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PRICE DISTORTIONS, EXPORTS, AND ECONOMIC GROWTH: EVIDENCE FROM THE NON-OIL SECTORS OF NIGERIA

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ABSTRACT

This study examines the effects of price distortions on output in the non-oil sectors of the Nigerian economy. Specifically, the study tests the hypothesis: that price distortions are inversely related to non-oil output on the supply side; and also inversely related to the aggregate demand component such as non-oil exports on the demand side. The study adopts a model based on a modified neoclassical production function where non-oil exports are taken as production input. The analysis confirms the view that price distortions have significant negative influence on the non-oil sectors of the Nigerian economy.

Keywords: Price distortions, Economic growth, Exports, Non-oil sectors, Neo-classical production function, Oil-boom, Misallocated resources.

1. INTRODUCTION

1.1. Background of the Study

The state of the Nigerian economy prior to the oil-boom (1960 – 1973) was not unlike that experienced in many developing countries. The contribution of virtually all sectors of the economy grew rapidly. However, in terms of sectoral contribution to the Gross Domestic Product (GDP) during this period, agriculture was the most important component of the economy, supplying the needed food requirements and employment opportunities for the majority of the population. It also provided raw materials for the industrial sector and was the chief foreign exchange earner for the country. Later, during the oil-boom period (1974 – 1981), agriculture's share of the GDP declined drastically, and the share of manufacturing sector in the GDP was still negligible, while that of oil increased tremendously. During this period, oil dominated the country's economic and financial performance to such a degree that changes in the fortunes of this single commodity affected significantly all sectors of the economy. Oil displaced

agriculture as the major foreign exchange earner for the country and the prime mover of the economy. Therefore, the engine of Nigeria's economic growth at this time was its oil exports. These oil resources which facilitated economic growth, also unleashed inflationary and distortionary tendencies in the economy. What happened was that the government expenditure grew very rapidly, which resulted in increased prices. However, in order to slow down the impact of the resulting inflation, the government enforced a policy of price controls on a wide variety of goods. These policies caused distortions that have left the economy with several misallocated resources.

1.2. Statement of the Problem

The relationship between price distortions and economic growth has been a subject of considerable interest to development economists and policy makers of less developed countries in recent years. This relationship seems to operate through both resource mobilization and efficiency of resource use; hence, the main objective of this study is to test whether there was any significant relationship between price distortions and country's performance in terms of output growth in the non-oil sector of the Nigerian economy.

1.3. Significance and Justification of the Study

Efficiency in the allocation of resources is affected by price distortion. The causes of distortions in prices and the impact of these distortions on the economies of developing countries have been the subject of several studies. Most of these studies used cross-section data and aggregated price distortions index, but their results have been inconclusive, largely, because the analysis fails to recognize the importance of country and price distortion differences. This research also isolates a single price distortion (price distortion in traded commodities in each sector), and a single country (Nigeria) where price distortions in traded commodities loom large in the economy. Further, this is the first time an in-depth study has been done on the effects of price distortions on output growth in Nigeria using a time series analysis. Also, most of the research already conducted in this area uses countries with economic background quite different from most of the sub-Saharan African countries. A case study of Nigeria will fill this gap. Finally, since the prevailing economic discussions on the future performance of the sub-Saharan African economies centers on pricing policy, this study will be a major force in future policy formulations with respect to the sub-region and more especially, in Nigeria with its diverse economy.

1.4. Justification for Selecting the Non-Oil Sector

The Nigerian economy is made up of diverse sectors, all of which exhibits significant differences with respect to economic motivations. Therefore, there is a definite advantage in employing a model which permits disaggregation of economic decision units into groups

characterized by the same motivation and mode of operations. During the greater part of the study period, oil dominated the country's economic and financial performance to such an extent that changes in the fortunes of this single commodity affected significantly all sectors of the economy; hence, the inclusion of the oil sector will over–exaggerate the results of the estimations and highly suppress the effects of price distortions on output. Also, the oil sector is excluded from the study simply because it is regarded as an enclave to the whole economy. Therefore, a clear appreciation of the impact of price distortions on output in the Nigerian economy during the study period will manifest if we relate it not to the total economy but to the non-oil economy.

