# Impact and Implications of Optimizing Productivity of the Nigerian Economy Under Existing Paradigm

**Rex Oforitse Aruofor, Ph.D**
Retired Professor of Economics,
Benson Idahosa University, Benin City, Nigeria
Email: aruoforr@yahoo.com

**Daniel Risiagbon Ogbeide, Ph.D**
Former Senior Lecturer of Political Science,
Augustine University, Ilara-Epe, Nigeria
Email: ogbeidedaniel8@gmail.com

https://doi.org/10.56201/ijssmr.vol.12no10.2026.pg314.336

***Abstract***
*Low productivity constrains an economy's long-term potential, leading to stagnant wages, reduced global competitiveness, higher inflation, and slower Gross Domestic Product (GDP) growth. National productivity was derived as nominal income divided by labour compensation while labor productivity as nominal income divided by the employed workforce. Labour compensation is the total package of benefits accruable to the worker for their contribution to production and includes wages and salaries, health care, pension, etc. The aim of this study is to analyze the impact and implications of attempting to optimize the productivity of the Nigerian economy under the extant paradigm, with a view to determine the needed policy interventions and developmental strategies that are required in order to proceed to mitigate the challenges posed by low productivity. The result indicated that to attempt to optimize productivity in Nigeria under the existing state of affairs of the Nigerian economy without first fixing the entire economy as well as the citizens, will be counter-productive and self-defeating; as this will only promote and fuel corruption, inflation and poverty in Nigeria. Tackling Nigeria's low productivity requires aggressive investments in critical infrastructure (such as reliable power and transportation networks), widespread human capital development through vocational and digital skills training, and economic reforms that support SMEs, modernize agriculture, and promote regional trade. In addition, Nigeria needs a paradigm shift and the citizens' reorientation and attitudinal change. In addition, the country needs a good, honest and decisive leader, who is bold, courageous and pragmatic in his leadership and who has the political will to implement the range of recommendations emanating from thisstudy, including a deliberate attempt to minimize corruption and indiscipline as well as ensuring good governance, amongst others.*

***Key words:*** *Nigerian economy, Productivity, Labor productivity, Employment, Extant paradigm, total differential modeling approach and Linear programming.*

## Introduction

Nigeria has a mixed economy classified as an emerging market and lower-middleincome economy. It combines a capitalist system—where private individuals and businesses own resources and seek profit—with significant government regulation and intervention in key sectors like petroleum, power, and infrastructure. The petroleum sector is the dominant source of the country's foreign exchange earnings and a major contributor to government revenue. Beyond oil, vital growth sectors include services (the largest GDP contributor), telecommunications, information technology (A rapidly expanding sector driven by tech startups and massive mobile phone penetration), entertainment (Nigeria's creative industry commonly known as "Nollywood" is one of the largest globally, and a major cultural export), manufacturing and construction (Represents a smaller fraction of the GDP but is vital for industrialization, value addition, and technological advancement), and a massive traditional and subsistence agricultural sector (the largest employer and food source). A very large portion of economic activity happens in the informal sector. The Informal Sector is a massive, often unrecorded part of the economy. It comprises micro-businesses, tradesmen, roadside vendors, and personal services, and is estimated to account for a massive chunk of overall economic activity and employment (Wikipedia). According to literature, Nigeria's economy has a low level of productivity. Despite boasting as having Africa's largest GDP, the country struggles with low industrial capacity, heavy reliance on primary exports like crude oil, and pervasive infrastructure deficits. While GDP growth reached 3.89% in early 2026, it remains driven primarily by the services and financial sectors rather than value-added manufacturing. The Services Sector accounts for the vast majority (roughly 57%) of Nigeria's GDP. It is led primarily by robust telecommunications, financial services, and entertainment industries. Agriculture employs a large portion of the workforce but remains underproductive. Low crop yields, poor mechanization, and severe post-harvest losses keep the sector from reaching its full potential. Manufacturing represents a comparatively small and declining share of the GDP. Nigeria imports the majority of its finished goods and machinery, meaning the economy does not capture the value-added benefits of industrialization. Productivity remains Low because of Energy Deficits: The power sector struggles with systemic grid failures and insufficient generation, which severely stunts industrial output. In early 2026, the electricity sector contracted sharply by over 15%, highlighting its inability to support commercial productivity. Poor road networks, inadequate rail systems, and high transport costs make it incredibly difficult and expensive to move goods across the country. While crude oil provides the bulk of government revenue and foreign exchange, it accounts for a relatively small percentage of actual employment and overall GDP, creating vulnerability to global price shocks. While recent financial and telecom reforms have stabilized macroeconomic growth, this has not translated into inclusive prosperity for the average citizen. The country faces persistent challenges with inflation, currency devaluation, high unemployment, insecurity and endemic corruption, leading to a situation where the financial sector booms while the real economy struggles (Internet).

For this study, National productivity was derived as nominal income divided by labour compensation while labour productivity as nominal income divided by the employed workforce. Labour compensation is the total package of benefits accruable to the worker for their contribution to production and includes wages and salaries, health care, pension, etc. Available statistics reveal that national productivity increased from approximately N10.00/N of labour compensation in 1981 to N85.48/N of labour compensation in 2005 and has since been

experiencing a decline to N2.43/N of labour compensation by 2025. Labor productivity on the other hand has been increasing from N3880.56/worker in 1981 to N1,554,931/worker by 2025.
Low productivity constrains an economy's long-term potential, leading to stagnant wages, reduced global competitiveness, higher inflation, and slower Gross Domestic Product (GDP) growth. Low productivity impacts several key areas including Stagnant Wages and Lower Purchasing Power; Slower GDP and Economic Growth; Increased Inflationary Pressures; Reduced Global Competitiveness; Strained Public Finances and Business Stagnation and Unemployment. Low productivity in economics is a measure of economic performance where the amount of goods and services produced (output) is small relative to the amount of resources used (inputs like labor, time, and capital). It indicates inefficiency of the economy.
The aim of this study is to analyze the implications and consequences of attempting to optimize the productivity of the Nigerian economy under the extant paradigm, with a view to determine the needed policy interventions and developmental strategies that are required in order to mitigate the challenges posed by low productivity.

**Objectives of The Study**
The objectives of the paper among others, include:
1. To build a complete and disaggregated model of Nigerian economy and to analyze the impact of national productivity and labour productivity on it *a'la* the total differential modeling approach (Ecostatometrics).
2. In particular, to analyze their impacts on output, wages, foreign sector, inflation, and Income and Economic Growth, Purchasing Power; Public Finances, Unemployment and other welfare indicators.
3. To determine the requirements of optimizing the productivity of the Nigerian economy under existing paradigm via Linear Programme and to test if it is expedient to attempt to do so.
4. In addition, to analyze the implications and consequences on the economy as a whole in order to determine the policy and development strategies required to mitigate the challenges facing the Nigerian economy.
5. Conclude and make some recommendations.

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

**Literature Review**
Low productivity in the Nigerian economy is primarily driven by critical infrastructural deficits (particularly unreliable power and poor transportation networks), widespread insecurity that disrupts agricultural and commercial activities, massive brain drains (emigration of skilled professionals), and a lack of access to affordable financing for businesses, in addition to poor policy choices. These structural bottlenecks and systemic challenges that suppress output across several critical areas have been summarized in the literature to include:

**Infrastructure Deficits and High Operating Costs**
**Power Supply:** Unreliable grid electricity forces businesses, particularly SMEs, to rely heavily on expensive, fuel-guzzling diesel generators, drastically driving up production costs and reducing profit margins.

**Transportation & Logistics:** Poor road networks, inadequate rail systems, and severe congestion at seaports like Apapa create significant supply chain delays. You can track ongoing trade and transport metrics via the Nigerian Ports Authority.

**Human Capital Constraints**

**Education and Skills Mismatch:** A significant portion of the workforce lacks advanced technical or vocational training, limiting the adoption of modern, high-value production methods.

**Brain Drain ("Japa Wave"):** The emigration of skilled healthcare workers, engineers, software developers, and academics to Western and Middle Eastern countries creates massive talent gaps across domestic industries due to low wages and salaries and overall low labour compensation.

**Insecurity and Agricultural Disruption**

**Food Production Bottlenecks:** Banditry, kidnappings, and communal clashes in key food-producing regions (such as the North-West and North-Central) which prevent farmers from accessing their lands. Because agriculture employs a massive portion of Nigeria's workforce, this severely depresses overall national productivity.

**Financial and Regulatory Constraints**

**Limited Access to Capital:** High interest rates and stringent collateral requirements make it difficult for small and medium-scale enterprises (SMEs) to secure funding for expansion or technological upgrades.

**Ease of Doing Business:** Complex bureaucratic processes, multiple taxation, and unstable foreign exchange policies create an unpredictable environment for entrepreneurs and foreign investors.

**Over-Reliance on the Oil Sector**

**The Resource Curse:** Nigeria's heavy dependence on crude oil exports for government revenue and foreign exchange has historically discouraged diversification into highly productive, labor-intensive sectors like manufacturing and technology. The volatility of global oil prices causes macro-economic instability that trickles down to firm-level operations.

