SECTORAL RESPONSES TO EXCHANGE RATE POLICY IN NIGERIA: A CASE STUDY OF AGRICULTURE AND MANUFACTURING*

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Abstract

This paper empirically analysed the responses of Agriculture and Manufacturing Sectors to exchange rate policies in Nigeria between 1970 and 1994. The results of the agricultural equation reveal that exchange rate policy only affected in the short run, the food crop segments of agriculture and to some extent the animal husbandry sub-sector. While, the impact of the exchange rate policy on the cash-crop component takes a longer period of time to manifest due to long gestation period. It was shown that appropriate exchange rate policy has expansionary effect on agricultural output in the long-run. The manufacturing sector equation showed that in Nigeria due to relative under capacity utilization and other constraints, the impact of exchange rate policy on manufacturing takes at least one year to manifest. The results also reveal that the continuous preference for manufacturing sector in foreign exchange allocation in Nigeria did not achieve the desired result.

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INTRODUCTION

In many developing countries exchange rate issues have tended to dominate macroeconomic policy discussions during the last few decades. Specifically, attention has focused on two broad classes of problems: first, how to define, measure, detect and correct situation of real exchange rate misalignment and overvaluation; and second, to understand the relationship between nominal exchange rates and macroeconomic stability.

There is a near universal agreement that one of the most potent instruments in the government arsenal is its control over the exchange rate. Consequently, the importance of exchange rate cannot be under-estimated in the management of an economy. It exerts a major impact on resource allocation between tradable and non-tradable goods and services and influences the use of productive resources. It also affects decisions to save and invest. The exchange rate is a key determinant of the balance of payments (BOP) position and external competitiveness of a country: changes in exchange rate have direct impact on demand, supply, price level, capital flows, government revenue and expenditure, investment, employment, etc. Movement in the exchange rate affect and is affected by many macroeconomic fundamentals such as term of trade, consumption, money supply, growth in output, interest rate, etc.

In exchange rate management, two broad methods are usually adopted, namely: fixed and flexible exchange rate regimes. The thrust of the argument for fixed exchange rate system is that it is a "vaccine against inflation" (Duesenberry et al, 1994). It may also eliminate or reduce adjustment costs arising from temporary shifts in the fundamental determinants of supply and demand for tradeable goods. It is also assumed to insulate an economy from severe capital movements generated by speculations about changes in exchange rate. However, Duesenberry, Grey, Lewis, Mcpherson and Yonger (1994) argued that exchange rate can only act as insulation against inflation if and only if the rate is supported by a demonstrated commitment to use of monetary and fiscal policies as well as foreign reserves and lines of credit to defend it.

In a flexible exchange rate arrangement, market forces are allowed free hand to determine the rate with minimum intervention from the monetary authorities. Proponents of flexible arrangement argue that it permits a continuous response to changes in the fundamentals of the economy, neutral with respect to inflation, causes higher growth and leads to BOP equilibrium without recourse to demand restraint and protection that may cause further distortion in resource allocation (Yonger, 1993).

Nigeria has experimented with both regimes of exchange rate management. A central issue in the Structural Adjustment Programme (SAP), is the removal of distortions in the economy which had prevented the proper allocation of resources. These distortions were exacerbated by government interventions in several sectors of the economy. Rigid exchange controls increased activities in the parallel markets. As part of the measures taken under the SAP, trade was liberalized, price controls and import

*Expressed views are those of the authors and do not necessarily reflect the official views of the Central Bank of Nigeria. The authors are Senior Statisticians in International Economic Relations Department.

licensing were removed, and exchange rate reforms were introduced.

Exchange rate policy has been an important component of the Structural Adjustment Programme introduced in 1986. The new policy has resulted in a consistent depreciation of the naira against other convertible currencies. This was supposed to lead to expenditure switching, increased production of tradables, higher exports, lower imports, and consequently, an improved external payments position for the country.