1.5. Limitations of the Study

Research in developing countries, such as Nigeria is constrained because of serious data deficiencies and availability of data. Some of the serious data problems encountered were as follows: Values for some variables for some years were missing. In such situations, interpolation of the available data for the particular variables were undertaken to provide some reasonable estimates. In few occasions where data are not available, appropriate proxies were used. Hence, whenever necessary, the consumer price index was used to deflate all the variables involved in the analysis.

2. LITERATURE REVIEW

The issue of whether there is a linkage between price distortions and economic growth has been of constant concern to many economists and also to policy makers over a long period of time. Therefore, this study seeks to discuss the literature on the effects of price distortions on economic growth through exports.

2.1. Exports and Economic Growth

Most of the literature on trade and growth centers on the relationship between exports and output growth. This relationship between exports performance and economic growth has been of considerable interest to development economists in recent years. Exports were found to be highly significant in the relationship between export and growth. The growth of GNP was significantly correlated to the growth rate of exports in a number of studies done in several developing countries. Export expansion is an important feature of the growth process. It is a necessary condition for sustained rapid growth in a market economy. Kravis (1970) noted that since exports are component of aggregate output, then one would expect a positive relationship in terms of the correlation coefficient. Some studies by Michalopoulos and Jay (1973), Michaely (1977), Balassa (1978), Heller and Porter (1978), Tyler (1981), Feder (1983), and Ram (1985) showed that exports contributed to GNP growth without changing the volume of exports due to increased efficient use of resources. However, Keesing (1967), and Balassa (1978) demonstrated that this increase in GDP was due to various beneficial aspects of exports, such as greater

capacity utilization, economies of scale, incentives for technological improvements, and efficient management due to competitive pressures abroad. Michalopoulos and Jay (1973), in a study of 39 countries, estimated an aggregate neoclassical production function, using domestic and foreign capital and population as its factors of production. The study revealed after the estimations that the power of the function was increased when export was included as an additional factor. Michaely (1977) found a significant relationship at the 1% level in the estimation of the relationship between the changes in proportion of exports to the rate of GNP in 41 countries for the period 1950-1973. Following in the tradition of Michalopoulos and Jay (1973), Balassa (1978) estimated the effects of exports on economic growth in a production function-type framework for a sample of semi-industrial countries in the 1960-1973 periods. The method used involved the inclusion of exports to capital and labour in a cross-section equation formulated to determine the inter-country differences in index of economic growth. Though the results understated the effects of export growth on GNP, nonetheless, there is still a positive relationship between the growth of exports and GNP. The same method was later used by Tyler (1981) in a larger group of middle income countries for the period 1960-1977 where an empirical relationship between economic growth and export expansion in developing countries was observed through an inter-country cross-section analysis.

2.2. Price Distortions and Economic Growth

There is overwhelming empirical evidence that suggests a strong link between price distortions and economic growth, especially in developing countries; Harberger (1959) attempted to explore the possible results of eliminating misallocations of resources in economies like Chile, Brazil, and Argentina. It was concluded that policies aimed at eliminating distortions in the price mechanism can raise the long-term rate of growth of national income, but not spectacularly. Bhagwati (1978) showed that those countries that embark on programs of correcting price distortions in the 1960s, for instance, Brazil, Columbia, and South Korea, showed significant gains, not only in output but also in employment from these liberalization efforts. Also it was noted from the discussion of the relationship between price distortion and economic growth in the key background paper (Agarwala, 1983) that one third of the variation in growth performance of 31 developing countries can be explained by a composite index of price distortion. Bautista (1985) argued that agricultural products are often implicitly or explicitly subject to export tax, reducing their domestic price relative to the world price. Hence, this agricultural export taxation leads to a great distortion of incentives biased against agriculture. Also, Bale and Lutz (1985) discussed government intervention in agricultural price determination, drawing on welfare theory to quantify the economic impacts on output, income distribution, efficiency, and employment. The results of the paper are derived from using standard partial equilibrium analysis in the Marchallian economic surplus framework. Also, the real and pecuniary effects of agricultural price distortions in the case of a small country are analyzed, using nominal protection coefficients

to measure the disparity between domestic prices and border prices. It was concluded that the levels of agricultural production in the less developed countries are significantly smaller than what they should be in the absence of distortions.

