# A Simulation Analysis of President Bola Tinubu's Price Deregulation Policy on the Nigerian Economy: An Outlook to Year 2035

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#### Abstract

The deregulation of economic activities which gathered momentum in this country in 1986 under the general programme of Structural Adjustment by the Military, has been a matter of intense debate among economists, other professionals and the public. Ever since the President Bola Tinubu administration came to power on May 29, 2023 in Nigeria, his policy has been consistent with deregulation, one of the earliest policies embarked upon was the removal of fuel subsidy with the attendant increase of domestic pump price of petrol to an average of N600.00/liter which has resulted in an unprecedented general price hike in commodities across the country. Now it will seem that the game plan of the administration all along was to deregulate prices and the general price level is now controlling the Nigeria economy. Deregulation represents a reduction or total elimination of government involvement in an industry. Protagonists of price deregulation argue that Deregulation lowers costs of operations, allows more businesses to enter a market, and lowers prices for consumers and that these factors can help stimulate efficiency and lead to increased economic growth. Critics on the other hand suggest that deregulation can lead to monopolies and hurt consumers. It is not clear which direction Nigeria is heading and that is why it is expedient to carry out a full and objective appraisal of the policy on the Nigeria economy a'la the Total Differential Modeling Approach (ecostatometrics). Indeed the result of this study corroborates most of the economic tenets of price deregulation policy but with attendant high costs to the masses of Nigeria. The economy will grow and there will be a decline in the general price level as predicted by economic theory. Corruption will reduce, with consumption, investment and capital accumulation increased. Output of agriculture, industry, manufacturing, services and trade will record visible improvements. However, inflation and unemployment will still be very high; with poverty still being rife in the society at a level of about 67 million poor. The cost of price

deregulation is really prohibitive as all the extremely or absolute poor people in Nigeria may be wiped out completely by death. This study therefore recommends, amongst others, that government, private sector and the people in general need to play their respective roles adequately.

**Keywords:** Total Differential Modeling Approach, price deregulation, Nigeria economy, economic growth, standard of living, purchasing power and absolute poor.

## **INTRODUCTION**

Deregulation as the process, involves removing or reducing state involvement, typically in the economic sphere. It is the repeal of governmental regulation of the economy. Protagonists of price deregulation argue that Deregulation lowers costs of operations, allows more businesses to enter a market, and lowers prices for consumers. These actions can stimulate efficiency and lead to increased economic growth. Deregulation entails the removal of government regulations, restrictions, or rules that limit the activities of businesses, individuals, or private entities. The concept of deregulation has its roots in the laissez-faire approach, which advocates for minimal government interference in the functioning of markets (Wikipedia). The driving principle behind laissez-faire, is that the less the government is involved in the economy, the better off business will be, and by extension, society as a whole. Laissez-faire economics is a key part of free-market capitalism.

The cons and pros of deregulation have been listed to include:

- Promoting competition. ...
- Reducing the costs of running a business. ...
- Maximizing economic welfare. ...
- Initial reasons for regulations are no longer relevant. ...
- More efficient allocation of resources. ...
- Reducing the corrupt behavior of officials. ...
- Offering consumers more choices.
- Some advantages of deregulation are economic growth, lower prices, increased consumer choice and more freedom.
- Some disadvantages of deregulation are lower standards, market failure and monopoly power.

Ever since the President Bola Tinubu administration came to power on May 29, 2023 in Nigeria, his policy has been consistent with deregulation. Now, it will seem that the game plan of the administration all along was to deregulate prices and the general price level is now controlling the Nigeria economy. This has resulted in massive hew and cry among the citizens. However, we should not be too hasty in criticizing and castigating the administration and its policy until we have x-rayed the impact of the policy on the Nigerian economy as a whole. Deregulation in an emerging market economy signifies that the state is at last giving full play to market forces as opposed to centralized planning.

## **OBJECTIVES OF THE STUDY**

The objectives of this paper, among others, include:

- 1. To carry out a full and objective appraisal of the price deregulation policy on the Nigerian economy as a whole in order to determine its validity and efficacy.
- 2. To build a complete and comprehensive model of the Nigerian economy and use it to test the null hypothesis that the Nigeria economy will not grow and that the standard of living of the masses of Nigeria will not improve as a result of the price deregulation policy; using the Total Differential Modeling Approach (ecostatometrics), to infirm or validate the tenets of extant economic theories with respect to Nigeria.
- 3. In particular, to evaluate the impact of the policy on:
  - i. Growth of the Nigerian economy
  - ii. Poverty reduction
  - iii. Inflation and unemployment
  - iv. Consumption, investment and capital accumulation
  - v. Corruption
  - vi. General price level
  - vii. Exchange rate
  - viii. National income
  - ix. Standard of living and other socio-economic indices of the Nigerian economy
  - x. Output of some selected sectors; and
- 4. To draw conclusion and make some recommendations and suggest ways that can further improve the lot of the Nigerian masses.

The paper is therefore divided into five parts. Part I is the introduction and the objectives of the study. Part II is the literature review; while Part III is the methodology. In Part IV, the results of the analysis are presented and discussed and Part V concludes the study and makes some recommendations.

#### LITERATURE REVIEW

The desire of most individuals is to live and work within an economic framework that gives them the prospect of steady employment, relatively stable prices and a rising standard of living; which make up a set of macroeconomic objectives. This expectation fits rightly within the two-fold function of the State which takes cognizance of the safety and welfare of the people. These objectives include full employment, price stability and rapid economic growth, together with long term equilibrium in the balance of payments and a host of others. Because the invisible hand of the price mechanism fails to achieve these objectives, either in full or even at satisfactory values, there is the need for government's intervention. John Keynes argues that state interventionism is necessary to overcome economic slumps. As rightly stated by Iyoha (2002), in a modern mixed economy, where the public and private sectors co-exist like Nigeria, government perform both economic and non-economic functions. While the economic functions are designed to (i) strengthen and facilitate the price system, (ii) supplement and modify the operations of the price system (iii) enhance the development of the economy, the non-economic functions which include defense, governance and administration of justice are meant to avoid anarchy. In the exercise of

government intervention (stabilization) of the economy, there are policy instruments at her disposal. These include fiscal policy and monetary policy among others. In the above connection, Aruofor and Ogbeide (2004), opined that good governance apart from ensuring social emancipation of its citizenry, must also reduce poverty, inflation and corruption in addition to creating employment opportunities, high standard of living and optimum purchasing power, among others.

Nigeria has been focusing on economic stabilization programmes or policies aimed at achieving both internal as well as external balances. The belief in the efficacy of either monetary or fiscal policy has dictated the tune of policy making in the world in general, with Nigeria not exempted. Monetarist economics disagrees with Keynesian economics in that while Keynesian theory deals with Government expenditure, Monetarist economics involves control of money in the economy. Monetarism focuses on controlling the money supply to control the economy. Nigerian economists therefore have largely based their advice to Government on partial models, which are variants of the Keynesian model (Asogu, 1998, Busari and Olayiwola, 1999) and most of the arguments had focused on whether monetary policy was more effective than fiscal policy for achieving the stabilization policy. These studies in consonance with the tools used, have assumed a simplistic structure of the Nigerian economy. The structure of an economy to a very large extent determines to what extent any policy be it monetary or fiscal can work and failure to take this into consideration could make or mar any development plan. However, we shall present some of the highlights of economic theory to include some monetary remedies such as an increase in the money supply, according to Keynes's theory, leads to a drop in the interest rate and an increase in the amount of investment that can be undertaken profitably, bringing with it an increase in total income.

Keynes believes that inadequate demand could heighten unemployment. An economy's output of goods and services is the sum of four components: consumption, investment, government purchases, and net exports (the difference between what a country sells to and buys from foreign countries). The principles underlying this supposition include the following: Demand is influenced by public and private economic decisions. Changes in demand have the strongest short-term impact on output and employment. Keynesian economics argues that demand drives supply and that healthy economies spend or invest more than they save. Keynes believes that governments should increase spending to enhance job provision and consumer purchasing power.