In some cases, real devaluation has been found to be inconsistent with the expected outcome outlined above. Such inconsistency could manifest through a negative real balance effect (Frankel and Johnson, 1978). On the supply side, real devaluation may also lead to recessionary shifts in aggregate supply (Van Wijubergier, 1986). Other studies by Branson (1986) also found real devaluation to have negative effects on growth of output. However, Katseli, (1983); Gylfason and Schmidt, (1983); Buffie, (1984); Connolly, (1983); Taylor and Resensweign, (1984); Cooper (1991) as well as Krueger, (1978) have found that real devaluation could have expansionary effects on the economy. The current work seeks to empirically examine the effects of exchange rate policy on Agriculture and manufacturing sectors in Nigeria.

The remaining part of the paper is arranged thus: Part II discusses exchange rate policy in Nigeria from 1970 to 1994. Part III examines the performance of Agriculture and Manufacturing sector in Nigeria. In Part IV, recent empirical studies are reviewed, the model is tested, and interpreted. Summary and some concluding remarks form the main thrust of Part V.

EXCHANGE RATE MANAGEMENT IN NIGERIA 1970 - 1994.

Prior to 1971, Nigeria operated a fixed exchange rate system in line with the general practice, following the Bretton Wood Accord. Nigeria's exchange rate was kept constant at N1 = U.S. $0.40 irrespective of the developments within the domestic or external sectors of the economy. However, during the 1970s, unprecedented changes occurred in the international financial system, such that intransigent high rates of both inflation and unemployment compounded by low productivity and instability in the world money markets forced many governments, especially the industrialised countries to change their exchange rate policy. Thus, the early 1970s, witnessed the advent of the floating rate system. Worldwide, the period 1973 to 1981 was regarded as that of generalised floating exchange rate regime. In Nigeria, from 1972 to 1974, the monetary authorities opted to peg the naira to the U.S. Dollar even though most of Nigeria's trading partners allowed their currencies to float and stabilize at realistic levels.

Exchange rate determination in the country was expected to be guided by three main factors namely; the developments in the balance of payments account, the need to minimize the impact of imported inflation on domestic price level and the level and changes in external reserves. (CBN, 1973). However, shortly after the naira was pegged to the U.S. dollar, the dollar was devalued by 10 per cent in order to stimulate the U.S. exports. This action inadvertently caused a devaluation of the naira by the same percentage hence the exchange rate of U.S. $1.52 to the naira emerged. This devaluation created the initial economic distortions. The drawback of pegging to a single currency became apparent as the prices of imports rose at a time when foreign exchange availability was not a major constraint and when imported inputs were needed for reconstruction and rehabilitation of war-ravaged areas of the country. Pegging to the U.S. dollar was therefore incompatible with the policy of moderating imported inflation, hence, it was discontinued in 1974.

In order to operate a seemingly independently managed stable exchange rate system that was capable of reflecting the effects of internal and external factors on the economy, the monetary authorities adopted a system of pegging to a basket of currencies. The period coincided with the oil boom era and Nigeria therefore adopted a policy of progressive appreciation of the naira from N1.00 = $0.65 in 1974 to N1.00 = U.S.$ 1.85 in 1981, despite the growing deficits in the non-oil current account and the prevalent international inflation. This situation was compounded by the pursuit of policies designed to keep consumer prices low even in an era of rising world inflation. The naira thus became generally over-valued in real terms and the policy of industrialisation through import-substitution was translated to one of high import dependency, in terms of the high proportion of imported input needed for each unit of output. The availability of foreign exchange earnings from the oil sector provided a false sense of economic well-being as well as an artificial blur of the underlying structural distortions. The massive importation of a cheap food created a major disincentive to farming and consequently some export items became less attractive generally.

The slump in the world oil market in 1981 and the general rise in real interest rates in the international capital market (from where Nigeria had acquired jumbo loans in the late 1970s) coupled with the emergence of large overall deficit on current account made it unwise to continue to appreciate the naira. Consequently, the monetary authorities began to depreciate the naira surreptitiously while it systematized the policy of exchange control through the use of a comprehensive import licensing scheme as well as outright prohibition of some goods.

