   Studies on Nigeria's Export Trade

Previous empirical studies on the relationships between Nigeria's agricultural export commodities and prices, include mainly the works of Olayide, 1968 and 1972; Oni, 1969 and 1970; Olayide and Olatunbosun, 1970 and 1972; Owosekun, 1973, and Balogun, 1987.

Olayide (1968) tried to explain the fluctuations in export prices of Nigeria's export namely groundnut, groundnut oil and cocoa. Using 1946 - 1962 data, he estimated the relationship below:

$$Y_i = b_0 + b_i X_i + b_2 T + b_2 T^2 + U$$

where, Y_i = export prices of the ith commodity

X_i = quantity exported of ith commodity

T = trend variable.

The equations yielded very poor fit as coefficients of determination (R^2) were between 0.20 and 0.45. The explanatory variables had t-values lower than 2. The poor performance of the equations can be explained by exclusion of important variables like income and quantity exported by competitors.

In 1970, Olayide jointly with Olatunbosun studied the demand for Nigerian exports namely groundnut, groundnut-oil and cocoa. The data set covering 1948 -1964 were again fitted to three functional forms of equation: simple linear; log-linear and exponential forms. The model specified thus

$$Q = f(P, K, X, Y, I, T, U)$$

where, Q = quantity of commodity exported

P = price of commodity exported in dollars

K = export control proxy by export taxes

X. = quantity of the export commodity supplied by competitors

Y = mean income (GNP per Capita) of U.K., Japan,

West Germany, USA

I	=	mean index of industrial production of major consuming countries named earlier
T	=	time trend
U	=	disturbance term.

The results for cocoa are as shown in Table 2.1 below. The model can be said to have

performed fairly well with relatively high R^2.

Table 2.1 Regression Results for Cocoa Export Demand 1948-64.

	Intercept	P	K	X	Y	I	T	R^2
Linear:	-88.4667	-0.0967	0.4175	-0.0634	0.9466	0.0995	-0.95911	0.8687
t-values		2.1393	0.5036	0.8139	2.2357	0.3153	1.500	
Log-linear	4.4198	-0.5073	0.1089	-0.4639	1.0040	0.0967	0.1232	0.8777
t-value		2.3672	1.4418	0.2341	0.8100	0.4307	26611	
Exponential	3.4342	0.0008	0.0046	-0.0005	0.0062	0.0014	0.0606	0.8777
t-value		2.0000	0.6866	0.6866	1.8235	0.5600	1.1744	

Source: Olayide, S. O. and Olatunbosun, D. (1970). Indian Journal of Agric Econs. 25(1)

The study by Oni in 1970 was the first major attempt at disaggregated analysis. He

specified a function for each major importer of Nigerian cocoa as follows:

$$Q_t = (P_{ct}, P_{st}, X_t, I_t, T, U_t)$$

where, Q_t	=	quantity of Nigeria cocoa imported by ith country in year t
P_{ct}	=	import price of cocoa in the country in year t
P_{st}	=	import price of sugar in the country in year t
X_t	=	aggregate cocoa grinding in the country in year t

$$I_t \quad = \quad \text{aggregate disposable income or consumer}$$

expenditure for the country in year-t

$$T \quad = \quad \text{time trend}$$

$$U \quad = \quad \text{error term}$$

The inclusion of P_{st} (price of sugar) as substitute or complement could be questionable because cocoa derivatives do not inlcude only beverages. For instance, cocoa butter is used for pharmaceutical and cosmetic purposes.

The work of Owosekun (1973) on export demand was also a major contribution to disaggregated analysis. He studied the demand for petroleum, groundnut, groundnut oil, groundnut cake and cocoa by European Economic Community, (EEC) countries. For each commodity and country, a single demand equation was specified. The set of equations for the EEC - member countries was treated as a system of Seemingly Unrelated Regression function. Then, Joint Generalization Least squares estimation procedure was applied.

The responsiveness of cocoa export demand to price changes were negative in most of the earlier studies. However, the statistical significance differed with countries and studies. For example, while Oni (1970) found statistical significance for United Kingdom, Netherlands and West Germany, Owosekun's study yielded no statistical significance for U.K. Similarly, Olayide and Olatunbosun (1972) in an disaggregated study covering 1948 -1967, found the partial price elasticities of demand for cocoa, groundnut, rubber and palm products to be negative, and inelastic except for rubber.

The findings of the previous studies on income elasticities of export demand were mixed. The Olayide-Olatunbosun study yielded income inelasticity for all the commodities

investigated except rubber which was very elastic. Their results also showed that all but palm oil were normal goods. As in Weymar (1968), Owosekun (1973) found that the income elasticity for major cocoa consuming countries was generally low. However, for less important consuming countries, the income elasticity was found to be strongly and statistically significant. Unlike Oni, Owosekun found that coeoa was normal good in United Kingdom. Oni's work agreed with Behrman (1965) that cocoa was an inferior commodity.

From the foregoing it is clear that more of the research works have been done on demand-side of Nigerian export commodity trade than the supply-side. The work of Olayide and Olatunbosun (1972) covering 1948-1967 was one of the few that investigated the supply-side of the main export commodities of Nigeria, namely: cocoa, palm oil, palm kernels, groundnut and rubber. They looked at the supply, "essentially in terms of production trends..." (Ibid p.8). Hence, they used OLS to estimate and equation stated implicitly as follows:

$$Q_{nt} = f(P_t, P_{dt-i}, A_t, W_t, D_t, T_t, e_t)$$

where Q_{nt} = Quantity of the commodity produced in year, t

P_t = average world price in year t

P_{dt-i} = producer price lagged

A_t = acreage currently in production in year t

W_t = weather variable in year t

D_t = disease variable in year t

$T_{t,et}$ = Time trend in years and error term in year t respectively.

The results of the estimated equations in exponential functional form are presented as the lead models for each commodity. The cocoa and rubber equations are presented as follows

Cocoa: $Q_{ct} = 2.1601 + 0.0015\ P_{ct-7} - 0.00202\ P_{wc} - 0.0015\ A_{ct-8}$
(13.2521)   (1.3636)   (2.5250)   (0.468)

$+\ 0.0011\ W_{ct} - 0.0021\ D_{ct} + 0.082I\ T$
(0.1549)   (1.1053)   (1.0594)

Rubber: $Q^{*t} = 1.1053 + 0.08187\ P_{ct-7} + 0.00188\ P_{wt} + 0.0034\ A_{rt-8}$
(8.1874)   (3.1167)   (3.133)   (4.25)

$-\ 0.0024\ W_t + 0.0556I\ T$
(1.2632)   (3.7905)

$R^2 = 0.9776,\quad DW = 2.426$

Q_t = log transformation: t-values are in parentheses.

Though the results yielded good fit, the Olayide-Olatunbosun work can best be described as production response function than export supply function. This argument is based on the nature of most explanatory variables included. The case of specification error is thus obvious if the model is to stand for export supply function. For instance, it might be misleading to use total quantity of production to represent total quantity of export. Also, the variables: acreage in production, weather and diseases do have direct relationships with production but not export supply. This is more so where the exporters are not necessarily

the same as producers. In other words, the specification in which quantity exported is equated with quantity produced, implicitly ignored domestic consumption completely. It is erroneous to assume that local industrial processes do not consume some quantities of these commodities after seven years of post independence development strategy of industrialization by import substitution. Thus, it is clear that some important variables were excluded in their model.

Another attempt to explain the export supply was one by Balogun (1987). He estimated agricultural exports function with exchange rates, export prices and imported agricultural input as regressors and total value of agricultural export as the regressand. His model estimated in simple linear and log-linear yielded very poor goodness of fit. The results showed unresponsiveness of aggregate agricultural exports to changes in exchange rates, prices and imported agricultural inputs. Hence, he concluded that the agricultural sector which is dominated by small-holder farming systems is insulated from external trade variables or shocks. His work also suffered aggregation bias and mis-specification.

More recent works on this subject were those of CBN/NISER (1992) and Obadan (1993). The CBN/NISER was a production response study unlike Obadan's which estimated export supply response. The CBN/NISER study specified production response functions for cocoa and maize. In their specification, selected economic and non-economic variables (1970 -1989) were fitted into ordinary least square (OLS) regression estimations. The specifications are as follows:

$$Q_{ct} = f(P_{ct-1}, F_z, W, F_u, E_x, M_s, R_t, S_a) \text{ - Cocoa Model}$$

Where,

Q_{ct}	=	output of cocoa in year t
P_{ct}	=	lagged real producer price (one year lag only)
F_z	=	fertilizer input in tonnes
F_u	=	fuel price in kobo/litre (for gasoline only)
W	=	farm wage rate in naira per man-day
E_x	=	naira exchange rate
M_s	=	aggregate money supply to the crop sub-sector
L	=	lending rate for agricultural loans
R_t	=	rainfall in millimetres per annum, and
S_a	=	SAP dummy variable.
Q_{mt}	=	$f(P_{mt}, F_z, W, F_u, E_x, L, M_s, R_t, S_a)$ - Maize Model

where,

Q_{mt}	=	output of maize in year t
P_{mt}	=	Real producer price of maize in year t

And other variables are as defined earlier.

The results of linear and double-log functions presented, showed that price variable was positively significant, while exchange variable was negative and insignificant too, for the two crops. The elasticity of supply (that is production response for cocoa and maize with regard to exchange rate) are -0.043 and -0.100 respectively.

The work of Obadan (1993) sought to investigated the effects of real exchange rate, world prices among others on the supply of rubber for exports for the period 1970-1990. The results of the estimation confirmed that the real depreciation of naira positively affected export supply of natural rubber. Free marketing of rubber (that is absence of rubber board) was also shown to have positive effect in export supply.

From the empirical literature reviewed, one can conclude that the earlier studies made significant contributions on the stock of knowledge. The original pioneering works among others were important factors in generating the current research interests in this field of study in Nigeria. However, one can observe generally as follows on the previous empirical studies on Nigeria's external trade:

i)   that up dates of previous studies are necessary;

ii)   that agricultural export supply has not been thoroughly studied especially at disaggregated level;

iii)   . that the demand -side dominated the previous studies, and

iv)   that exchange rate effect on export supply required elaboration

2.3   Major Problems of the Primary Commodity Producers

Some problems that have been identified by previous researchers which constrain the Nigerian farmers capacity to produce are as follows (Momoh, 1987; Aigbekan, 1992):

i.   High cost of hired labour due to exit of young people from the rural areas

ii.   Unavailability and high cost of farm inputs like agrochemicals (pesticides, fertilizers etc.)

iii.   Inadequate supply of improved and high yielding varieties

iv.   Inability of most small holder farmers to secure credit facilities.

v.   Land tenure system that limits plantation agriculture.

vi.   Low replanting rate- the existing stocks are fast ageing.

vii.   Inadequate rural infrastructures like electricity, feeder roads.

viii. Limited farm mechanization.

ix.   Unattractive output prices.

x.   Inefficient and ineffective extension services.

2.4   Analytical Frameworks: A Survey

In this section, the estimation procedure and functional form is reviewed. In real life, most economic phenomena are better explained by simultaneous- equation systems, (Koutsoyiannis, 1977). It has been shown that the use of a single equation (OLS) to estimate a simultaneous - equations system yields biased and inconsistent structural parameters (Walters, 1970). This is as a result of simultaneity bias which is due to correlation between the error term and independent or endogenous variables (Kmenta, 1977). To take care of this problem some alternative estimation technique have been developed. They include indirect least squares, use of instrumental variables, two- stage least squares, limited information maximum likelihood, mixed estimation method, three-stage least squares and full information maximum likelihood. However, Rao and Miller (1971) noted that, although the theoretical properties of the aforementioned alternative procedures have been extensively studied, their use in applied econometric work has been limited. Hence, many researchers have often resorted to the OLS. This is because of its desirable properties and suitability for small samples (Walter, 1970). It is also popular because of its computational and interpretational ease (Ojo, 1976, Masih, 1978, Nwankwo,

1985, Soludo, 1987). It is widely believed too that OLS does a good job when prediction, rather than estimation of precise structural parameters is wanted. Hence Maddala (1977) stated as follows:

> "...it has been found that the OLS method is more robust against specification errors than many of the simultaneous - equations methods and also that predictions from the equations estimated by OLS often compared favourably with those obtained from equations estimated by simultaneous - equations method".

Based on the foregoing, the OLS is adopted in this study. Another problem of an econometric study like this one, is the choice of functional forms. In most cases, economic theory has little to inform about the functional form of the relations (Kmenta 1977: Griffin *et al.*, 1987). However, Heady and Dillion (1961) suggested that the underlisted principles should inform the choice of appropriate functional form:

i)   the consistency of the functional form with set objectives;

ii)   a priori knowledge of the existing relationship between the variables, and

iii)   the theoretical framework involved.

As a practical guide however, Rao and Miller (1971) suggested that where a theory did not sufficiently indicate the functional form, a linear form should be tried first, ant then other forms. After the experimentation, Olayemi and Olayide, (1981) suggested that the lead equation be selected based on the following considerations.

i)   the number of regression coefficients statistically significant;

ii)   the number of regression coefficients with the correct algebraic sign; and

iii) the magnitude of the coefficient of multiple determination.

CHAPTER THREE

METHODOLOGY OF STUDY

In this chapter is presented data collection procedures in which types and sources of data are described. Also discussed are analyses procedures and model specifications.

3.1   Data collection - Types and Sources.

Annual time series data were collected on the following variables for the period 1970 to 1993:

(i)   output of the selected major agricultural export commodities;

(ii)   volumes and values of the exports

(iii)   . domestic and world prices of the export commodities

(iv)   local processing capacities (proxied by local cocoa grindings or manufactures production indexes)

(v)   exchange rates of Naira against the U.S. Dollars;

(vi)   domestic consumer price index of Nigeria

The data series for the study were collected mainly from the following sources:

(i)   Central Banking of Nigeria: Various issues of Economic and Financial Review; Annual Report and Statement of Accounts; Statistical Bulletin; Nigeria Principal Economic and Financial Indicators.

(ii)   Federal Office of Statistics: Various issues of Annual Abstracts of statistics, and

digest of Statistics.

(iii)   International Monetary Fund (IMF): Various issues of International Financial Statistical.

(iv)   United Nations (U.N.): Year Book of International Trade Statistics; UNCTAD . Handbook of International Trade and Development Statistics (Various issues).

3.2   Data Analyses

This section discussed the theoretical and conceptual framework of the study. It also described the model specification and discussed the procedures for evaluating and validating the models using economic, statistical and econometric criteria.

3.2.1 Theoretical and Conceptual Framework

The study is founded on simple micro-economic theory of demand and supply. Hence the researcher assumed a perfect competitive international market where every primary commodity producer country like Nigeria is a price- taker. In other words, product differentiation is insignificant. The Small Country assumption by which export supply is assumed to equal actual volume of export is therefore implied.

It is also assumed that exporters are not usually the same as the producers. The farmers who produce the bulk of the export commodities do not participate in the international trade because of its sophistication. It is assumed that these exporters are rational economic agents, hence, they usually make reference to previous years prices to

determine their current years supply. Their rational behaviour also compels them to compare the world prices relative to domestic prices. They have the opportunities of selling in either the domestic or international marketing outlets since what is exportable is also consumed locally. Thus, the incentive to export is not just determined by the absolute prices but also by the relative prices. Therefore, as in Bond (1987), the export supply of primary commodities is determined among others by relative prices, domestic production capabilities (resource endowments, technology etc.), domestic market growth and domestic policy effects.

3.2.2   Specification of Model

Following our conceptual framework and previous studies, our export supply function is specified implicitly as follows:

$$QX = f(WPX/DPX, REER, DPC, LPC, DUM) \qquad \_\_\_(1)$$

Equation (1) can be modified by introducing the price - lag as shown below :

$$QX = f\left[\frac{WPX}{DPX}_t, \frac{WPX}{DPX}_{t-i} \ REER_t, DPC_t, LPC_t, DUM\right] \_\_\_(2)$$

Where, QX   =   volume of the ith commodity exported

WPX   =   world price of the export commodity denominated in Naira.

DPX   =   price of the export commodity in the domestic market (in Naria)

REER   =   real effective exchange rate of the Naira.

$\dfrac{WPX}{DPX}_{t-i}$ = lagged price ratios (i = 1 - 3 years)

LPC　　=　　　local processing capacity

DPC　　=　　　domestic production capacity

DUM　=　　　dummy variable representing SAP shock or trade liberalization

policy proxied by abolition of commodity boards, export licensing

etc. The dummy takes the value of zero for the period 1970 - 1985

and one for the period 1986 - 1993.

Equation (1) can be stated explicitly and stochastically by introducing the disturbance term, as follows:

$QX = bo + b_i (WPX/DPX) + b_2REER + b_3DPC + b_4LPC + b_5DUM + e$ ___(3)

where, bo　　=　　　intercept

$b_1 \dots b_5$ =　　parameters/ coefficients

e = distribution term or random error

Other varibles are as difined earlier.

A priori, it is expected that the price ratios, real exchange rates, domestic production capacity and the dummy will affect export supply positively while local processing capacity will negatively relate with export supply. In other words, the partial differentiation of the dependent variables will yield parameter estimates as shown below:

$$\frac{\delta(QX)}{\delta(\frac{WPC}{DPX})} > 0 \qquad \text{i.e. } b_1 > 0$$

$$\frac{\delta(QX)}{\delta(REER)} \quad > 0 \qquad \text{i.e. } b_2 > 0$$

$$\frac{\delta(QX)}{\delta(DPC)} \quad > 0 \qquad \text{i.e. } b_3 > 0$$

$$\frac{\delta(QX)}{\delta(LPC)} \quad > 0 \qquad \text{i.e. } b_4 > 0$$

$$\frac{\delta(QX)}{\delta(DUM)} \quad > 0 \qquad \text{i.e. } b_5 > 0$$

Equation (3) can also be estimated in semi-logarithmic and double-logarithmic functional forms, as follows:

$$QX = b_0 + b_1 \log (WPX/DPX) + b_2 \log REER + b_3 \log DPC + b_4 \log LPC + b_5 DUM$$
$$+ e \qquad\qquad \underline{\quad\quad}(4)$$

$$\log QX = b_0 + b_1 \log(WPX/DPX) + b_2 \log REER + b_3 \log DPC + b_4 \log LPC$$
$$+ b_5 DUM + e \qquad\qquad \underline{\quad\quad}(5)$$

The equations (1) to (5) estimate the impact of prices, exchange rates and other policy measures on the volume of the selected agricultural commodities exported.