It was noted that removing quota alone in Turkey in 1978 would have increased its GDP by as much as 5.4% (Grais *et al.*, 1986). Also, regarding the neoclassical analysis, Little *et al.* (1970), Bhagwati (1978), and Timmer (1980) have stressed the existence of potentially high social costs of domestic price distortions in terms of their resources allocation, national output, and income distribution effects. At the sectoral levels, price intervention policies are likely to create biases in the structure of incentives within the sectors. The effects of such policies are presumably different for each of the sectors. Each of these policies creates a disincentive effect to output growth, and in combination, they lead to even greater distortions of incentives in all sectors. Ubogu (1988) concluded that a liberal trade regime with low tariffs and without quotas up to 1973 led to export-led growth in the world economy and relative stability in Nigeria's export earnings and inflow of foreign capital. Aguirre and Yucelike (1981), in their review of African experience emphasized that the mixing of revenue and protective functions has led to excessive levels of protection, resulting in damaging effects on resource allocation. Gillis (1981) and Tanzi (1981) noted the detrimental effects on production, allocation of resources and exports due to the high share of export duties in GDP. Also, Marsden (1983) found a significant negative relationship between taxes and GDP growth and critical growth determinants. From the study, it was found that a 1% point increase in the total tax/GDP ratio will decrease the rate of economic growth by 0.36% points. Bautista (1985) argued that agricultural products are often implicitly or explicitly subject to export tax, reducing their domestic price relative to the world price. Hence, this agricultural export taxation leads to a great distortion of incentives biased against agriculture.

3. THEORETICAL FRAMEWORK

The main focus of the theoretical framework is on the impact of price distortions (T) on non-oil output (Y). Also, the theoretical linkages between price distortions and some growth components, such as exports and productivity are explored. Finally, a simple comparative static analysis of the model is undertaken to help show the implied relationships between its various variables.

3.1. Theoretical Motivations

What accounts for the poor performance of the Nigerian economic growth during the study period? The level of price distortion is clearly not the only factor. Development is complex, and its pattern can be influenced by many variables, endogenous and exogenous. Growth has been retarded in some developing countries by deterioration in their terms of trade, inflation, and high interest rates which have made progress very difficult. But the links between price distortions

and growth are there, operating mostly indirectly through resources mobilization and efficient use of resources. Some empirical evidence suggests casual relationships between the level of price distortions and key growth determinants in the areas such as exports and productivity. Price and quantity controls create distortions in the sense that goods and services are not valued at their opportunity cost. These distortions directly alter the relative competitiveness in favour of the domestic version of the goods traded; they also alter relative prices within a country's tradable goods sector. These distortions in turn affect the efficiency of resource allocation and, as a result, have macroeconomic consequences.

Exports undoubtedly have a pivotal role in the Nigerian's economic growth. They play a key role on both the supply side and the demand side of the economy. On the supply side, they provide the basis to acquire through foreign exchange the imported capital goods and technology which are necessary for gearing Nigeria's productive system towards a rapid economic growth. They also serve to energize the domestic productive system by way of being the harbinger of international competitiveness. On the demand side, they act favourably and serve to prop up the aggregate demand. Indeed, the whole efficiency of resource allocation is, to a large extent, mirrored in terms of export performance. Therefore, it is reasonable to consider the effects of price distortions on output via the exports in the Nigerian economy in this study. Since price distortion affects the efficiency of resource allocation, it reduces the volume of exports, thereby reducing the volume of imported capital and other intermediate goods which could have been made available through the export proceeds. Price distortions through faulty price signals generate inefficiencies in resource allocation which eventually reduce the amount available for investment, since Nigeria greatly depended on the availability of its imported capital and machineries for an efficient operation of its productive processes. As a result, output will increase with a decrease in price distortion over a time period. However, output will be constrained if there are high levels of price distortion.

Exports:

Producer behaviour is represented in the model by the following export equation:

$$X = f(Px, Z) \qquad\qquad (3.1.1)$$

Where,

X = non-oil merchandise exports;

Px = the domestic price of non-oil exports;

Z = a vector of quantities of fixed inputs and other supply shifters such as technology and weather variables in the case of agricultural commodities.