Although the naira was progressively depreciated from U.S. $1.85 to one Naira in 1981 to U.S. $1.30 in 1985, the rate of depreciation was not commensurate with the economic realities of the period. Foreign exchange earnings lagged far behind foreign exchange expenditure, as crude oil exports declined from a daily average peak of 2.2 million per barrel (mpd) in 1979 to 1.23 and 1.0 mbd in 1981 and 1982, respectively. Also, at the peak of the oil boom a barrel of crude oil attracted $36.95 and $40.00 in 1979 and 1980, re-

spectively. The collapse of the oil market brought down the spot price of the Nigerian Bonny Light from about $27.00 per barrel at the end of 1985 to $14.85 in 1986. In essence, foreign exchange earnings, which at its peak was $25.0 billion in 1980, plumented to $17.2 billion, $12.8 billion and $10.1 billion in 1981, 1982 and 1983, respectively. The declining trend continued with respective oil earnings totaling $6.0 billion, $7.0 billion and $6.5 billion in 1986, 1987 and 1988. The crisis in the international oil market triggered the onset of an economic crisis of real output decline in virtually all the sectors of the economy as trade arrears accumulated.

The slump was wrongly assumed to be temporary, hence appropriate policy measures were not taken. Internal and external deficits were accumulated with an average budget deficit of about 5.0 per cent per annum during the period 1981 to 1985. The deficits were financed by public sector borrowing and continuous draw-down on external reserves to bridge the widening gap between foreign exchange expenditure and shrank foreign exchange earnings. Several measures were introduced to rationalise foreign exchange expenditure. These included advance deposits against import, reduction in foreign exchange repatriation ratios and prohibition of about seventy commodities from the import list. These measures, though seemingly drastic, could not address the situation, hence there were sharp declines in per capita income, huge build up of trade arrears and the neglect and subsequent deterioration in the stock of infrastructural capital as a result of government's tight budgetary constraints.

Government's immediate response to these problems prior to July 1986 was a combination of austerity and stabilisation measures aimed at expenditure reduction and improving the balance of payments position. The thrust of government's policy emanated from two Acts - The Economic Stabilization (Temporary provisions) Act 1982 and the Economic Finance (Miscellaneous Taxation Provision) Decree 1985. These Acts further curtailed the use of foreign exchange resources through stricter exchange control measures, import restrictions and austere monetary and fiscal policies. Although the austerity measures were successful in moderating fiscal and external deficits, they were not far-reaching enough and they exerted a considerable toll on the economy as production declined in virtually all sectors. In October 1985, the government declared a 15 - month Economic Emergency period during which the president exercised discretionary power to ease the crisis situation.

The inadequacy of the austerity and stabilization measures as well as the vulnerability of the economy to external shocks were further exposed when oil prices deteriorated more in the first quarter of 1986. This heightened the need for further reforms. Following the nationwide public rejection of an IMF loan late in 1985, government was compelled in 1986 to introduce broad range policy reform of structural rigidities. Also, by this time, the virtue of foreign exchange and trade liberalisation had become apparent as well as the need for outright devaluation as against the piece meal depreciation. A policy reform package popularly referred to as the Structural Adjustment Programme (SAP) was launched on June 27, 1986 and scheduled initially to last from July 1986 to June 1988. The SAP was aimed at diversifying the productive base of the economy and eliminating the observed structural distortions, the most significant of which was over-valued currency. A core element of the SAP was evolving a realistic market - determined exchange rate for the naira.

This culminated in the establishment of the auction system in 1986 as a mechanism through which a realistic value of the naira exchange rate could be evolved. The Second-Tier Foreign Exchange Market (SFEM) was essentially established to provide an institutional framework through which a realistic market determined exchange rate could evolve (CBN, 1986). The SFEM was expected to boost domestic output and increase foreign exchange receipts, minimise foreign exchange expenditure, and make for a more rational allocation and utilization of foreign exchange resources. In sum, SFEM was expected to make foreign exchange management in Nigeria more efficient and less costly to administer. Since the introduction of SFEM, the institution for exchange rate determination has been altered periodically. In 1987, the First-Tier and Second-Tier markets, which had operated pari pasu since July 1986 were merged to form the Foreign Exchange Market (FEM), which relied largely on market forces for exchange rate determination. However, the banks were allowed in tandem to buy and sell foreign exchange between themselves, autonomously from the FEM.