Another objective of this research is to determine the effect of nominal exchange rate on the domestic price levels of the export commodities. To achieve this, the following function is specified:

$$DPX = f [WPX. NER(1-XTR)] \qquad\qquad \underline{\quad\quad}(6)$$

where, DPX = domestic price of the export commodity

WPX = world price of the export commodity in dollars (U.S.)

NER = nominal exchange rate of Naira to the U.S. dollar

XTR = export tax rate

If trade liberalization reform policy is assumed by imposing Zero on export tax (including implicit tax) equation (6) becomes:

$$DPX = WPX .NER \qquad\qquad (7)$$

Equation (7) can be transformed stochastically by introducing the random error as follows:

$$DPX = a_0 + a_1 WPX + a_2 NER + e \qquad\qquad (8)$$

Where, a_0 = intercept

a_1, a_2 = parameter estimates

e = random error.

Equation (8) can also be estimated in semi-log and double - log functional forms as stated below :

$$DPX = a_0 + a_1 \log WPX + a_2 \log NER + e_i \qquad\qquad (9)$$

$$\log DPX = a_0 + a_1 \log WPX + a_2 \log NER + e_i \qquad\qquad (10)$$

The parameter estimates or coefficients of the explanatory variables are all expected to be positively signed.

3.2.3 Choice of Estimation Technique and Functional Form

For reasons already spelt out in the previous chapter, the ordinary least square technique is used in this study. The underlining assumptions of the OLS are expected to be met by the model. The assumptions are as follows:

i) U_i is a random real variable.

ii) The mean value of U in any particular period is zero (that is $E(U_i) = 0$).

iii) The variance of U_i about its mean is constant at all values of X (homoscedasticity).

That is, $E(U^2) = Var (U) = \delta_u^2$

iv) U_i is normally distributed. assumptions, (i) to (iv) are summarised thus:

$U \sim N(O, \delta_u^2)$.

v) The random terms of different observations (Ui, Uj) are independent. In other words, the covariance's of Ui with any other Uj are equal to zero. That is, E(Ui Uj) = O for i # j.

vi) U is independent of the explanatory variables.

vii) The explanatory variables are measured without error.

viii) The explanatory variables are not perfectly and linearly correlated.

That is, E(xi, xj) » O i # j. This shows absence of multicollinearity.

ix) The variables are correctly aggregated.

x) The relationship represented by the equation(s) is identified and specified.

3.2.4 Procedures for Evaluation of Estimates and Models

The economic criteria for evaluation of regression coefficients involve an examination of the algebraic signs and magnitudes of the parameter estimates. This enables one to determine the extent the directions and magnitudes of influences of the various explanatory variables agree with the a priori theoretical expectations.

The statistical tests seek to evaluate the statistical reliability of the parameter estimates. The two tests commonly carried out are F- and t - tests. The F - test is conducted to assess the joint impact of the explanatory variables, while the t - test ascertains the statistical significance of each explanatory variable at a chosen confidence level. The procedure for the evaluation is as follows.

For F- test, the null and alternative hypotheses are conventionally stated as below.

$Ho : b_1 = b_2 = ... b_k = o$ (Null Hypothesis)

$H_1 : b_1 = b_2 = ... b_k \neq o$ (Alternative Hypothesis)

In the case of t - tests, the hypotheses are stated as follows:

$Ho: bi = o , Hi : bi \neq o$

The decision rule for both f- and t- tests is to reject Ho and accept H_1 if the computed value of the f or t - statistics is greater than theoretical value.

The results of the economic and statistical tests are usually subjected to econometric tests to determine their reliability. The economic tests essentially seek to determine whether the assumptions of estimation method used are satisfied. In the case of OLS estimation method, the violations of assumptions of absence of multi-collinearity, and autocorrelation are most worrisome. For multi collinearity test, the approach used by Klein (1962) is adopted. That is, multi-collinearity is not a serious problem if $r^2_{xixj} <$ R^2, but if $r^2_{xixj} > R^2$ y $.x_1, x_2 ... x_k$ then there is a problem. Where r^2_{xixj} is the partial or simple correlation coefficient between any two explanatory variables.

For autocorrelation, the Durbin - Watson (DW) satistics is applied. The DW test statistic is stated thus:

$$d = \frac{\sum_{t=2}^{n} (e_t - e_{t-1})^2}{\sum_{t=1}^{n} e_t^2}$$

where, d = Durbin - Watson statistic (DW)

e = regression residual

t = time period

In practice, the procedure for testing for autocorrelation is as follows:

Ho: $d > 2$ (no autocorrelation of the first-order scheme)

Hi: $d < 2$ (autocorrelation is present)

If d is approximately equal or greater than 2, the null hypothesis is accepted. The alternative hypothesis is accepted if d is less than two.

CHAPTER FOUR

THE GENESIS AND COMPONENTS OF SAP IN NIGERIA

4.1   The basis of SAP in Nigeria

As stated earlier in the problem statement, prior to the oil wealth, agriculture was the mainstay of the Nigerian economy contributing over 60% of the Gross Domestic Product (GDP) and over 70% of the total earnings and providing employment to over 75% of the population. But as rightly observed by Ono (1990), since the early 1970s, when the oil industry began to emerge as the dominant sector, agriculture has been unwittingly neglected. Following the oil boom of 1973 - 1974 and 1979 - 1980, the government embarked on massive public investment programmes. The monetization of oil wealth through excessive government expenditure increased domestic liquidity situation. This as noted by Asogu (1991) exacerbated expansionary pressures on money supply whose average annual growth rate for the 1970s was 32.5% compared with 7.5% in the 1960s (Table 4.1). The private sector spending also followed government's pattern. The craze for imported consumer goods added to the inflation. Industrial activities which depended largely on imported raw-materials especially in the assembly plants also emerged in response to the import-substitution industrialization strategy of the government. As stated by Soludo (1995), per capita income sharply dropped from $1100 in 1981 to $300 in 1986, inflation and unemployment soared, trade arrears accumulated, and balance of payments accounts were in distress, and external debt servicing was becoming unbearable.

The oil boom era provoked very high consumption propensity and discouraged real sector growth. Thus real GDP declined rapidly (Table 4.1). From 1981 the economy recorded negative real growth rates for four consecutive years. Agricultural production index declined steadily as shown in Table 4.2, 4.3 and 4.4. Whereas the share of agricultural exports in total exports was falling, food importation as a percentage of total import bill was rising (Table 4.5 and 4.6). The above were the manifestations of the traumatized Nigerian economy.

The immediate cause of the economic distortions was the collapse of the oil sector since 1981 (Table 4.7), while the remote cause was the domestic policy failures of the preceding years. The economy depended so much on oil sector that it was a common saying in Nigeria that "once the oil market sneezes, the economy catches cold".

Table 4.1 ANNUAL CHANGES (%) IN SELECTED ECONOMIC INDICATORS IN NIGERIA, 1960 - 1985.

Year	Real GDP	CPI	Money supply	Domestic supply	Govt. Expenditure
1960	-7.7	6.7	1.0	20.1	3
1961	7.1	6.3	0.8	35.1	2.5
1962	4.4	5.3	3.1	-19.6	9.4
1963	8.0	-2.8	7.6	92.7	-40.6
1964	4.1	1.1	15.9	44.3	-14.9
1965	3.3	3.9	3.9	9.8	8.4
1966	-1.1	9.7	8.8	23.4	141.9
1967	-18.0	-3.7	-9.1	12.5	-16.4
1968	-3.2	-0.4	4.7	31.4	18.0
1969	16.6	10.0	30.1	34.7	14.7
1970	24.5	13.8	42.5	38.0	103.1
1971	7.9	16.0	3.4	-1.6	-3.3
1972	4.9	2.8	11.3	13.1	70.6
1973	32.4	5.6	18.1	5.8	-4.5
1974	32.2	12.7	42.5	-67.0	139.5
1975	-18.8	33.5	73.5	113.6	93.8
1976	4.0	21.2	61.1	53.2	17.5
1977	-3.6	21.5	51.7	170.8	6.5
1978	-6.1	12.3	1.9	74.4	-22.5
1979	6.7	11.8	27.7	26.4	-7.4
1980	5.1	9.9	14.4	23.4	101.8
1981	-20.0	20.8	19.3	170.7	-27.9
1982	-6.2	7.7	3.5	36.0	14.9
1983	-31.7	23.3	12.3	31.6	-5.8
1984	-6.7	39.6	18.5	10.5	-39.4
1985	7.9	5.5	8.7	4.9	-0.7

Source: Computed from data in various issues of CBN <u>Annual Reports & Statement of Accounts, Economic and Financial Reviews</u>.

TABLE 4.2: INDEX OF AGRICULTURAL PRODUCTION BY TYPE OF ACTIVITY, 1970-1992, (1984=100).

Year	Crops	Stables	Other crops	Livestock	Fish	Forestry	Aggregate
1970	144.5	171.6	82.5	75.1	101.6	81.5	126.0
1971	126.8	146.7	81.2	76.1	111.7	83.6	114.2
1972	98.0	101.1	76.9	74.6	119.3	85.8	94.0
1973	109.1	122.3	79.0	73.6	126.7	88.6	102.2
1974	132.1	144.5	103.1	73.6	128.9	90.4	118.7
1975	111.7	122.4	87.0	74.7	127.0	94.1	104.3
1976	100.6	105.0	90.6	77.1	134.9	96.8	97.6
1977	98.3	99.3	96.0	79.3	137.3	99.6	96.7
1978	92.8	89.0	101.6	81.7	141.4	102.4	93.5
1979	89.9	84.2	102.9	84.7	145.8	105.1	92.4
1980	92.0	85.9	106.2	85.1	153.4	106.5	92.5
1981	93.6	87.4	107.7	88.4	132.7	106.5	95.2
1982	95.7	91.4	105.5	96.1	136.8	105.7	98.3
1983	90.5	89.0	93.9	91.9	146.9	99.0	93.9
1984	100.0	100.0	100.2	100.4	100.0	100.0	100.0
1985	103.5	103.3	103.8	104.3	62.3	102.9	104.6
1986	111.2	101.0	115.7	1085.1	69.5	106.1	108.3
1987	123.4	125.6	115.1	103.9	66.8	106.3	116.1
1988	151.7	159.1	123.7	110.4	85.7	109.1	138.5
1989	169.0	178.7	132.4	117.8	89.2	112.6	152.5
1990	178.8	189.6	138.1	121.3	77.1	117.1	159.8
1991	192.0	204.9	145.6	119.4	81.1	119.5	169.2
1992	203.4	217.5	150.2	120.2	64.4	122.2	176.8

Source: Central Bank of Nigeria: *Statistical Bulletin* Vol. 5, No. 1 1994.

Table 4.3:   OUTPUT OF MAJOR AGRICULTURAL COMMODITIES: STAPLES ('000 tonnes)

	STAPLES													
Year	Maize	Millet	Sorghum	Rice	Wheat	Acha	Beans	Cassava	Potato	Yams	Cocoyams	Plantain	Vegetable	Total
1970	1443	3106	4053	280	19	18	884	5224	4	12033	1381	985	1098	30818
1971	1274	2834	3794	279	20	18	801	4516	26	9766	880	1008	1136	26352
1972	639	2391	2298	447	20	14	408	2573	27	6900	1357	994	1175	19243
1973	808	3794	3125	487	15	14	530	2912	27	6936	1106	996	1211	21961
1974	528	5554	4738	525	18	17	1097	3582	27	7160	480	1018	1259	26003
1975	1332	2550	2920	504	18	16	858	2324	28	7620	504	1016	1303	21993
1976	1068	2893	2950	218	18	14	727	1786	30	6470	532	1022	1134	18862
1977	650	2579	3286	410	20	14	408	1656	32	6376	346	1026	1025	17828
1978	658	2386	2409	280	20	16	498	1620	34	5866	182	1032	976	15977
1979	488	2366	2604	160	22	16	624	1446	38	5256	132	1038	931	15121
1980	612	2354	3346	105	24	18	510	942	40	5248	208	1042	972	15421
1981	720	2682	3364	158	26	20	560	620	38	5212	270	1048	986	15704
1982	766	2666	3740	212	26	20	616	592	40	5385	280	1054	1048	16445
1983	594	2783	2992	145	26	18	583	513	38	4047	224	1068	909	14240
1984	2058	3349	4608	157	27	23	477	11800	42	4600	205	1086	1120	29552
1985	1190	3684	4911	196	113	25	611	13500	43	4738	223	1113	1254	31601
1986	1336	4111	5455	283	132	27	732	12388	46	5209	373	1127	1293	32512
1987	4612	3905	5455	808	139	26	688	13876	45	4886	345	1071	1241	37106
1988	5268	5136	5182	2081	565	30	887	15540	44	9132	693	1103	1354	47015
1989	5008	4770	7265	3303	554	25	1232	17404	50	9609	649	1413	1480	57012
1990	5768	5136	4185	2500	554	29	1354	19043	54	13624	731	1215	1761	55964
1991[1]	5810	4109	4346	3185	455	43	1352	20339	66	16956	829	1339	2025	60854
1992[2]	6346	4234	4437	3500	423	47	1411	21437	73	19305	940	1477	2214	65873
1993[3]	6852	4380	4548	3400	400	50	1471	22316	80	23166	1066	1629	2494	71852

Source: Central Bank of Nigeria: Statistical Bulletin Vol. 5, No. 1 1994.
1 Revised   2 Provisional   3 Estimate

Table 4.4: OUTPUT OF MAJOR AGRICULTURAL COMMODITIES: NON-STAPLES ('000 tonnes)

Year	Melon	Groundnuts	Benni-seed	Coconuts	Shea-nuts	Soyabeans	Cotton Seed	Palm Kernel	Palm Oil	Groundnut Oil	Cocoa	Coffee	Rubber	Sugar-Cane	Palm Wine	Tobacco	Total
1970	82	1581	30	83	67	58	358	315	488	87	305	2.8	65	607	2321	11	6461
1971	63	1381	32	97	70	63	426	307	500	40	257	3.6	62	638	2403	18	6361
1972	91	1350	33	86	75	63	105	270	460	32	241	4.2	57	666	2478	13	6024
1973	182	878	34	99	79	64	85	231	430	-	215	2.3	66	618	3186	12	6181
1974	49	1946	35	99	83	65	481	310	485	-	214	2.4	78	670	3543	12	8072
1975	208	449	36	99	88	65	313	295	500	-	216	3.0	68	700	3755	18	6813
1976	166	459	36	90	92	70	294	295	525	-	181	3.0	53	735	4077	14	7090
1977	142	567	37	92	96	70	269	284	528	-	193	3.1	59	765	4400	14	7519
1978	106	801	38	92	100	72	211	281	530	-	157	3.1	58	770	4723	12	7954
1979	104	507	39	90	105	73	125	280	650	-	151	3.2	56	815	5045	13	8056
1980	94	674	41	90	110	75	77	279	650	-	153	3.5	45	870	5139	13	8314
1981	78	530	42	100	116	78	48	294	530	-	174	3.0	60	920	5438	19	8430
1982	74	458	44	110	122	82	38	310	500	-	156	3.0	50	900	5360	20	8227
1983	51	396	30	100	98	42	12	279	500	-	140	3.0	45	810	4729	21	7256
1984	143	591	31	101	99	43	108	340	550	-	140	4.0	58	821	4800	14	7843
1985	147	621	35	102	100	60	114	360	615	-	160	6.0	226	862	4882	22	8312
1986	153	896	35	104	103	100	100	727	650	-	148	132.0	190	897	4940	25	9200
1987	145	687	34	105	104	107	195	824	715	-	100	139.0	180	852	4951	26	9164
1988	275	1016	36	108	109	150	194	545	614	280	253	157.0	211	888	4986	27	9849
1989	204	1017	40	110	252	300	187	939	770	249	256	257.0	132	900	5111	30	1075
1990	208	1166	44	118	289	218	276	1190	730	359	244	303.0	147	920	5121	31	1136
1991	219	1361	46	129	326	145	309	1203	760	361	268	320.0	215	888	5322	20	1189
1992	231	1297	49	135	331	159	346	1321	792	384	292	338.0	220	896	5322	19	1213
1993	243	1323	52	140	336	163	378	1450	825	408	306	358.0	225	905	5376	20	1250

Source: Central Bank of Nigeria: Statistical Bulletin Vol. 5, No 1, 1994; Various issues of Annual Reports and Statements of Accounts.

Table 4.5: VALUE OF MAJOR IMPORT GROUPS BY S.I.T.C. SECTIONS

Year	Food	Beverages	Crude Materials Inedible	Mineral Fuels	Animals and Vegetable oil	Chemicals	Manufactured Good	Machinery & Transport Equipment	Miscellaneous Manufactured Goods	Miscellaneous Transactions	Total
1970	57.7	4.0	16.6	22.0	0.8	88.5	227.0	285.3	39.5	18.6	760.0
1971	83.3	4.5	20.4	9.0	0.7	121.5	319.3	417.8	68.5	19.1	1069.1
1972	95.8	4.4	20.8	10.3	1.1	102.6	267.7	391.9	83.1	13.7	991.4
1973	126.3	5.2	27.0	13.6	1.4	133.4	323.9	491.4	94.2	8.6	1225.0
1974	154.8	9.1	63.7	55.4	3.6	291.0	523.4	611.8	114.0	10.6	1837.4
1975	298.8	48.1	74.4	100.4	8.9	333.2	1007.4	1561.0	278.7	10.7	3721.6
1976	441.7	63.8	79.3	181.3	24.7	398.5	1136.1	2548.0	351.4	10.5	5235.3
1977	780.7	132.3	78.4	128.4	46.4	504.0	1580.0	3435.7	491.3	191.2	7368.4
1978	1027.6	54.6	97.5	161.2	78.4	642.8	1855.9	3573.4	631.2	13.8	8136.4
1979	952.2	8.4	117.4	126.6	97.5	646.7	1442.2	2405.1	349.5	24.8	6170.4
1980	1437.5	12.1	156.7	154.8	115.0	913.5	1981.5	3650.4	645.1	29.0	9095.6
1981	1819.6	16.5	218.9	151.1	128.7	1220.4	2540.7	5548.1	947.7	22.2	12613.9
1982	1642.3	16.4	207.2	115.5	151.4	981.6	2137.0	4169.1	942.3	36.6	10100.2
1983	1296.7	13.1	204.4	53.0	105.6	714.0	1477.1	2366.0	316.6	9.2	6555.7
1984	843.2	10.4	187.5	52.1	101.8	656.4	846.0	1604.4	171.2	11.5	4484.5
1985	940.6	7.4	274.8	47.9	55.7	868.9	1263.6	1892.8	176.0	9.2	5536.9
1986	801.9	14.5	193.9	32.0	124.9	1039.0	1237.1	2277.8	246.4	6.1	5973.6
1987	1646.5	27.0	702.6	67.2	57.7	2650.6	3940.9	5999.6	596.2	7.0	15695.3
1988	1220.0	55.3	381.5	133.4	78.9	1261.8	2932.8	5740.4	617.4	9.8	13831.3
1989	2108.9	136.3	1080.7	258.8	69.9	7041.9	6541.4	12362.7	1250.3	9.3	30860.2
1990	3774.5	228.7	1417.2	274.2	228.7	9006.4	10240.8	18515.8	2194.5	137.1	45171.9
1991	6085.1	448.4	3042.6	536.9	536.9	18345.0	20313.6	35436.9	4384.9	357.9	89488.2
1992	12599.0	429.4	3721.9	572.6	1145.2	22904.2	35072.0	61841.3	4724.1	143.2	143151.
1993	13912.59	496.9	4306.4	828.2	1324.9	28322.6	39751.1	70226.9	6293.9	165.6	165629.