The first main difference between classical and Keynesian theories is that classical theory believes in less government assistance. A second difference is that classical thought focuses more on inflation while Keynesian thought focuses more on unemployment. Monetarists believe in fighting inflation by adjusting the amount of money in circulation. In other words, inflation is an excess of aggregate demand over the aggregate supply. Is this the case in Nigeria? This theory believes that when aggregate demand is increased through government policy intervention, the performance of any economy can be optimized. Keynesian economics believes that employment and income depend on effective demand.

According to Eghosa Osagie, in his paper, titled "Future relationship between Nigeria, World Bank, IMF and others", to the Breton Woods Institutions, capitalist policies are preferred, not bothered by the fact that policies that work for developed countries may not necessarily succeed work in Nigeria. Unfortunately, it would seem these facts are not sufficiently considered in the policy advice of the World Bank and IMF.

It is pertinent to note that when these Breton Woods institutions were established in 1944, most of today's Third World nations, including Nigeria, were still colonies and their peculiarities are critical.

## **METHODOLOGY**

The approach used in this study is divided into two sections. First inspiration is drawn from theory of Demand and Supply. According to Aruofor (2006), the theory of demand and supply which permeates all facts of economic life is by far the most important factor with an all-pervading effect on modern society. In the opinion of Leftwich and Eckert (1982), the sets of principles comprising price theory should show the directions in which economic units, tend to move and should explain the move in those directions. They contended that they should be sets of logically consistent approximation of how the economy operates. According to them, the abstraction and precision of theory are essential to clear thinking and to policy making in the real world, but we should guard against the notion that it provides an unqualified description of the real world. In their opinion, we should make theory our tool, not our master. While the above conclusion serves to exonerate economic theorists and absolves them from any blame for any inconsistencies in such theories it also stresses the need for a clear and unequivocal understanding of the concepts which are involved in any theory. The theory of demand and supply, like any economic theory should be verifiable and capable, of mathematical validation for it to be truly comprehensible.

The theory of price has been widely discussed in the literature (cf. Harvey, 1976; Baumol, 1977; Koutsoyiannis, 1981; Samuelson, 1981; Leftwich and Eckert, 1982 and Lipsey, 1983). The rudiments have been presented to include, demand, supply and markets, as it affects a predominantly private enterprise economy. Every society provides an institutional framework within which economic activities are carried on and such framework may be conveniently termed an economic system. At one extreme of economic system is pure private enterprise or capitalism while at the other extreme is pure socialism. Between the two is a continuum where most economic systems of the modern world fall. While in pure private enterprise all resources as well as goods and services belong to private owners, in pure socialism they belong to the State or Government. Present day economies are mixtures of both. However, the primary goal of most Societies is the achievement of the maximum possible levels of want satisfaction as can be provided by the economy.

In outline, the basic ingredient of the price mechanism or system is that every commodity has a price and if more of a particular commodity is wanted, a flood of new orders will be given for it and this will cause the price to rise, thus inducing further, production. On the other hand, if too much is produced so that output is more than people want to buy at the last quoted market price, then price will fall. Samuelson (1981) describes the price mechanism as a vast system of trial and error of successive approximation to an equilibrium system of prices and production. The main ingredients of the market that must be matched according to him to answer the three problems of

production and distribution simultaneously are therefore, Supply, Demand, Price and Costs. There is a problem here because most, firms do not usually publish their costs. This leaves us with Demand, Supply and Price. According to Aruofor (2001, 2006, 2013 and 2020), "In the final evaluation, the price differential even for an imperfect market will be determined as part of a complete economy given the aspirations of Government." This is the approach adopted in this study.

### THE TOTAL DIFFERENTIAL MODELING APPROACH

The second is termed the total differential modeling approach (see Aruofor, 2001, 2017, 2019, and 2020), Aruofor and Okungbowa (2018), Aruofor and Ogbeide (2020), and Aruofor and Ogbeide (2022). It assumes and rightly so, that in the real world situation, every economic variable or subsystem depends on and is depended upon by other variables or subsystems.

A schematic representation of the above theory is presented in Fig. 1.

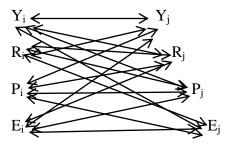


Fig: 1: The True Socio – Economic Causal Chain

Y = Production variables;

R = Primary Factors;

P = Policy instruments;

E = Environmental variables.

This theory was first mooted by Walras as early as 1874 even though it was not developed beyond the conceptual stage. The true practical empirical systems total differential modeling approach (Ecostatometrics), was achieved by Aruofor (2017) and relies on statistically significant multiple simple linear regression coefficients as opposed to multiple linear regression parameters. It is a blend between the traditional Input Output Analysis and Econometrics and assumes the structure of programming models. The theory behind it is that an economy is not truly dynamic but only dynamically static. It is the change that occurs in an economy in the current year(t) that determines where the economy (the endogenous variables) will be at the end of the current year (t) and not in the next year(t+1). This model is a departure from the normal econometric approach, where the structure of the economy is determined by combinations of economic theories. The true structure of an economy is so complex that economic theory will be self defeating (see Duesenberry et al , 1965 and Gordon, 1968). *Indeed, Adeyoju (1975) had rightly noted that "the unstable nature of* 

population and its growth, national income and its distribution, investment capacity, employment opportunities, balance of payments and raw material base often lead to conflicting theories of economic development". Thus, we do not need any elaborate theories to explain the working of an economy.

If we can estimate all the independent relationships among the variables of the economy taken two at a time, (depending on whether they are statistically significant) and classify the significant coefficients into a matrix B, according to whether they are endogenous or exogenous, then we would have in matrix notation,

$$Y = BY + CX + A + U$$

$$\therefore [I - B]Y = CX + A + U$$

$$Y = [I - B]^{-1}CX + [I - B]^{-1}A + [I - B]^{-1}U$$

$$\frac{dY}{dX} = [I - B]^{-1}C$$

$$\therefore dY = [I - B]^{-1}CdX$$
i.e  $\Delta Y = [I - B]^{-1}C\Delta X$ 

$$\therefore Y_{t} = [I - B]^{-1}CX_{t} - [I - B]^{-1}CX_{t-1} + Y_{t-1}$$

Where, Y=endogenous and X=exogenous variables. The fact that the relationships are not estimated by multiple linear regressions means that the issue of simultaneous equation bias is bypassed and all the estimation difficulties, including multi-collinearity associated with econometric multiple linear regression, which renders it inconsistent and therefore non-operational, are also bypassed. Moreover, no complicated econometric and economic theories are needed to proceed. It is then possible to view the whole economy at a glance and the structure of the economy is determined automatically.

Thus, given a simple linear regression between two variables, X and Y, we proceed as follows and state the equation as below:

$$Y = a + bX + u$$

Where Y = the dependent variable

X = the independent variable

a & b = parameters

u = error term.

The estimate of the parameters a & b, is achieved by the application of least squares to the data on the variables, with a view to minimize the sum of squared deviations around the regression line (Koutsoyiannis, 1977, Aruofor, 2001, Aruofor, 2017 and Aruofor, 2020).

The parameters can be estimated by solving the following normal equations:

$$a\sum 1 + b\sum X = \sum Y \tag{1}$$

$$a\sum X + b\sum X^2 = \sum XY \tag{2}$$

This was the basic procedure adopted and the coefficients were estimated by means of a computer software, ESM-Lab 4.4, that tested for statistical significance at the 5% level of significance using the asymptotic t-ratios. It was designed jointly by the author Professor Rex Oforitse Aruofor and Mr. Kingsley Igbinoba Omoruyi of Microcraft Nigeria Limited. The procedure is to determine the important variables required for the solution of the problem, classify them into endogenous and exogenous variables before feeding them to ESM-Lab 4.4. The model is then estimated, and the statistically significant coefficients are automatically classified into a matrix  $\boldsymbol{B}$  and the structural relationship of the economy is automatically specified. Further analysis can then be performed. (The computer software can be downloaded as esmlab.ng.com from the internet and ran as administrator). For this study, the data were assembled from the Central Bank Statistical Bulletin (CBN, 2017, 2018, 2019 and 2021) and Aruofor, (2017) and Aruofor and Ogbeide (2020). The time series ranged from 1981 to 2021. The list of variables consists of sixty nine variables, made up of sixty eight (68) endogenous variables followed by one (1) exogenous variable (see fig 2).