Following the abuse of these privileges by operating banks in the autonomous market, the market was abolished. In 1989 inter-bank Foreign Exchange Market (IFEM) emerged, while the auction was retained as the pricing mechanism for foreign exchange. In the same year, the Bureau de change was established to enlarge the sale of the officially recognised foreign exchange market with the sole aim of making foreign exchange available to small users.

Some modifications in the pricing policy under the auction were also carried out in order to enhance the market efficiency so as to arrive at a realistic exchange rate. The pricing system adopted has undergone several changes. Basically the following pricing systems were used:

(i) Average Rate Pricing System (ARPS);

(ii) Marginal Rate Pricing System (MRPS); and

(iii) Dutch Auction System (DAS) with Marginal rate.

The operation of SFEM has led to a huge devaluation of the naira such that from an exchange rate of N1.5535 to the dollar on September 25, 1986 the naira depreciated by 71.00 per cent to N5.3530 = $1.00 at the last bidding session held in December, 1988. In 1993, the average official exchange rate stood at about N22.4084 = $1.00. However, between the first foreign exchange

auction in September, 1986 and December, 1994, the exchange rate depreciated by about 93.0 per cent. The rates were however fixed by fiat at N22 = $1.00 throughout 1994.

REVIEW OF RELATED LITERATURE

Following the adoption of floating exchange rates in the developing countries in 1973, the issue of whether exchange rate changes/uncertainty has an independent adverse effect on exports and trade has generated an intense interest in literature. The introduction of Structural Adjustment Programmes in many of these countries and attendant liberalization of exchange rate have further brought the discussion of this issue into sharp focus. A review of literature shows that the issue is far from settled though not all studies are fully comparable. For example, Lastrapes and Korary (1990) Cushman (1988), Caballaro and Carbo (1989) indicated a significant depressive effect of exchange risk. IMF (1981), Gotur (1988) and Chambers and Just (1991) however maintained a contrary view. Abel (1983) also showed that if one assumes perfect competition, convex and symmetric costs of adjusting capital and risk neutrality, investment is a direct function of exchange rate uncertainty.

There is also a massive body of empirical literature on exchange rates effect on external trade, although most of these studies concentrate on manufactured goods, its results are largely inconclusive (see Hooper and Kohlhager (1978), Gotur (1988); Lastrapes and Korey (1990)). However, Maskus (1988) by comparing the effects of exchange rates across major sectors of the economy e.g. manufacturing, agriculture, chemical, etc., provided a link between his study and previous work. He found aggregate bilateral agricultural trade (U.S. and its major western trading partners) to be particularly sensitive to exchange rate. Maskus argued that agriculture, compared with manufactured goods, is more responsive to exchange rate changes because;

(a) agriculture trade is relatively open measured by the ratio of exports and imports to domestic agricultural output, and;

(b) agriculture exhibits a low level of industrial concentration.

In Nigeria, Ajayi (1988) and Osagie (1985) argued that exchange rate devaluation is stagnationary and have no significant effect on the external trade balance because of low price elasticity generally associated with the excess import and export demand functions. Their study agreed with Ojo (1978), who implied that exchange rate changes need not play any significant role in the explanation of Nigerian import - export balance. Other relevant studies in relation to effect of exchange rates on Agriculture and manufacturing sectors include Bateman (1973), Stern (1965) and Nyanteng (1980) which have shown, for the case of cocoa in Ghana, the producers have a positive reaction to price. Also Toguero (1975), Haessel (1975) and Strauss (1984) have shown a positive reaction of Producers in the face of an increased producer price in the production of food crops. In addition, Akanji and Ukeje (1995) have shown that an increase in the producer price of cocoa resulted in a sizeable increase in production. Ajilima and Agba (1986) looked at the impact of a floating foreign exchange market (SFEM) on non-oil exports and concluded that, the market (FEM) will not be able to enhance non-oil exports because the problem of non-oil exports is not that of low prices per-se but that of stagnated production especially in the agricultural and manufacturing sectors as a result of the oil boom. Kwanashie et al (1993) also investigated the time path of non-oil exports in order to identify their response to liberalization policies. They concluded that trade liberalization policy in Nigeria, has not had the desired impact on agriculture and manufactured exports.