Source: Central Bank of Nigeria: Statistical Bulletin Vol. 5, No. 1, 1974.

Table 4.6: COMPOSITION OF NIGERIA'S IMPORT TRADE BY S.I.T.C. SECTION (AS A PERCENTAGE OF TOTAL IMPORT VALUE)

Year	Food	Beverages & Tobacco	Crude Materials	Mineral Fuel	Animals. Vegetable oil and fats	Chemicals	Manufactured Goods	Machinery & Transport Equipment	MiscellaneousManufactured Goods	Miscellaneous Transactions	Total
1961	10.2	2.7	1.1	6.0	0.0	5.7	39.3	22.7	10.7	1.5	100
1962	11.6	2.3	1.2	6.9	0.0	6.1	36.0	23.8	10.7	1.5	100
1963	10.6	1.4	1.5	7.5	0.0	7.0	35.7	24.4	10.3	1.7	100
1964	8.1	1.2	1.5	7.7	0.1	6.7	35.3	29.5	8.9	1.1	100
1965	8.4	0.7	2.4	6.3	0.1	7.3	32.7	33.6	7.5	1.0	100
1966	10.0	0.9	2.8	1.5	0.1	8.1	31.0	37.2	7.3	1.1	100
1967	9.5	0.8	2.6	3.9	0.2	9.5	32.3	32.0	7.8	1.3	100
1968	7.8	0.6	2.9	8.0	0.1	12.3	30.0	37.3	7.7	3.3	110
1969	8.4	0.3	2.3	6.3	0.1	12.2	29.1	30.4	5.4	5.5	100
1970	7.6	0.5	2.2	2.9	0.1	11.7	29.9	37.3	5.2	2.5	100
1971	8.3	0.4	1.9	0.8	0.1	11.4	29.9	39.1	6.4	1.8	100
1972	9.7	0.4	2.1	1.0	0.1	10.3	27.0	39.5	8.4	1.4	100
1973	10.3	0.4	2.2	1.1	0.1	11.0	26.4	40.1	7.7	0.7	100
1974	8.9	0.5	3.7	3.2	0.2	11.0	30.1	35.2	6.6	0.6	100
1975	8.0	1.3	2.0	2.7	0.2	9.0	27.1	41.9	7.5	0.3	100
1976	8.4	1.2	1.5	3.5	0.5	7.6	26.7	43.7	6.7	0.2	100
1977	10.6	1.8	1.1	1.7	0.6	6.8	21.4	46.6	6.7	2.7	100
1978	12.6	0.7	1.2	2.0	1.0	7.9	22.8	43.9	7.8	0.2	100
1979	15.4	0.4	1.9	2.0	1.6	10.5	23.3	39.0	5.6	0.6	100
1980	15.8	-	1.7	1.7	1.3	10.1	21.8	40.1	7.1	0.3	100
1981	14.4	0.1	1.7	1.2	1.0	9.7	20.1	44.0	7.5	0.2	100
1982	18.7	0.2	2.0	1.3	1.2	11.6	20.2	44.4	0.2	0.2	100
1983	19.3	0.2	3.3	0.7	1.7	11.7	22.0	35.1	5.2	0.7	100
1984	18.8	0.2	4.3	1.2	2.3	14.6	18.8	35.8	3.8	0.2	100
1985	16.9	0.1	5.0	0.9	1.0	15.7	22.8	34.2	3.2	0.2	100
1986	13.4	0.3	3.2	0.5	2.1	17.4	20.7	38.1	4.1	0.1	100
1987	10.5	0.2	4.5	0.4	0.4	16.9	25.1	38.2	3.8	-	100
1988	7.9	0.4	2.7	1.0	0.3	19.8	23.1	40.2	4.5	-	100
1989	6.5	0.5	2.9	0.7	0.3	21.6	20.6	42.8	4.1	-	100
1990	8.2	0.4	3.5	0.7	0.3	20.0	22.0	40.7	4.1	-	100

Source: Computed from data from Central Bank of Nigeria: Economic & Financial Review (Various Issues); Annual Reports & Statements of Accounts (Various Issues) and Statistical Bulletin Vol. 5, No 1, June 1994.

Table 4.7: CRUDE OIL PRODUCTION AND EXPORT
(1970 - 1993) (' 000 Barrels)

Year	Production	Export	Domestic Consumption
1970	395,689	383,455	12,234
1971	558,689	542,545	16,144
1972	665,295	650,640	14,655
1973	719,379	695,627	23,752
1974	823,320	795,710	27,610
1975	660,148	627,638	32,510
1976	758,058	736,822	21,236
1977	766,055	715,240	50,815
1978	696,324	674,125	22,199
1979	845,463	807,685	37,778
1980	760,117	625,260	134,857
1981	525,291	469,095	56,196
1982	470,638	401,658	68,980
1983	450,961	392,031	58,930
1984	507,487	450,580	56,907
1985	547,088	486,639	60,449
1986	535,929	486,584	49,345
1987	483,269	390,514	92,755
1988	529,602	435,797	93,805
1989	625,908	522,481	103,427
1990	660,559	548,249	112,310
1991	689,850	585,838	104,012
1992	711,340	604,300	107,040
1993	691,400	563,614	127,786

Source : Nigerian National Petroleum Company (NNPC.)

Following the oil glut of 1981, and lowering of OPEC production quotas and the associated fall in prices from $40 per barrel in 1980 to about $10 per barrel in 1986, total foreign exchange receipt from the oil sector crashed from about $26 billion in 1980 to 7.37 billion in 1985. The direct implication was sharp decline in total government revenue.

Unfortunately, public and private spending pattern did not change accordingly. Hence, domestic deficits were financed by monetary accommodation (borrowing from bank and printing money) while external reserves were being drawn down to meet external deficits arising from increasing external debts and accumulation of trade arrears. The net effect of the external debt and trade obligations was unsustainable balance of payments deficits. The fixed exchange rate system in operation compounded the problem as it continued to dampen the competitiveness of non-oil exports and cheapen cost of imports.

The initial attempt to arrest this trend was the enactment of Economic Emergency Stabilization Act of 1982. It sought to reduce or eliminate the external and internal deficits using administrative controls. Austerity measures put in place included strict import controls and outright bans. Import licenses were used to ration foreign exchange. About 200 commodities were placed on import licensing requirement in 1983, and by 1985 all imports were subject to licensing while about 16 commodities were outrightly banned from importation (Oyejide, 1991). Despite these measures the deficits continued. Import controls resulted in compression of imported industrial raw-materials or inputs

which in turn led to severe capacity under-utilization, decline in output, unemployment, scarcity of essential commodities hoarding and general price increase. Realizing the failure of the austerity measures, President Shehu Shagari in his last public speech cited in Gana (1990) stated as follows: "given our present financial situation and the trend in the demand for oil, it is clear that a structural adjustment of the economy is imperative. To this end we have taken a number of measures."

The measures include the following:-

- reduction of public expenditure;

- diversification of revenue sources;

- privatization of government parastatals and companies;

- generation of more revenue through imposition of new or higher fees for public services;

- securing of a World Bank structural adjustment loan as well as IMF balance of payment loan; and

- payment of re-scheduled short term debts.

However, with his removal by the military on 31st December, 1983, the succeeding Buhari administration (December 1983 - 27 August 1985) continued with the austerity measures. Also the next succeeding government of Babangida continued with the measures till 26th September, 1986.

The Babangida administration revisited the question of taking IMF loan. In 1985, the government threw the issue open for public debate. The national debate was "hot"

indeed across the nation. However, it could be said that the public overwhelmingly rejected the loan because of the "conditionalities" attached. One of the crucial argument was that the IMF prescribed the same elixir for healing economic ailments of every country that approached it. The IMF conditions included:

- devaluation of the Naira by about 60%;

- liberalization of trade - opening up the borders for imports from abroad;

- drastic cut in government expenditure;

- wage freeze and price control;

- abolition of consumer subsidies such as on petroleum products, food and energy, and subsidies on fertilizers among others;

- removal of barriers to foreign investment and encouraging same through such policies like anti-strike legislation, tax relief's, and guarantees of profit expatriation.

Though the IMF loan was taken eventually by the government, a "home-grown" structural adjustment programme was adopted in September, 1986, partly to be able to obtain debt relief through rescheduling as demanded by its major creditors.

4.2   The Core Elements of SAP in Nigeria

The Central thrust of SAP in Nigeria has been to alter and realign economic structures such that the aggregate domestic absorption pattern becomes less import-intensive while the aggregate domestic production pattern becomes more export-oriented

(Oyejide, 1991). Accordingly, the cardinal objectives of the adjustment programme (FGN, 1986) are as follows:

-   The restructuring and diversification of the productive base of the economy in order to reduce dependence on the oil sector and on imports;

-   achievement of fiscal and balance of payments viability over time;

-   laying the basis for a sustainable non-inflationary or minimum inflationary growth; and

-   reducing the dominance of unproductive investments in the public sector, improving the sector's efficiency, and intensifying the growth potential of the private sector.

In pursuance of the above objectives, the major strategies adopted include:

-   adoption of a realistic exchange rate policy;

-   liberalization of external trade payments system;

-   strengthening of demand management policies;

-   adoption of appropriate pricing policies;

-   rationalization and restructuring of tariffs;

-   adoption of measures to stimulate domestic production and widen the supply base of the economy;

-   commercialization and/or privatization of government parastatals; and

-   deregulation of the economy through reduction or elimination of complex administrative controls and greater reliance on market forces.

Structural adjustment process in Nigeria has featured several policy reforms. The major policy thrust of the programme are:

- exchange rate policy reforms;

- fiscal and monetary policies reforms;

- trade liberalization policies;

- institutional policy reforms.

4.3 Exchange Rate Policy Reforms

The specific objectives of exchange rate policy in Nigeria, include the following (Olisadebe, 1991):

i) the achievement of balance of payments viability in the medium term;

ii) reduction of dependence on imports and oil exports;

iii) diversification of export base;

iv) reduction or elimination of incidence of capital flight

v) elimination of payments arrears;

vi) encouraging local production of inputs;

vii) correction of the over-valuation of the Naira exchange rate through the achievement of a realistic rate; and

viii) reducing or eliminating the parallel market premium thereby improving resource allocation and enlarging the scope of legitimate foreign exchange transactions.

By the Exchange Control Act of 1962, Nigeria operated a fixed exchange control system from 1962 - 1986 (Obaseki, 1991). However, the failure of the exchange control system to evolve appropriate mechanism for foreign exchange allocation as manifested in parallel market premium led to abuses like under-invoicing of exports and over-invoicing of imports, capital flight, and diversion of official foreign exchange to the parallel market. The exchange control system allocated foreign exchange through the use of import license which was fraught with administrative abuses. The over-valuation of the local currency under this system was the major obstacle. Between 1981 - 1985 the parallel exchange rate market premium averaged 160.0% (Olisadebe, 1991).

The system was stopped in September, 1986 with the inception of SAP. The exchange rate reform institutionalized exchange rate determination and allocation of foreign exchange through market forces of demand and supply. This indeed is the most fundamental element of SAP with pervasive impact on the economy. Within the basic framework of market determination of the Naira exchange rate, three main systems tried in the adjustment process are as follows:-

(a)   The Dual Exchange Rate System, 1986 - 1987.

(b)   The Unified Exchange Rate System, 1987 - 1992.

(c)   Completely Deregulated Exchange Rate System, 1992 - 1994.

At the commencement of SAP, on September 26, 1986, two-tier system, namely: first-tier rate and second-tier rate were adopted. The second-tier was determined by

transactions, diplomatic expenses etc. were settled at the first-tier rate.

The first and second-tier markets were merged into Foreign Exchange Market (FEM) in July 1987. In 1988, the inter-bank market was established to allow official foreign exchange transactions between banks. This was however merged with FEM in January, 1989 to form the Inter-bank Foreign Exchange Market (IFEM). As Naira continued to depreciate, the Dutch Auction System (DAS) used in SFEM era was re-introduced in December, 1990 as an attempt to modify IFEM procedures to reduce exchange rate instability.

Bureaux de changes and reputable hotels were licensed and accorded the status of authorized buyers of foreign exchange. This arrangement was to enlarge the FEM in order to enhance access to small users of foreign exchange in less formal manner and thus facilitate macroeconomic management.

In 1992, the completely deregulated exchange rate system was adopted as panacea for the persistent instability in the foreign exchange market. This was because the parallel market premium was as high as 79.2% in 1990, 35.5% in 1991 compared to the international limit of 5.0% (CBN, 1992).

4.4   Fiscal and Monetary Policies

One of the implicit assumptions of SAP, is that exchange rate reform will be well supported by strong fiscal and monetary policies. This is based on the notion that there are relationships between exchange rate movements and fiscal and monetary policies. As

rightly stated by Oyejide (1989), this follows "the fundamental principle of open economy macroeconomics which says that in order to ensure a sustainable macroeconomic (external and internal) equilibrium, it is necessary for fiscal and monetary policies to be consistent with the chosen exchange rate system".

Accordingly, the main objective of fiscal policy under SAP is to achieve fiscal viability which is aimed at reducing public expenditures by:

- not financing new projects except completion of essential on-going ones;

- wage freeze especially in public sector;

- ban on public sector employment;

- commercialization and privatization of parastatals and government companies;

- reduction of budget deficits to about 3.0% of the GDP; and

- diversification of tax base.

Also, in line with general philosophy of SAP, monetary policy objective aimed at reducing inflation, and installing a market-oriented financial system capable of effectively mobilizing savings and ensuring efficient allocation. Specific measures taken include the following:-

- interest rate deregulation;

- revision of sectoral credit allocation;

- guidelines to allow banks good measure of flexibility;

- special deposit requirements against outstanding external payments arrears;

- special deposit requirements against outstanding external payments arrears;

- introduction of stabilization securities to banks;

- abolition of foreign guarantees/currency deposits as collateral for naira loans;

- withdrawal of public sector deposits from commercial banks and transferring same to Central Bank of Nigeria;

- relaxation of entry barriers to financial sector and creation of new specialized banks or financial institutions.

One particular positive feature that characterized the financial landscape of Nigeria during this period is the emergence of new financial institutions and expansion of existing ones. For instance, the number of commercial banks increased from 28 in 1985 to 66 in 1992 with over 2300 branches nationwide; merchant banks increased from 2 in 1985 to 54 in 1992, with 116 branches. The Nigerian Deposit Insurance Company came into being in 1988 to provide deposit insurance and other services to the banking community. The Nigeria Export - Import Bank, NEXIM also came into existence in 1991. Other specialized banking institutions created include National Economic Reconstruction Fund, NERFUND, (1989) for small and medium-scale enterprises; People's Bank (1989) for urban and rural poor; Community Banks (1990) with innovative and non-conventional concepts of banking.

4.5   Trade Liberalization Policies

Trade liberalization as noted earlier is one the landmark of the structural adjustment programme in Nigeria. The trade liberalization policies sought essentially to reduce or eliminate government controls on imports and exports. It should be recalled that prior to the SAP, imports were placed under quantitative controls executed through a combination of outright bans on agricultural and manufactured goods and a comprehensive licensing system.

With the inception of SAP, import and export licensing was abolished, the list of prohibited imports was shortened from 76 to 16; price and distribution controls of agricultural exports were removed between 1986 and 1988. In fact, in December 1986, the six commodity boards which hitherto held monopoly on the pricing, subsidization, purchase and exportation of oil palm, cocoa, rubber, cotton, groundnut and grains were abolished. As part of the liberalization policies, all export duties were abolished and export procedure and documentation were simplified and the Nigerian Export Production Council (NEPC) was reorganized by Decree No. 41 of 1988 to make it more responsive to exporters. By the Customs and Excise Tariff Decree of 1988, a new tariff regime was introduced to cover 1988 to 1994 as it sought to provide a more permanent an comprehensive tariff structure so as to ensure greater stability, predictability and reliability in the incentive system.

CHAPTER FIVE

DATA ANALYSES, FINDINGS AND DISCUSSIONS

In this chapter, the structure and performance of Nigeria's export sector are discussed. Also the major export incentive systems and institutions available in Nigeria are identified. The regression analysis and results are also presented, discussed and evaluated.

5.1. The Structure and Performance of Nigeria's Exports

5.1.1 Direction of Commodity Trade:

The direction of Nigeria's external trade is presented in Tables 5.1, 5.2 5.3 and 5.4. Tables 5.1 and 5.2 show the direction of export trade while Tables 5.3 and 5.4 show the direction of imports by regional groupings.