In a small open economy like Nigeria; it is usually the case that export prices are determined in the domestic market as follows:

$$Px = Pf.e\,(1 + T) \qquad\qquad (3.1.2)$$

The domestic price of the non-oil exports (Px) is determined by the foreign price (Pf), the real exchange rate (e), and the distortion level (T). But where the state marketing boards have

effective control over export trade; the distortion level would represent an implicit export tax underlying the disparity between the foreign price and the government determined price. Unless otherwise indicated, the analysis will assume that the export tax is the policy instrument being used rather than the direct price intervention policy of the state marketing boards. Trade policy for exports limits the quantity exported through the imposition of either a per unit export tax or an export quota, and the result is to cause the domestic price of export to be lower than the world price of exports. Therefore, the immediate impact of the distortion is on the domestic price of non-oil exports. The most general price effect of this distortion is to create a differential in the international price of the affected export commodities. Another effect of the distortion is to reduce the volume of international trade. By reducing the volume of trade, the country's real income is reduced. Also, there will be a distortion of optimum resource use and a breakdown of the price mechanism as a guide in the international allocation of resources.

In view of the above considerations, Nigeria's non-oil export supply function for the merchandise goods can be specified as follows:

$$X = f(T) \tag{3.1.3}$$

$$dX/dT < 0$$

From the above formulations, a simple linear reduced form model can be derived from the conventional supply behaviour based on the theory of profit maximization as follows:

$$Y = f(K, L, T) \tag{3.1.4}$$

$$dY/dK > 0; \quad dY/dL > 0; \quad dY/dT < 0$$

Where,

Y = real aggregate domestic expenditure or income;

K = capital stock;

L = Labor.

Therefore, structurally, non-oil output can be expressed as a function of production inputs, and other exogenous shifters in a collapsed reduced form.

The study period covers the oil-boom era when oil basically earned most of the foreign exchange for the country. At this period, the influence of oil-boom overshadowed other influences in the economy and dictated the movements of all the key macroeconomic variables and policy decisions. Therefore, oil-boom is represented in the following equation by a dummy variable to capture its influences on the non-oil economy as follows:

$$Y = f(K, L, T, D_1) \tag{3.1.5}$$

Where,

D_1 = oil-boom influence

3.2 Comparative Static Analysis of the Model

The following equations specify the aggregate production function while assuming profit maximization for all firms in the overall economy:

$$Y = f(K, L, X) \tag{3.2.1}$$

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$dY/dK > 0; \quad dY/dL > 0; \quad dY/dX > 0$

$$X = f(T) \tag{3.2.2}$$

$dX/dT < 0;$

By substituting (3.3.2) in (3.3.1), we have:

$$Y = f[K, L, X(X)] \tag{3.2.3}$$

From equation (3.3.3), we can analyze the overall impact of price distortion on output thus:

$$dY = \partial f/\partial K \cdot dK + \partial f/\partial L \cdot dL + \partial f/\partial X \cdot dX \tag{3.2.4}$$

Dividing (3.3.4) across by dT, we have:

$dY/dT = \partial f/\partial K \cdot dK/dT + \partial f/\partial L \cdot dL/dT + \partial f/\partial X \cdot dX/dT < 0$

(+)   (-)   (+)   (-)   (+)   (-)

From the above analysis, it is then easy to conclude that the overall effect, theoretically, of price distortions on output is very negative. Therefore, we hypothesize a negative relationship between price distortions and output in the Nigerian non-oil economy over the study period.

4. MODEL SPECIFICATION

These model specifications were based on the theoretical framework already developed in the study. And they also provide the empirical basis to investigate the effects of price distortions on output and export of the non-oil sectors.