Taiwo (1990) however, investigated the determinants of non-oil exports supply for Nigeria. Taiwo disagregated non-oil exports into two categories - agricultural and manufactured. The supply function for the two categories had three arguments, relative prices, capacity output and oil-revenue. While the first two variables were positively related to export supply, the third variable (oil-revenues) had an inverse relationship with it. This last result confirms the existence of the Dutch - disease since the oil boom in the Nigerian economy, a phenomenon which has been widely documented in literature (see Oyejide, 1987; Pinto, 1988; Bevan, Collier and Gunning, 1992).

Given the studies cited above, most of which were static in nature, we proceed to dynamize the relationship between exchange rate policy, agriculture and the manufacturing sector. The advantage of sectoral analysis of this nature is that the sectoral response to exchange rate policy could be ascertained in order to make meaningful sectoral policy inputs.

REVIEW OF RECENT PERFORMANCE OF AGRICULTURE AND MANUFACTURING SECTORS

1. Agriculture

Prior to the policy reforms in 1986 especially in the 1960s, Nigeria was known mainly as an exporter of primary agricultural commodities and, to a relatively small extend, as an exporter of one or two solid minerals. From 1960, to 1970, its economy was largely sustained at least from the point of view of off-shore commitments, by the export earnings from these basic agriculture and mineral commodities. The export list of the country within this period comprised groundnut, cocoa beans, palm oil and palm kernel, cotton, rubber, ginger, hides and skins, timber, copra, zinc, columbite, tin and lead. In addition, the agricultural sector provided at least 70 per cent of employment while agricultural exports provided at least 87 per cent of export revenue.

The exploitation and exportation of crude petroleum in the early 1970s and the huge inflows of foreign exchange revenues that accompanied it, diverted the attention of the government and agricultural producer of the traditional commodities into other activities aimed at reaping the economic boom created by the huge oil revenues. This development heralded the decline in agricultural production and the resultant decline both in vol-

ume and value of the traditional export commodities.

In 1960, non-oil exports comprising mainly agricultural commodities dominated total export. They accounted for 97.3 per cent of total exports. This percentage, however declined persistently (with the exception of 3 years) to 1.8 per cent in 1981. Since then the percentage has been fluctuating until 1991 when it began a consistent decline to 2.6 per cent in 1994. In 1992, non-oil exports which stood at N4,227.8 million were at their lowest level since 1960.

Since the introduction of SAP in 1986 and a policy shift towards support for growth of traditional non-oil exports, there has been an appreciable increase in exports. Thus growth of non-oil exports, has been positively except in 1992. The devaluation of currency with the attendant increase in domestic price of exports, has been identified as one of the major factors responsible for the increase. However, in the 1990s, the share of Agricultural commodities has been constantly less than 5 per cent of total merchandise exports.

With regards to imports, exchange rate over-valuation in the 1960s and 1970s cheapened imports of competing food items as well as agro-based and manufacturing industrial raw materials. For instance, it was cheaper to import maize for domestic use than grow it locally, while imported tallow was found to be relatively cheaper than palm kernel oil used by domestic soap manufacturers (Adubi, 1996). This situation was exacerbated by the liberal food imports policy, especially during 1970 - 1977 when there was little or no trade tariff on imported food items. This fostered rapid expansion in the importation of these goods to the detriment of local production of similar goods.

The share of Agriculture in the Gross Domestic Product (GDP) is shown in Table X. In 1981, Agriculture contributed 25.34 per cent of the GDP, it rose gradually though marginally to 33.08 per cent in 1986. By 1987, it declined by 1.4 per cent to 31.68 per cent. Thereafter, it fluctuated between 31.94 in 1988 and 29.77 per cent in 1993. On the average, Agriculture contributed 27.07 per cent to the GDP between 1981 and 1985. From 1986 to 1993, Agriculture contributed 31.0 per cent on the average to the GDP.