It was observed that because of the colonial influence, Nigeria's trade was mainly with UK up to the mid-sixties. However, the erosion of United Kingdom's domination of Nigeria's external trade was gradual and progressive. This trend became pronounced by the beginning of the Nigerian Civil War in 1967, such that while trade with United Kingdom was on the decline, the United States of America (USA) and European Economic Community (EEC) continued to gain prominence. By 1973, the share of USA, Western Europe (EEC) and U.K. in Nigeria's export trade stood at 27.4%, 34.7% and 16.9% respectively. This means that the USA and EEC controlled about 70% of total exports from Nigeria. Since the Structural Adjustment Programme in Nigeria, the USA has occupied the leading position in the importation of Nigeria's

export commodities. Table 5.2 shows that for the period 1986 - 1990, the average levels

of exports to U.S.A, EEC, and UK stood at 42.32%, 39.86% and 4.38% of aggregate

export respectively.

Another noteworthy feature of the direction of Nigeria's exports was the low and

insignificant share of the ECOWAS sub-region and in deed the African region at large.

The low volume was in spite of numerous bilateral trade agreements with African

countries and Nigeria's foreign policy whose main thrust was on Africa. For the period

1960-1990, exports to ECOWAS sub region amounted to a mere annual average of

2.57% of total value of exports (Table 5.2) and annual imports from the sub region into

Nigeria averaged only 0.54% of the total import value (Table 5.4). However, during

the SAP period, 1986 - 1990, exports to ECOWAS sub-region showed positive annual

growth. During this period, the annual average value of exports to the sub-region rose to

about 4.5% of total exports.

The low levels of recorded trade with African countries is related to colonial

legacy which discouraged inter - African countries trade but promoted neo-colonialism

through trade relations with the metropolitan powers in Europe (Akindele, 1988).

Another explanation for the above trend is due to similarities of products, the economics

of African states are not complementary . Most of the African countries produce and

export similar agricultural commodities. Much of these products also pass across the

borders through smuggling activities.

From the foregoing, one could note that for greater penetration of the African

markets, semi -processed agricultural commodities or products should be exported by Nigerians. Also Nigeria's agricultural export trade could be enhanced by diversifying export marketing outlets to include Eastern European countries which are now embracing market economy.

Table 5.1 DIRECTION OF NIGERIA'S EXPORTS & RE-EXPORTS BY REGIONAL GROUPINGS AND MAJOR COUNTRIES (Million Naira)

Year/Quarter	C.Wealth Countries	Eastern Europe	Japan	United Kingdom	U.S.A	West Africa or ECOWAS	Western Europe	Others	Total
1970	27.6	31.7	6.8	250.4	101.6	7.2	398.1	62.1	885.5
1971	29.8	44.4	17.6	278.8	223.5	26.8	592.6	79.8	1293.3
1972	28.7	25.5	55.2	301.0	299.6	29.8	606.7	87.8	1434.3
1973	74.5	32.9	104.1	424.8	549.7	23.9	827.3	240.2	2277.4
1974	126.1	105.8	238.0	978.1	1589.9	81.7	2010.8	664.3	5794.7
1975	64.8	86.4	172.3	694.3	1427.0	62.0	1648.2	769.7	4924.7
1976	35.0	14.2	191.1	814.3	2001.5	94.6	1834.9	714.4	5700.0
1977	760.9	18.4	7.7	615.5	3016.0	178.9	1689.5	1345.9	7630.8
1978	254.6	21.0	3.6	405.2	2667.1	155.2	2215.6	602.6	6324.9
1979	740.5	19.8	11.9	632.0	4579.2	174.3	3724.5	436.1	10318.3
1980	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1981	872.6	198.8	160.2	135.8	3928.6	299.5	4235.3	1203.0	11083.8
1982	414.9	51.7	4.9	211.5	1983.3	230.4	3369.4	1930.4	8196.4
1983	433.9	47.4	5.9	319.8	1802.3	144.3	3232.6	2065.6	8051.8
1984	577.8	37.9	6.1	422.7	1212.9	300.0	6116.1	465.3	9138.8
1985	702.3	33.0	7.6	538.6	2116.3	387.9	7217.4	717.7	11720.8
1986	387.8	20.6	13.8	512.6	3163.3	345.7	4305.1	379.3	9128.2
1987	854.3	8.2	22.9	530.3	13897.8	1635.5	11851.8	777.3	29578.1
1988	936.7	60.6	37.3	591.0	14337.6	1736.0	12042.8	1667.3	31409.3
1989	491.0	58.9	129.2	1013.7	30910.9	3201.2	19919.8	2246.5	57971.2
1990	3626.4	1318.8	988.8	11977.6	34064.8	2417.6	43185.2	12307.2	109886.4

Source: Central Bank of Nigeria: Economic & Financial Review (various Issues).

Table 5.2: DIRECTION OF NIGERIA'S EXTERNAL TRADE, 1960-1990: EXPORTS AND RE-EXPORTS BY COUNTRIES AND REGIONAL GROUPINGS (AS PERCENTAGE OF TOTAL VALUE OF EXPORTS)

Year/ Quater	C. Wealth countries*	Eastern Europe	Japan	United Kingdom	U.S.A.	West Africa or ECOWAS	Western Europe	Others	Total**
1960	1.4	0.4	1.5	47.6	9.4	0.7	33.9	5.2	100.0
1961	1.2	0.4	1.5	43.9	11.1	0.9	33.6	7.2	100.0
1962	1.8	1.0	0.9	42.0	10.8	3.3	33.0	2.2	100.0
1963	2.1	0.8	1.3	39.4	9.2	3.4	42.7	1.1	100.0
1964	1.6	2.3	1.2	37.9	6.7	5.2	40.6	4.4	100.0
1965	1.3	3.2	1.2	38.2	10.0	2.0	41.0	3.1	100.0
1966	4.3	1.0	1.5	37.3	8.0	1.9	39.8	6.0	100.0
1967	4.3	3.0	2.6	29.9	7.9	1.5	48.0	2.8	100.0
1968	3.8	4.7	1.8	28.9	8.3	3.0	45.5	3.0	100.0
1969	3.0	3.6	1.0	27.3	12.6	0.8	44.0	7.1	100.0
1970	3.1	3.6	0.8	28.3	11.5	2.1	45.0	7.0	100.0
1971	2.3	3.4	1.4	21.5	17.3	2.1	45.8	6.2	100.0
1972	2.0	1.8	3.8	21.0	20.9	2.1	42.8	5.6	100.0
1973	3.3	1.0	4.6	18.7	24.1	1.1	36.3	10.5	100.0
1974	2.2	1.4	4.1	16.9	27.4	1.4	34.7	11.5	100.0
1975	1.3	1.8	3.5	14.1	29.0	1.3	33.5	15.6	100.0
1976	0.6	1.8	3.4	14.3	25.1	1.7	32.2	12.5	100.0
1977	10.0	0.2	3.1	8.1	39.5	2.3	22.1	17.6	100.0
1978	4.0	0.2	0.1	6.4	42.2	2.5	35.0	9.5	100.0
1979	7.2	0.3	0.1	6.1	44.4	1.7	36.1	4.2	100.0
1980	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1981	7.9	1.8	1.5	1.2	35.6	2.7	38.4	10.9	100.0
1982	4.5	0.6	0.1	2.3	32.4	2.5	36.6	21.0	100.0
1983	1.7	0.6	0.1	4.1	23.3	1.9	41.7	26.6	100.0
1984	6.3	0.4	0.1	4.6	13.3	3.3	66.9	5.1	100.0
1985	6	0.3	0.1	4.6	18.1	3.3	61.6	6.1	100.0
1986	4.2	0.2	0.2	5.6	34.7	3.8	47.2	4.2	100.0
1987	2.9	0.03	0.08	1.8	47.0	5.5	40.1	2.6	100.0
1988	30	0.2	0.1	1.9	45.6	5.5	38.3	5.3	100.0
1989	0.8	0.1	0.2	1.7	53.3	5.5	34.4	3.9	100.0
1990	3.3	1.2	0.9	10.9.	31.0	2.0	39.3	11.2	100.0

Source: computed from data in various issues of Economic &Financial Review, Central Bank of Nigeria Publication.

*Excluding C. Wealth countries in West Africa

**Error due to rounding off.

n.a means not available

Table 5.3: DIRECTION OF NIGERIA'S IMPORTS BY COUNTRIES AND REGIONAL GROUPINGS (Million Naira)

Year/Quater	C. Wealth Countries*	Eastern Europe	Japan	Uinted Kingdom	U.S.A	West Africa or ECOWAS	Western Europe	Others	Total
1970	34.3	34.2	47.5	232.1	109.6	3.3	238.5	50.3	749.8
1971	52.3	43.7	89.7	344.1	151.4	3.1	334.7	56.2	1075.2
1972	45.8	25.6	98.3	292.0	102.6	2.8	360.6	62.5	990.2
1973	49.5	45.9	112.9	331.6	125.7	3.0	456.1	100.1	1224.8
1974	69.9	73.1	160.2	402.2	213.2	6.6	704.4	107.8	1737.4
1975	90.2	116.3	366.5	854.9	408.0	19.3	1624.9	241.4	3721.5
1976	130.8	89.8	439.1	1204.4	599.1	24.8	2284.6	307.4	5134.0
1977	196.1	184.7	756.6	1563.7	791.9	54.6	3139.8	406.3	7093.7
1978	284.1	181.5	871.5	1785.1	864.8	33.6	3664.1	452.3	8137.0
1979	210.0	130.6	669.6	1162.7	654.6	22.6	2827.2	483.9	6165.2
1980	n.a	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1981	716.5	228.5	1684.3	2334.3	1346.6	36.5	5134.4	1118.0	12599.1
1982	489.4	355.7	1133.9	1877.1	1111.3	31.0	4290.2	811.5	10100.1
1983	293.5	308.6	613.9	1080.1	771.6	34.1	2752.6	701.3	6555.7
1984	236.8	165.6	368.0	829.5	567.4	57.5	1931.6	328.1	4484.5
1985	304.1	238.7	408.2	1098.7	741.7	29.3	2110.7	605.4	5536.9
1986	312.4	411.9	309.9	1075.0	712.0	47.6	2704.3	398.8	5971.9
1987	628.2	1000.0	1417.5	2641.3	1297.1	215.5	7068.4	1428.1	15696.1
1988	1236.8	936.8	1314.4	2793.5	1852.5	149.8	7714.1	2143.9	18141.8
1989	1465.0	717.5	2092.5	5020.1	3792.6	159.7	12778.1	4834.7	30860.2
1990	1737.4	1920.1	4160.4	9692.2	5166.2	274.2	19018.6	2748.8	45717.9

Source: Central Bank of Nigeria: Economic & Financial Review (Various Issues).
*Excluding C. Wealth countries in West Africa
n.a. not available

Table 5.4: DIRECTION OF NIGERIA'S EXERTNAL TRADE, 1960 - 1990: IMPORTS BY REGIONAL GROUPINGS (AS PERCENTAGE OF TOTAL VALUE OF IMPORTS)

Year/ Quarter	C. Wealth Countries*	Eastern Europe	Japan	United Kingdom	U.S.A.	West Africa or ECOWAS	Western Europe	Others	Total**
1960	5.9	2.0	13.1	43.6	5.4	0.3	26.0	3.6	100.0
1961	7.8	2.6	13.8	38.8	5.4	0.3	26.2	5.1	100.0
1962	7.4	3.0	12.4	36.8	7.5	0.2	27.5	5.3	100.1
1963	6.4	3.6	13.8	36.3	4.0	0.3	30.1	5.4	100.0
1964	5.3	3.0	12.3	31.3	11.5	0.4	30.0	6.1	100.0
1965	5.8	2.9	9.5	31.5	12.2	0.4	32.1	5.6	100.0
1966	6.0	2.8	5.6	30.0	16.3	0.5	33.9	4.9	100.0
1967	5.6	3.8	8.5	29.0	12.6	0.6	32.6	7.3	100.0
1968	4.7	5.0	3.8	31.4	11.7	1.0	32.8	9.6	100.0
1969	4.7	3.9	3.8	35.0	11.9	0.6	30.5	9.7	100.0
1970	3.1	3.6	0.8	28.3	11.5	0.8	45.0	7.0	100.0
1971	4.9	4.1	8.3	32.0	14.1	0.3	31.0	5.2	100.0
1972	4.6	3.4	9.9	29.5	10.4	0.3	36.4	5.5	100.0
1973	4.0	3.7	9.2	27.1	10.3	0.2	37.2	8.2	100.0
1974	4.0	4.2	9.2	23.1	12.3	0.4	40.5	6.2	100.0
1975	2.4	3.1	9.8	23.0	11.0	0.5	43.7	6.0	100.0
1976	2.5	1.8	9.6	23.5	11.7	0.5	44.5	6.0	100.0
1977	2.8	2.6	10.7	22.0	11.2	0.8	44.3	5.7	100.0
1978	3.5	2.2	10.7	21.9	10.6	0.4	45.0	5.6	100.0
1979	3.5	2.1	10.9	18.9	10.7	0.4	45.9	7.8	100.0
1980	n.a.	n.a.	n.a	n.a	n.a	n.a	n.a	n.a	n.a.
1981	5.7	1.8	13.4	18.5	10.7	0.3	40.7	8.9	100.0
1982	4.8	3.5	11.2	18.6	11.0	0.3	42.5	8.1	100.0
1983	4.5	4.7	9.3	16.5	11.8	0.5	40.0	10.7	100.0
1984	5.3	3.7	8.2	18.5	12.7	1.3	43.1	7.3	100.0
1985	5.5	4.3	7.4	19.8	13.4	0.5	38.1	10.9	100.0
1986	5.2	6.9	5.2	18.0	11.99	0.8	45.3	6.7	100.0
1987	4.0	6.4	9.0	16.8	8.3	1.4	45.0	9.1	100.0
1988	6.8	5.2	7.2	15.4	10.2	0.8	42.5	11.8	100.0
1989	4.7	2.3	6.8	16.3	12.3	0.5	41.4	15.7	100.0
1990	3.8	4.2	9.1	21.2	11.3	0.6	41.6	8.2	100.0

Source: Computed from data in various issues of Economic & Financial Review, Central Bank of Nigeria Publication

*Excluding C. Wealth countries in West Africa

**Error due to rounding off

na means not available.

Table 5.5 : COMPOSITION OF NIGERIA'S EXPORT TRADE BY COMMODITIES (AS PERCENTAGE OF TOTAL VALUE OF EXPORTS)

Year	Cocoa	Groundnuts	Groundnut oil	Groundnut cake	Palm Kernel	Palm oil	Raw Cotton	Natural Rubber	Hides & Skin	Timber	Crude petroleum	Tin Metal	Others	Total
1960	21.6	13.5	3.1	0.9	15.4	8.2	3.7	8.4	2.7	4.1	2.6	3.6	1.1	100.0
1961	19.4	18.6	2.9	1.1	11.5	7.6	6.4	6.3	2.4	3.9	6.6	3.8	9.5	100.0
1962	19.8	19.2	3.7	1.5	10.0	5.3	3.5	6.7	2.3	3.4	10.2	3.9	10.6	100.0
1963	17.1	19.4	3.4	1.4	11.0	4.9	5.0	6.2	2.0	3.5	10.7	4.7	10.4	100.0
1964	18.7	15.9	3.8	2.2	9.8	5.0	2.8	5.6	0.2	3.6	14.9	5.8	9.7	100.0
1965	15.9	14.2	3.6	2.0	9.9	5.2	1.2	4.1	1.7	2.3	25.4	5.5	9.1	100.0
1966	9.9	14.4	9.4	1.7	7.9	3.9	1.2	4.0	2.0	2.0	32.4	5.4	11.9	100.0
1967	22.5	14.7	2.4	1.7	3.0	0.5	1.7	2.6	0.9	1.4	29.9	5.0	12.6	100.0
1968	24.3	18.0	4.4	2.3	4.8	-	1.6	3.0	0.9	1.7	17.5	6.5	13.9	100.0
1969	16.5	11.1	3.3	1.6	3.1	0.1	1.0	3.0	0.3	1.3	41.2	3.8	12.5	100.0
1970	15.0	4.9	2.6	1.2	2.5	0.1	1.5	2.0	0.6	0.7	57.5	3.8	7.5	100.0
1971	11.1	1.9	1.0	0.5	2.0	0.0	0.9	1.0	0.4	0.4	73.7	1.9	5.9	100.0
1972	7.2	1.4	0.7	0.4	1.1	-	-	0.5	0.5	0.4	81.6	1.3	4.8	100.0
1973	4.9	0.0	1.0	0.8	0.8	-	0.2	0.9	0.5	0.5	83.1	0.7	4.5	100.0
1974	2.7	0.1	0.2	0.1	0.8	-	-	0.6	0.2	0.2	92.6	0.5	2.1	100.0
1975	3.5	-	-	-	0.4	-	-	0.3	0.1	0.1	94.0	0.3	0.1	100.0
1976	3.3	-	-	0.1	0.4	-	-	0.2	0.1	-	93.6	0.2	2.2	na
1977	3.9	-	-	-	0.4	-	-	0.1	0.1	-	92.8	0.1	2.4	100.0
1978	6.4	-	-	-	0.3	-	-	0.2	-	-	90.0	0.3	2.7	100.0
1979	2.4	-	-	-	0.1	-	0.2	0.2	-	-	95.2	0.1	1.8	100.0
1980	na	na	na	na	na	na	na	na	na	na	na	na	na	100.0
1981	1.3	-	-	-	0.2	-	-	0.2	-	-	69.9	0.2	7.8	100.0
1982	1.8	-	-	0.1	0.2	0.2	-	0.1	-	-	97.5	-	-	100.0
1983	5.0	-	-	0.2	0.2	-	-	0.3	-	-	94.3	-	-	100.0
1984	2.8	-	-	0.1	0.1	-	-	0.3	-	-	96.8	-	-	100.0
1985	2.1	-	-	-	0.1	-	-	0.2	-	-	97.1	-	0.5	100.0
1986	1.8	-	-	-	0.2	-	-	0.4	-	-	97.2	-	0.4	100.0
1987	4.9	-	-	-	0.1	-	-	0.2	-	-	92.9	-	1.9	100.0
1988	4.7	-	-	-	0.2	-	-	0.7	-	-	91.2	-	3.2	100.0
1989	1.8	-	-	-	0.2	-	-	0.9	-	-	94.9	-	2.2	100.0
1990	1.2	-	-	-	0.1	-	-	0.5	-	-	97.0	-	1.2	100.0

Source: Computed from data from Central Bank of Nigeria: Economic & Financial Review (Various Issuses); Annual Reports & Statements of Accounts (Various Issues) and Statistical Bulletin Vol. 5, No 1, 1994

na   means not available   -   means not applicable

Table 5.6: **THE TREND OF PRODUCTION AND EXPORT VOLUMES**

OF THE SELECTED COMMODITIES (IN THOUSAND TONNES)

Year	Cocoa Production	Palm Kernel Production	Natural Rubber Production	Cocoa Export	Palm Kernel Export	Natural Rubber Export
1970	305	315	65	193	182	45
1971	247	307	62	272	241	48
1972	241	270	57	228	212	41
1973	215	231	66	214	138	49
1974	214	310	78	194	186	62
1975	217	295	68	215	170	61
1976	181	295	53	219	272	34
1977	193	284	59	168	186	28
1978	157	281	58	192	57	31
1979	151	280	56	218	51	34
1980	153	279	45	157	50	31
1981	174	294	60	214	120	25
1982	157	310	50	151	100	27
1983	140	279	45	150	88	29
1984	150	340	58	151	100	28
1985	160	360	226	103	100	32
1986	100	727	190	175	62	33
1987	105	824	180	112	92	39
1988	230	545	211	212	110	68
1989	256	939	132	126	70	70
1990	244	1190	147	130	80	100
1991	268	1203	215	148	25	109
1992	292	1321	220	180	78	96
1993	306	1450	225	201	107	98

Source : Central Bank of Nigeria: Annual Report and Statement of Accounts (Various issues).