All the above appear to be characteristic of the Nigeria economy and the way forward will be to redress these challenges. The National Productivity Centre (NPC) Act establishes a Nigerian federal parastatal charged with stimulating productivity consciousness, monitoring economic trends, and improving human resource capacity across all sectors. First enacted in 1987, it is now codified as Act Cap N70, Laws of the Federation of Nigeria (LFN) 2004. Under the Act, the NPC functions as a research-oriented government agency with the following primary mandates:

**Advocacy & Sensitization:** Promoting productivity awareness and a culture of efficiency among citizens and corporate organizations.

**Consultancy Services:** Providing advisory services on industrial relations, personnel management, production planning, and job evaluation to enhance performance.

**Studies & Research:** Conducting studies on modern methods of increasing productivity and assisting businesses in implementing productivity schemes.

**Capacity Building:** Designing and implementing training programs (such as the Productivity and Quality Improvement Programme) to scale up organizational competitiveness.

The affairs of the Centre are managed by the **National Productivity Council**, which is responsible for determining overall policy, financial operations, and program implementation. The council includes representatives from:

- The Federal Ministries of Industry; Employment, Labour and Productivity; and Budget and Planning.
- The Nigerian Institute for Social and Economic Research (NISER).
- The Centre for Management Development (CMD).
- The Director-General of the Centre.

Legislative Amendments and Reviews

To address changing economic demands, the National Assembly has considered various amendment bills over the years. Notable legislative proposals have sought to empower the Centre to set certification and training guidelines for artisans and technicians. Simultaneously, there have been legislative efforts (such as the 2021 repeal bill) aimed at restructuring and merging parastatals to reduce the cost of governance.

Nigeria's economic trajectory heavily depends on shifting from fragile stabilization to robust, real-sector growth, a defining challenge given its historically low labor productivity. Addressing the productivity deficit requires strategic improvements in infrastructure, private sector credit access, and workforce skills. How well the National Productivity Centre (NPC) has performed in achieving its mandate, remains a question of debate.

## Methodology

### The Total Differential Modeling Approach

The approach used in this study is divided into two sections. The first is termed the total differential modeling approach (see Aruofor, 2001, 2017, 2019, and 2020), Aruofor and Okungbowa (2018), Aruofor and Ogbeide (2019), and Aruofor and Ogbeide (2022). The total differential modeling approach (ecostatometrics) is the reward of a personal commitment in research that dates back to 1976 by the author. The research results have been published in Aruofor (2020) and the details can be found in a copy of Aruofor, R. O. K. (2020a). "Economic Systems Engineering: Modeling and Applied Quantitative techniques For Economic And Development Planning. Amazon Books, ISBN:9798689936024" and its Epilogue, Aruofor, (2020b) online. 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.

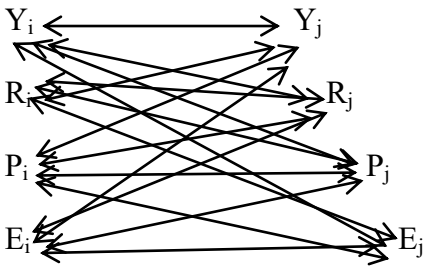



Fig: 1: The True Socio – Economic Causal Chain

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) when Professor Rex Oforitse Aruofor delivered his inaugural lecture, titled "Economic Systems Engineering, Poverty, Unemployment and Under-Development: A Quest for Solution and Imperatives for Developing the Nigerian Economy" at Benson Idahosa University, Benin City, Nigeria on March 6. 2017. Since then it has crystallized into academic publications (see Aruofor, 2017, 2019 and 2020), Aruofor and Okungbowa, (2018) and also Aruofor and Ogbeide, (2017, 2022a, 2022b, 2023a, 2023a, 2024a, 2024b, 2024c, 2024d, 2024e, 2024f, 2025a, 2025b, 2025c, 2025d, 2025e and 2025f etc). The total differential modeling approach 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.

With 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,

$$Y = BY + CX + A + U$$
$$\therefore [I - B]Y = CX + A + U$$
$$Y = [I - B]^{-1} CX + [I - B]^{-1} A + [I - B]^{-1} U$$
$$\frac{dY}{dX} = [I - B]^{-1} C$$
$$\therefore dY = [I - B]^{-1} CdX$$
$$\text{i.e } \Delta Y = [I - B]^{-1} C\Delta X$$
$$\therefore Y_t = [I - B]^{-1} CX_t - [I - B]^{-1} CX_{t-1} + Y_{t-1}$$

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 by-passed and all the estimation difficulties, including multi-collinearity associated with econometric multiple linear regression, which renders it inconsistent and therefore non-operational, are also by-passed. 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:

$$a\sum 1 + b\sum X = \sum Y \qquad (1)$$
$$a\sum X + b\sum X^2 = \sum XY \qquad (2)$$

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 and 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 ***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 (2019). The time series ranged from 1981 to 2025. The list of variables consists of two hundred and five variables (see fig 2).

**The Construction of The Composite Model of Nigeria Economy.**

The Nigeria model consists of the primary sectors comprising of the agricultural sector, the manufacturing sector, industry, 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 consists of National productivity and Labor productivity.

**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:
   $Pop_t - Pop_{t-80}$
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 = $\Delta IMPOTS_{-1}$

Fig 2: LEGEND OF VARIABLES NIGERIA MARKET ECONOMY

| S/no. | ACRONYMS | ACTIVITY | UNIT |
|---|---|---|---|
| 1 | NGDP(t) | GDP at Current Basic Prices | N million |
| 2 | AGGDD | Aggregate Demand | N million |
| 3 | AGGSS | Aggregate Supply | N million |
| 4 | INVST(t) | Investment | N million |
| 5 | INVRATO | Investment Ratio | |
| 6 | INDUST(t) | 2. Industry | N million |
| 7 | MANUFC(t | (c) Manufacturing | N million |
| 8 | OILREFIN | OIL Refining | N million |
| 9 | ELECTSS(t) | 3. Electricity,Gas,Steam & Air conditioner | N million |
| 10 | WATER(t) | 4. Water supply, sewage, waste Mang. | N million |
| 11 | CONSTN(t) | 5. Construction | N million |
| 12 | SERVCS(t) | C. SERVICES | N million |
| 13 | TRADE(t) | 1. Trade | N million |
| 14 | ACCOFOOD | 2. Accomadation and Food Services | N million |
| 15 | TRASPOT(t | 3. Transportation and Storage | N million |
| 16 | TRANSEV(t | e. Transport Services | N million |
| 17 | POSTCUR(t | f. Post and Courier Services | N million |
| 18 | INFOCOM( | 4. Information and Communication | N million |
| 19 | TELECOM(t | a. Telecommunications and Information Services | N million |
| 20 | PUBLSHN(t | b. Publishing, | N million |
| 21 | MPIC&SND | c. Motion Pictures, Sound recording and Music production | N million |
| 22 | BRODCST(t | d. Broadcasting | N million |
| 23 | ARTRECRT | 5. Arts, Entertainment & Recreation | N million |
| 24 | FININSUR(t | 6. Financial and Insurance | N million |
| 25 | FINANCE(t | a. Financial Institutions | N million |
| 26 | INSURANS | b. Insurance | N million |
| 27 | REALEST(t) | 7. Real Estate | N million |
| 28 | PROFSERV | 8. Professional, Scientific & Technical Serv. | N million |
| 29 | ADMINSUP | 9. Administrative and Support Services | N million |
| 30 | PUBADMN | 10. Public Administration | N million |
| 31 | EDUCATN( | 11. Education | N million |
| 32 | HLT&SOC | 12. Human Health & Social Services | N million |
| 33 | OTHSERVS | 13. Other Services | N million |
| 34 | DISPINC(t) | Disposable Income | N million |
| 35 | REALINC(t) | Real Income | N million |
| 36 | REALGDP(t | Real GDP | N million |
| 37 | GROWTRT( | Growth rate | % |
| 38 | GROWTH(t | Growth | N million |
| 39 | CONS(t) | Consumption | N million |
| 40 | CAPITAL(t) | Capital accumulation | N million |
| 41 | FDI(t) | Foreign Direct Investment | N million |
| 42 | CPI(t) | Consumer Price Index | |
| 43 | INFLTD(t) | Inflation Dummy = 1 when CPI increases, otherwise = 0 | |
| 44 | INFLATN(t) | Inflation = INFTD X CPI | |
| 45 | INFLTRT(t) | Inflation Rate | % |
| 46 | UNEMPL(t) | Unemployment Rate | % |
| 47 | LABCOMP | Labor Force Compensation | N million |
| 48 | MALE | Male Population | Million |
| 49 | FEMALE | Female Population | Million |
| 50 | URBAN | Urban Population | Million |
| 51 | RURAL | Rural Population | Million |
| 52 | CHLDRN | Children Population (16 years and below) | Million |
| 53 | CHDRNSS | Children Supply | Million |
| 54 | EPAWF | Estimated Potencial Active Work Force | Million |
| 55 | NADDWF | New Addition to Workforce | Million |
| 56 | POPOLD | Population of Old People (80 years and above) | Million |
| 57 | UNEMWF | Unemployed Work Force | Million |
| 58 | EMPWF | Employed Work Force | Million |
| 59 | EMPLMNT | Employment | Million |
| 60 | AVWAGE | Average Wage Rate | Naira |
| 61 | DDEMENT | Demand for Employment | |
| 62 | EMDDPR | Employment Demand Pressure | |
| 63 | POOR(t) | Poor | Million |
| 64 | EXTPOOR(t | Extremely (Absolute) Poor | Million |
| 65 | POVRT(t) | Poverty Rate | % |
| 66 | SLAVERY | Slavery | |
| 67 | SAVINGS(t | Savings | N million |
| 68 | BOT(t) | Balance of trade | N million |
| 69 | BOP(t) | Balance of payments | N million |