With respect to the growth rate, the sector experienced negative growth rate in 1983, 1984 and 1987. However, the growth rate of the agricultural sector fluctuated markedly in the remaining years. For instance the rate was 2.23 per cent in 1982, 19.34 in 1985, 10.14 per cent in 1986 and 9.75 per cent in 1988. By 1989, it fell to 4.76 per cent and declined continually to 2.16 per cent in 1993.

On the surface, the declining trend in the growth of agricultural output in the face of massive exchange rate depreciation occasioned by the adoption of Structural Adjustment Programme (SAP) is at variance with traditional expectations in literature which asserts that output of agricultural sector response positively to the exchange rate depreciation. However, this is an empirical matter which this study attempts to explore.

Manufacturing

In Nigeria, the manufacturing sector is relatively small, it contributed between 1970 - 1990 an average of 8 per cent to the GDP. The sector as a whole has not grown remarkably over the years. It employs about 1 per cent of labour force. Though the government had maintained that "the main instrument of rapid growth, the Structural Change and Self Sufficiency lies in the manufacturing sector" (Egbon, 1995), it had however unwillingly pursued policies which had stifled rather than aided the growth of this sector.

Manufactured exports in Nigeria can be grouped into three categories. First, the processed agricultural commodities; such as cocoa-butter, palm-kernel expeller, palm-kernel pallets, cocoa powder, groundnut cake, etc, second, semi-manufacturers; like fabricated metals and third manufactured goods proper.

Manufactured exports as a proportion of total exports in Nigeria has been and still remains insignificant. The nominal performance of manufactured exports between 1987 and 1992 looks impressive, in actual terms, if one considers the huge currency depreciation that took place in that period, it is clear that the performance in the early 1990s is just a little better than what it was in the period of tight trade and fiscal policy (1983 - 1986).

In the 1970s manufactured exports as a proportion of total non-oil exports performed much better than in the 1980s. This is probably due to the fact that there was sufficient money to sustain high cost inefficient public firms and to retain rigid tariff and quantitative measures to short out competing imports.

Though essentially, manufacturing output is for domestic consumption, surplus output however, spills over into the export market. In terms of relative shares, since 1990s, the textile industry has been the leading industry in the manufactured export trade, it was only out-performed by urea/ammonia industry (see table 3). In fact the share of the cocoa processing industry fell considerably from 24.6 per cent in 1990 to 7.94 per cent. In 1992 one possible reason for this is the inadequacies in the supply of cocoa beans to the processing industry and the increasing cost of obtaining critical inputs both in the domestic market and from imports.

Regarding the contribution of the sector to the GDP, available data reveal that in 1981, the percentage contribution of the sector to GDP stood at 9.89 per cent, 11.20 per cent in 1982 but fell gradually to 7.82 per cent in 1984. The share of 8.57 and 8.04 per cent was maintained in 1985 and 1986, respectively. Between 1987 and 1993, the percentage share of manufacturing to GDP hover around 8.0 per cent. On the average the percentage contribution during the period stood at 8.40 per cent.

With respect to the growth rate of the sector, negative growth rate were recorded in 1983, 1984 and 1986. In 1982 a growth rate of 11.40 per cent was recorded. In 1985, the rate was 16.55 per cent. Between 1987 and 1993, the growth rate fluc-

1987 and 1993, the growth rate fluctuated between 1.62 and 11.39 per cent. On the average, manufacturing sector recorded a growth rate of 5.45 per cent during the same period.

THE MODEL

Several alternative models are available for modelling growth in developing countries (Ndulu, 1990). One of the most common models which takes into consideration the constraints to growth in such economies, is the three-gap model.

However, as indicated earlier, we specifically adopt a distributed lag form of a dynamic structural model of the response of Agriculture and manufacturing to the exchange rate policy in Nigeria from 1970 to 1994.