#### THE CONSTRUCTION OF THE COMPOSIT MODEL OF NIGERIA ECONOMY.

The Nigeria model consists of the primary sectors comprising of the agricultural sector, the manufacturing sector, industry, oil refining, construction, transport, services, education and health; and other real sectors including national income, consumption and investment, population, labor and employment, foreign sector, economic indicators and policy instruments. Together, they comprise the endogenous variables of the model, while the exogenous variable consist ofgeneral price level.

## THE POPULATION MODEL AND DERIVATION OF VARIABLES

Extant models of the Nigerian economy lacked data on total active work force, employment, etc. These are major defects and according to Stolper, (1966), the development planner cannot afford to assume his facts; he must find them as best as he can. We therefore proceeded as follows:

The population of Nigeria is growing at approximately 3% per year. Given this fact, we back cast the population at 3% discount rate to 1901 and projected it to 2021 assuming that the population has been adjusted for deaths.

- 1) Going by international standard, children are those people of ages Sixteen (16) years and below and was derived as:
  - Children =  $Pop_t Pop_{t-16}$
- 2) Population of people eighty years and below was derived as: Popt- Popt-80
- 3) Estimated potential active work force (EPAWF) =  $Pop_t Pop_{t-80} Children$ .

- 4) Population of old people equals the residual.
- 5) Unemployed work force = EPAWF x Unemployment rate.
- 6) Employed work force (EMPWF) = EPAWF Unemployed work force.
- 7) Employment =  $\Delta EMPWF$
- 8) Average wage rate = Labor Force Compensation/EMPWF
- 9) National Productivity = NGDP/Labor force compensation
- 10) Labor Productivity = NGDP/ EMPWF
- 11) Demand for Employment =  $\Delta EMPWF_{-1}$
- 12) Demand Pressure for Employment =  $(\Delta EMPWF_{-1})$ /Unemployed Work Force
- 13) Demand for Health care =  $\Delta HGDP_{-1}$
- 14) Demand Pressure for Health care =  $\Delta HGDP_{-1}/Pop$
- 15) Demand for Education =  $\Delta EdGDP_{-1}$
- 16) Demand Pressure for Education =  $\Delta EdGDP_{-1}/Pop$
- 17) Demand for Imports =  $\Delta IMPOTS_{-1}$
- 18) Penchant for Imports =  $\Delta IMPOTS_{-1}/Pop$

	Fig 2: LE	GEND OF VARIABLES NIGERIA ECONOMY PRICE DEREGULATION	
S/no.	ACRONYM	AS ACTIVITY GDP at Current Basic Prices	UNIT
	(.,	N million	
	2 CPI(t) 3 AGGDD	General Price L3vel Aggregate Demand	
	4 AGGSS	Aggregate Supply	
	5 CONS(t)	Consumption	N million
	, ,	Investment	N million
		Capital accumulation	N million
	8 INFLATN(t)	Inflation Inflation Rate	%
		Unemployment Rate	%
		Interest Rate	%
	12 SAVINGS(t)	Savings	N million
		Exchange rate (Relative poverty)	N/\$
	٠,	Government expenditure	N million
		Money supply	N million
		Demand for money Demand for money pressure	N million
		Corruption	
		Population	Million
	20 IMPORT(t)	Imports	N million
	21 XPOTOIL(t)		N million
		Non-oil export	N million
	23 DODBT(t) 24 EXTDBT	Domestic debts External debts	N million \$ million
	25 TAX(t)	Tax	N million
		Disposable Income	N million
	27 REALINC(t)	Real Income	N million
		Growth rate	%
	29 GROWTH(t		N million
	30 FDI(t)	Foreign Direct Investment Productivity	N million
		Labor Productivity	
		Average Wage Rate	Naira
		<b>Demand for Employment</b>	
	35 EMDDPR	<b>Employment Demand Pressure</b>	
	36 POOR(t)	Poor	Million
		Extremely (Absolute) Poor	Million
	38 POVRI(t) 39 BOT(t)	Poverty Rate Balance of trade	% N million
	40 BOP(t)	Balance of payments	N million
		External reserve	N million
		Debt burden or Bondage	
		Oil revenue	N million
	, ,	Non-oil revenue Personal Welfare (Per capita income)	N million Naira
		Standard of Living	Ivaira
		Purchasing Power	
		Food Security	
	49 HLTCARE		
		Demand for Health Care Health Care Demand Pressure	
		Human Resource Development	
	53 DDEDUC	Demand for Education	
		Education Demand Pressure	
	55 WEALTH	National Wealth Personal Wealth	
		Import Dependence	
		1. Agriculture	N million
		2. Industry	N million
		(c) Manufacturing	N million
		OIL Refining  3. Floctricity Cas Steam & Air conditioner	N million
		<ol> <li>Electricity,Gas,Steam &amp; Air conditioner</li> <li>Water supply, sewage, waste Mang.</li> </ol>	N million N million
		5. Construction	N million
		C. SERVICES	N million
	66 TRADE(t)		N million
		Prime Lending Rate	%
		Aggregate Demand Pressure US VARIABLE	
	69 CPI(t)	General Price Level	
	\-/		

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19) Import Dependence = IMPOTS/NGDP20) Slavery = EXTDEBT/Pop
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Some other variables were derived from existing data as follows:

• 
$$AGGDD$$
 =  $(\Delta GDP)_{-1}$   
•  $AGGSS$  =  $\Delta GDP$   
•  $AGGDDPR$  =  $(\Delta GDP)_{-1}/POP$   
•  $GROWT$   $RATE$  =  $((\Delta GDP)/GDP_{i})*100)$   
•  $DINCOM$  =  $GDP-TAX$   
•  $COLIVN$  =  $(CONS_{i-1}((1+(\stackrel{INFRT_{i}}{100}))))$   
•  $POOR$  =  $POP/((\stackrel{RGDP}{EXCHRT})*\$720)$   
•  $ABPOOR$  =  $POP/((\stackrel{RGDP}{EXCHRT})*\$360)$   
•  $RICH$  =  $POP$  -  $(POOR + ABPOOR)$   
•  $RPOVRT$  =  $(1-((\stackrel{RGDP}{EXCHRT})/RGDP)*100)$   
•  $DDMONY$  =  $(\Delta MONYSS)_{-1}$   
•  $DDMOPR$  =  $((\Delta MONYSS)_{-1}/POP)$   
•  $IMPDD$  =  $((\Delta IMPORT)_{-1}/POP)$   
•  $IMPDDPR$  =  $((\Delta IMPORT)_{-1}/POP)$   
•  $IMPDDD$  =  $(\Delta IMPORT)_{-1}/POP)$   
•  $IMPDDD$  =  $(\Delta IMPORT)_{-1}/POP)$   
•  $IMPDDD$  =  $(\Delta IMPORT)_{-1}/POP)$ 

The general price level is the driving force of the economy and therefore is the exogenous variable. The model also incorporates feedback in the general price level which is also an endogenous variable. The feedback value of price in period t therefore becomes the forecast value of price in period t+1 so that the economy is simulated through time dynamically.