5.1.2 Compositions and Levels of Exports Trade

Historically, Nigeria's export composition has been dominated by primary commodities.   In the sixties, agricultural commodities constituted the bulk of the exports. As shown in table 5.5 they contributed over 80% to total export. The export mix included mainly: cocoa, groundnut, groundnut oil, palm kernel, palm oil, rubber, cotton, groundnut cake, hides and skin, and timber. Other primary commodities in the basket of exports include crude petroleum, tin metal, and columbite.

As in Table 5.5, relative contributions of agricultural commodities continued to grow but by 1970, crude petroleum assumed the leading position, as it contributed over 50% of the value of total exports. The contribution of crude petroleum to total exports remained above 90% from 1974 to 1990. The economy has aptly been described as monocultural in export structure since 1974. During the period 1974 -1990, most agricultural commodities disappeared from the export list except cocoa, palm kernel, and natural rubber.

The above situation called for the export base diversification policy as contained in the SAP document. The export sector responded positively to the policy thrust as domestic production of principal agricultural export commodities experienced growth since the SAP regime which began in 1986 (see Table 5.6.) There was also moderate improvement in the volume of the exports recorded since the inception of SAP except for palm kernel (see

figures 5.1, 5.2 and Table 5.7). As shown in Table 5.7 the pre-SAP (1970-1985) average export growth rate for cocoa, palm kernel, and natural rubber are respectively 1-9%, 2.25% and -0.25%. During the SAP era (1986-1993) the levels of export growth rate for the commodities rose to annual average of 13.5% and 17.5% for cocoa, and rubber respectively but declined to a negative growth rate of 0.35% for palm kernel.
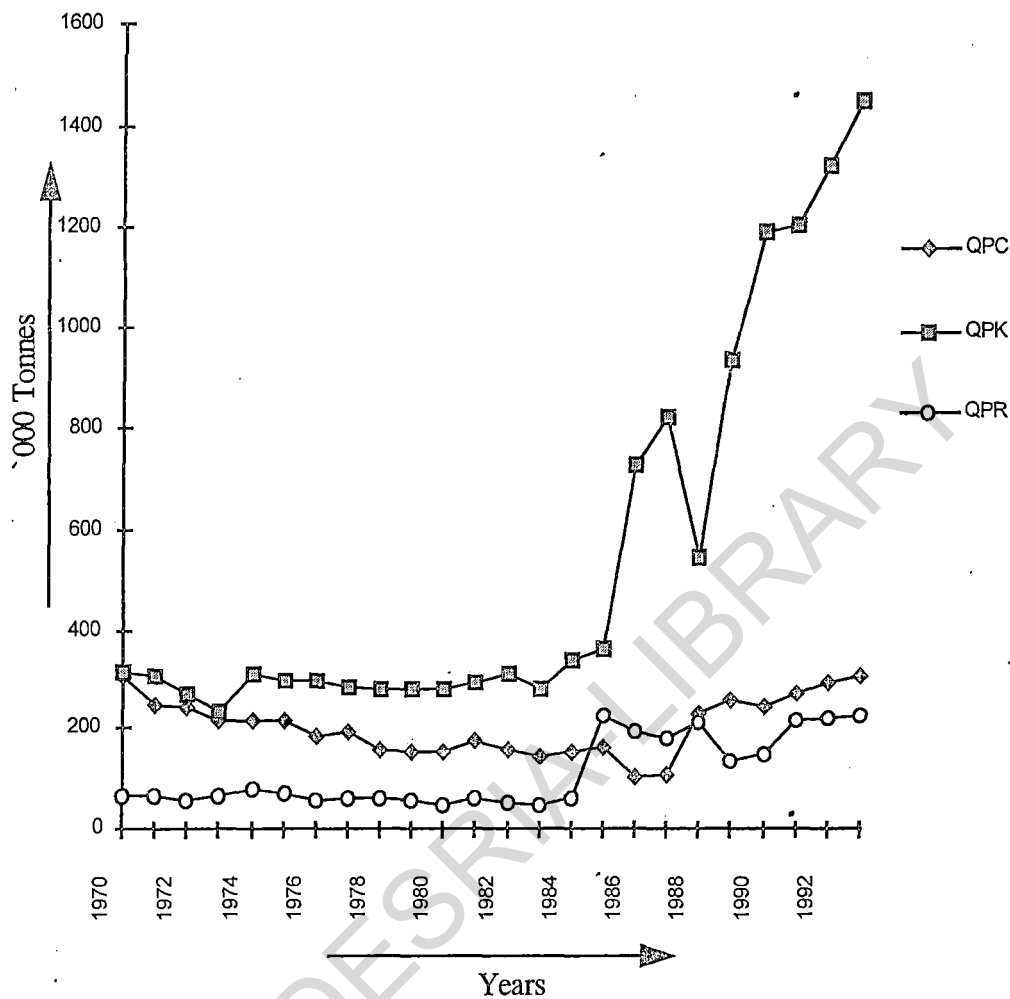
Figure 5.1: Trend of production of the Selected Export Commodities (in thousand tonnes)

Key
QPC = Quantity Produced of Cocoa
QPK = Quantity Produced of Palm Kernel
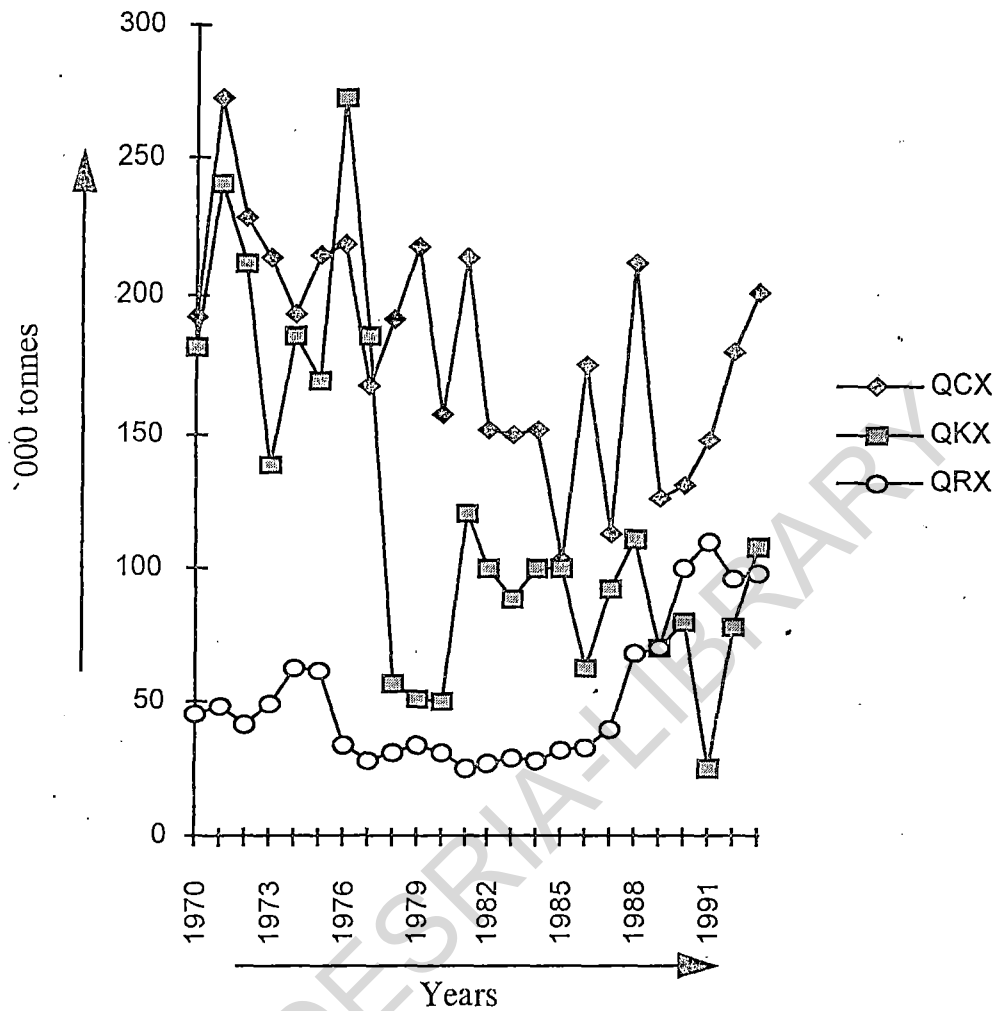QPR = Quantity Produced of Natural Rubber

Figure 5.2:Trend of volume of exports of Selected Commodities
in thousand tonnes

Key
QCX = Quantity of cocoa exported
QKX = Quantity of kernel exported
QRX = Quantity of rubber exported

Table 5.7: ANNUAL GROWTH RATES OF VOLUMES

OF EXPORTS OF SELECTED COMMODITIES (%)

Year	Cocoa	Palm Kernel	Natural Rubber
1970	-	-	-
1971	41	-32	7
1972	-16	-12	-15
1973	-6	-35	20
1974	-10	35	27
1975	11	9	2
1976	2	.60	-44
1977	-23	-32	-17
1978	14	-69	10
1979	12	-11	9
1980	28	-2	-8
1981	37	140	-20
1982	-29	-17	8
1983	0.7	-12	8
1984	0.7	14	-5
1985	-32	0	14
1986	70	-38	3
1987	-61	48	18
1988	89	20	74
1989	-39	-36	3
1990	0.8	14	43
1991	14	-69	9
1992	22	21.2	-12
1993	12	37	2

Source: Derived from data from Central Bank of Nigeria sources.

However, there is need to direct export promotion and diversification efforts towards non - traditional commodities like fruits, horticultural products, specialized arts and crafts, among others.

5.2 MAJOR INCENTIVES AND INSTITUTIONAL FRAMEWORKS FOR EXPORT PROMOTION IN NIGERIA.

Up to 1985, the major institutions that monopolised export trade in Nigeria were the commodity marketing boards. They were given the exclusive responsibility of procuring and exporting approved agricultural commodities. The failure of these boards to create enabling environment for export promotion through effective incentive systems, among others, contributed significantly to the poor performance of the export sector, hence their abolition in 1986.

5.2.1 Existing Incentive Systems for Export Promotion

A key element of the SAP in Nigeria is the desire to promote non-oil exports through some incentive systems. The export incentives as packaged in the Export Incentives and Miscellaneous Provisions Decree of 1986 include the following:

  i.   Currency Retention Fund

  ii.   Export Development Fund

  iii.   Export Expansion Grant Fund

iv.   Duty Drawback/Suspension/Manufacture in Bond Scheme

v.   Export Adjustment Fund

vi.   Tax Relief on Interest Income

vii.   Export Assets Depreciation Allowance

viii.   Export credits Guarantee and Insurance Scheme

ix.   Rediscounting of Short term bills for export

x.   Pioneer Status and Tax Relief

i) <u>Currency Retention Scheme</u>

An exporter of Nigeria commodities is allowed to open a Foreign Currency Domiciliary Account with an authorised bank in Nigeria into which all the proceeds of such exports shall be fully credited. The proceeds of non-oil exports deposited in the Domiciliary Account are to be utilized only for eligible transactions.

In addition to business trip allowance, exporters are allowed reasonable foreign exchange facilities, chargeable to the Domiciliary Accounts funded by export proceeds for the following exports promotion activities.

(a) Export-oriented business trips duly certified by authorised signatories of the bank where the account is maintained.

(b) Other export-oriented activities such as trade missions, trade fairs, export market research and test marketing etc.

The amount allowable is 10% and 5% of actual proceeds of exports of manufactured goods and primary/semi-processed products credited to the exporters domiciliary accounts in current year.

ii) Export Development Fund

This is a special fund provided by the government to give financial assistance to exporting companies to cover part of their initial expenses in respect of the following export promotion activities.

(a) participating in training courses, symposia, seminars, and workshops in all aspects of export promotion;

(b) advertising and publicity campaign in foreign markets;

(c) export market research studies;

(d) production design and consultancy

(e) participating in trade missions, buyer-oriented activities, overseas trade-fairs, exhibitions and store promotion

(f) cost of collecting trade information;

(g) organising of joint export groups and mutual export guarantee associations;

(h) backing up development of export-oriented industries.

iii)   Export Expansion Grant Fund

The Fund provides cash inducement for exporters who have exported a minimum of ₦50,000.00 (Fifty Thousand Naira) worth of semi-manufactured or manufactured products to enable them increase the volume of export and diversify export products and market coverage. The level of such inducement approved for exporters are as follows:

(a)   5% grant for ₦50,000.00 - ₦100,000.00 export sales per annum.

(b)   4% grant for additional export sales up to ₦0.5 million per annum.

(c)   3% grant for additional expert sales up to ₦1.00 million per annum.

(d)   and 2% for export sales above ₦1.00 million

iv)   Duty Drawback/Suspension/Manufacture in Bond Scheme

The scheme is a programme under which the exporter/producer (or his agent can import raw materials and intermediate inputs e.g. packing, packaging materials, labels etc. to be used directly to manufacture export products, free from customs excise and other duties, taxes and charges so that the exporter can compete effectively with foreign firms in the international markets.

· The scheme includes the facilities which allows rebate on duties already paid when inputs were imported and allows suspension or exemption of payments of duties. Also exporters or producers enjoying approval for the Bonded Manufacture Facility are not permitted to sell the inputs imported under the facility in the domestic market nor use the inputs to produce for the domestic market.

v) <u>Export Adjustment Fund</u>

This fund is to provide supplementary export subsidy to compensate exporters for the following:

(a)   high cost of production arising from infrastructural deficiencies;

(b)   purchasing commodities at prices higher than prevailing world markets prices but fixed by the government;

(c)   other factors beyond the control of he exporter.

vi) <u>Rediscounting of Short - Term Bills</u>

The scheme makes provision for an exporter of any product to discount his bill of exchange and promissory notes with his bank so as to raise his liquidity and reduce cash-flow problems as export proceeds are awaited from the importer overseas.

vii) <u>Export Credit guarantee and Insurance Scheme</u>

The scheme provides financial facility in both local and foreign currencies. It also has export credit guarantee and insurance facilities.

viii) <u>Capital Assets Depreciation Allowance</u>

The Company's Income Tax Act of 1979 as amended by the Finance/Miscellaneous Provision Decree, 1985 was further amended by the Export

Incentive Decree No. 18 of 1986, to provide an additional annual depreciation allowance of 5% in plants and machinery to manufacturing exporters who export at least 50% of their annual turnover provided that the product has at least 40% local raw materials content or 35% of value-added.

ix) <u>Pioneer Status and Tax Relief Schemes</u>

The provisions of the Income Tax Relief Act of 1971 with respect to pioneer status is allowed to apply to exporters who export at least 50% of their annual turnover. Also interests accruing from loans granted by banks for promotion of export activities are exempted from tax as provided in the Companies Income Tax Act of 1979.

As part of the effort to encourage investment, corporate income tax rate was reduced generally from 45% to 40% in 1987. Small-scale firms engaged in manufacturing, mining or agriculture is placed on special corporate income tax rate of 20% for the first three years of operation.

5.2.2 Institutional Structures For Export Promotions in Nigeria

With the commencement of SAP regime, the government sought to create enabling environment for activities by reorganising some existing institutions (like Central Bank of Nigeria, Customs Excise, Nigerian Export Promotion Council) , abolishing some like the Commodity Boards and creating new ones like Export Processing Zones and Nigerian Export - Import Bank. Some of these institutions are

involved in the implementation of some of the export incentives discussed. Because of the pivotal place of the Nigerian Export - Import Bank (NEXIM) as the main agency for implementation of the incentives, its functions and activities are highlighted below.

5.2.2.1 The Nigerian Export-Import Bank (NEXIM)

The Nigerian Export- Import Bank (NEXIM) established by Decree 38 of 1991, as a replacement to the Nigerian Export Guarantee and Insurance Corporation set up in 1988, has the following main statutory mandate or functions:

i) Provision of export credit guarantee and export credit insurance facilities to its clients;

ii) provision of credit in local currency to its clients in support of exports;

iii) establishment and management of funds connected with exports;

iv) maintenance of a foreign exchange revolving fund for lending to exporters who need to import foreign inputs to facilitate export production;

v) maintenance of a trade information system in support of export business;

vi) provision of domestic credit insurance where such facility is likely to assist exports;

vii) provision of credit insurance in respect of external trade;

viii) purchase and sale of foreign currency and transmission of funds to all countries,

ix) provision of investment guarantee and investment insurance facilities.

The services or activities of NEXIM can be summarised as follows:

(a)   Financial Services:

    i) Trade Finance

    ii) Project Finance

    iii) Treasury Operations

(b) Risk-Bearing Facilities

    ii) Credit Guarantee

    iii) Credit Insurance

    iv) Investment Guarantee

    v) Re-insurance Facility

    vi) Insurance of market risks.