Fig 2: LEGEND OF VARIABLES NIGERIA MARKET ECONOMY CONT'D

| S/no. | ACRONYMS | ACTIVITY | UNIT |
|---|---|---|---|
| 70 | EXTRES(t) | External reserve | N million |
| 71 | DBTBDN(t) | Debt burden or Bondage | |
| 72 | OILREV(t) | Oil revenue | N million |
| 73 | NOILREV(t) | Non-oil revenue | N million |
| 74 | CORPTD(t) | Corruption Dummy = 1 when DDMOPR increases, otherwise = 0 | |
| 75 | CORRPTN(t | Corruption= CORPTD X DDMOPR. | |
| 76 | DDMONY(t | Demand for money | N million |
| 77 | DDMOPR(t | Demand for money pressure | |
| 78 | DEMOCY(t | Dummy Variable 1.0 for New Democracy and 0 elsewhere. | |
| 79 | CORDEM(t | Equals DEMOCY x CORRPTN | N million |
| 80 | PWLFARE | Personal Welfare (Per capita income) | Naira |
| 81 | STDOLIVN | Standard of Living | |
| 82 | PUPWER | Purchasing Power | |
| 83 | FODSRITY | Food Security | |
| 84 | HLTCARE | Health Care | |
| 85 | DDHCARE | Demand for Health Care | |
| 86 | HCRDDPR | Health Care Demand Pressure | |
| 87 | HRESDEV | Human Resource Development | |
| 88 | DDEDUC | Demand for Education | |
| 89 | EDUDDPR | Education Demand Pressure | |
| 90 | WEALTH | National Wealth | |
| 91 | PWEALTH | Personal Wealth | |
| 92 | IMPDPEN | Import Dependence | |
| 93 | DDIMP | Demand for Imports | |
| 94 | PENCIMP | Penchant for Imports | |
| 95 | CROPS | Agriculture Crops | N million |
| 96 | LIVESTOK | Livestock | N million |
| 97 | FORESTY | Forestry | N million |
| 98 | FISHRY | Fishery | N million |
| 99 | AGRICSEC | Agricultural Sector | N million |
| 100 | INVCROP | Investment in Agriculture Crops | N million |
| 101 | INVLSTOK | Investment in Livestock | N million |
| 102 | INVFOR | Investment in Forestry | N million |
| 103 | INVFISHY | Investment in Fishery | N million |
| 104 | INVAGRS | Investment in Agriculture | N million |
| 105 | INVINDUST | Investment in Industry | N million |
| 106 | INVMANUI | Investment in Manufacturing | N million |
| 107 | INVOILREF | Investment in Oil Refining | N million |
| 108 | INVELECTS | Investment in Electricity Supply | N million |
| 109 | INVWATER | Investment in Water resources | N million |
| 110 | INVCONST | Investment in Construction Sector | N million |
| 111 | INVSERVCS | Investment in Services | N million |
| 112 | INVTRADE | Investment in Trade | N million |
| 113 | INVREALES | Investment in Real Estate | N million |
| 114 | INVEDUCA | Investment in Education | N million |
| 115 | INVHLT&S | Investment in Health and Social Services | N million |
| 116 | POVERTY | | |
| 117 | HUNGAR | Hunger | |
| 118 | CPDDPR | Food Crops Demand Pressure | |
| 119 | LSKDDPR | Livestock Demand Pressure | |
| 120 | FPRDDPR | Forest Products Demand Pressure | |
| 121 | FISDDPR | Fishery Demand Pressure | |
| 122 | INSECURTY | Insecurity = Boko Haram=1 and 0 elsewhere | |
| 123 | TIME(t) | Time | Years |
| 124 | EXCHRTRP | Exchange rate (Relative poverty) | N million |
| 125 | POP(t) | Population | Million |
| 126 | IMPORT(t) | Imports | N million |
| 127 | XPOTOIL(t) | Oil export | N million |
| 128 | XPTNOIL(t) | Non-oil export | N million |
| 129 | DODBT(t) | Domestic debts | N million |
| 130 | EXTDBT | External debts | $ million |
| 131 | GEXPDN(t) | Government expenditure | N million |
| 132 | PRIMELR(t | Primary lending rate | % |
| 133 | INTSAV(t) | Interest rate | % |
| 134 | MONYSS(t) | Money supply | N million |
| 135 | TAX(t) | Tax | N million |
| 136 | ACGSC | Agricultural Credit Guarantee Scheme | N million |
| 137 | DFUELP(t) | Domestic fuel price | N/Litre |
| 138 | POVMALE | Male Poverty | |

Fig 2: LEGEND OF VARIABLES NIGERIA MARKET ECONOMY CONT'D

| S/no. | ACRONYMS | ACTIVITY | UNIT |
|---|---|---|---|
| 139 | POVFMLE | Female Poverty | |
| 140 | POVURBN | Urban Poverty | |
| 141 | POVRUAL | Rural Poverty | |
| 142 | POVCHLD | Children Poverty | |
| 143 | POVOLD | Old People's Poverty | |
| 144 | POVUNMP | Unemployed Poverty | |
| 145 | POVEMPL | Employed Poverty | |
| 146 | POVPOOR | Poverty of the Poor | |
| 147 | POVABPO | Absolute Poverty | |
| 148 | HNGMALE | Male Hunger | |
| 149 | HNGFMLE | Female Hunger | |
| 150 | HNGURBN | Urban Hunger | |
| 151 | HNGRUAL | Rural Hunger | |
| 152 | HNGCHLD | Children's Hunger | |
| 153 | HNGOLD | Old People's Hunger | |
| 154 | HNGUNMP | Hunger of the Unemployed | |
| 155 | HNGEMPL | Hunger of the Employed | |
| 156 | HNGPOOR | Hunger of the Poor | |
| 157 | HNGABPO | Hunger of the Absolute Poor | |
| 158 | HGACPM | Male Hunger for Agricultural Crops | |
| 159 | HGACPF | Female Hunger for Agricultural Crops | |
| 160 | HGACPUB | Urban Hunger for Agricultural Crops | |
| 161 | HGACPRU | Rural Hunger for Agricultural Crops | |
| 162 | HGACPCH | Children Hunger for Agricultural Crops | |
| 163 | HGACPOD | Old People's Hunger for Agricultural Crops | |
| 164 | HGACPUN | Unemployed Hunger for Agricultural Crops | |
| 165 | HGACPEM | Employed Hunger for Agricultural Crops | |
| 166 | HGACPPO | Poor People's Hunger for Agricultural Crops | |
| 167 | HGACPAP | Hunger for Agricultural Crops by the Absolute Poor | |
| 168 | HGALSM | Male Hunger fo Livestock | |
| 169 | HGALSF | Female Hunger fo Livestock | |
| 170 | HGALSUB | Urban Hunger fo Livestock | |
| 171 | HGALSRU | Rural Hunger fo Livestock | |
| 172 | HGALSCH | Children's Hunger fo Livestock | |
| 173 | HGALSOD | Old People's Hunger fo Livestock | |
| 174 | HGALSUN | Unemployed People's Hunger fo Livestock | |
| 175 | HGALSEM | Employed People's Hunger fo Livestock | |
| 176 | HGALSPO | Poor People's Hunger fo Livestock | |
| 177 | HGALSAP | Hunger fo Livestock by the Absolute Poor | |
| 178 | HGAFOM | Male Hunger for Forest Products | |
| 179 | HGAFOF | Female Hunger for Forest Products | |
| 180 | HGAFOUB | Urban Hunger for Forest Products | |
| 181 | HGAFORU | Rural Hunger for Forest Products | |
| 182 | HGAFOCH | Children's Hunger for Forest Products | |
| 183 | HGAFOOD | Old People's Hunger for Forest Products | |
| 184 | HGAFOUN | Unemployed People's Hunger for Forest Products | |
| 185 | HGAFOEM | Employed People's Hunger for Forest Products | |
| 186 | HGAFOPO | Poor People's Hunger for Forest Products | |
| 187 | HGAFOAP | Hunger for Forest Products by the Absolute Poor | |
| 188 | HGAFSM | Male Hunger for Fishery Products | |
| 189 | HGAFSF | Female Hunger for Fishery Products | |
| 190 | HGAFSUB | Urban Hunger for Fishery Products | |
| 191 | HGAFSRU | Rural Hunger for Fishery Products | |
| 192 | HGAFSCH | Children's Hunger for Fishery Products | |
| 193 | HGAFSOD | Old People's Hunger for Fishery Products | |
| 194 | HGAFSUN | Unemployed People's Hunger for Fishery Products | |
| 195 | HGAFSEM | Employed People's Hunger for Fishery Products | |
| 196 | HGAFSPO | Poor People's Hunger for Fishery Products | |
| 197 | HGAFSAP | Hunger for Fishery Products by the Absolute Poor | |
| 198 | POVERTY | Poverty | |
| 199 | HUNGAR | Hunger | |
| 200 | CPDDPR | Hunger for Agricultural Crops. | |
| 201 | LSKDDPR | Hunger for Livestock | |
| 202 | FPRDDPR | Hunger for Forest Products. | |
| 203 | FISDDPR | Hunger for Fishery Products. | |
| 204 | PRDTIVTY | Productivity | Million |
| 205 | LPROVITY | Labor Productivity | |
| 206 | PRDTIVTY | Productivity | Million |
| 207 | LPROVITY | Labor Productivity | |