Two functional forms were used in the specification of the models: the first specifies the influence of only the policy and non-policy variables on the non-oil output without the impact of oil-boom, and the other specifies the influence of the policy and non-policy variables on non-oil output with the impact of the oil-boom. This impact of the oil-boom on the non-oil output is represented by a dummy variable. To develop a testable hypothesis, the behavioural equations in the non-oil sectors are linearized as follows:

Production Function

The production function in the Nigerian non-oil economy is specified as follow:

$$Y = \beta_0 + \beta_1 K + \beta_2 L + \beta_3 X + e_1 \tag{4.1}$$

However, when the export variable (X) is replaced with other policy variables, the aggregate model is therefore specified as follow:

$$Y = \beta_0 + \beta_1 K + \beta_2 L + \beta_3 T + e_2 \tag{4.2}$$

$$Y = \beta_0 + \beta_1 K + \beta_2 L + \beta_3 T + \beta_4 D1 + e_3 \tag{4.3}$$

The following specifications of the models in respect to the agricultural and manufacturing sectors of the Nigerian economy are also specified as follows:

The Agricultural Sector:

$$YA = \beta_0 + \beta_1 LA + \beta_2 Pda + \beta_3 TA + e_4 \tag{4.4}$$

$$YA = \beta_0 + \beta_1 LA + \beta_2 Pda + \beta_3 TA + \beta_4 D1 + e_5 \tag{4.5}$$

The Manufacturing Sector:

$$YM = \beta_0 + \beta_1 KM + \beta_2 Pdm + \beta_3 TM + e_6 \qquad (4.6)$$

$$YM = \beta_0 + \beta_1 KM + \beta_2 Pdm + \beta_3 TM + \beta_4 D1 + e_7 \qquad (4.7)$$

Export Function:

$$X = \beta_0 + \beta_1 Y + \beta_2 Pf + \beta_3 T + e_8 \qquad (4.8)$$

$$X = \beta_0 + \beta_1 Y + \beta_2 Pf + \beta_3 T + \beta_4 D1 + e_9 \qquad (4.9)$$

Where,

β_0 = constant term in each equation

β_1, β_2, β_3, and β_4 = parameter estimates of the explanatory variables in each equation

M = total non-oil merchandise imports

Pd = domestic price

YA = agricultural output

YM = manufacturing output

LA = labour input in agriculture

KM = Capital input in manufactures

Pda= domestic price of agriculture

Pdm = domestic price of manufactures

TA = distortion level in agriculture

TM = distortion level in manufactures

D1 = measure of oil-boom influence

5. METHODOLOGY

The models are represented by a series of algebraic equations. However; to derive consistent, unbiased, and efficient estimators of the structural equations, the hypotheses were tested using ordinary least square (OLS) regression technique. And to test the significance of the policy variables; statistical tests, such as the F-test, t-test, and the Durbin Watson statistics were used.

In order to test the relationship among the policy variables in each of the behavioural equations developed; it was necessary to assume that their coefficients are the estimators of the population parameters. It was also important to ensure that the explanatory variables in the models were independent; meaning that they are not correlated among themselves and they do not influence each other. Without these assumptions, the population estimates may be biased; therefore, statistically insignificant. To obtain such estimates, the behavioural equations of all the sectors and the growth component have been linearized.

For the relationship among the parameters in each of the behavioural equations, the hypothesis was specified as follows:

Ho: β_1, β_2, β_3, β_4, and $\beta_5 > 0$

Ha: β_1, β_2, β_3, β_4, and $\beta_5 < 0$

Where,

β_1, β_2, β_3, β_4, and β_5 are the regression coefficients of the explanatory variables in each of the equations under investigation.

6. ESTIMATION RESULTS AND ANALYSIS OF THE MODEL

To appreciate the empirical relevance of the theoretical framework already developed, equations have been fitted to Nigeria's annual data in constant 1980 prices for the period 1967 – 1987, using ordinary least squares (OLS). All the equations were estimated in log-log form. Thus, the coefficients are elasticities. These elasticities indicated the direction and magnitude of the impact of these exogenous variables on economic performance. The estimation results were given below with the t-value-stated in parentheses and corresponding to the coefficients of the exogenous variables of each equation.