A.   **Financial Services:**

NEXIM provides finance in local and foreign currency to exporters. The services include:

i) Trade Finance:

This is the provision of financial aid to the exporters to enable them execute their export contracts. This assistance might be required at pre-shipment and /or post-shipment stages. At the pre-shipment stage the exporters need the assistance or the

procurement of export items up to the point of shipment. They require post-shipment finance to enable them perform subsequent contracts after shipment while awaiting the export proceeds. The facility NEXIM is currently using to implement its trade finance functions, is the Rediscounting and Refinancing Facility (RRF). The RRF is a facility designed to assist banks to provide pre-and post-shipment finance in local currency in support of non- oil exports. This facility enables the banks to expand their export finance portfolio by having them refinanced or rediscounted. Thus enabling exporters to have more access to the portfolio of the banks at preferential rate.

ii) <u>Project Finance:</u>

This involves the provision of long-term finance in either local or foreign currencies or both to enable the implementation of export-oriented activities. In this case, NEXIM is using the Foreign Input Facility (FIF) which provides the exporter with immediate foreign exchange requirements needed for procurement of raw-materials, capital equipment needed for export production. The customer is expected to repay in foreign currency.

Another instrument used in project financing is the Stock Facility. This facility which is in local currency enables producers of exportable commodities to procure adequate local raw materials (which may be seasonal) required to maintain optimal levels of production especially during the periods of scarcity.

iii) <u>Risk-Bearing Facilities</u>:

These are facilities designed to protect, insulate or cushion the exporters from the various forms of risks and uncertainties that characterise export trade. They include the following :

i. <u>Export Credit Guarantee</u>: This is given by NEXIM to financial institutions to protect them against losses on their export financing in order to encourage them finance exporters.

ii. <u>Export Credit Insurance</u>: This is a type of insurance cover by NEXIM to an exporter obtained on payment of required premium and which guarantees claims in the event of misfortunes. For instance, such events like the failure of an importer to pay or the buyer's country to transfer the proceeds of the export business

iii. <u>Re-Insurance Facility</u>: NEXIM provides a re-insurance services to private credit insurers so as to provide exporters (especially the small-scale exporters) with easy, cheap and speedy access to export credit insurance and export finance.

iv. <u>Insurance of Market Risks Facility</u>: This is a financial instrument which insures its holders against adverse movements in prices, exchange rates or interest rates.

5.2.2.2   Overview of NEXIM'S Operations

Of the facilities introduced by NEXIM, the three major ones are as follows: Rediscounting and Refinancing Facility (RRF), Stock Facility (SF) and Foreign Input

Facility, (FIF). Under the RRF which provides fund for pre-and post-shipment finance, total disbursements and repayments reached their respective peaks of N3,026.7 million and N3,420.0 million in 1993. On commodity basis, the combined share in total disbursement for cocoa, rubber, cotton, shrimps, cashew and furniture components averaged 82.6% during the period 1991 to 1994, thus leaving at least 39 other products to share the residual (CBN, 1994 :p. 133). Cocoa received the highest share of 28.2% of the gross disbursement. Similarly, under the stock facility, total disbursement maintained upward growth from N90.2 million in 1991 to N281.5 million in 1993. Also the combined share of cocoa beans, rubber and palm kernel averaged 81.5% of the total disbursement in the period 1991 to 1994. Cocoa bean alone accounted for about 50% of the total disbursement during this period. Under the FIF, a total of 128.9 million U.S. dollars for this activity was exhausted in 1993.

5.3   Presentation and Analysis of Regression Results

The estimated equations presented below are the final results of several trials with the Ordinary Least Square (OLS) estimation technique. The double -logarithmic equations came out to be the best in most cases, hence they are presented for discussions. The results of the experimentation with other functional forms namely linear and semi-logarithmic forms· are reported in the appendixes. The double-log equations possess the added advantage of yielding parameter estimates which are direct measures of elasticity coefficients.

5.3.1 Export Supply Equations

5.3.1.1 Cocoa Bean Models

Presented below is the cocoa lead model. Other variants of the double-log models are as shown in Table 5.8

$$\log QCX = 8.74 + 0.21 \log PRC + 0.43 \log PRC_{t-1} + 0.36 \log CPI - 1.44 \log LCG$$
$$\quad\quad (24.24)^* \ (0.64) \quad\quad\quad (1.30) \quad\quad\quad (1.24) \quad\quad (4.11)^*$$

$$\quad + 0.91 \log REER + 2.08 DUM + e$$
$$\quad\quad (2.76) \quad\quad\quad (7.43)^*$$

$$R^2 = 90 \quad \bar{R}^2 = 87 \quad F = 26.81 \quad DW = 2.33 \quad DF = 6,17$$

Where,

QCX	=	Volume of cocoa bean exported
PRC	=	Price ratio of cocoa (world price/domestic price)
CPI	=	Cocoa production index (measure of domestic production capacity).
LCG	=	Local cocoa grinding in Nigeria
REER	=	Real effective exchange rate of Naira
DUM	=	Dummy variable

The figures in parentheses immediately below the regression coefficients are the corresponding t- ratios and are significant at 5% if marked asterisk (*). The R^2 is the coefficient of multiple determinations which measures the extent of variation in the

Table 5.8: DOUBLE-LOG EQUATIONS - COCOA BEAN

S/N	Intercept	PRC	PRC$_1$	PRC$_2$	PRC$_3$	CPI	LCP	REER	DUM	R^2	$\bar{R}^2$	F	DW	DF
1	8.74	0.21	0.43			0.36	-1.44	0.91	2.08	90	87	26.81	2.33	6,17
	(24.28)**	(0.64)	(1.30)			(1.24)	(4.11)**	(2.76)**	(7.43)**					
2	8.69	0.41		0.04		0.37	-1.44	0.89	2.02	90	86	24.25	2.22	6,17
	(22.87)**	(1.37)		(0.13)		(1.23)	(3.89)**	(2.54)**	(6.12)**					
3	8.83	0.20			-0.47	0.30	-1.51	0.62	1.57	91	87	27.72	2.08	6,17
	(25.23)**	(0.65)			(1.52)	(1.03)	(4.31)**	(1.72)*	(4.03)**					
4	8.70	0.40				0.37	-1.45	0.88	2.00	90	87	30.78	2.20	5,18
	(23.51)**	(1.38)				(1.28)	(4.02)**	(2.67)**	(7.14)**					

Note: The figures in parentheses immediately below the regression coefficients are the corresponding t-ratios of the estimates and significant if marked asterisk.

PRC$_1$=price ratio lagged by one year

PRC$_2$=price ratio lagged by two years

PRC$_3$=price ratio lagged by three years

dependent variable explained by the independent variables or regressors. The R^2 adjusted for degrees of freedom (DF) is the summary statistics that measures the goodness of fit of the equations. The F- statistics, is the variance ratio which measures the statistical significance of the joint impact of the regressand. DW is the durbin watson statistics which tests the presence or otherwise of autocorrélation in the models.

An evaluation of the double-log equations shows that they performed well. The equations yielded coefficients of multiple determinatic .   ) that are as high as 90% or 91% adjusted for degrees of freedom to 87% or 86%. This means that the variations in the dependent variable are reasonably explained by the regressors. The F- statistics also prove the high explanatory power of the models. The F- computed for equations (1) to (4) are respectively 26.81, 24.25, 27.72 and 30.78. At 5% significance level, the theoretical F- statistics are 2.70 and 2.77 for $v_1 = 6$, $v_2 = 17$ and $v_1 = 5$, $v_2 = 18$ respectively. The F- statistics are, therefore, significant in all cases since F- computed are greater than F- theoretical (tabulated).

An examination of the sizes and signs of the explanatory variables shows that all the regressors are correctly signed except the price ratio lagged by three years (PRC-3). For the lead model, all the explanatory variables are correctly signed as hypothesised. The price ratios (PRC), cocoa production index (CPI), real effective exchange rate, (REER) and the dummy variable are positively signed while local cocoa grinding is negatively signed.

However, the t- ratios show that the price ratios, cocoa production index are not statistically significant at 5% and 10% levels, only local cocoa grinding, real exchange rate

and the dummy variable are significant.

The theoretical t- ratios are equal to 2.110 (at 5%) and 1.740 (at 10%) for $v_1 = 6$, $v_2 = 17$ and 2.101 (at 5%) and 1.734 (at 10%) for $v_1 = 5$ $v_2 = 18$

The equations also passed the tests for absence of DW computed are greater than two in all cases. They also passed the test for absence of multicolinearity as shown in appendix 7.

An evaluation of the lead model shows that the alternative working hypotheses are confirmed with respect to all the explanatory variable⸱ her words, price ratios, cocoa production index, real exchange rate, trade liberalization (dummy variable) are positively related to cocoa export supply while local cocoa grinding (measure of local consumption pressure) has a negative impact on supply. However, current price ratio, lagged price ratio, and cocoa production index (measure of domestic production capacity) are not significant at 5% or 10% levels. The respective t- ratios for the variables are as follows: current price ratio (0.64), price ratio lagged by one year (1.30), cocoa production index (1.24), local cocoa grinding (4.11), real effective exchange rate (2.26) and dummy variable (7.43).

Based on the lead equation, some implications can be drawn from the estimated cocoa export supply model. It is noted that the regression estimates are the direct estimates of the responses of cocoa export supply to changes in the explanatory variables. This implies that the coefficients of the variables are the partial elasticities of the export supply equations. The elasticities indicated the likely effect to expect when there is a small change in any of the variables. The respective coefficients for the variables are as follows: current price ratio (0.21), price ratio lagged by one year (0.43), cocoa production index

(0.36), local cocoa grinding (-1.44), real effective exchange rate (0.91) dummy variable (2.08). This means that cocoa export supply is inelastic to the price ratios, cocoa production index, and real effective exchange rate. With respect to local cocoa grinding and the dummy variable cocoa export supply is elastic. The implication is that any change in the price ratios, cocoa production index (which measures domestic productive capacity) or real effective exchange rate will produce a less than proportionate effect on the export supply of cocoa. This suggests that a 1% change (increases or decreases) in current price ratio, lagged price ratio and cocoa production index will cause export to change by 0.21%, 0.43%, 0.36% respectively. Similarly, cocoa export supply will change by 1.44%, 0.91% and 2.08% due to a one percentage variation in local cocoa grinding and real effective exchange rate variables. The degree of significance of the dummy variable indicates that export supply is most responsive to trade liberalization policies. While local cocoa grinding which measures local processing capacity has a contracting effect on export supply, trade liberalization has a very high expansionary impact on export. In other words cocoa export supply is expected to rise significantly in the periods of trade liberalization and contract during restrictive trade policy regimes. Real effective exchange rate also has expansionary effect on export supply but it is inelastic. The price ratios (both current and lagged values), though statistically insignificant and inelastic, show that the exporters are actually mindful of the price differentials in the local and international markets.

5.3.1.2 Palm-Kernel Models

Below is the lead equation of the palm kernel export supply models. Other specifications of the double - log functional form are stated in Table 5.9

where, QKX = Volume of palm kernel exported

$$\log QKX = -5.59 + 0.13 \log PRK - 0.40 \log PRK_{-2} + 1.15 \log KPI + 0.291 \log SDP$$

(11.18)*   (0.32)   (0.95)   (1.83)*   (1.38)

$$+ 1.0 \log REER - 1.06 DUM + e$$

(2.89)*   (0.$\overline{9}$1)

$$R^2 = 79 \quad R^2 = 72 \quad F = 10.62 \quad DW = 1.85 \quad DF = 6,17$$

PRK = Price ratio of palm kernel (world price/domestic price)

PRK_{-2} = Price ratio lagged by two years

KPI = Palm kernel production index

SDP = Soap and detergent production index (proxy for domestic consumption pressure)

Other variables are as defined earlier. The figures immediately below the parameter estimates are t-ratios and are statistically significant at 5% if marked asterisk (*).

The double - logarithmic equations also performed better than linear and semi-logarithmic equations. The adjusted R^2 for the equations range between 70% and 72%. This means that over 70% of the variations in palm kernel export supply is explained by the models. The f- statistics also confirmed the above analysis. The computed

F- statistics are greater than the theoretical f- values in all cases. This implies that the joint impact of the explanatory variables on the export supply is statistically significantly at 5% level. On the other hand, the t-tests show that only palm kernel production index and real

Table 5.9: DOUBLE-LOG EQUATIONS - PALM KERNEL

S/N	Intercept	PRK	PRK$_1$	PRK$_2$	PRK$_3$	KPI	SDP	REER	DUM	R^2	$\bar{R}^2$	F	DW	DF
1	-4.74	0.31	-0.05			0.87	0.35	1.34	-0.32	78	70	9.98	1.71	6,17
	(9.12)**	(0.82)	(0.14)			(1.53)	(1.67)*	(2.73)**	(0.36)					
2	-5.59	0.13		-0.40		1.15	0.29	1.62	-1.06	79	72	10.62	1.85	6,17
	(11.18)**	(0.32)		(0.95)		(1.83)**	(1.38)	(2.89)**	(0.91)					
3	-4.73	0.24			-0.19	0.87	0.33	1.45	-0.48	78	71	10.18	1.79	6,17
	(9.27)**	(0.62)			(0.53)	(1.58)	(1.57)	(2.74)**	(0.54)					
4	-4.73	0.30				0.85	0.36	1.33	-0.26	78	72	12.67	1.71	5,18
	(9.46)**	(0.81)				(1.60)	(1.89)*	(2.83)**	(0.34)					

Note: The figures in parentheses are t-ratios and are statistically significant if marked asterisk.

PRK$_1$=price ratio lagged by one year

PRK$_2$=price ratio lagged by two years

PRK$_3$=price ratio lagged by three years

effective exchange rate are statistically significant. The DW test in case of the lead model shows absence of autocorrelation since the computed DW is approximately equal to two. Appendix 8 also shows the absence of multicollinearity in the model.

An examination of the algebraic signs of coefficients of the variables reveals that lagged price ratios, soap and detergent production index (measure of local processing capacity) and the dummy variable are wrongly signed. The lagged price ratios and dummy variable are negatively signed contrary to a priori expectation, while soap and detergent production index appeared positive instead of negative as hypothesised. However, the situation is not very worrisome since the parameter estimates are statistically insignificant at 5% level.

The explanatory variables that possess the correct signs as expected are current price ratio, palm kernel production index and real effective exchange rate.
An evaluation of the lead model indicates that current price ratio is positively related to palm kernel export supply. However, the null hypothesis which states that price ratio does not have significant impact on export supply is confirmed since the coefficient is 0.13 and t- ratio is 0.32.

The behaviour of the variables, palm kernel production index and real effective exchange rate in the equation indicates that they are significantly and positively related to export supply. Thus, the alternative hypothesis that real exchange rate has significant impact on export supply of palm kernel is confirmed. The coefficients of kernel production index and real exchange rate are respectively 1.15 and 1.62 with corresponding

t- ratios of 1.83 and 2.89. The results of the lead equation also confirmed the null hypothesis that trade liberalization policy (represented by the dummy) has no significant impact on export supply of palm kernel.

Based on the foregoing, some implications of the model are examined. Since the parameter estimates are direct measures of export supply elasticities, a one percentage change in current price ratio is expected to change the level of export by 0.13% only. Put differently, the export supply is inelastic with respect to the price ratio. On the other hand, it is elastic with respect to palm kernel production index (measure of domestic production capacity) and real effective exchange rate. In other words, a 1% change in domestic production capacity will cause export supply to change by 1.15%, and by 1.62% in the case of real effective exchange rate.

The behaviour of the dummy variables with respect to palm kernel export supply is not suprising because the SAP regime appears to have boosted domestic utilization of palm kernel, resulting in favourable domestic market prices. This is to say domestic market competed effectively with international market during the trade liberalization era. If the degree of transmission of world market price to domestic market is high, the exporters give less consideration to the price ratio.

5.3.1.3 Natural Rubber Models

The lead equation for natural rubber export supply is presented below. Other variants of the double - log model are presented in Table 5.10.

Table 5.10:DOUBLE-LOG EQUATIONS - NATURAL RUBBER

S/N	Intercept	PRR	PRR_1	PRR_2	PRR_3	RPI	FWP	REER	DUM	R^2	$\bar{R}^2$	F	DW	DF
1	3.14 $(4.55)^*$	-0.99 $(1.71)^*$	1.46 $(3.32)^{**}$			-0.49 (1.02)	-0.12 (0.33)	0.52 (0.91)	2.94 $(3.06)^{**}$	88	83	19.93	1.24	6,17
2	2.23 $(3.60)^{**}$	-0.14 (0.28)		1.34 $(4.19)^{**}$		-0.24 (0.55)	0.06 (0.18)	0.33 (0.63)	2.51 $(2.85)^{**}$	90	86	25.12	1.58	6,17
3	2.43 $(4.34)^{**}$	0.45 (1.00)			1.44 $(5.14)^{**}$	-0.01 (0.03)	-0.08 (0.28)	0.46 (1.00)	1.62 $(1.95)^*$	92	89	32.52	1.96	6,17
4	2.30 (2.67)	-0.23 (0.34)				-0.45 (0.75)	-0.11 (0.24)	0.65 (0.92)	3.26 $(2.74)^{**}$	80	74	13.96	0.72	5,18

Note: The figures in parentheses are t-ratios and are statistically significant if marked asterisk.

PRR_1=price ratio lagged by one year

PRR_2=price ratio lagged by two years

PRR_3=price ratio lagged by three years

$$\log QRX = 2.43 + 0.45 \log PRR + 1.44 \log PRR_{-3} - 0.01 \log RPI$$

(4.34)   (1.00)   (5.14)   (0.03)

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$$- 0.08 \log FWP + 0.46 \log REER + 1.62 \, DUM + e$$

(0.28)   (1.00)   (1.95)

$$R^2 = 92\% \quad \overline{R}^2 = 89\%, \quad F = 32.52 \quad DW = 1.96 \quad DF = 6,17$$

where, QRX =   Volume of natural rubber exported

     PRR =   Price ratio of natural rubber

     PRR_{-3} =   Price ratio of rubber lagged by three years

     RPI =   Natural rubber production index (proxy for

                    domestic production capacity).

     FWP =   Foot Wear production index (local processing capacity)

Other variables are as defined earlier

The double-logarithmic equations yielded the best goodness of fit for natural rubber export supply. The lead model selected passed the economic, statistical and econometric tests better than other variants of the double-log model.