## **RESULTS AND DISCUSSION**

The role that prices play in a modern society cannot be overemphasized. The partial aggregate demand and supply model of the Nigeria economy is as presented in Table 1 below. It can be inferred from Table 1 that the Nigeria economy simulates most of economic theory. Indeed, when general price level increases by N1.00, price level is pushed up by 69 kobo. Output will fall by N67,000.00, aggregate demand will also fall by N21,000.00, while aggregate supply will increase by N34,000.00 in conformity with economic theory. Inflation will increase by 0.212 points while the inflation rate will also increase by 0.08%. On the other hand, unemployment rate will only fall

by 0.008% and the poor in Nigeria will increase while the absolute poor are exterminated. The full details of the effect of price increase can be elicited from Table 1.

	Table 1: PA	RTIAL AGG	REGATE DE	MAND AND	SUPPLY M	ODEL-ENDO	GENOUS R	ELATIONSHI	PS								
S/no.								CAPITAL(t)		INFLTRT(t)	UNEMPL(t)	INTSAV(t)	SAVINGS(t)	EXCHRTRP	GEXPDN(t)	MONYSS(t)	DDMONY(t
	1 NGDP(t)	0.657495	-66641	0.983582	-2.43181	-0.04949	-1.49206	0.850441	-64957.1	-37984.1	15667.42	426079.2	3.214498	-17467.3	-1.6138	0.866137	-1.02351
	2 CPI(t)	-6.4E-07	0.695209	-5.8E-06	9.33E-06	2.54E-07	4.66E-06	-5.3E-06	0.204801	0.360749	-0.87187	-0.82985	-8.3E-06	-0.0553	5.88E-06	-3.2E-06	4.51E-06
	3 AGGDD	0.034116	-20970.8	1.295118	-0.78388	-0.02799	-0.40115	0.54387	-27438.7		17473.73		0.354366	881.442		0.520343	-0.54601
	4 AGGSS	-0.08435	33924.98	-0.78388		0.025077	0.71797		35696.76	25042.57	-20640.5	-440062	-2.13641		1.088877		0.673456
	5 CONS(t)	-0.02703		-0.44081		0.546035			15011.74	-4115.27		-372280	-0.58936		0.684622	-0.70347	
	6 INVST(t)		33335.36					-0.64783	34939.92	28605.05	-44729.1	-302631	-2.09769		0.935922		0.714926
	7 CAPITAL(t)			0.531413	-0.46776	-0.03877	-0.32157		-21514.5	-25368.9	61695.14	44688.04		-469.312	-0.62343	0.425573	-0.40415
	8 INFLATN(t) 9 INFLTRT(t)	-6.4E-07 -8.2E-08	0.212213 0.081327	-7.8E-06 -3.5E-06	1.02E-05 1.55E-06	-1.6E-08	5.06E-06 9.01E-07		0.754941 0.099999	0.459627	-0.59651 0.151582	-0.8878 0.183844	-6.6E-06 6.85E-07	-0.0537 0.025301	7.33E-06 2.96E-06	-4.3E-06 -1.8E-06	5.05E-06 1.65E-06
	10 UNEMPL(t)		-0.00853	4.7E-08	-5.6E-08	3.12E-08	-6.1E-08	1.7E-07		0.72713	0.151582	0.183844	7.36E-08	-0.00653	-1.2E-07	4.03E-08	-1.1E-08
	11 INTSAV(t)	2.23E-08	-0.00456	-3.4E-08	-6.7E-07	-3.6E-08	-2.3E-07	6.91E-08		0.000377	0.04956	0.716288	1.2E-06	-0.00035	-2.3E-07	-1.5E-08	-2.6E-07
	12 SAVINGS(t)			0.037983	-0.229	-0.00401	-0.11422	0.023	-2494.24		2932.896	85078.43	0.862925	-1004.63	-0.0779	0.009545	-0.07578
	13 EXCHRTRP			1.97E-07		1.22E-07	-1.2E-07	-1.1E-07		0.091333	-0.54359	-0.40635		0.462315	-4.2E-07	9.54E-07	8.07E-07
	14 GEXPDN(t)	-0.01277	4878.317	-0.19861	0.248426	0.009918	0.108475	-0.14557	5869.899	10903.28	-10086.8	-35117.6	-0.16581	-431.636	0.720968	-0.16233	0.120947
	15 MONYSS(t)	0.03031	-11887.4	0.524974	-0.58584	-0.04507	-0.29501	0.439424	-15061.6	-28574.8	15124.21	-10045.2	0.089852	4302.285	-0.71786	0.876792	-0.34212
	16 DDMONY(t	-0.02928	13540.14	-0.4503	0.555409	0.012519	0.299527	-0.34112	14621.48	21909.12	-3356.32	-141414	-0.58308	2973.454	0.437198	-0.27966	0.791813
	17 DDMOPR(t				0.001283		0.000685		51.85766		177.1632	-483.167		26.51609	0.001521		0.000834
	18 CORRPTN(1				0.003816		0.00182			127.0074	-19.2724	-724.216			0.003522		0.002318
	19 POP(t)		0.013109	-5E-07	1.76E-06	4.24E-08	6.8E-07		0.011391			0.258771	-1E-06	-0.03608	4.05E-07	-1.5E-07	7.24E-07
	20 IMPORT(t)			0.045749	-0.26427	-0.01668		0.084638	-2380.39	-767.054				1859.655		0.009674	-0.10502
	21 XPOTOIL(t)		-12181.4		-0.29385	-0.0065		0.213904	-13815.5	-15167.8	-20230	43337.03		-4628.35	-0.39681	0.251996	-0.20069
	22 XPTNOIL(t) 23 DODBT(t)	0.000172		0.061874 0.002459	-0.02218	0.002078 -0.00591	-0.06079	0.033861 -0.01313	-1288.09 -1377.38	-3166.73 -3647.22	-5628.43	-4323.81	0.223534	183.8365 368.2783	-0.04275 -0.02626	0.024473 -0.03773	-0.01177 -0.0628
	24 EXTDBT	0.006297	-2989.29	-0.03009	0.006859	0.00591	-0.03107	-0.01313	-1377.36	430.7375	-15717		0.225554	-3722.78	-0.02626	0.036132	
	25 TAX(t)	0.030877		0.272884	-0.56191	-0.02403		0.293647	-12661.2		1819.301		0.52165	-1324.9		0.211017	-0.29288
	26 DISPINC(t)	-0.27132	111685	-3.85436	4.971143	0.145294			126827.6	194080.5	-128399	-1086540	-5.22939	10697.84	4.100323	-2.49661	2.52836
	27 REALINC(t)		-71.6155	0.006905	-0.0041		0.000454		-116.589	-504.786	-633.624	-2291.06	-0.01308	76.10818	-0.00638	0.001704	-0.00288
	28 GROWTRT(	-4.9E-08	0.039166	-1.8E-06	8.28E-07	-6.6E-09	3.72E-07	-8.3E-07	0.04978	0.114249	0.054259	0.258279	8.05E-07	0.005076	1.47E-06	-8.1E-07	8.17E-07
	29 GROWTH(t	-1.5E-09	-0.00018	-8E-08	-4.9E-08	-2.6E-09	-3.4E-08	-6.3E-08	0.000492	0.003954	0.002549	0.081162	2.97E-07	-0.00272	3.16E-08	-4.3E-08	-1.3E-08
	30 FDI(t)	0.0001	24.91313	0.020223	-0.00865	-0.00288	-0.00599	0.01691	-207.903	-632.058	2803.238	-12245	-0.03936	689.5097	-0.01413	0.012908	-0.00802
	31 PRDTIVTY	1.9E-08	-0.03057	1.64E-07	1.13E-07	6.21E-08	-2.5E-07	-6.9E-07	-0.02222	0.053116	-0.23161	0.98057	3.76E-06	-0.04848	1.13E-09	8.04E-08	2.34E-07
	32 LPROVITY		799.5446	-0.04319		0.002513			1042.457		-1925.99	-7952.54	-0.03579		0.039801		0.023188
	33 AVWAGE		87.80444		0.003617	8.69E-05		-0.00034	69.53998	-65.515	-465.039	-2774.65	-0.01513		0.000598		0.001354
	34 DDEMENT	2.63E-08	-0.01226	4.26E-07	-4.2E-07	-1.4E-08	-2.1E-07	3.14E-07	-0.01296	-0.01132		0.092133	2.67E-07	-0.00148	-4.1E-07	2.7E-07	-2.1E-07
	35 EMDDPR		0.000352	-2.5E-08	-3.2E-08	-1.2E-09	-8.7E-09		0.000596	0.001147		0.024414	1.07E-07	-0.00019	2.03E-08	-2.7E-08	4.61E-10
	36 POOR(t) 37 EXTPOOR(t	-2.3E-07	0.036684	-4E-06 7.75E-07	3.32E-06 -2.4E-06	1.23E-07 -8E-08	1.35E-06 -1E-06	-2.6E-06 1E-06	0.055164 -0.08197	0.246123 -0.07989		1.131245 1.050901	7.59E-07 3.56E-06	-0.06966 -0.04449	2.89E-06 -2E-06	-1.2E-06 1.15E-06	2.07E-06 -1.3E-06
	38 POVRT(t)	1.02E-09	-0.001	4.73E-08	-6.1E-09	-5.3E-09	-8.8E-09	5.52E-08	-0.0014	-0.0007	-0.0055	-0.00915	-6.3E-08	0.000226	-5.6E-08	5.46E-08	-1.9E-08
	39 BOT(t)	0.008685		0.115549	-0.13675	0.004201		0.116828	-4863.11	-3150.5	-2571.67		0.217478	-2293.64	-0.15048	0.077326	-0.08705
	40 BOP(t)	0.00858		0.287358	-0.08455	-0.02305	-0.06787	0.28145	-7260.92	-14115	-5681.01	-70571.1				0.248465	-0.13971
	41 EXTRES(t)	-0.00012	40.89914	-0.00127	0.001764	5.98E-05	0.001098	-0.00091	45.07783	55.62691	-176.255	-231.306	-0.00217	-8.17816	0.001287	-0.00087	0.000914
	42 DBTBDN(t)	1.69E-09	-0.00062	1.57E-08	-3.1E-08	-1.7E-09	-1.9E-08	1.39E-08	-0.00075	-0.0005	0.000791	0.009474	4.37E-08	-3.7E-05	-2.4E-08	1.93E-08	-1.5E-08
	43 OILREV(t)	-0.0112	1873.987	0.028131	0.100549	0.001775	0.05013	0.002485	2810.389	-1227.78	-9661.22	4707.529	-0.21311	-2192.91	0.01246	-0.00882	0.037945
	44 NOILREV(t)	0.003704	-1997.56	0.032715	-0.05814	0.000507	-0.04289	0.012087	-1892.94	-534.151	-271.825	13607.46		-890.375	-0.0362	0.020583	-0.02378
	45 PWLFARE		544.5667	-0.01853					628.5511		-472.903	-7324.55	-0.02923				0.013229
	46 STDOLIVN	-0.00133	531.114	-0.01266		0.000544			570.4932	498.5361	-437.674	-5840.09	-0.03171		0.020023		0.011697
	47 PUPWER	4.27E-07	-0.10736	5.46E-06	1.28E-05	2.67E-06				-1.29058		-16.5129		1.185616	6.65E-06	-4.3E-06	1.05E-05
	48 FODSRITY		74.86754	-0.00197	0.00413	7.07E-05				116.3752	-386.715	-861.355	-0.00578 -4.5E-05	-7.65046	0.002296		0.001754
	49 HLTCARE 50 DDHCARE	-1.1E-06 0.000202	-0.16833	-3E-06 0.003727	-1.2E-06 -0.00481		7.34E-06 -0.00235	-6.9E-06 0.00154	-0.1417 -108.372		-10.6003 -182.699			-0.16938 -26.9132	-1.3E-05	0.001915	2.55E-06 -0.00241
	51 HCRDDPR		-0.66289	1.8E-05	-0.00481 -2.9E-05			8.91E-06							-0.00549 -2E-05	9.71E-06	-0.00241 -1.4E-05
	52 HRESDEV			-0.00017									0.000228				1.97E-05
	53 DDEDUC		-64.3623					0.00435									-0.00251
	54 EDUDDPR			4.13E-05		-8.5E-07	-3E-06				-8.24066			-0.02572			-2.6E-06
	55 WEALTH	-2.7E-10	0.000112	-5.2E-09	5.16E-09		2.64E-09			0.000228		0.000164			6.11E-09		3.57E-09
	56 PWEALTH	-2.6E-05	12.87237	0.000294	0.000442	4.57E-05	0.000259	0.000193	1.58151	-14.1789	-96.1945	-223.529	-0.00201	6.852611	-8.2E-05	0.000168	0.00023
	57 IMPDPEN	-5.5E-11	-0.00013	6.41E-09	-1.1E-09	9.08E-11	2.19E-10	3.2E-10	-0.00017	-0.00035	-0.00088	0.000627	-8.9E-10	-0.00014	-4.1E-09	1.97E-09	-2.2E-09
	58 AGRSEC(t)															0.220673	
	59 INDUST(t)												0.49249		-0.16827	-0.00453	
	60 MANUFC(t			0.1668				0.132804					-0.04321		-0.14485		-0.09246
	61 OILREFIN							-0.00213									
	62 ELECTSS(t)												0.007869			3.59E-06	
	63 WATER(t) 64 CONSTN(t)																
	65 SERVCS(t)							-1.26393									
	66 TRADE(t)							-0.44736									
	67 PRIMELR(t)				-1.5E-07	-5E-08		4.62E-07		-0.01288		-0.06466		0.004215		4.45E-07	-2.1E-07
	68 AGGDDPR												0.001249				