18) Penchant for Imports = $\Delta IMPOTS_{-1} / Pop$

19) Import Dependence = $IMPOTS / NGDP$

20) Slavery = EXTDEBT/Pop

Some other variables were derived from existing data as follows:

- $GROWT \quad RATE \quad = \quad ((\Delta GDP) / GDP_t) * 100)$
- $DINCOM \quad = \quad GDP - TAX$
- $COLIVN \quad = \quad (CONS_{t-1}((1 + (INFRT_t / 100)))$
- $POOR \quad = \quad POP / ((RGDP / EXCHRT) * \$720)$
- $ABPOOR \quad = \quad POP / ((RGDP / EXCHRT) * \$360)$
- $RICH \quad = POP \quad - \quad (POOR + ABPOOR)$
- $RPOVRT \quad = \quad (1 - ((RGDP / EXCHRT) / RGDP) * 100)$
- $DDMONY \quad = \quad (\Delta MONYSS)_{-1}$
- $DDMOPR \quad = \quad ((\Delta MONYSS)_{-1} / POP)$
- $IMPDD \quad = \quad (\Delta IMPORT)_{-1}$
- $IMPDDPR \quad = \quad ((\Delta IMPORT)_{-1} / POP)$
- $XPOTDD \quad = \quad (\Delta XPORT)_{-1}$
- $DBTBDN \quad = \quad (EXDBT / (GDP / EXCHRT))$
- $INVEDU \quad = \quad (INVSTNENT/NGDP) * EDUGDP$
- $INVIND \quad = \quad (INVSTNENT/NGDP) * INDGDP$
- $SECTORAL\ INVESTMENTS = INVESTMENT\ RATIO * SECTORAL\ GDP.$
- $POVERTY \quad = \quad ((\Delta CONSUMPTION)_{-1} / POP)$
- $HUNGER \quad = \quad ((\Delta AGRIC \quad SECTOR \quad GDP)_{-1} / POP)$

However the 2001 and 2006 census of the Nigerian economy by the National Bureau of Statistics was used to adapt the population of male and female, as well as urban and rural populations in Nigeria according to their shares.

**Linear Programming**

The second part was the Linear Programme. The BMAT (Structural relationships) was estimated by the Total Differential Modeling Software, ESMLAB. The matrix of dimension (205 x 205) is what was used to formulate the Linear programming Model of the Nigeria economy.

Linear programming was developed during the Second World War by George B. Dantzig in collaboration with other members of a group of officials of the U.S. department of the Air Force in 1947. It involves the maximization or minimization of a function subject to certain constraints on the variables which comprise the function. The adjective "linear" implies the assumption of proportionality of input and outputs regardless of the resulting solution values of the variables. It also implies the assumption that the result of simultaneously carrying out two or more activities is the sum of the result of the separate activities. The solution is obtained by the Simplex method which is based on what is generally termed the Simplex Algorithm which was also invented or devised by George B. Dantzig in 1947. This is an iterative approach which starts by identifying a

finite set of solution from an infinite set of possible solutions. The finite set eventually contains the most important candidates for the best solution which is termed the optimal solution.
The constraints were formulated as aspiration levels and were derived as 20% increase of the desirables and 20% decrease of undesirables of the 2024 state of the Nigeria economy, modified by converting all negative values to positive values and constituted the right hand side (RHS). All sectoral outputs were required to be underachieved (< or =) by 2027 and also all other variables were constrained to be underachieved (< or =) also by 2027. The Nigeria economy was duly adjusted to reflect the current domestic fuel price of N1200.00/litre, the external debt was updated as well as the prevailing exchange rate of N1600.00/US $ and the economy was fully deregulated. In addition, the Sectoral investments (Investment ratio x Sectoral GDP), were expanded and all constrained to be underachieved (< or =). The population of Nigeria was further classified according to gender, urban-rural, employment, age, and poverty status and their interactions and related to poverty and hunger and were all constrained to be underachieved. The inflation rate was constrained to be less or equal to 5% while the unemployment rate should not exceed 10%.
The objective function was: **Maximize Productivity and Labor Productivity.**
The solution was obtained by solving the problem as a Linear Program using the Six Pap Linear Programming Software and an optimal solution was obtained after 242 iterations and the objective value was 3.49e+05.

**Results and Discussion**

**Impact of Productivity on The Nigerian Economy.**

The impact multipliers are presented in Table 1 below. It is evident from Table 1 that the impact of productivity on the Nigerian economy is mixed mostly negative on Industry, Oil refining and Services. However, the impact on Manufacturing, water resources and transportation is positive.
Productivity depresses Disposable and real incomes as well as the growth rate but promotes consumption and Capital formation. It also promotes inflation while reducing the inflation rate. When productivity increases, more children are produced in Nigeria but the population of Old people reduces. However, it reduces slavery which is the amount owed the international community per capita, and reduces the debt burden.
Productivity promotes corruption and the demand pressure for money and increases our penchant for imports. It reduces the output in the agricultural sector except for fishery. The other details can be inferred from Table 1.

**Requirements for Optimizing Productivity in The Nigerian Economy.**

The details are contained in Table 2 below. An attempt to optimize productivity under the extant paradigm of the Nigerian economy will cause a shift of 1.4086 in Inflation, while it requires that employment should be increased by 11.6512 million. The demand for employment and the employment demand pressure will increase. The balance of trade should be increased by N3.02e+05.

Table 1: IMPACT MULTIPLIERS OF PRODUCTIVITY ON NIGERIAN ECONOMY.