The coefficient of multiple determination adjusted for degrees of freedom is 89% for the lead model. This implies that about 89% of the variation in export supply of natural rubber is explained by the model. The explanatory power of the model is also supported by the F- test. The computed F- statistics is 32.52 compared to the theoretical F- value of 2.77 at 5% significance level. With DW value of 1.96, the lead model shows absence of autocorrelation. Appendix 9 also shows that multicollinearity is not present in the model.

An examination of the algebraic signs of the coefficients of the regressors shows that all the variables are correctly signed as expected <u>a priori</u> except rubber production index which turned out to be negative instead of positive. Price ratios including lagged values as well as real effective exchange rate and the dummy variable are positively signed. Foot wear production index which measured local processing capacity is negatively signed. Concerning the statistical significance of the coefficients, only two variables, namely price ratio lagged three years and the dummy passed the test. Their t- statistics are 5.14 and 1.95 respectively. The variable current price ratio has an elasticity coefficient of 0.45 but statistically insignificant at 5% level. The variable real effective exchange rate though statistically insignificant, has an elasticity coefficient of 0.46. Similarly, rubber production index and foot wear production index (proxy for local processing capacity) are statistically insignificant with elasticity coefficients of -0.01 and -0.08 respectively.

Judging by the parameter estimates, some implications are obvious. One of the implications is that current price ratio does not significantly affect export supply but three-years lagged price ratio does. This means that the exporters consider previous year's prices. Also the values of their coefficients show that export supply is inelastic to current price ratio. This implies that one percent change in the current price ratio will cause the supply to change by only 0.45% while lagged price ratio will change the supply by 1.44%. Similarly, real effective exchange rate will cause export supply to vary by 0.46% only. The dummy variable also has expansionary effect on export supply.

5.3.2 Relationships Between Domestic Prices and Exchange Rates:

The equations estimated to measure the impact of exchange rate on domestic prices of the selected agricultural export commodities are presented below.

DOMESTIC PRICE OF COCOA BEAN

$$DPC = -529.83 + 0.37\ WPC + 1420.48\ NER + e$$
$$(0.39)\quad\quad (1.06)\quad\quad\quad (10.33)$$

$R^2 = 86$ R^2 Adjusted $= 84$ $F = 54.45$ $DW = 1.23$ $DF = 2, 18$

Where, DPC $=$ domestic price of cocoa;

WPC $=$ world price of cocoa

NER $=$ nominal exchange rate of N/US. Dollar

e $=$ error term; other variables are as defined earlier

DOMESTIC PRICE OF PALM KERNEL

$$DPK = 148.46 + 0.52\ WPK + 245.0\ NER + e$$
$$(2.03)\quad\quad (3.56)\quad\quad\quad (32.64)$$

$R^2 = 98$ R^2 Adjusted $= 98$ $F = 54.98$ $DW = 1.30$ $DF = 2,18$

where, DPK $=$ domestic price of palm kernel

WPK $=$ world price of palm kernel

other variables are as defined earlier.

DOMESTIC PRICE OF NATURAL RUBBER

$$DPR = 49.24 + 0.40\ WPR + 174.94\ NER + e$$
$$(0.22)\quad\quad (2.22)\quad\quad\quad (7.81)$$

$R^2 = 80$ R^2 Adjusted $= 78$ $F = 37.13$ $DW = 1.37$ $DF = 2,18$

where, DPR   =   domestic prices of natural rubber

  WPR =   world prices of natural rubber

  Other variables are as defined earlier.

An examination of the above equations which sought to explain the relationships between domestic price, foreign prices and exchange rates prove that the models performed well. This is shown by the magnitude of the R^2. For instance, the variation in the domestic price of cocoa bean is explained by the regressors by 86%. Similarly, about 98% of the variations in the domestic price of palm kernel is explained by the explanatory variables. Also, 80% of the change in the domestic price of the natural rubber is explained. The high R^2 are justified by the F- tests. At 5% significance level, the F-computed for the equations are statistically significant.

The explanatory variables are also positively signed as expected. Looking at the sizes of the t- ratios, one notes that the nominal exchange rate has much stronger impact on the domestic prices than foreign prices of the commodities. At even 1% level of significance, all the t-ratios are statistically significant.

The implication of the results is that the alternative hypothesis of this study which states that nominal exchange rate has a significantly positive impact on domestic price is confirmed. The results also show that some degree of foreign price effect is transmitted to

the domestic market. The degree of the transmission is limited by the level of economic or market distortions in the domestic economy. Such distortions include explicit and implicttaxes among others.

5.3.3 Evaluation of Major Hypotheses

The major working hypotheses of the study stated in the null sense are as follows: prices of the selected commodities do not have significant impact on export supply; exchange rate does not have significant impact on export supply; and lastly trade liberalization has no significant impact on export supply.

The empirical evidence from this study confirms the null hypothesis that prices of the selected commodities do not have significant impact on export supply. However, there is a positive relationship between current prices and export supply. In fact, the results show that export supply of all the commodities studied respond inelastically to current prices. This means that in general, changes in price ratios are not likely to produce corresponding changes in export supply all things being equal.

On the relationship between real exchange rate and export supply, the research findings indicate that exchange rate has positive and significant impact on export supply in most cases. Thus, the empirical evidence disagrees with the null hypothesis and upholds the alternative hypothesis. This means that exchange rate could indeed be a potent instrument to stimulate export supply even though the relationship is fairly inelastic.

The hypothesis that trade liberalization has no significant impact on export supply

is not confirmed by the results of the study. The empirical evidence shows that trade liberalization is positively and significantly related to export supply in two out of the three cases studied. Thus, in summary, it could be said that the alternative hypothesis is confirmed.

CHAPTER SIX

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS.

6.1   SUMMARY OF STUDY

This work is in six parts or chapters namely: Introduction; The Genesis and Components of SAP in Nigeria; Literature Review; Methodology; Data Analysis, Findings and Discussions; and Summary and Conclusions.

Chapter One, introduced the research problem. It was stated that one of the major problems of the Nigerian economy like most Sub-Saharan African economies since the mid-seventies, had been the declining performance of the non-oil exports (mainly agricultural products). The situation was largely blamed on the poor domestic policies and deteriorating external terms of trade. Central to the issue of domestic policy distortions was the question of exchange rate misalignment which manifested in local currency overvaluation caused by the administrative fiat used in fixing it. Other issues relate to inefficient financial systems which were unable to mobilize domestic resources and allocate same well, highly regulated trade regimes shown in excessive protection of private industries, extensive use of tariff and non-tariff measures and government deficit spending and inefficient public enterprises. In response to these economic distortions,   the government embarked on the Structural Adjustment Programme (SAP) in 1986 which aimed essentially at realigning domestic production, consumption patterns, and non-oil export performance through price, exchange rate, monetary, fiscal and institutional

reforms. The expansion of agricultural exports was one of the main targets of the programme. The expectation was that exchange rate reform through devaluation would turn the terms of trade in favour of exportable commodities. While the assumptions of SAP appeared plausible, it was considered appropriate to examine the supply responses to prices and exchange rate signals among other variables. The principal objectives of this study was, therefore, to evaluate the responsiveness of export supply of Nigeria's major agricultural commodities namely, cocoa bean, palm kernel and natural rubber to changes in prices, exchange rates, trade regimes (liberalisation or otherwise) among others using historical data.

In line with the above, the study was set out to describe the structure of Nigeria's exports; identify the major export incentives and institutions available, determine the impacts of exchange rate fluctuations on domestic prices of the selected commodities, determine the effect of prices, exchange rates, trade liberalization among others on export supply of the agricultural commodities and recommend policy measures based on findings. The significance of the study was derived mainly from the fact that it yielded elasticity coefficients which could be used by policy makers to gauge the impacts of the relevant variables on export supply of the commodities.

In chapter two, the relevant literature was reviewed. The review considered theoretical and empirical issues related to international trade. The traditional trade theory based on the doctrine of comparative advantage was reviewed. The comparative cost theory postulates that trade is an engine of growth. Also discussed was the `vent for

surplus' theory (Myint 1958). While the comparative cost theory emphasised `static gains' from trade, vent for surplus illuminated the dynamic gains from trade. It was noted that because of the failure of comparative cost or free trade theory to address the development problems of the developing countries, new trade theories emerged. One of the new trade theories otherwise referred to as Prebisch -Singer thesis queried the relative gains from trade between the developing and developed countries (Prebisch 1950, Singer 1950). They argued that existing trade relation was a mechanism for transfer of surplus wealth from the developing countries to the developed countries which led to the growing international income inequality. The new trade theorists notably the structuralists argued that autarky or "de-linking" with the developed countries whether full, selective or partial was required to break vicious circles of poverty of the developing countries (Rodney 1972). This argument had been the basis for the call by UNCTAD for a New International Economic Order.

However, it was our opinion that the problem of the developing countries was not necessarily whether to trade or not but in what commodities to trade and how to ensure favourable terms of trade. This could be addressed by changing the structure of production, exports and direction of trade to include South - South trade relations. The reviewed literature also pointed out the need to raise the productivity of Africa agriculture in order to make their primary commodities more competitive as well as identifying export opportunities for processed and semi-processed products as part of the strategies to promote export. The need to pursue export trade was also supported by many empirical literature reviewed. Empirical studies showed that causal relationship exist between export

performance and economic growth of nations. Hence, some authors argued that there was hardly any country that had a sustained economic growth rate higher than its export growth rate (Chenery and Stout 1966; Elliot 1984)

On the relationship between export performance and devaluation, Scobie and Johnson (1979) stated that the magnitude of the price elasticity of demand for a country's exports was a crucial issue in setting tariff and exchange rate policies. On this point Thirwall (1978) noted that the efficacy of devaluation as a policy instrument for restoring external balance could be limited if price elasticities of exports were low and demand was slow in expanding.

Some problems constraining Nigerian farmers' production capabilities were also identified. They included high cost of hired labour and farm inputs, lack of adequate farm credit supply, poor extension services among others.

Also contained in the chapter was a survey of analytical procedures. In this section estimation technique and functional forms were examined.

The methodology of the study was presented in chapter three. The types and sources of data were described. The analytical procedures and models were also specified as well as the data collected for the period 1970 to 1993 on aggregate production, volume and values of exports, domestic and world prices of the selected agricultural commodities. Also data on exchange rates of Naira against the U.S. dollar, domestic consumer price index and local processing capacities were collected.

Based on the insight gained from reviewed literature and our theoretical and

conceptual framework, a general export supply model was specified implicitly as below.

$$QX = f(WPX/DPX, REER, DPC, LPC, DUM)$$

where,   QX   =   volume of the ith commodity exported

WPX   =   World price of the export commodity denominated in Naira

DPX   =   domestic price of the export commodity in Naira

REER =   real effective exchange rate of the naira

DPC   =   domestic production capacity

LPC   =   local processing capacity (measure of domestic consumption

   pressure)

DUM   =   dummy variable representing trade liberalization proxied by

   abolition of commodity marketing boards, export licensing etc.

Variants of the model were specified to incorporate lagged values of ratio of world price of the commodities to domestic prices. This was to capture past experiences and behaviours in the system. A priori the variables - price ratios, real exchange rates, domestic production capacities, and the dummy were expected to impact positively on exports supply, while local processing capacity impacted negatively.

Another model was also specified to establish the causal relationships between domestic prices of the export commodities and exchange rate. The equation was specified as follows.

$$DPX = f(WPX, NER)$$

where, NER = nominal exchange rate

Other variables remained as defined earlier.

The models were estimated using the Ordinary Least Square (OLS) estimation method. The results of the estimations were verified, evaluated and validated using known

economic, statistical and econometric criteria.

In chapter four is described the genesis of Structural Adjustment Programme (SAP) in Nigeria. The core components and strategies of the programme are also highlighted. Briefly stated, the chapter showed that the immediate cause of the economic distortions in Nigeria was the collapse of the oil sector since 1981. The remote cause of the distortions which occasioned SAP was related to domestic policy failures which provoked very high consumption pattern and discouraged real sector growth. The major strategies of the Structural Adjustment Programme applied to correct the imbalances as listed in the chapter were as follows: adoption of a realistic exchange rate policy; liberalization of external trade payment systems; strengthening of demand management policies and application of appropriate pricing policies rationalization and restructuring of tariffs; and reduction or elimination of complex administrative controls, among others.

Also in chapter five of the study, the structure and performance of Nigeria's export sector was discussed. Also highlighted were major export incentives and institutions functioning in the country. Lastly, the regression results were presented and discussed in the chapter.

The chapter showed that the Nigeria's external trade was dominated by USA, E.E.C. and U.K. The ECOWAS subregion and indeed sub-Saharan Africa had very insignificant share of Nigeria's export trade. An analysis of export composition showed that agriculture which contributed over 80% of the aggregate export in the sixties was giving way to crude petroleum which, between 1974 and 1990, contributed over 90%.

However, there was noticeable positive growth in the volume of agricultural exports since the SAP regime. Also in the chapter was identified the major incentives and institutional frameworks for export promotion in Nigeria. They included the following: foreign currency retention, export development financial assistance, export expansion grant, duty draw back or suspension scheme, export assets depreciation allowance, export credit guarantee and insurance scheme, rediscounting of short term bills for export, among others.

The major institutions for the implementation of these export incentives include mainly the reorganised Nigerian Export Promotion Council, and the Nigerian Export - Import Bank (NEXIM) established in 1988, and functional in 1991. Under the Rediscounting and Refinancing Facility of NEXIM, agricultural export sector received over 80% of disbursement for the period 1991 to 1994. Similarly, over 80% of total disbursement between 1991 to 1994 went to the principal agricultural export commodities under the Stock Facility of NEXIM.

The regression results presented in chapter five yielded estimates which are direct measures of export supply elasticities. For the cocoa bean model, the lead equation yielded the following coefficients: current price ratio (0.21), price ratio lagged by one year (0.43), cocoa production index (0.36), local cocoa grinding (-1.44), real effective exchange rate (0:91) and the dummy variable (2.08). This result showed that cocoa export supply was inelastic to all the explanatory variable except local cocoa grinding. However, only local cocoa grinding, real effective exchange rate and the dummy variables were statistically

significant at 5%.

In the case of palm kernel, the lead model yielded the following regression coefficients: current price ratio (0.13), price ratio lagged by two years (-0.40), Kernel production index (1.15), local processing capacity proxied by soap and detergent production index (0.29), real effective exchange rate (1.62) and dummy variable (-1.06). The regression result indicated that palm kernel export supply was elastic to domestic kernel production capacity and real effective exchange rate variables. However, only kernel production index and real effective exchange rate were statistically significant at 5%. The dummy variable was both negatively signed and insignificant contrary to a priori expectation. The negative sign could, however be explained by the fact that the trade liberalization regime occasioned increased local palm kernel processing activities.

Similarly, the lead model for natural rubber export supply yielded the following coefficients: current price ratio (0.45), price ratio lagged by three years (1.44), rubber production index (-0.01), local processing capacity measured by FootWear Production index (-0.08), real effective exchange rate (0.46) and the dummy variable (1.62). The variables found statistically significant at 5% level were price ratio lagged by three years and the dummy variable. Export supply was shown to be elastic to the price ratio lagged by three years. The other variables including real effective exchange rate had inelastic relationships with export supply and were statistically insignificant at 5% level.

The results of the cocoa, palm kernel and natural rubber models showed that exchange rate impacts differently on export supply of various agricultural commodities.

Real effective exchange rate variable had inelastic but significant effect on cocoa and rubber export supply, elastic and significant impact on palm kernel export supply. The dummy variable had very significant impacts on export supply of the commodities studied. However, except in the case of palm kernel, the effects on export supply were found to be expansionary. In the case of palm kernel, it had contractionary impact meaning that trade liberalization tended to retard its export.

6.2   THE IMPLICATIONS AND CONCLUSIONS

The main thrust of this research work was to establish the causal relationship between price ratios, real exchange rates, other macro-economic variables and export supply of the selected agricultural commodities. In other words, the central objective of the study was to determine the responses of export supply of the named agricultural commodities to changes in these variables.

Since the lead models were the double-logarithmic equations, the coefficients of the explanatory variables were direct measures of the elasticities of the supply functions. The elasticities indicate the likely effect to expect when there was a change in any of the variables. For instance, the results showed that price ratios in the current year had positive impacts but inelastic export supply responses in all cases. This implied that, say a 10% change in the prices would produce a less than proportionate change in the export supply of the commodities. This seems to suggest that the benefits of devaluation (that is, increased exports that should follow lower prices) may not be realised as argued in

Bhagwati (1958) and Thirlwall (1978). Similarly, export supply responses of cocoa, and natural rubber to real effective exchange rates were found to be inelastic but elastic with respect to palm kernel. On the other hand, the dummy variable was found to bear strong impacts on export supply in the three cases. This suggests that the abolition of commodity boards, import and export licensing and other government controls go a long way to stimulate export supply.

In conclusion, though the results were mixed in some cases, the over all picture was that the commodities were positively responsive to prices and real exchange rates effects. However, their responsiveness were low or inelastic in most cases. The result also confirmed the null hypothesis that prices (except for lagged prices of rubber) were insignificantly related to exports. The alternative hypothesis that exchange rate impacted significantly on supply was confirmed except for natural rubber.

On the whole, the empirical results of this study seem to have supported the assumptions of SAP policies on non-oil export promotion. The positive impact of trade liberalization on export supply collaborates with the effects of real exchange rates and price relatives to prove this point. It should however, be noted that price incentive, exchange rates, and trade liberalisation are not enough to stimulate export of agricultural commodities as modelling of export response of this group of commodities is a complex exercise. For instance, the export supply of these commodities has been found to be limited by the domestic production capacity of the farmers and even external demand environment. It is known that over some decades now, world market prices of these commodities have been declining and at the same time the share of African countries in the world market has been falling too. Thus, improved export supply of these commodities

via responses to domestic policies may not translate correspondingly to increasing levels of export revenue.