When aggregate demand increases by N1.00, output increases by N0.98 and price falls by –N5.8E-0.6; aggregate supply falls by -N0.78 with consumption also falling by –N0.44. Inflation onthe other hand will fall by -7.8E-06 points with the inflation rate also falling by -3.5E-06% thus suggesting that inflation in Nigeria is not demand pull inflation. Aggregate supply on the other hand, has the direct opposite effect on the Nigeria economy as against aggregate demand. When aggregate supply increases by N1.00, output falls by as much as N2.43 and general price level increases by N9.33E-06 with aggregate demand falling by as much as –N0.78. Inflation will rise by N1.02E-05 with the inflation rate increasing by 1.55E-06%; again confirming that inflation in Nigeria is cost push rather than demand pull. In addition, aggregate supply also reduces the savings rate and depreciates the value of the Naira further (see Table 1 for further details).

The two main policy instrument adopted by Nigeria to control the economy are Monetary and Fiscal policies; therefore it is expedient to examine the effect of money supply and government expenditure in the aggregate demand and supply model of the Nigeria economy. Starting with money supply, when money supply is increased by N1.00, interest rate will fall by -1.5E-08%; inflation will fall by -4.3E-06 units with inflation rate declining by -1.8E-06%. General price level will fall by -3.2E-06 units also aggregate demand will improve by N0.52 and output increasing by N0.87. Money supply does not promote investment but capital accumulation will increase by N0.42. Unemployment rate on the other hand will increase by 4.03E-08%. Money supply further depreciates the value of the naira by 9.54E-07 N/US\$ and causes government expenditure to fall by -N0.16 and increases external debt by N0.036. In addition money supply weakens personal welfare, standard of living and purchasing power.

Increasing Government expenditure on the other handby N1.00, will cause output to fall by N1.61 and general price level to rise by 5.88E-06 units. Aggregate demand on the other hand will fall by -0.87 units with aggregate supply increasing by 1.09 units. Government expenditure will increase consumption by N0.68, investment by N0.94 and lower unemployment rate by -1.2E-07%. However, it will increase inflation by 7.33E-06 points and raise the inflation rate by 2.96E-06%. Moreover, government expenditure will also appreciate the value of the naira by 4.2E-07 N/US\$, increases personal welfare, standard of living and improves the purchasing power of Nigerians. However, government expenditure will also promote corruption to the tune of N0.003 for every naira spent by government. Table 1 contains the full details.