| S/no. | ACRONYM | PRDTIVTY(t | LPROVITY(t) | S/no. | ACRONYM | PRDTIVTY(t | LPROVITY(t) | S/no. | ACRONYM | PRDTIVTY(t | LPROVITY(t |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NGDP(t) | 238570.5 | -11.5157 | 70 | EXTRES(t) | -59.0778 | 0.011312 | 139 | HUNGAR | -11.8627 | 0.000486 |
| 2 | AGGDD | 161243 | -3.10147 | 71 | DBTBDN(t) | -0.00612 | -7.2E-08 | 140 | CPDDPR | 19.5171 | 0.000359 |
| 3 | AGGSS | -105795 | -0.62973 | 72 | OILREV(t) | -75956.7 | 0.931941 | 141 | LSKDDPR | 5.772409 | 4.1E-05 |
| 4 | INVST(t) | 173888.5 | 4.957822 | 73 | NOILREV(t) | 19847.03 | -0.28364 | 142 | FPRDDPR | -0.77526 | 5.57E-07 |
| 5 | INVRATO | 0.003131 | 5.54E-09 | 74 | CORPTD(t) | -0.01478 | -3E-07 | 143 | FISDDPR | -3.06774 | -0.00014 |
| 6 | INDUST(t) | -264573 | -2.08011 | 75 | CORRPTN(t | 817.624 | 0.009779 | 144 | POVMALE | -724.72 | 0.002304 |
| 7 | MANUFC(t) | 64471.47 | 0.010881 | 76 | DDMONY(t | 146312.7 | -0.04805 | 145 | POVFMLE | -1817.85 | 0.005779 |
| 8 | OILREFIN | -420.524 | -0.08388 | 77 | DDMOPR(t | 612.8999 | 0.001516 | 146 | POVURBN | 5686.891 | 0.074157 |
| 9 | ELECTSS(t) | -3222.75 | 0.038801 | 78 | DEMOCY(t) | -0.0158 | 2.53E-08 | 147 | POVRUAL | 3238.275 | 0.042228 |
| 10 | WATER(t) | 615.8463 | 0.008621 | 79 | CORDEM(t) | 820.5919 | 0.009844 | 148 | POVCHLD | 698.5445 | 0.056987 |
| 11 | CONSTN(t) | -6317.59 | 0.345207 | 80 | PWLFARE | -6249.33 | -0.03528 | 149 | POVOLD | 4335.848 | -0.00611 |
| 12 | SERVCS(t) | -4218.39 | -0.99212 | 81 | STDOLIVN | 4316.411 | 0.050817 | 150 | POVUNMP | 12863.89 | -0.06251 |
| 13 | TRADE(t) | 17791.32 | -0.14865 | 82 | PUPWER | 5.452947 | -1.5E-05 | 151 | POVEMPL | 7537.805 | 0.056364 |
| 14 | ACCOFOOD | -299.308 | 0.016731 | 83 | FODSRITY | -1696.27 | -0.00369 | 152 | POVPOOR | -6093.17 | 0.010537 |
| 15 | TRASPOT(t | 2587.854 | 0.192187 | 84 | HLTCARE | -21.9681 | -5E-05 | 153 | POVABPO | -9136.72 | 0.215121 |
| 16 | TRANSEV(t | -531.16 | -0.00892 | 85 | DDHCARE | -2046.68 | 0.004668 | 154 | HNGMALE | -23.5388 | 0.000963 |
| 17 | POSTCUR(t | -227.601 | -0.00054 | 86 | HCRDDPR | -11.7272 | 4E-05 | 155 | HNGFMLE | -23.9176 | 0.000979 |
| 18 | INFOCOM(t | -80856.2 | -0.36358 | 87 | HRESDEV | 122.7814 | -0.00037 | 156 | HNGURBN | -363.641 | 0.002542 |
| 19 | TELECOM(t | -10984.6 | -0.35625 | 88 | DDEDUC | -6467.68 | 0.026958 | 157 | HNGRUAL | -207.069 | 0.001448 |
| 20 | PUBLSHN(t | 262.1547 | 0.001649 | 89 | EDUDDPR | -12.9024 | 9.4E-05 | 158 | HNGCHLD | 374.3249 | 0.000523 |
| 21 | MPIC&SND | -7423.47 | -0.0839 | 90 | WEALTH | 0.000936 | -5E-09 | 159 | HNGOLD | 504.2835 | 0.004687 |
| 22 | BRODCST(t | 10420 | -0.14506 | 91 | PWEALTH | 97.88134 | -0.00377 | 160 | HNGUNMP | -1925.8 | -0.03279 |
| 23 | ARTRECRTI | 2646.828 | 0.04072 | 92 | IMPDPEN | -0.00033 | -4.2E-08 | 161 | HNGEMPL | -85.4374 | 0.005212 |
| 24 | FININSUR(t | 11526.66 | -0.21875 | 93 | DDIMP | 38822.43 | -0.06974 | 162 | HNGPOOR | -437.707 | -0.00106 |
| 25 | FINANCE(t) | 10192.48 | -0.18929 | 94 | PENCIMP | 651.2751 | 0.012025 | 163 | HNGABPO | 3431.434 | 0.007462 |
| 26 | INSURANS( | -388.361 | -0.02728 | 95 | CROPS | -30039.3 | -0.74234 | 164 | HGACPM | 38.72376 | 0.000713 |
| 27 | REALEST(t) | 20220.78 | 0.200939 | 96 | LIVESTOK | -3358.01 | -0.27888 | 165 | HGACPF | 39.34768 | 0.000725 |
| 28 | PROFSERV( | 46926.12 | 0.397812 | 97 | FORESTY | -558.859 | -0.03599 | 166 | HGACPUB | -342.809 | 0.001201 |
| 29 | ADMINSUP | -141.5 | -0.00052 | 98 | FISHRY | 15323.14 | 0.151563 | 167 | HGACPRU | -195.208 | 0.000684 |
| 30 | PUBADMN | 23409.51 | -0.36397 | 99 | AGRICSEC | -30915.2 | -0.85472 | 168 | HGACPCH | 447.818 | 0.000411 |
| 31 | EDUCATN(t | 16709.72 | -0.11952 | 100 | INVCROP | -171244 | -1.89256 | 169 | HGACPOD | 448.5182 | 0.007364 |
| 32 | HLT&SOC | 3993.998 | -0.02325 | 101 | INVLSTOK | 5640.99 | -0.09832 | 170 | HGACPUN | -741.661 | -0.02735 |
| 33 | OTHSERVS( | 46233.21 | 0.334987 | 102 | INVFOR | 733.8685 | -0.013 | 171 | HGACPEM | -145.604 | 0.00464 |
| 34 | DISPINC(t) | -520181 | -2.01669 | 103 | INVFISHY | -8264 | -0.13399 | 172 | HGACPPO | -311.811 | -0.00045 |
| 35 | REALINC(t) | -2821.44 | -0.04334 | 104 | INVAGRS | 46370.82 | 2.060886 | 173 | HGACPAP | 3359.66 | -0.00476 |
| 36 | REALGDP(t | 772347.5 | -0.60909 | 105 | INVINDUST | 21713.14 | -0.27645 | 174 | HGALSM | 11.45317 | 8.13E-05 |
| 37 | GROWTRT( | -0.49222 | -5.8E-06 | 106 | INVMANUF | -19737.5 | -0.37345 | 175 | HGALSF | 11.63778 | 8.27E-05 |
| 38 | GROWTH(t | 0.002161 | 1.71E-07 | 107 | INVOILREFI | 90.74377 | -0.01136 | 176 | HGALSUB | 36.14861 | 0.000127 |
| 39 | CONS(t) | 615333.2 | 14.25422 | 108 | INVELECTS | -2419.85 | -0.01262 | 177 | HGALSRU | 20.58389 | 7.23E-05 |
| 40 | CAPITAL(t) | 225652 | 0.816717 | 109 | INVWATER | -157.133 | -0.00146 | 178 | HGALSCH | 18.79171 | 0.000303 |
| 41 | FDI(t) | -17415.6 | 0.046783 | 110 | INVCONSTI | -24298.3 | -0.04645 | 179 | HGALSOD | 47.05152 | 0.000201 |
| 42 | CPI(t) | -0.58928 | 1.85E-05 | 111 | INVSERVCS | -194677 | -0.5705 | 180 | HGALSUN | -170.984 | -0.00559 |
| 43 | INFLTD(t) | 0.008277 | -4.9E-09 | 112 | INVTRADE | -97754 | 0.125249 | 181 | HGALSEM | -0.99198 | 0.000811 |
| 44 | INFLATN(t) | 0.926586 | 1.59E-05 | 113 | INVREALES | -52830.6 | -0.28245 | 182 | HGALSPO | -46.829 | -3.6E-05 |
| 45 | INFLTRT(t) | -1.05917 | -2.3E-06 | 114 | INVEDUCA | 1985.656 | -0.00123 | 183 | HGALSAP | -354.237 | -0.00035 |
| 46 | UNEMPL(t) | 0.223766 | -2.5E-08 | 115 | INVHLT&SC | 362.3191 | -0.00992 | 184 | HGAFOM | -1.02003 | 7.32E-07 |
| 47 | LABCOMP | -276825 | -4.84909 | 116 | POVERTY | -1081.4 | 0.003439 | 185 | HGAFOF | -1.03647 | 7.44E-07 |
| 48 | MALE | -0.32611 | -2.8E-06 | 117 | HUNGAR | -11.8628 | 0.000486 | 186 | HGAFOUB | -1.16788 | -5.5E-05 |
| 49 | FEMALE | -0.32093 | -2.8E-06 | 118 | CPDDPR | 19.51713 | 0.000359 | 187 | HGAFORU | -1.16793 | -5.5E-05 |
| 50 | URBAN | -0.39531 | 1.88E-06 | 119 | LSKDDPR | 5.77244 | 4.1E-05 | 188 | HGAFOCH | 3.176207 | 6.39E-06 |
| 51 | RURAL | -0.69422 | 3.3E-06 | 120 | FPRDDPR | -0.77527 | 5.57E-07 | 189 | HGAFOOD | -3.08549 | -6.5E-05 |
| 52 | CHLDRN | 0.248249 | -1E-06 | 121 | FISDDPR | -3.06775 | -0.00014 | 190 | HGAFOUN | -34.2361 | -0.00044 |
| 53 | CHDRNSS | 0.362466 | 4.36E-06 | 122 | INSECUTY | 0.010608 | -8E-10 | 191 | HGAFOEM | 3.015523 | 4.85E-05 |
| 54 | EPAWF | -0.43904 | -2.9E-07 | 123 | TIME(t) | -0.22272 | -9.1E-08 | 192 | HGAFOPO | -0.44084 | -2.8E-05 |
| 55 | NADDWF | -0.0019 | 2.87E-07 | 124 | EXCHRTRP | 6.396189 | -0.00013 | 193 | HGAFOAP | -24.6838 | -6.9E-05 |
| 56 | POPOLD | -0.06739 | -1.2E-07 | 125 | POP(t) | -0.64703 | -5.6E-06 | 194 | HGAFSM | -6.08668 | -0.00028 |
| 57 | UNEMWF | 0.504516 | -1.1E-06 | 126 | IMPORT(t) | 136174.8 | -1.53903 | 195 | HGAFSF | -6.18492 | -0.00029 |
| 58 | EMPWF | -0.53593 | 1.53E-06 | 127 | XPOTOIL(t) | -15926.2 | 0.571086 | 196 | HGAFSUB | 23.42559 | 0.000409 |
| 59 | EMPLMNT | 0.074727 | -6.1E-06 | 128 | XPTNOIL(t) | 24002.76 | -0.13794 | 197 | HGAFSRU | 13.33887 | 0.000233 |
| 60 | AVWAGE | -1776.44 | -0.0307 | 129 | DODBT(t) | 90684.33 | -0.60633 | 198 | HGAFSCH | -1.62084 | -0.00031 |
| 61 | DDEMENT | -0.11368 | -1.7E-07 | 130 | EXTDBT | 1140624 | 0.812094 | 199 | HGAFSOD | 10.18509 | 1.43E-05 |
| 62 | EMDDPR | -0.01361 | -2.4E-07 | 131 | GEXPDN(t) | 2981.138 | -0.28383 | 200 | HGAFSUN | 15.11393 | 0.000827 |
| 63 | POOR(t) | -0.64417 | 2.01E-06 | 132 | PRIMELR(t) | 0.040096 | -1.5E-07 | 201 | HGAFSEM | 33.80367 | 0.000387 |
| 64 | EXTPOOR(t | 0.418339 | -1.5E-05 | 133 | INTSAV(t) | -0.0488 | -3.2E-06 | 202 | HGAFSPO | -4.21949 | -0.00012 |
| 65 | POVRT(t) | -0.00865 | 3.56E-07 | 134 | MONYSS(t) | -96580.2 | -0.82114 | 203 | HGAFSAP | 387.6708 | 0.006035 |
| 66 | SLAVERY | -279.896 | -0.02269 | 135 | TAX(t) | 80811.25 | -0.85988 | 204 | PRDTIVTY | -0.38346 | -7E-06 |
| 67 | SAVINGS(t) | 16531.66 | -0.05672 | 136 | ACGSC | 72253.72 | 3.165448 | 205 | LPROVITY | -9327.42 | 0.00196 |
| 68 | BOT(t) | -6987.27 | -0.9537 | 137 | DFUELP(t) | -0.69958 | -0.00011 | | | | |
| 69 | BOP(t) | -53516 | 1.972711 | 138 | POVERTY | -1081.39 | 0.003438 | | | | |