6.3   RECOMMENDATIONS

Based on the foregoings and findings, the following recommendations are made:

i)   government should make deliberate effort to guided against undervaluation of the Naira since export supply is generally inelastic to real effective exchange rate changes at least in the short-run. This suggestion is informed by the negative and unintended effects of devaluation and the fact that increased export volume does not necessarily imply higher export revenue in the face of falling world market prices of the primary commodities.

ii)   agricultural export promotion effort within SAP framework should be more on non-price policies like trade liberalization, streamlining and simplifying of export trade procedures, quality improvement, export credit and insurance guarantee among others;

iii)   policies should be designed to enhance the domestic production capabilities of the farmers, such as generation of appropriate farm technologies through research and efficient extension, provision of farm infrastructures like feeder roads, supply of agricultural credit, replanting of plantations with improved/high yielding varieties among others;

iv)   there should be more incentive to agro-allied industrialists to produce for exports. There should be a shift of emphasis to export mainly domestically processed products of the traditional non-oil exports and enhance export of non-trditional agricultural products.

v)   the structure of Nigeria's export in terms of direction of trade should be reviewed

and diversified in order to encourage inter-African trade.

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APPENDIX 1: ORDINARY LINEAR EQUATION - COCOA BEAN

S/N	Intercept	PRC	PRC_1	PRC_2	PRC_3	CPI	LCG	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-311.16 $(2.01)^x$	-17.20 (0.12)	38.10 (0.27)			1.33 (1.36)	-11.72 $(1.70)^*$	-1.41 (0.54)	583.33 $(5.03)^{xx}$	85	71	15.94	2.24	6,17
2.	-142.73 (0.94)	-55.23 (0.49)		-172.71 $(1.84)^x$		1.61 $(1.79)^x$	-14.50 $(2.26)^{xx}$	-1.47 (0.57)	541.45 $(4.38)^{xx}$	85	80	16.45	2.25	6,17
3.	-154.54 (1.09)	-55.23 (0.49)			-172.71 $(1.84)^x$	1.61 $(1.79)^x$	-14.50 $(2.26)^{xx}$	-0.45 (0.20)	422.16 $(3.12)^{xx}$	87	83	19.53	2.17	6,17
4.	-281.26 $(1.87)^x$	5.50 (0.05)				1.36 (1.43)	-12.04 $(1.81)^x$	-1.48 (1.58)	578.33 $(5.19)^{xx}$	85	81	20.15	2.24	5,18

Note: The figures in parentheses are t-ratios and are significant if marked as asterisk (*)

APPENDIX 2: SEMI-LOG EQUATIONS - COCOA BEAN

/N	Intercept	PRC	PRC$_1$	PRC$_2$	PRC$_3$	CPI	LCG	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-107.26 (0.73)	-40.74 (0.31)	131.93 (0.96)			220.77 (1.99)^x	-283.35 (1.97)^x	-150.0 (1.16)	630.09 (5.45)^{xx}	86	82	17.93	2.35	6,17
2.	-100.96 (0.67)	15.98 (0.13)		-39.79 (1.82)^x		223.07 (1.82)^x	-292.64 (1.98)^x	-135.40 (0.96)	583.17 (4.39)^{xx}	86	81	17.00	2.25	6,17
3.	-54.12 (0.40)	-82.40 (0.69)			-239.52 (1.99)^x	188.30 (1.68)	-319.33 (2.39)^{xx}	-12.55 (0.09)	348.81 (2.52)^{xx}	88	84	21.44	1.99	6,17
4.	-119.29 (0.81)	19.18 (0.16)				224.86 (1.89)^x	-286.23 (2.00)^x	-146.17 (1.09)	605.77 (5.38)^{xx}	86	82	21.43	2.27	5,18

Note: The figures in parentheses are t-ratios and are significant if marked asterisk (*).

APPENDIX 3: ORDINARY LINEAR EQUATIONS - PALM KERNEL

S/N	Intercept	PRK	PRK$_1$	PRK$_2$	PRK$_3$	KPI	SDP	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-1069.87 (2.56)**	-105.39 (0.52)	35.59 (0.21)			2.73 (1.44)	1.02 (0.75)	7.00 (0.69)	417.57 (0.69)	70	60	6.76	1.56	6,17
2.	-568.34 (1.37)	100.69 (0.51)		88.79 (0.51)		3.22 (1.63)	0.61 (0.44)	8.58 (1.07)	152.22 (0.22)	71	61	6.88	1.56	6,17
3.	-279.34 (0.69)	114.63 (0.60)			-190.84 (1.19)	3.12 (1.75)	0.42 (0.33)	9.95 (1.29)	42.74 (0.07)	73	63	7.53	1.59	6,17
4.	-947.64 (2.33)**	112.10 (0.58)				2.83 (1.59)	0.91 (0.75)	7.31 (0.98)	358.33 (0.68)	70	62	8.56	1.55	5,18

Note: The figures in parentheses are t-ratios and are significant if marked asterisk (*)

APPENDIX 4: SEMI - LOG EQUATIONS - PALM KERNEL

S/N	Intercept	PRK	PRK$_1$	PRK$_2$	PRK$_3$	KPI	SDP	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-4892.91 (11.88)**	-40.80 (0.79)	233.87 (0.79)			410.81 (0.89)	232.59 (1.35)	437.27 (1.11)	464.26 (0.66)	71	61	7.08	1.60	6,17
2.	-5736.34 (14.15)**	68.53 (0.20)		-372.01 (0.09)		707.24 (1.39)	120.63 (0.70)	754.74 (1.65)*	-536.18 (0.57)	72	63	7.39	1.64	6,17
3.	-4914.91 (12.98)**	-63.53 (0.31)			-526.61 (1.97)*	568.74 (1.39)	102.67 (0.66)	820.11 (2.07)*	-385.45 (0.58)	76	67	8.90	1.79	6,17
4.	-4928.34 (12.09)**	84.44 (0.28)				515.2 (1.17)	187.29 (1.16)	483.51 (1.26)	2129.05 (0.35)	70	62	8.55	1.58	5,18

Note: The figures in parentheses are t-ratios and are significant if marked asterisk (*)

APPENDIX 5: ORDINARY LINEAR EQUATIONS - NATURAL RUBBER

S/N	Intercept	PRR	PRR_1	PRR_2	PRR_3	RPI	FWP	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-11274.57 $(2.36)^{xx}$	-2015.99 (1.22)	2182.72 $(1.84)^x$			13.55 (0.21)	0.48 (0.03)	4.43 (0.52)	10684.0 $(1.81)^x$	68	56	5.95	1.03	6,17
2.	-10856.33 $(3.30)^{xx}$	-978.09 (0.88)		3621.87 $(5.11)^{xx}$		42.57 (0.96)	2.61 (0.27)	-4.10 (0.07)	5858.53 (1.39)	85	79	15.72	1.20	6,17
3.	-11552.39 $(4.02)^{xx}$	-539.82 (0.55)			3719.73 $(6.27)^{xx}$	25.87 (0.67)	1.64 (0.20)	30.98 (0.59)	5033.72 (1.36)	88	84	21.43	1.92	6,17
4.	-12771.15 (2.51)	-1384.46 (0.81)				21.90 (0.32)	2.96 (0.20)	22.47 (0.24)	12667.53 (2.06)	61	51	5.70	0.55	5,18

Note: The figures in parentheses are t-ratios and are significant if marked asterisk (*).

APPENDIX 6:   SEMI-LOG EQUATIONS - NATURAL RUBBER

S/N	Intercept	PRR	PRR_1	PRR_2	PRR_3	RPI	FWP	REER	DUM	R^2	R^{-2}	F	DW	DF
1.	-15246.71 $(3.36)^{xx}$	-630.58 (1.63)	7234.28 $(2.51)^{**}$			458.87 (0.14)	325.16 $(0.14)^x$	239.46 $(0.06)^x$	1114.13 $(1.7)^{x*}$	71	61	6.88	1.07	6,17
2.	-10847.00 $(3.27)^{xx}$	-1904.6 (0.73)		8767.2 $(5.14)^{xx}$		2041.54 (0.86)	1516.10 (0.86)	-1218.3 (0.44)	7812.76 $(1.67)^*$	84	79	16.27	0.95	6,17
3.	-18596.07 $(6.29)^{xx}$	1803.47 (0.74)			9150.56 $(1.52)^{*}$	3469.27 (1.63)	578.66 (0.37)	-318.51 (0.13)	2304.33 (0.52)	88	83	20.12	1.79	6,17
4.	-19443.59 $(3.76)^{xx}$	-2538.00 (0.63)				657.39 (0.18)	407.49 $(0.15)^x$	0.88 $(2.67)^{xx}$	2.00 $(7.14)^{xx}$	90	87	30.78	2.20	5,18

Note: The figures in parentheses are t-ratios and are significant if marked asterisk (*).

Appendix 7: Test for multicollinearity - Cocoa Models

$$r^2{}_{PRC.PRC_{t-1}/PRC_{t-2}.PRC_{t-3}.CPI.LCG.REER} = (0.68)^2 = 0.462$$

$$r^2{}_{PRC.PRC_{t-2}/PRC_{t-1}.PRC_{t-3}.CPI.LCG.REER} = (0.31)^2 = 0.096$$

$$r^2{}_{PRC.PRC_{t-3}/PRC_{t-1}.PRC_{t-2}.CPI.LCG.REER} = (0.14)^2 = 0.019$$

$$r^2{}_{PRC.CPI/PRC_{t-1}.PRC_{t-2}.PRC_{t-3}.LCG.REER} = (0.06)^2 = 0.004$$

$$r^2{}_{PRC.LCG/PRC_{t-1}.PRC_{t-2}.PRC_{t-3}.CPI.REER} = (0.09)^2 = 0.008$$

$$r^2{}_{PRC.REER/PRC_{t-1}.PRC_{t-2}.PRC_{t-3}.CPI.LCG} = (-0.15)^2 = 0.023$$

$$r^2{}_{PRC_{t-1}.PRC_{t-2}/PRC.PRC_{t-3}.CPI.LCG.REER} = (0.73)^2 = 0.533$$

$$r^2{}_{PRC_{t-1}.PRC_{t-3}/PRC.PRC_{t-2}.CPI.LCG.REER} = (0.42)^2 = 0.176$$

$$r^2{}_{PRC_{t-1}.CPI/PRC.PRC_{t-2}.PRC_{t-3}.LCG.REER} = (0.03)^2 = 0.0009$$

$$r^2{}_{PRC_{t-1}.LCG/PRC.PRC_{t-2}.PRC_{t-3}.CPI.REER} = (-0.38)^2 = 0.144$$

$$r^2{}_{PRC_{t-1}.REER/PRC.PRC_{t-2}.PRC_{t-3}.CPI.LCG} = (-0.18)^2 = 0.032$$

Since the r^2 in all cases are less than R^2 of the models, there is no presence of serious multicollinearity (Klein, 1962).

Appendix 8: Test for multicollinearity - Palm Kernel Models

$$r^2_{PRK.PRK_{t-1}/PRK_{t-2}.PRK_{t-3}.KPI.SDP.REER} = (0.53)^2 = 0.281$$

$$r^2_{PRK.PRK_{t-2}/PRK_{t-1}.PRK_{t-3}.KPI.SDP.REER} = (0.37)^2 = 0.137$$

$$r^2_{PRK.PRK_{t-3}/PRK_{t-1}.PRK_{t-2}.KPI.SDP.REER} = (0.49)^2 = 0.240$$

$$r^2_{PRK.KPI/PRK_{t-1}.PRK_{t-2}.PRK_{t-3}.SDP.REER} = (-0.52)^2 = 0.270$$

$$r^2_{PRK.SDP/PRK_{t-1}.PRK_{t-2}.PRK_{t-1}.KPI.REER} = (-0.17)^2 = 0.029$$

$$r^2_{PRK.REER/PRK_{t-1}.PRK_{t-2}.PRK_{t-3}.KPI.SDP} = (0.14)^2 = 0.019$$

$$r^2_{PRK_{t-1}.PRK_{t-2}/PRK.PRK_{t-3}.KPI.SDP.REER} = (0.57)^2 = 0.325$$

$$r^2_{PRK_{t-1}.PRK_{t-3}/PRK.PRK_{t-2}.KPI.SDP.REER} = (0.45)^2 = 0.203$$

$$r^2_{PRK_{t-1}.KPI/PRK.PRK_{t-2}.PRK_{t-3}.SDP.REER} = (-0.44)^2 = 0.194$$

$$r^2_{PRK_{t-1}.SDP/PRK.PRK_{t-2}.PRK_{t-3}.KPI.REER} = (-0.30)^2 = 0.09$$

$$r^2_{PRK_{t-1}.REER/PRK.PRK_{t-2}.PRK_{t-1}.KPI.SDP} = (0.21)^2 = 0.044$$

Since the r^2 in all cases are less than R^2 of the models, there
is no presence of serious multicollinearity (Klein, 1962).

Appendix 9: Test for multicollinearity - Natural Rubber Models

$$r^2_{PRR.PRR_{t-1}/PRR_{t-2}.PRR_{t-3}.RPI.FWP.REER} = (0.66)^2 = 0.436$$

$$r^2_{PRR.PRR_{t-2}/PRR_{t-1}.PRR_{t-3}.RPI.FWP.REER} = (0.47)^2 = 0.221$$

$$r^2_{PRR.PRR_{t-3}/PRR_{t-1}.PRR_{t-2}.RPI.FWP.REER} = (0.30)^2 = 0.09$$

$$r^2_{PRR.RPI/PRR_{t-1}.PRR_{t-2}.PRR_{t-3}.FWP.REER} = (0.46)^2 = 0.212$$

$$r^2_{PRR.FWP/PRR_{t-1}.PRR_{t-2}.PRR_{t-3}.RPI.REER} = (0.48)^2 = 0.230$$

$$r^2_{PRR.REER/PRR_{t-1}.PRR_{t-2}.PRR_{t-3}.RPI.FWP} = (0.42)^2 = 0.176$$

$$r^2_{PRR_{t-1}.PRR_{t-2}/PRR.PRR_{t-3}.RPI.FWP.REER} = (0.67)^2 = 0.449$$

$$r^2_{PRR_{t-1}.PRR_{t-3}/PRR.PRR_{t-2}.RPI.FWP.REER} = (0.47)^2 = 0.221$$

$$r^2_{PRR_{t-1}.RPI/PRR.PRR_{t-2}.PRR_{t-3}.FWP.REER} = (0.52)^2 = 0.270$$

$$r^2_{PRR_{t-1}.FWP/PRR.PRR_{t-2}.PRR_{t-3}.RPI.REER} = (0.43)^2 = 0.185$$

$$r^2_{PRR_{t-1}.REER/PRR.PRR_{t-2}.PRR_{t-3}.RPI.FWP} = (0.70)^2 = 0.49$$

Since the r^2 in all cases are less than R^2 of the models, there
is no presence of serious multicollinearity (Klein, 1962).

Appendix 10: PRINCIPAL DATA SERIES

Year	Qty of Cocoa Export ('000 tonnes)	Qty of palm kernel Export ('000 tonnes)	Qty of Natural Rubber Export ('000 tonnes	Value of cocoa Export (Naira million)	Value of palm kernel Export (Naira million)	Value of Natural rubber Export (Naira million)	Manuf-actures produ-ction index (MPI)	Local cocoa grind-ing(%)	Soap & deterg-ent produ-ction index	Foot wear produ-ction index	World price of cocoa ($ per tonne F.O.B)	World price of palm kernel ($ per tonne F.O.B)	World price of Natural rubber ($ per tonne F.O.B)	Dome-stic price of cocoa (N per tonne)	Dome-stic price of palm kernel (N per tonne)	Dome-stic price of Natural rubber (N per tonne)	Consu-mer price index of Nigeria (CPI)	Nominal official excha-nge rate N per US$ (NEXR)
1970	193	182	45	133	22	17	24.1	23	40	257	674	168	408	302	62	218	10.8	0.7143
1971	272	241	48	143	26	12	27.3	24	50	263	538	145	340	297	59	174	12.6	0.6955
1972	228	212	41	102	16	7	2937	26	56	239	642	116	331	297	59	179	13.0	0.6579
1973	214	138	49	112	19	19	36.6	27	91	203	1130	260	686	541	130	364	13.6	0.6579
1974	194	186	62	159	44	32	35.5	26	95	266	1560	469	750	660	150	415	15.5	0.6299
1975	215	170	61	182	14	15	43.9	19	100	293	1245	206	571	660	150	348	20.7	0.6159
1976	219	272	34	311	27	14	54.31	16	128	263	2046	230	783	660	150	576	25.1	0.6265
1977	168	186	28	314	33	11	57.5	20	184	296	3791	326	820	1030	150	365	30.5	0.6467
1978	192	57	31	384	10	12	65.8	16	203	285	3405	364	994	1030	150	365	34.5	0.6060
1979	218	51	34	432	12	13	97.3	21	183	308	3293	500	1283	1200	180	420	38.5	0.5958
1980	157	50	31	311	14	14	102.4	20	252	387	2603	345	1423	1300	200	485	42.4	0.5464
1981	214	120	25	143	18	18	117.4	20	264	378	2077	317	1086	1300	200	600	51.2	0.6100
1982	151	100	27	150	11	16	132.8	23	262	77	1741	265	845	1300	230	700	55.1	0.6729
1983	150	88	29	226	17	15	94.8	30	313	129	2119	365	1054	1400	230	700	67.9	0.7241
1984	151	100	28	183	8	17	83.4	30	96	123	2395	529	938	1500	400	750	95.6	0.7648
1985	103	100	32	182	6	4	100.0	36	100	100	2254	291	756	1600	400	750	100.0	0.8938
1986	175	62	33	371	8	29	99.0	30	49	75	2077	142	798	3500	400	1200	105.4	2.0210
1987	112	92	39	1498	61	61	128.4	12	136	94	1996	181	993	7500	850	1000	116.1	4.0179
1988	212	110	68	1496	113	238	150.2	15	105	74	1590	265	1160	11000	1000	1500	181.2	4.5367
1989	126	70	70	1044	116	508	157.8	13	158	42	1247	253	949	10100	1800	2000	272.2	7.3917
1990	130	80	100	1319	96	545	162.9	13	153	46	1270	188	862	8500	2000	1395	293.2	8.0378
1991	148	25	109	2001	48	669	178.1	20	154	86	1307	308	1143	10158	2525	5300	330.9	9.9095
1992	180	78	96	1558	88	875	182.7	17	154	92	1240	381	1423	12745	5692	12520	478.4	17.9284
1993	210	107	98	1684	137	876	162.5	17	153	88	1240	367	1935	25278	10567	24091	751.9	22.0502

Sources: CBN - Statistical Bulletin Vol.5 No.1; Econ. & Fin. Review (various issues)

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