Non-oil Production Function:

The estimate of the non-oil production function is summarized below:

$$Y = 0.9 + 0.2K + 1.3L + 0.3X \qquad\qquad (6.1)$$
$$\quad (1.7) \;\; (2.4) \;\; (6.7) \;\;\; (2.1)$$

$R^2 = 0.93$; $F = 27.1$; $DW = 2.0$

The non-oil production function (6.1) exhibits satisfactory results in terms of correct signs and statistical significance of the explanatory variables. The Durbin Watson statistics is 2.0, suggesting the absence of first-order serial correlation. It also suggests that no important variable has been omitted from the theoretical specification of the model. From equation (6.1), it is seen that in the Nigerian non-oil sector for the period 1967-1987; the output elasticities of capital, labour, and export were 0.2, 1.3, and 0.3, respectively. In other words, over the study period, holding capital and labour inputs constant, a 1 percent increase in export input led on average to about a 0.3 percent increase in output. As a result, output is increased and productivity growth is achieved over the study period in the non-oil sector. The model also showed increasing returns to scale with the sum of the coefficients summing up to 1.8; doubling the inputs will more than double the output. The statistical significance of the non-oil merchandise export (X) at the 5 percent level means that the hypothesis that the non-oil merchandise export is positively related to non-oil output cannot be rejected.

After a reduced form equation was formulated, the estimated results were as follows:

$$Y = 1.7 + .33K + 1.2L + .01T \qquad\qquad (6.2)$$
$$\quad (6.5) \;\; (8.1) \;\;\; (9.4) \;\; (0.65)$$

$R^2 = 0.91$; $F = 53.0$; $DW = 1.1$

In the above model (6.2), the adjusted R^2 is relatively high and the regression equation is significant at the 5 percent level. All the variables have the right signs except the price distortion variable, T. But it is not significantly different from zero. During most of the study period, oil was the main engine of growth; hence, the oil-boom affects all the aspects of the economy including the non-oil sector. The oil-boom period introduces what appears to be a structural

break into the Nigerian non-oil sectors of the economy. In order to capture the influence of this unexpected change in the non-oil sectors, econometric theory made possible the use of a dummy-one variable in estimating such an equation.

The results of estimating such an equation in the Nigerian non-oil sectors of the economy with the inclusion of a dummy variable (D1) signifying the influence of oil-boom is therefore stated as follows:

$$Y = 1.7 + 0.28K + 1.3L + .02T - .03D1 \tag{6.3}$$

$$(6.6) \quad (4.7) \quad (9.4) \quad (1.1) \quad (-2.5)$$

$R^2 = 0.91; F = 38.7; DW = 1.1$

The above result shows that the dummy variable is statistically significant indicating a difference in non-oil output due to the influence of the oil-boom. This significant influence of the oil-boom might have a suppressing effect on price distortion at this period. In order to prove such a point, estimations to test the effects of price distortion during the three sub-periods were undertaken. The results in model (6.1.1) confirmed the fact that during the pre-oil boom period, price distortion was statistically significant in influencing non-oil output. In other words, price distortion is a statistically significant constraint on non-oil domestic output during the pre-oil boom period. However, during the oil boom period, price distortion was not statistically significant. This again buttresses the point that the effects of oil boom greatly overshadowed price distortion influences during this study period. Also, price distortion was not significant during the post-oil boom period because the effects of the oil boom period still lingers in the economy for the rest of the study period.

The Nigerian non-oil economy is mainly composed of the agricultural and manufacturing sectors. Therefore, it becomes necessary to disaggregate the entire non-oil economy into these two sectors in order to test the importance of sectoral price distortions to sectoral output level. The results are as follows:

Agricultural Sector:

The results of the estimates in the agricultural sector are as follows:

$$YA = -2.8 + 4.6LA + 0.57Pda - 0.03TA \tag{6.4}$$

$$(-1.2) \quad (2.8) \quad (2.5) \quad (-1.6)$$

$R^2 = 0.80; F = 4.0; DW = 0.87$

In the above model (6.4), all the variables have correct signs including the agricultural price distortion, TA, but it is not significantly different from zero. Since oil was the engine of growth during the greater part of this study period, it becomes necessary to test whether oil-boom has any significant influence on agricultural output during this period. Thus, the estimated results are as follows:

$$YA = -2.2 + 4.3LA + 0.62Pda - 0.02TA - 0.06D1 \tag{6.5}$$

$$(-1.0) \quad (2.7) \quad (2.8) \quad (-0.48) \quad (-2.1)$$

$R^2 = 0.90; F = 8.0; DW = 1.1$

Model (6.5) also exhibits correct signs in terms of the explanatory variables. The explanatory variables are all significant except the price distortion variable. This suggests that in the agricultural sector, the effects of the oil-boom overshadowed the effects of price distortion during the study period. However, price distortion in agriculture has a negative influence on output in the same sector, though not significant. Also, an analysis of the pre-oil boom period in model (6.1.4) indicated that agricultural price distortion has a significant negative impact on output in the same sector, while the effects during the oil-boom and post-oil boom periods are mildly negative, suggesting again that oil-boom effects still persist after the boom period. This negative influence of agricultural price distortion might be as a result of several discriminating practices of the marketing boards during the study period, while the negative impact of the oil-boom might be due to the obvious neglect of the agricultural sector at this period. From all indications, it can be concluded that if not for the influence of oil-boom, that the negative relationship between agricultural price distortion and agricultural output as hypothesized in this study period could have been very certain in this model. Also, the high elasticity of labour to agricultural output confirms that labour is a constraining factor and that agricultural output depends on the labour involved in agriculture. This is explained by the fact that in agriculture, labour is the most important factor of production.

Manufacturing Sector:

It is also necessary to test the importance of price distortions in the manufacturing sector alone. The results are as follows:

$$YM = 1.02 + 0.15KM + 1.04Pdm - 0.02TM \qquad (6.6)$$

$$\quad (5.3) \quad (2.0) \qquad (6.5) \qquad (-2.1)$$

$R^2 = 0.94; F = 79.6; DW = 2.0$

All the variables in model (6.6) have correct signs and are statistically significant at the 5 percent level, based on the t-value reported. Also, the model supports the hypothesis that price distortion in the manufacturing sector is negatively related to output in the same sector. Thus, a 100% increase in manufacturing price distortion will lead to a 2% decrease in manufacturing output. Nevertheless, when a dummy variable was introduced into the model, the results were as follows:

$$YM = 0.51 + 0.32KM + 1.03Pdm - 0.03TM - 0.16D1 \qquad (6.7)$$

$$\quad (2.4) \quad (3.8) \qquad (8.2) \qquad (-3.5) \qquad (-3.3)$$

$R^2 = 0.96; F = 98.8; DW = 2.0$

The dummy variable in model (6.7) is also statistically significant. In fact, despite the significant effect of oil-boom in this sector, manufacturing price distortion still has a significant negative impact on manufacturing output. Also, analysis of the pre and post oil-boom periods in models (6.1.7) and (6.1.9) confirmed the view that manufacturing price distortion has a significant negative impact on manufacturing output. However, during the oil-boom period, manufacturing price distortion has no significant impact on manufacturing output, but its effects were negative.

Export:

The proposition is that price distortion is inversely related to non-oil export. Thus, the estimation results are as follows:

$$X = -2.4 + 1.5Y + 0.37Pf - 0.05T \qquad (6.8)$$

$$(-2.3) \quad (6.1) \quad (4.8) \quad (-2.3)$$

$$R^2 = 0.70; \ F = 12.8; \ DW = 1.2$$

From model (6.8), it is very obvious that there is a negative relationship between price distortion and non-oil export during the study period. However, the inclusion of the oil-boom influenced the effects of price distortions on the non-oil export during the study period. Hence, the estimation results with the inclusion of the oil-boom influences are shown as follows:

$$X = -0.02 + 0.91Y + 0.23Pf - 0.06T - 0.20D1 \qquad (6.9)$$

$$R^2 = 0.80; \ F = 15.2; \ DW = 1.2$$

The addition of the dummy variable greatly influenced the impact of price distortion on non-oil export. However, when the effects of the oil-boom are isolated, price distortion has a significant negative effect on non-oil exports.