Consequently the model is specified generally thus:

$$Agr = F(ER_t, ER_{t-1}, ER_{t-2} \ldots ER_{t-n}, Agr_{t-1} \ldots Agr_{t-n}) \quad (1)$$

$$Mgr = F(ER_t, ER_{t-1}, Er_{t-2} \ldots ER_{t-n}, Mgr_{t-1} \ldots Mgr_{t-n}) \quad (2)$$

where

Agr = Agricultural output measured in million naira
ER = Nominal Exchange Rate
Mgr = Manufacturing output measured in million naira
ERt-1 = One year lagged exchange rate
ERt-n = Ninth year lagged exchange rate

The functional relationship of the models is thus specified

$$Lagr = ao + {}_aLAgrt\text{-}2 + a_2LAgrt\text{-}_3 + a_3LAgrt\text{-}4 + a_4LERt\text{-}1 \quad (3)$$

$$Lmgr = bo + {}_bLMgrt\text{-}2 + b_2LMgrt\text{-}3 - b_3LERt - b_4LERt\text{-}2 + b_5LERt\text{-}3 \quad (4)$$

We expect apriori that $ao, a_1, a_2, a_3 > O$ and $a_4 < O$ or $b_0, b_1, b_2, b_3, b_4, b_5 < 0$.

The inverse relationship between manufacture output and exchange rate is due to our definition of exchange rate (Naira per dollar), consequently, an appreciation would mean less naira per dollar while a depreciation would imply more naira per dollar. The same definition holds for the Agriculture equation above.

Empirical Results

The various distributed logged form of the equations were estimated. However, the result reported here were the best we could get.

AGRICULTURE

In the Agriculture equation, the variables that were significant include Agricultural output in the last two years (lag AGRt-2) and the lagged exchange rate in the last two years. Exchange rate in the current period and agricultural output in periods t-3 (last three years) were not significant and also wrongly signed. This could be explained by the fact that the exchange rate policy only affected in the short run the food crop Segments of agriculture and to some extent, the animal husbandry sub-sector. However, the impact of exchange rate policy on the -cash crop component takes a longer period to manifest due to long gestation period. The implication of this result is that appropriate pricing of agricultural product through appropriate exchange rate policy would have expansionary effect on agricultural output. This is in agreement with the results in Akanji and Ukeje, (1995), although their assertion was based on mere comparison of absolute output growth without any empirically tested model.

Manufacturing

In the manufacturing equation, the results were generally unsatisfactory, that is, they deviated markedly from aprori expections. The only significant variable was first year lagged manufacturing output, however, exchange rate in current year, lagged two years and lagged three years were not significant though rightly signed. The exchange rate in the lagged one year was near significant. The implication of this result is that in Nigeria due to relative under capacity utilization and other constraint, the impact of exchange rate policy on manufacturing takes at least one year to manifest. The poor result could also be attributed to the exclusion of other relevant variable like interest rates, government expenditure, inflation rate and general political instability from the model. This was intentional as our aim was essentially to capture the specific impact of exchange rate policy. It would be interesting to re-estimate another equation with the suggested variables. This indeed will be the main thrust of our next paper. The results also reveal that the continuous preference for the manufacturing sector in foreign exchange allocation did not achieve the desired result.

Results

Variable Dependent Log AGRt	Coefficient	t-value	Standard Error
Independent Cons	.40076	2.5447	.15749
Log AGR_{t-2}	.97922	.2807	.22875
Log AGR_{t-3}	-39845	-1.2040	.33093
Log AGR_{t-4}	.35269	1.5574	.22646
Log ER_{t-2}	.13270	2.5028	.053019

R - Squared = .99247 F- Statistic (4,16) = 527.1770 (.000)
Adjusted R - Squared = .99059

CONCLUSION

In this paper an attempt was made to examine the relationship between exchange rate and certain sectors of the economy - Agriculture and Manufacturing. The analysis was based on distributed logged form equation. Exchange rate devaluation