**Table 2: OPTIMUM REQUIREMENTS FOR MAXIMIZING PRODUCTIVITY IN NIGERIA**

| OBJFCN | MAX | Obj value = 3.49e+05 | LPPRODTIVITY | CONSTRAINTS |
|---|---|---|---|---|
| 0 | NGDP(t) | x(1) = 0 | constraint no. | 1 TRUE : -3.38e+07 <= 1.22e+08 |
| 0 | AGGDD | x(2) = 0 | constraint no. | 2 TRUE : 7.75e+06 >= 7.75e+06 |
| 0 | AGGSS | x(3) = 0 | constraint no. | 3 TRUE : 2.57e+06 >= 2.57e+06 |
| 0 | INVST(t) | x(4) = 0 | constraint no. | 4 TRUE : 1.02e+06 <= 2.05e+06 |
| 0 | INVRATO | x(5) = 0 | constraint no. | 5 TRUE : 0.0027 <= 0.0204 |
| 0 | INDUST(t) | x(6) = 0 | constraint no. | 6 TRUE : 3.49e+06 <= 2.46e+07 |
| 0 | MANUFC(t | x(7) = 0 | constraint no. | 7 TRUE : -2.40e+04 <= 5.29e+06 |
| 0 | OILREFIN | x(8) = 0 | constraint no. | 8 TRUE : 1.79e+04 <= 1.79e+04 |
| 0 | ELECTSS(t) | x(9) = 0 | constraint no. | 9 TRUE : -4.07e+04 <= 6.45e+05 |
| 0 | WATER(t) | x(10) = 0 | constraint no. | 10 TRUE : 6.91e+03 <= 1.67e+05 |
| 0 | CONSTN(t) | x(11) = 0 | constraint no. | 11 TRUE : 2.19e+06 <= 4.22e+06 |
| 0 | SERVCS(t) | x(12) = 0 | constraint no. | 12 TRUE : 1.36e+07 <= 1.08e+08 |
| 0 | TRADE(t) | x(13) = 0 | constraint no. | 13 TRUE : 4.33e+06 <= 3.56e+07 |
| 0 | ACCOFOOI | x(14) = 0 | constraint no. | 14 TRUE : -9.29e+04 <= 8.66e+05 |
| 0 | TRASPOT(t | x(15) = 0 | constraint no. | 15 TRUE : 9.79e+05 <= 1.40e+06 |
| 0 | TRANSEV(t | x(16) = 0 | constraint no. | 16 TRUE : 1,647.824 <= 5.63e+04 |
| 0 | POSTCUR(t | x(17) = 0 | constraint no. | 17 TRUE : 3.73e+03 <= 5.07e+04 |
| 0 | INFOCOM( | x(18) = 0 | constraint no. | 18 TRUE : 8.06e+05 <= 1.93e+07 |
| 0 | TELECOM(t | x(19) = 0 | constraint no. | 19 TRUE : 9.48e+05 <= 1.38e+07 |
| 0 | PUBLSHN(t | x(20) = 0 | constraint no. | 20 TRUE : -5.40e+03 <= 3.12e+04 |
| 0 | MPIC&SNI | x(21) = 0 | constraint no. | 21 TRUE : 1.75e+05 <= 1.77e+06 |
| 0 | BRODCST(t | x(22) = 0 | constraint no. | 22 TRUE : 8.87e+05 <= 2.12e+06 |
| 0 | ARTRECRT | x(23) = 0 | constraint no. | 23 TRUE : -3.98e+04 <= 2.65e+05 |
| 0 | FININSUR( | x(24) = 0 | constraint no. | 24 TRUE : 7.87e+05 <= 6.66e+06 |
| 0 | FINANCE(t | x(25) = 0 | constraint no. | 25 TRUE : 6.84e+05 <= 5.76e+06 |
| 0 | INSURANS | x(26) = 0 | constraint no. | 26 TRUE : 1.03e+05 <= 8.98e+05 |
| 0 | REALEST(t) | x(27) = 0 | constraint no. | 27 TRUE : 1.94e+06 <= 1.90e+07 |
| 0 | PROFSERV | x(28) = 0 | constraint no. | 28 TRUE : 1.12e+06 <= 8.48e+06 |
| 0 | ADMINSUI | x(29) = 0 | constraint no. | 29 TRUE : 6.07e+03 <= 5.04e+04 |
| 0 | PUBADMN | x(30) = 0 | constraint no. | 30 TRUE : 5.82e+05 <= 7.93e+06 |
| 0 | EDUCATN( | x(31) = 0 | constraint no. | 31 TRUE : 4.61e+05 <= 2.08e+06 |
| 0 | HLT&SOC | x(32) = 0 | constraint no. | 32 TRUE : 7.89e+04 <= 4.97e+05 |
| 0 | OTHSERVS | x(33) = 0 | constraint no. | 33 TRUE : -1.04e+06 <= 4.82e+06 |
| 0 | DISPINC(t) | x(34) = 0 | constraint no. | 34 TRUE : 2.06e+07 <= 1.68e+08 |
| 0 | REALINC(t) | x(35) = 0 | constraint no. | 35 TRUE : 8.61e+04 <= 9.40e+05 |
| 0 | REALGDP(t | x(36) = 0 | constraint no. | 36 TRUE : -2.83e+04 <= 1.60e+07 |
| 0 | GROWTRT | x(37) = 0 | constraint no. | 37 TRUE : 6.8446 <= 10 |
| 0 | GROWTH(t | x(38) = 0 | constraint no. | 38 TRUE : 1.5065 <= 22.277 |
| 0 | CONS(t) | x(39) = 0 | constraint no. | 39 TRUE : -1.27e+07 <= 9.06e+07 |
| 0 | CAPITAL(t) | x(40) = 0 | constraint no. | 40 TRUE : 1.19e+07 <= 1.47e+07 |
| 0 | FDI(t) | x(41) = 0 | constraint no. | 41 TRUE : 1.23e+06 <= 1.47e+06 |
| 0 | CPI(t) | x(42) = 0 | constraint no. | 42 TRUE : 6.7948 <= 393.9932 |
| 0 | INFLTD(t) | x(43) = 1.4086 | constraint no. | 43 TRUE : 0.4543 <= 1.98 |
| 0 | INFLATN(t) | x(44) = 0 | constraint no. | 44 TRUE : 7.7033 <= 393.3148 |
| 0 | INFLTRT(t) | x(45) = 0 | constraint no. | 45 TRUE : 5. <= 5 |
| 0 | UNEMPL(t) | x(46) = 0 | constraint no. | 46 TRUE : -0.9862 <= 15 |
| 0 | LABCOMP | x(47) = 0 | constraint no. | 47 TRUE : 4.45e+06 <= 5.00e+07 |
| 0 | MALE | x(48) = 0 | constraint no. | 48 TRUE : 0.9034 <= 153.1136 |
| 0 | FEMALE | x(49) = 0 | constraint no. | 49 TRUE : 0.8891 <= 150.6832 |
| 0 | URBAN | x(50) = 0 | constraint no. | 50 TRUE : -1.2922 <= 53.7678 |
| 0 | RURAL | x(51) = 0 | constraint no. | 51 TRUE : -2.2693 <= 94.4251 |
| 0 | CHLDRN | x(52) = 0 | constraint no. | 52 TRUE : 27.2478 <= 101.5318 |
| 0 | CHDRNSS | x(53) = 0 | constraint no. | 53 TRUE : 6.8756 <= 41.9351 |
| 0 | EPAWF | x(54) = 0 | constraint no. | 54 TRUE : 33.3745 <= 139.981 |
| 0 | NADDWF | x(55) = 0 | constraint no. | 55 TRUE : 0.4794 <= 3.7498 |
| 0 | POPOLD | x(56) = 0 | constraint no. | 56 TRUE : 6.5952 <= 26.0735 |
| 0 | UNEMWF | x(57) = 0 | constraint no. | 57 TRUE : -0.9036 <= 26.5846 |
| 0 | EMPWF | x(58) = 0 | constraint no. | 58 TRUE : -2.4169 <= 78.2862 |
| 0 | EMPLMNT | x(59) = 11.6512 | constraint no. | 59 TRUE : -1.9333 <= 31.4737 |
| 0 | AVWAGE | x(60) = 0 | constraint no. | 60 TRUE : 7.64e+04 <= 5.49e+05 |
| 0 | DDEMENT | x(61) = 0.85 | constraint no. | 61 TRUE : 0.166 <= 10.3675 |
| 0 | EMDDPR | x(62) = 0.3346 | constraint no. | 62 TRUE : 0.3214 <= 1.7858 |
| 0 | POOR(t) | x(63) = 0 | constraint no. | 63 TRUE : 37.3745 <= 61.6041 |
| 0 | EXTPOOR(t | x(64) = 0 | constraint no. | 64 TRUE : 14.9056 <= 14.9056 |
| 0 | POVRT(t) | x(65) = 0 | constraint no. | 65 TRUE : 0.985 <= 4.5307 |
| 0 | SLAVERY | x(66) = 0 | constraint no. | 66 TRUE : -1.96e+04 <= 1.26e+05 |
| 0 | SAVINGS(t | x(67) = 0 | constraint no. | 67 TRUE : -1.94e+05 <= 3.52e+06 |
| 0 | BOT(t) | x(68) = 3.02e+05 | constraint no. | 68 TRUE : 7.39e+05 <= 1.34e+07 |