#### THE PRO OF THE PRICE DEREGULATION POLICY ON NIGERIA ECONOMY

The resulting predictions are presented as graphics with comments as follows:

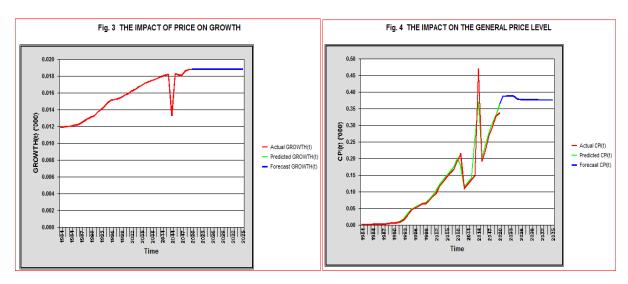


Fig. 3 shows that the Nigeria economy will indeed grow. The growth will stabilize at about N18.8 million each year beginning from 2024. In the same vein, Fig. 4 indicates that price deregulation will lead to an eventual fall in prices. The general price index will fall from 387.7055 units in 2024 to 370.0698 units by 2035.

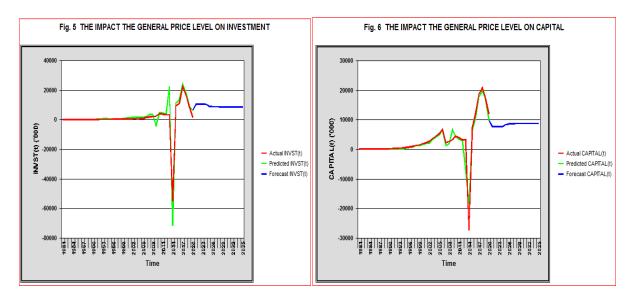
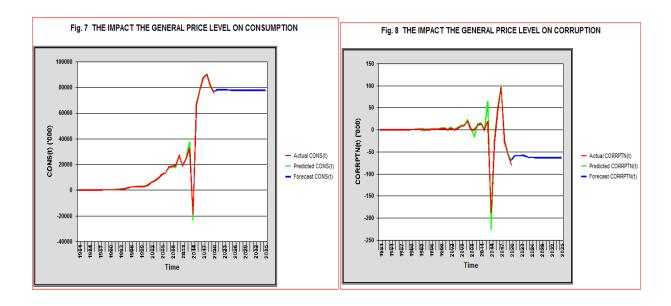
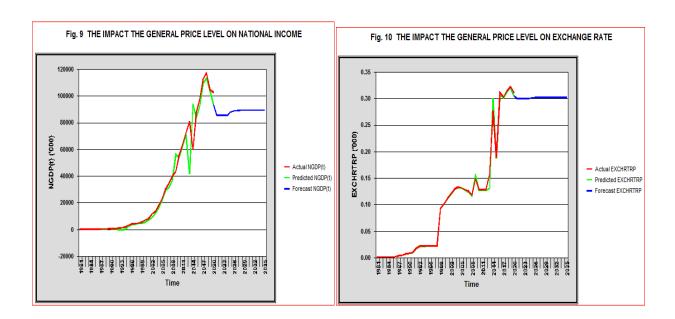


Fig. 5 confirms that price deregulation will indeed stimulate investment. The chart indicates that by 2024, investment will be stimulated to the level of N10.5 trillion due to price deregulation and will eventually fall and stabilize at N8.55 trillion by 2035.

The above predictions appear to be in consonance with economic theory so far and it will seem that the price deregulation policy of President Bola Tinubu is well meant.



The price deregulation policy will also cause consumption to rise to N78 trillion in 2024 and to stabilize at N77.6 trillion by year 2035. In the same vein, the policy will drive down corruption as opined by the protagonists. Corruption will reduce by –N58.8 billion in 2024 to –N63.3 billion by year 2035.



National income will grow as can be seen from Fig. 9. Indeed, National income will grow from N85.3trillion in 2024 to N89.3 trillion by year 2035. From Fig. 10, it can be seen that the Official exchange rate will stabilize at about N302.32/US\$ as a result of the price deregulation policy. These are all good signs so far.

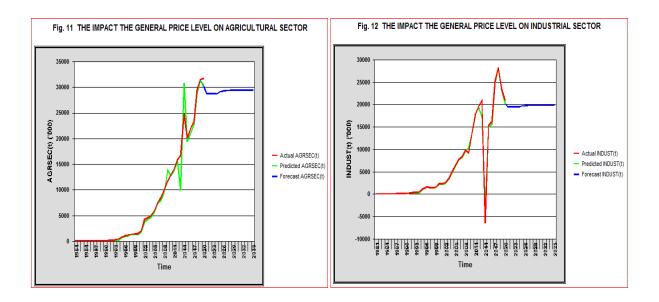


Fig. 11 indicates that agriculture will grow from N28.7 trillion in 2024 to N29.6 trillion by year 2035. Industry will also pick up as can be seen from Fig. 12. Indeed, Industry will rise from N19.4 trillion in 2024 to N19.8 trillion by year 2035.

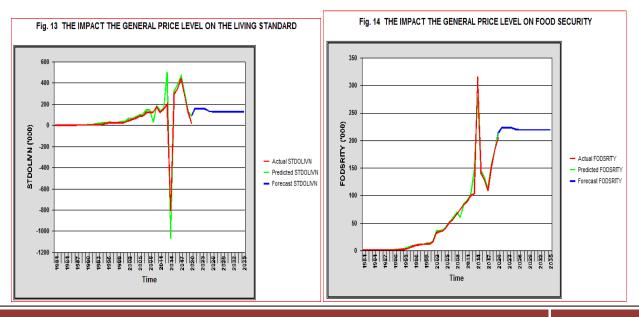


Fig. 13 indicates that the standard of living i.e. consumption per capita will rise from N155,870.8 per capita in 2024 and then stabilize at N125,580.1/person by 2035 as a result of the price deregulation policy. In Fig. 14, we can also see that food security will also rise in 2024 to N223,124.7/person and then gradually stabilize at N218,891.3/person by 2035. These are all positive developments.

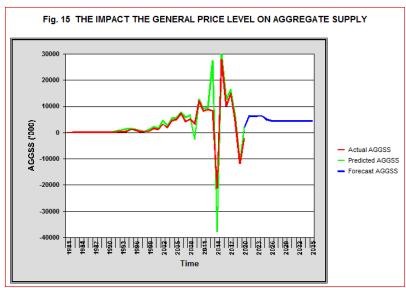
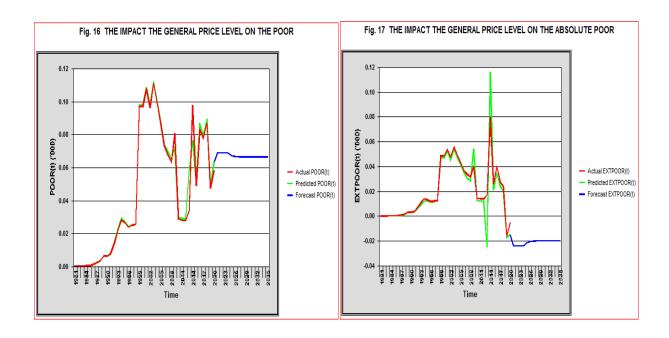


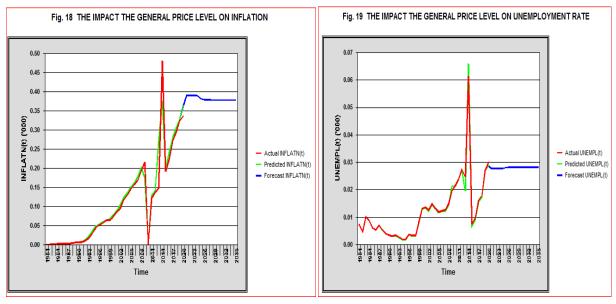
Fig. 15 shows that aggregate supply will be positive, increasing from N6.28 trillion in 2024 and then stabilizing at N4.34 trillion by 2035. All the above appear to be advantages to be gained by the Nigeria economy resulting from the price deregulation policy of President Bola Tinubu.