7. CONCLUSION

The analysis of the experience during the period (1967-1987) in Nigeria confirms the view that non-oil merchandise exports are important positive determinant of aggregate non-oil output. The influence of price distortions on non-oil output is as a result of their impact on non-oil merchandise exports. During this period, oil export is the engine of growth in the economy. Hence, oil-boom greatly influenced other factors that determine non-oil output. Therefore, after a reduced form equation was formulated and estimated, the results showed that the influence of price distortion on non-oil output was greatly overshadowed by the influence of oil-boom at this period. Its influence on the aggregate non-oil output during this period (1967-1987) was mildly positive, indicating that oil-boom has a suppressing effect on price distortion. However, when the estimation was done for the pre-oil boom period, the results showed that price distortion has a significant negative relationship with non-oil output. Hence, the hypothesis that there is a negative relationship between price distortion and non-oil output was supported when the influence of oil boom was controlled for. Empirical evidence also supports the fact that there was a significant negative relationship between price distortion and non-oil output in each of the sectors under consideration except for the effects of the oil-boom at this period. In these sectors, the results of the estimations showed that the effects of price distortions were greatly muffled by the effect of the oil-boom during this period. Hence, the mild effects of price distortions on output in these sectors were as a result of the suppressing influence of the oil-boom. However, the statistical analysis of the pre-oil boom period showed that agricultural price distortion was inversely related to agricultural output. And manufacturing price distortion was also negatively related to manufacturing output. Also, the estimation results showed that a negative relationship exists between price distortions and exports in the non-oil sectors regardless of the influence of oil-boom. The obvious conclusion, therefore, is that an inverse relationship exists between price distortion and non-oil output,

although this negative relationship was greatly suppressed due to the influence of oil-boom during the study period.

8. POLICY RECOMMENDATIONS

Nigeria has over the years been engaged in a wide range of price interventions in both the agricultural and manufacturing sectors with the sole intension of providing incentives to promote sectoral growth. However, these pricing   policies have had a distorting impact on the allocation of resources within the sectors, thereby generating considerable costs in terms of economic efficiency. Since future economic growth will depend on the pace and effectiveness of policy reforms designed to eliminate the price distortions in the economy, reforms of pricing policy should constitute a major component of any remedial program. If the Nigerian agricultural and manufacturing sectors are to become modern and efficient, they must be given both the opportunity and the motivation to reduce costs. Indiscriminate reduction of the rate of protection and the reduction of the implicit taxes on exports alone are not the solution. Better physical infrastructure, better education and training, and more industrial experience can contribute to the ability to reduce costs and raise productivity. Lower protection and the reduction of the implicit taxes on exports can only increase the motivation. Improved efficiency means better utilization of productive factors and widening domestic markets. Also, improved efficiency creates greater possibilities for augmenting the exports of the non-oil sectors, which are of importance for both improving the balance of payments and maintaining a high growth rate of output. The fact that theoretical and empirical evidence support complete trade liberalization as a competitive stimulus to efficiency does not rule out the direct benefits derived from some protection, especially in developing countries. The government should, through the use of tariffs, protect the infant industries. However, the tariff structure should be such as to ensure that these firms do not remain infant s forever. In fact, the protection should be terminated after a specified number of years. The government should also implement policies that would provide exports with duty-free imported inputs, such as intermediate and capital goods that will facilitates the growth of exports, particularly, those engaged in labour intensive manufactures where competitive material costs are critical for successful penetration in the international markets. This will increase the potential to utilize capacity fully, thereby increasing productivity in the short and medium-term, and hence increase total factor productivity in the non-oil sector. It will also accelerate the transfer of underemployed agricultural workers into more productive jobs in industry and related services. With external indebtedness pressing on the country's debt-servicing capacity, improvements in foreign exchange earnings are necessary to provide the imports needed to maintain a high rate of economic growth. Apart from increasing import capacity, exports contribute to economic growth directly by raising incomes and providing demand for domestically produced inputs. This export-led growth can be achieved through sustained improvements in the pricing policies.   Policies that would reduce price distortions and improve the efficiency of the market mechanism should be encouraged. The changes required in the system of protection cannot come overnight. It then seems appropriate to distinguish between the short-term and the long-term policy changes.   For the short-term, there is the need to provide greater competitive pressures in the Nigerian non-oil sectors. For the long-term, policies should be devised to

reduce discrimination against exports and improve resources allocation in the national economy. To increase incentives to export, it would be necessary to abolish export licenses, reduce the rate of domestic protection, and remove all other forms of subsidies. Marketing boards should be abolished, and producers of these commodities should be allowed to sell their products in both the domestic and international markets. This will re-establish and strengthen the market mechanism, especially in the agricultural sector.

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