**Table 2: OPTIMUM REQUIREMENTS FOR MAXIMIZING PRODUCTIVITY IN NIGERIA**

| OBJFCN | MAX | Obj value = 3.49e+05 | LPPRODTIVITY | CONSTRAINTS |
|---|---|---|---|---|
| 0 | BOP(t) | x(69) = 0 | constraint no. 69 | TRUE : 2.06e+06 <= 1.27e+07 |
| 0 | EXTRES(t) | x(70) = 0 | constraint no. 70 | TRUE : 8.10e+03 <= 8.44e+04 |
| 0 | DBTBDN(t) | x(71) = 0.2549 | constraint no. 71 | TRUE : 0.2343 <= 0.4157 |
| 0 | OILREV(t) | x(72) = 0 | constraint no. 72 | TRUE : 4.10e+05 <= 3.55e+06 |
| 0 | NOILREV(t | x(73) = 0 | constraint no. 73 | TRUE : -1.21e+06 <= 4.58e+06 |
| 0 | CORPTD(t) | x(74) = 3.0139 | constraint no. 74 | TRUE : 0.0451 <= 1 |
| 0 | CORRPTN(t | x(75) = 0 | constraint no. 75 | TRUE : -9.43e+03 <= 6.29e+04 |
| 0 | DDMONY(t | x(76) = 2.03e+06 | constraint no. 76 | TRUE : 2.89e+06 <= 1.95e+07 |
| 0 | DDMOPR(t | x(77) = 0 | constraint no. 77 | TRUE : 1.19e+03 <= 3.58e+04 |
| 0 | DEMOCY(t | x(78) = 0 | constraint no. 78 | TRUE : -0.3778 <= 1 |
| 0 | CORDEM(t | x(79) = 0 | constraint no. 79 | TRUE : -9.60e+03 <= 6.32e+04 |
| 0 | PWLFARE | x(80) = 0 | constraint no. 80 | TRUE : 1.13e+05 <= 1.16e+06 |
| 0 | STDOLIVN | x(81) = 0 | constraint no. 81 | TRUE : 7.76e+03 <= 2.57e+04 |
| 0 | PUPWER | x(82) = 0 | constraint no. 82 | TRUE : -419.9836 <= 1.04e+03 |
| 0 | FODSRITY | x(83) = 0 | constraint no. 83 | TRUE : 2.02e+04 <= 2.40e+05 |
| 0 | HLTCARE | x(84) = 0 | constraint no. 84 | TRUE : 372.2765 <= 5.55e+03 |
| 0 | DDHCARE | x(85) = 0 | constraint no. 85 | TRUE : -6.51e+03 <= 1.38e+05 |
| 0 | HCRDDPR | x(86) = 0 | constraint no. 86 | TRUE : -20.4916 <= 721.8902 |
| 0 | HRESDEV | x(87) = 0 | constraint no. 87 | TRUE : 1.84e+03 <= 8.11e+03 |
| 0 | DDEDUC | x(88) = 0 | constraint no. 88 | TRUE : 3.56e+04 <= 3.78e+04 |
| 0 | EDUDDPR | x(89) = 4.59e+03 | constraint no. 89 | TRUE : 97.3149 <= 820.4732 |
| 0 | WEALTH | x(90) = 0.1697 | constraint no. 90 | TRUE : -0.0063 <= 0.0738 |
| 0 | PWEALTH | x(91) = 0 | constraint no. 91 | TRUE : -3.26e+03 <= 2.77e+04 |
| 0 | IMPDPEN | x(92) = 0 | constraint no. 92 | TRUE : 0.0237 <= 0.6287 |
| 0 | DDIMP | x(93) = 0 | constraint no. 93 | TRUE : -3.60e+05 <= 1.19e+07 |
| 0 | PENCIMP | x(94) = 0 | constraint no. 94 | TRUE : -322.0967 <= 6.45e+04 |
| 0 | CROPS | x(95) = 0 | constraint no. 95 | TRUE : 1.98e+07 <= 4.47e+07 |
| 0 | LIVESTOK | x(96) = 0 | constraint no. 96 | TRUE : 1.14e+06 <= 2.77e+06 |
| 0 | FORESTY | x(97) = 0 | constraint no. 97 | TRUE : 1.45e+05 <= 3.65e+05 |
| 0 | FISHRY | x(98) = 0 | constraint no. 98 | TRUE : 3.64e+05 <= 2.73e+06 |
| 0 | AGRICSEC | x(99) = 0 | constraint no. 99 | TRUE : 2.25e+07 <= 5.06e+07 |
| 0 | INVCROP | x(100) = 0 | constraint no. 100 | TRUE : 1.71e+06 <= 2.11e+07 |
| 0 | INVLSTOK | x(101) = 0 | constraint no. 101 | TRUE : 6.15e+04 <= 1.31e+06 |
| 0 | INVFOR | x(102) = 0 | constraint no. 102 | TRUE : 8.22e+03 <= 1.74e+05 |
| 0 | INVFISHY | x(103) = 3.09e+04 | constraint no. 103 | TRUE : 6.11e+05 <= 1.24e+06 |
| 0 | INVAGRS | x(104) = 0 | constraint no. 104 | TRUE : 1.28e+05 <= 6.98e+05 |
| 0 | INVINDUST | x(105) = 0 | constraint no. 105 | TRUE : 2.52e+04 <= 8.02e+05 |
| 0 | INVMANUI | x(106) = 0 | constraint no. 106 | TRUE : 1.77e+05 <= 1.77e+05 |
| 0 | INVOILREF | x(107) = 0 | constraint no. 107 | TRUE : 759.0925 <= 759.0925 |
| 0 | INVELECTS | x(108) = 0 | constraint no. 108 | TRUE : 1.17e+04 <= 2.29e+04 |
| 0 | INVWATER | x(109) = 0 | constraint no. 109 | TRUE : 2.75e+03 <= 5.44e+03 |
| 0 | INVCONST | x(110) = 0 | constraint no. 110 | TRUE : 7.86e+04 <= 1.47e+05 |
| 0 | INVSERVCS | x(111) = 0 | constraint no. 111 | TRUE : 4.52e+05 <= 8.36e+05 |
| 0 | INVTRADE | x(112) = 0 | constraint no. 112 | TRUE : 1.43e+05 <= 2.44e+05 |
| 0 | INVREALES | x(113) = 0 | constraint no. 113 | TRUE : 2.70e+04 <= 1.12e+05 |
| 0 | INVEDUCA | x(114) = 0 | constraint no. 114 | TRUE : -4.60e+04 <= 6.63e+04 |
| 0 | INVHLT&S( | x(115) = 0 | constraint no. 115 | TRUE : -1.90e+03 <= 1.70e+04 |
| 0 | POVERTY | x(116) = 6.8356 | constraint no. 116 | TRUE : 1.96e+03 <= 1.96e+03 |
| 0 | HUNGAR | x(117) = 0 | constraint no. 117 | TRUE : 532.0031 <= 866.8101 |
| 0 | CPDDPR | x(118) = 0 | constraint no. 118 | TRUE : 479.1273 <= 770.531 |
| 0 | LSKDDPR | x(119) = 0 | constraint no. 119 | TRUE : -217.6372 <= 57.1131 |
| 0 | FPRDDPR | x(120) = 0 | constraint no. 120 | TRUE : -47.857 <= 7.6419 |
| 0 | FISDDPR | x(121) = 0 | constraint no. 121 | TRUE : -13.7093 <= 31.6359 |
| 0 | INSECUTY | x(122) = 0 | constraint no. 122 | TRUE : -0.479 <= 1.1873 |
| 0 | TIME(t) | x(123) = 0 | constraint no. 123 | TRUE : 1.1013 <= 65.386 |
| 0 | EXCHRTRP | x(124) = 227.0809 | constraint no. 124 | TRUE : 622.5333 <= 1.80e+03 |
| 0 | POP(t) | x(125) = 0 | constraint no. 125 | TRUE : 1.7926 <= 303.7967 |
| 0 | IMPORT(t) | x(126) = 0 | constraint no. 126 | TRUE : 7.12e+06 <= 7.90e+06 |
| 0 | XPOTOIL(t) | x(127) = 0 | constraint no. 127 | TRUE : 9.73e+06 <= 2.40e+07 |
| 0 | XPTNOIL(t) | x(128) = 0 | constraint no. 128 | TRUE : 1.52e+05 <= 1.78e+06 |
| 0 | DODBT(t) | x(129) = 0 | constraint no. 129 | TRUE : 2.18e+06 <= 1.01e+07 |
| 0 | EXTDBT | x(130) = 0 | constraint no. 130 | TRUE : 2.14e+07 <= 1.46e+08 |
| 0 | GEXPDN(t) | x(131) = 0 | constraint no. 131 | TRUE : 9.23e+05 <= 1.12e+07 |
| 0 | PRIMELR(t | x(132) = 2.0066 | constraint no. 132 | TRUE : 10.7645 <= 47.1097 |
| 0 | INTSAV(t) | x(133) = 56.6678 | constraint no. 133 | TRUE : 10.1967 <= 25.7686 |
| 0 | MONYSS(t | x(134) = 0 | constraint no. 134 | TRUE : 1.33e+07 <= 1.33e+07 |
| 0 | TAX(t) | x(135) = 0 | constraint no. 135 | TRUE : 8.32e+05 <= 3.24e+06 |
| 0 | ACGSC | x(136) = 0 | constraint no. 136 | TRUE : -3.14e+06 <= 2.01e+07 |
| 0 | DFUELP(t) | x(137) = 0 | constraint no. 137 | TRUE : 59.8264 <= 732.6927 |
| 0 | POVERTY | x(138) = 0 | constraint no. 138 | TRUE : 1.96e+03 <= 1.96e+03 |