## THE CON OFTHE PRICE DEREGULATION POLICY IN NIGERIA

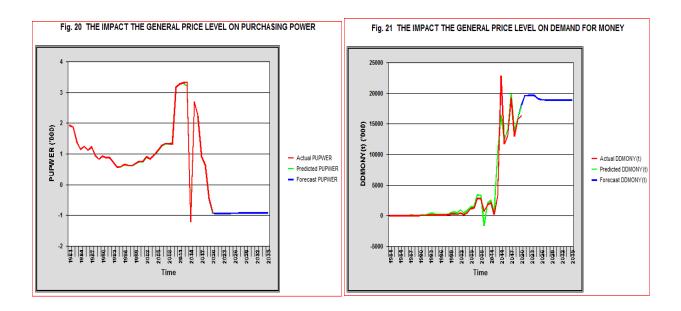
These will also be presented as graphs and brief comments below also.



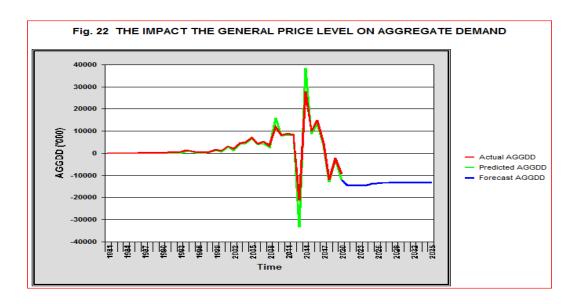
In Fig. 16 the Poor in Nigeria may reduce from 68.9 million people in 2024 to 66.46 million people by 2035 but poverty will still be high. Many of the poor may have died or emigrated to other lands in search of greener pastures and even then poverty will still be considerable in Nigeria. In the same vein, Fig. 17 indicates that the extremely or absolute poor people in Nigeria will be completely annihilated by death and will be completely wiped out due to the price deregulation policy. This is a high cost to pay!



In Fig. 18, inflation may fall from 389.57 price units in 2024 and stabilize at 377.54 units by 2035, but it will still be a source of concern to the economy. From Fig. 19, it can be seen that the unemployment rate will continue to soar from 27.62% in 2024 to 28.15% by year 2035 as a result of the price deregulation policy.



The problem of inflation become evident in Fig. 20 where the purchasing power of the citizens of Nigeria is completely eroded and is below zero. In the same vein, it is easy to see from Fig. 21 that the demand for money will sky rocket from N19.6 trillion in 2024 and stabilize at N18.8 trillion by 2035. These are not complementary to the price deregulation policy.



From Fig. 22, it is now evident that price alone is not sufficient because aggregate demand is negative. There will be supply but no money to buy. This puts a question mark on policy advice from World Bank and IMF.

So far in this study it has been demonstrated that the general price level has a key role to play in an economy. The monetarists believe that managing money supply can solve the associated problems in an economy while the fiscals believe that it is the control of government expenditure that matters. The question before us Nigerians is "which way foreword?" First let us present further evidence.

#### **FURTHER EVIDENCE IN NIGERIA**

These evidences will also be presented as graphs as above and we shall raise questions as required.

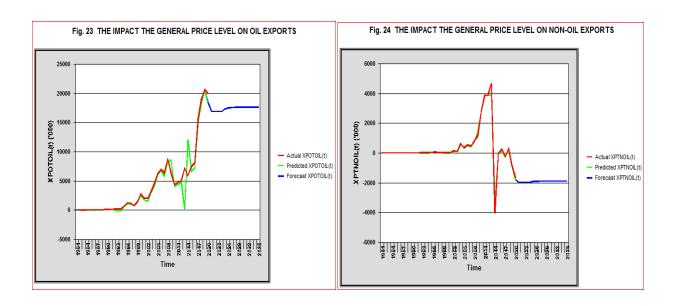
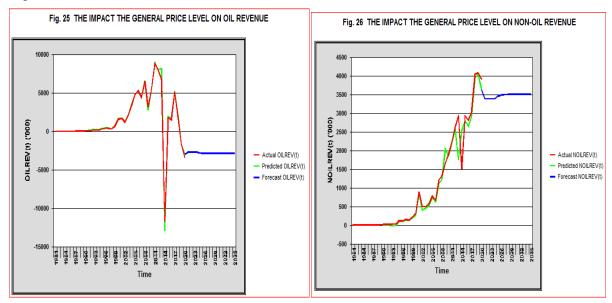
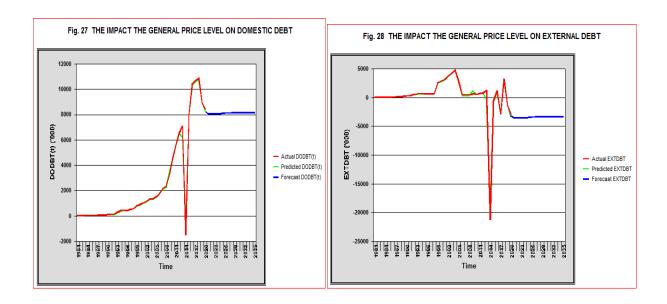


Fig. 23 shows that oil exports will be positive and increase from 16.8 million barrels in 2024 to 17.5 million barrels by 2035. On the other hand, Fig. 24 indicates that non-oil exports will be negative.



Figs. 25 and 26 are not consistent with Figs. 23 and 24. Where did the revenue from oil exports go? And where did the revenue from non-oil come from? This raises the issue of corrupt practices in Nigeria. Corruption distorts the economy and is inimical to growth and development.



If external borrowing will be deemphasized in preference to domestic debt then a mile stone in development would have been achieved in Nigeria as evident in Figs. 27 and 28.

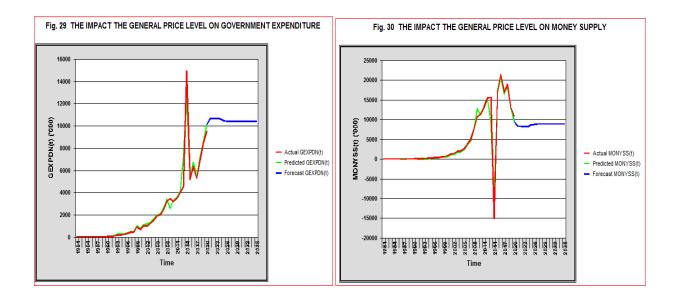


Fig. 29 indicates that government expenditure will indeed be positive as well as money supply in Fig. 30. Indeed, government expenditure will increase from N10.66 trillion in 2024 and stabilize at N10.4 trillion by year 2035. Money supply on the other hand will increase from N8.27 trillion in 2024 and grow to N8.897 trillion by 2035. Therefore, one may wonder why the problems of inflation and unemployment should still be a source of concern in Nigeria.

#### **CONCLUSION**

Indeed this study corroborates most of the economic tenants of price deregulation policy but with attendant high costs to the masses of Nigeria. Indeed, the economy will grow though minimally. In addition, there will be a decline in the general price level as predicted by economic theory, even though a tortuous one. Corruption will reduce, with consumption, investment and capital accumulation increasing. Output of agriculture, industry, manufacturing, services and trade will also record visible improvements. However, inflation and unemployment will still be very high; with poverty still being rife in the society at a level of about 67 million poor. The cost of price deregulation is really prohibitive as all the extremely or absolute poor people in Nigeria will be wiped out completely by death.

Even though the Nigeria economy may eventually stabilize, the poverty level will totally be unbearable as the purchasing power of the masses will be negative. Though aggregate supply will be positive, aggregate demand will be negative i.e instead of excess demand as postulated by economic theory, in the case of Nigeria, there will be deficit demand. The masses of Nigeria will not have any purchasing power. Standard of living may be positive but the outlook of the economy will be basically gloomy. The demand for money will be quite high and the demand for education will be negative and nobody will want to go to school anymore. It is obvious that discretionary Government intervention in the Nigeria economy is inevitable.