Variable Dependent Log - Log MGRt	Coefficient	t-value	Standard Error
Independent Log Cons	.29374	3.0281	.097005
Log MGRt-1	.89405	3.2963	.27123
Log MGRt-2	-.35170	-97468	.36084
Log MGRt-3	.39652	1.6120	.24598
Log ERt	-.40661	-1.6153	.25173
Log ERt-1	.82874	1.8979	.43667
Log ETt-2	-.61608	-1.3039	.47250
Log ERt-3	.10575	.35825	.29518

R - Squared .96363 F - Statistic F (7,13) 49.6365 (.000)
Adjusted R - Squared .94451

had an expansionary effect on Agriculture. Concerning manufacturing, devaluation had negative impact on their output. Our work shows the need for further analysis of question of long-run sustainability and suitability of exchange rate policies on sectoral basis in order to make adequate provision for social implications in specific sectors for informed policies.

Table 2

GROWTH RATE OF AGRICULTURE AND MANUFACTURING SECTORS BETWEEN 1980 - 1994

Year	Agriculture	Manufacturing
1980	5.5	8.7
1981	4.9	7.7
1982	2.2	12.9
1983	-2.7	-30.4
1984	-4.5	-10.9
1985	24.3	20.4
1986	11.3	-3.4
1987	13.9	5.3
1988	1.7	11.7
1989	5.2	1.5
1990	4.2	8.8
1991	4.4	8.1
1992	3.2	-4.8
1993	2.9	-4.9
1994	1.6	-8.4

Source: Central Bank of Nigeria Major Economic and Financial Indicators, June 30, 1995.

Table 3 Relative Shares of Manufactured Exports in Nigeria (Percentage)

	1988	1990	1992
Agricultural Products	39.62	30.76	13.52
Cocoa Butter	35.03	24.60	7.94
Cocoa Ponder	0.64	-	0.07
Cocoa Cake	2.41	-	0.36
Cocoa Paste	0.53	-	0.07
Groundnut Cake	-	-	-
Wood Products	1.01	6.16	5.08
Textiles	15.99	23.54	21.25
Chemicals	17.49	1.19	0.38
Others Manufactured	-	-	-
Exports	26.90	44.51	56.88
Motor	-	-	-
Vehicle/Machinery	-	1.77	0.95
Soap/Detergent	-	0.10	1.55
Beer/Beverages	0.38	0.05	0.80
Urea/Ammonia	-	33.70	40.77
Processed Skin	26.52	8.89	12.81
	100.00	100.00	100.00

Source: Adegbite, 1996.

Table X. Key Sectors Share in GDP

Sector	Year												
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Agriculture	25.34	26.01	26.70	26.85	30.44	33.08	31.68	31.94	31.23	30.12	30.05	29.88	29.77
Manufacturing	9.89	11.20	8.36	7.82	8.57	8.04	8.43	8.66	8.19	8.15	8.50	8.42	8.39
Oil	14.02	12.46	12.75	15.19	15.06	13.94	12.54	12.34	13.22	12.89	13.44	13.47	12.70
Service (made up of wholesale only)	13.01	13.62	14.04	13.64	12.97	12.66	13.90	13.79	13.36	12.72	12.53	12.47	12.51

SOURCE: Computed from Central Bank (1994) Statistical Bulletin. Vol. 1, No. 1.

Table 4 Growth rates of Key Sectors of the Nigerian Economy 1981 - 1983

Sector	Year												
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993
Agriculture	N.A	2.23	-2.95	-4.75	19.34	10.14	-4.17	9.75	4.76	4.17	4.31	2.918	2.16
Manufacturing	N.A	11.40	-41.65	-12.65	16.55	-4.05	4.85	11.39	1.62	7.08	8.51	2.53	2.19
Oil	N.A	-12.88	-3.25	11.54	7.80	-5.54	-10.85	7.50	13.08	5.25	8.42	3.66	-3.37
Service (made up of Wholesale only)	N.A	4.15	-2.51	-8.39	3.80	0.00	9.100	8.33	3.85	2.91	3.10	3.01	2.83

Source: Computed from Central Bank (1994) Statistical Bulletin, Vol. 1, No. 1.

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