It has been reasonably demonstrated in this study that the general price level has a key role to play in an economy like Nigeria but there are some problems. The monetarists believe that money supply management is the answer to the associated problems. On the other hand, the Keynesians believe that the control of Government expenditure is the key. The question therefore is, "which way for Nigeria?"

- Should Government print more money and increase money supply? Or
- Should we increase Government expenditure?

Which ever the case, the onus is on Government. Having said this, it will seem that both the Keynesian and the Monetarist policies are already in operation in Nigeria (see Figs. 29 and 30). Should Government print more money and increase money supply? Of course, this will weaken the value of the Naira further and fuel the level of unemployment. Should Government increase government expenditure? Increase in government expenditure without clear cut objectives and strategy will be like shooting without aiming!

Finally is the issue of corruption which pea mites all segments and facets of the Nigeria economy as revealed by Figs. 23 to 26. The fight against corruption must be continuous, ruthless and total with no sacred cows if Nigeria is to develop.

## RECOMMENDATIONS

It is now evident that it is not sufficient to put a price deregulation policy in place because price alone is not adequate. Government must complement the policy with a lot of effort and actions among which are:-

- 1. Build more factories and industries in order to create employment for the teeming masses of Nigeria.
- 2. Address the problem of lopsided income distribution which is skewed to the poor in Nigeria.
- 3. Implement objective and reliable measures to alleviate and reduce poverty if not eliminate poverty in Nigeria.
- 4. Promote non-oil exports
- 5. Develop the rural areas by building factories and industries as well as develop agriculture and agricultural industries.
- 6. Ensure the adequate security of life and property in Nigeria.
- 7. Modernize and develop the electric power generation and distribution capacity in Nigeria.
- 8. Ensure good governance that is accountable and devoid of corruption, nepotism and indiscipline.
- 9. De-emphasize Religious Bigotry in Government Affairs and enshrine it in the Constitution of Nigeria.
- 10. Continue to ruthlessly fight corruption and indiscipline in all its ramifications especially among Public Officials and the uniform staffs in particular in Nigeria.
- 11. Promote quality education and invest more in qualitative education in Nigeria.
- 12. Finally, the main argument or criticism against Government building factories and industries is that efficiency will fall and will be sacrificed. However, the Private Sector in Nigeria has not done better and has not demonstrated that they are organized and have the capacity to take the initiative to build and sight factories and industries especially in the rural areas of Nigeria. Under this paradigm therefore, Government is the last resort to bridge the gap especially because one of the principal roles of governance is to ensure the welfare of the masses. This means that Nigerians (all rank and files inclusive) will need to improve on their work ethics as well as change their attitude and orientation towards anything that belongs to Government if Government must rise up to this responsibility.

#### REFERENCES

- Adeyoju, S. K. (1975). Forestry and the Nigerian economy. Ibadan University Press, Nigeria.
- Aruofor, R. O. (2001): Economic Systems Engineering: An Essay in quantitative models and methods for development planning. Thy Kingdom Press (Subsidiary of Systemod Nigeria Ltd.), Miscellaneous Publishers, Sapele, Nigeria, 2001.
- Aruofor, R. O. (2006): Demand and Supply Theory, Statistical Estimation and the Identification Problem Revisited. *Journal of Management and Enterprise Development. Vol 3, No. 2 pp 54-63,: International Research and Development Institute, Nigeria.*
- Aruofor, R. O. (2013): The Theory of Demand and Supply Revisited. The Total Differential Approach. *The Indian Journal of Economics No. 370 Vol. XIIIC, ISSN 0017-5170 January, 2013*
- Aruofor, R. O. (2017). Economic Systems Engineering, Poverty, Unemployment and Under-Development: A Quest for Solution and Imperatives for Developing the Nigerian

- Economy. In Proceedings of the 6th Inaugural Lecture Series, Benson Idahosa University, March 6.
- Aruofor, R. O. and Okungbowa, E. Flourence (2018): Estimating the Real Impact of Devaluation on an Economy: The Case of the Naira. *The Indian Journal of Economics. Vol XCVIII, No. 390 Part III pp 343-360, ISSN 0019-5170, Jan.2018*.
- Aruofor, R. O (2019): Analysis of the Impact of Corruption on an Economy: Understanding the Links and Feedback in the Nigerian Case. *Journal of Research in Development*, 17(2) pp 18-34, December, 2019.
- Aruofor, R. O. K. (2020): ECONOMIC SYSTEMS ENGINEERING: Modeling And Applied Quantitative Techniques For Economic And Development Planning. Amazon Books, ISBN: 9798689936024
- Aruofor, R. O. and Ogbeide, D. R, (2020): Empirical Evaluation of the Impact of Corruption on Nigeria's New Democratic Governance. *International Journal of Innovative Social Sciences & Humanities Research* 8(3):69-90, July-Sept., 2020
- Aruofor, R. O. and Ogbeide, D. R, (2022): The Impact OfBoko Haram Insurgency And Banditry On The Nigerian Economy: Understanding The Causes And Feedback.

  International Journal of Innovative Development and Policy Studies 10(1):14-26, Jan.-Mar., 2022
- Aruofor, R. O. and Ogbeide, D. R, (2024): Analysis Of Poverty And Unemployment
  Nigeria's Fourth Republic: An Outlook To Year 2035. International Journal
  Social Sciences and Management Research, (IJSSMR) E-Issn 2545-5303 P2695-2203Vol 10 No. 1, pp 42-54, 2024.
- Asogu, J. O. (1998): An Econometric Analysis of the relative potency of Monetary and Fiscal Policy in Nigeria. CBN *Economic and Financial Review. Vol. 36 No.2*
- Baumol, W. J. (1977): Economic theory and operations analysis. Prentice Hall International, Inc.London, Sydney, Toronto, New Delhi, New Zealand. 1977
- Busari, T. D. and Olayiwola, W. K.(1999): Stabilization Policy in Nigeria under Alternative Exchange Rate Regimes; a postulated empirical macro- model approach. CBN *Economic and Financial Review*. Vol. 37 No.1
- CBN (2017). Central Bank of Nigeria Statistical Bulletin, Abuja.
- CBN (2018). Central Bank of Nigeria Statistical Bulletin, Abuja.
- CBN (2019). Central Bank of Nigeria Statistical Bulletin, Abuja.
- CBN (2021). Central Bank of Nigeria Statistical Bulletin, Abuja.
- Duesenberry, J. S, Fromm, G, Klein, L. R and Kuh, E. eds, (1965). The Brookings: Quarterly Econometric Model of the United States Economy, Chicago; Rand McNally, 1965.
- Gordon, R. J. (1968): The Brookings Model in Action: A Review Article. *Journal of PoliticalEconomy*, pp 489-525.

- Harvey, J (1976): Modern Economics. An introduction for Business and Professional students.
  - The Macmillan Press Ltd. London and Basingstoke. 1976.
- Iyoha, M. A. (2002): Macroeconomics: Theory and Policy. Minnex Publishers, Benin.
- Koutsoyiannis, A.(1977): Theory of econometrics. The Macmillan Press Ltd., London and Basingstoke.
- Koutsoyiannis, A. (1981): Modern microeconomics. The Macmillan Press Ltd., London and Basingstoke. 1981.
- Leftwich, R. H. and Eckert, R. D. (1982): The price system and resource allocation. The Dryden Press. Chicago, New York, London, Tokyo, Madrid. 1982.
- Lipsey, R. G. (1983): An introduction to positive economics. English Language Book Society. Weidenfeld and Nicolson Ltd. 1983.
- Samuelson P. A. (1981): Economics. McGraw-Hill International Book Company. Hamburg, Lisbon, London, Mexico, Paris, Tokyo. 1981.
- Stolper, W. F.(1966): Planning without facts. Harvard University Press, Cambridge, Massachussetts.