**Table 2: OPTIMUM REQUIREMENTS FOR MAXIMIZING PRODUCTIVITY IN NIGERIA**

| OBJFCN | MAX | Obj value = 3.49e+05 | LPPRODTIVITY | CONSTRAINTS |
|---|---|---|---|---|
| 0 | HUNGAR | x(139) = 0 | constraint no. 139 TRUE : 532.0031 <= 866.81 | |
| 0 | CPDDPR | x(140) = 0 | constraint no. 140 TRUE : 479.1273 <= 770.531 | |
| 0 | LSKDDPR | x(141) = 0 | constraint no. 141 TRUE : -217.6372 <= 57.1131 | |
| 0 | FPRDDPR | x(142) = 0 | constraint no. 142 TRUE : -47.857 <= 7.6419 | |
| 0 | FISDDPR | x(143) = 0 | constraint no. 143 TRUE : -13.7093 <= 31.6359 | |
| 0 | POVMALE | x(144) = 0 | constraint no. 144 TRUE : 3.87e+03 <= 3.87e+03 | |
| 0 | POVFMLE | x(145) = 0 | constraint no. 145 TRUE : 3.94e+03 <= 3.94e+03 | |
| 0 | POVURBN | x(146) = 0 | constraint no. 146 TRUE : -5.54e+04 <= 1.13e+04 | |
| 0 | POVRUAL | x(147) = 7.66e+04 | constraint no. 147 TRUE : -3.15e+04 <= 6.46e+03 | |
| 0 | POVCHLD | x(148) = 0 | constraint no. 148 TRUE : -3.30e+04 <= 6.07e+03 | |
| 0 | POVOLD | x(149) = 0 | constraint no. 149 TRUE : 2.27e+04 <= 2.27e+04 | |
| 0 | POVUNMP | x(150) = 0 | constraint no. 150 TRUE : -2.44e+05 <= 2.21e+04 | |
| 0 | POVEMPL | x(151) = 4.61e+05 | constraint no. 151 TRUE : -3.96e+03 <= 7,840.553 | |
| 0 | POVPOOR | x(152) = 1.21e+05 | constraint no. 152 TRUE : 9.61e+03 <= 9.61e+03 | |
| 0 | POVABPO | x(153) = 0 | constraint no. 153 TRUE : 9.03e+03 <= 3.87e+04 | |
| 0 | HNGMALE | x(154) = 0 | constraint no. 154 TRUE : 1.06e+03 <= 1,719.861 | |
| 0 | HNGFMLE | x(155) = 0 | constraint no. 155 TRUE : 1.07e+03 <= 1.75e+03 | |
| 0 | HNGURBN | x(156) = 0 | constraint no. 156 TRUE : -416.9405 <= 4.89e+03 | |
| 0 | HNGRUAL | x(157) = 0 | constraint no. 157 TRUE : -237.4157 <= 2.79e+03 | |
| 0 | HNGCHLD | x(158) = 0 | constraint no. 158 TRUE : 420.182 <= 2,592.284 | |
| 0 | HNGOLD | x(159) = 0 | constraint no. 159 TRUE : 5.97e+03 <= 1.01e+04 | |
| 0 | HNGUNMP | x(160) = 0 | constraint no. 160 TRUE : 0 <= 9.74e+03 | |
| 0 | HNGEMPL | x(161) = 0 | constraint no. 161 TRUE : -1.20e+04 <= 3.38e+03 | |
| 0 | HNGPOOR | x(162) = 0 | constraint no. 162 TRUE : -2.90e+03 <= 4.26e+03 | |
| 0 | HNGABPO | x(163) = 1.21e+04 | constraint no. 163 TRUE : -1.28e+05 <= 17,469.79 | |
| 0 | HGACPM | x(164) = 0 | constraint no. 164 TRUE : 950.6494 <= 1.53e+03 | |
| 0 | HGACPF | x(165) = 0 | constraint no. 165 TRUE : 965.9824 <= 1,553.49 | |
| 0 | HGACPUB | x(166) = 0 | constraint no. 166 TRUE : -265.692 <= 4,346.134 | |
| 0 | HGACPRU | x(167) = 0 | constraint no. 167 TRUE : -151.2913 <= 2.47e+03 | |
| 0 | HGACPCH | x(168) = 0 | constraint no. 168 TRUE : 1.67e+03 <= 2.31e+03 | |
| 0 | HGACPOD | x(169) = 0 | constraint no. 169 TRUE : 5.38e+03 <= 8.99e+03 | |
| 0 | HGACPUN | x(170) = 0 | constraint no. 170 TRUE : 0 <= 8.67e+03 | |
| 0 | HGACPEM | x(171) = 0 | constraint no. 171 TRUE : -1.10e+04 <= 3.00e+03 | |
| 0 | HGACPPO | x(172) = 0 | constraint no. 172 TRUE : -2.22e+03 <= 3.79e+03 | |
| 0 | HGACPAP | x(173) = 0 | constraint no. 173 TRUE : -1.06e+05 <= 1.56e+04 | |
| 0 | HGALSM | x(174) = 0 | constraint no. 174 TRUE : -431.8198 <= 113.3196 | |
| 0 | HGALSF | x(175) = 0 | constraint no. 175 TRUE : -438.7846 <= 115.1473 | |
| 0 | HGALSUB | x(176) = 0 | constraint no. 176 TRUE : 130.3633 <= 322.2111 | |
| 0 | HGALSRU | x(177) = 0 | constraint no. 177 TRUE : 74.2319 <= 183.4745 | |
| 0 | HGALSCH | x(178) = 0 | constraint no. 178 TRUE : 171.6114 <= 171.6114 | |
| 0 | HGALSOD | x(179) = 0 | constraint no. 179 TRUE : -6.19e+03 <= 664.1544 | |
| 0 | HGALSUN | x(180) = 0 | constraint no. 180 TRUE : 626.6125 <= 626.6125 | |
| 0 | HGALSEM | x(181) = 0 | constraint no. 181 TRUE : -2.34e+03 <= 224.0727 | |
| 0 | HGALSPO | x(182) = 0 | constraint no. 182 TRUE : -2.40e+03 <= 280.133 | |
| 0 | HGALSAP | x(183) = 0 | constraint no. 183 TRUE : -489.883 <= 1.16e+03 | |
| 0 | HGAFOM | x(184) = 0 | constraint no. 184 TRUE : -94.9543 <= 15.1643 | |
| 0 | HGAFOF | x(185) = 0 | constraint no. 185 TRUE : -96.4859 <= 15.4089 | |
| 0 | HGAFOUB | x(186) = 0 | constraint no. 186 TRUE : 31.2964 <= 42.9509 | |
| 0 | HGAFORU | x(187) = 0 | constraint no. 187 TRUE : 17.8209 <= 24.3579 | |
| 0 | HGAFOCH | x(188) = 0 | constraint no. 188 TRUE : -118.0797 <= 22.9182 | |
| 0 | HGAFOOD | x(189) = 0 | constraint no. 189 TRUE : -475.5964 <= 88.781 | |
| 0 | HGAFOUN | x(190) = 0 | constraint no. 190 TRUE : 85.3589 <= 85.3589 | |
| 0 | HGAFOEM | x(191) = 0 | constraint no. 191 TRUE : 29.8759 <= 29.8759 | |
| 0 | HGAFOPO | x(192) = 0 | constraint no. 192 TRUE : 37.5737 <= 37.5737 | |
| 0 | HGAFOAP | x(193) = 0 | constraint no. 193 TRUE : 155.3103 <= 155.3103 | |
| 0 | HGAFSM | x(194) = 0 | constraint no. 194 TRUE : -27.201 <= 62.7697 | |
| 0 | HGAFSF | x(195) = 0 | constraint no. 195 TRUE : -27.6397 <= 63.7821 | |
| 0 | HGAFSUB | x(196) = 0 | constraint no. 196 TRUE : -1.66e+03 <= 183.8648 | |
| 0 | HGAFSRU | x(197) = 0 | constraint no. 197 TRUE : -945.0219 <= 104.697 | |
| 0 | HGAFSCH | x(198) = 0 | constraint no. 198 TRUE : 95.1837 <= 95.1837 | |
| 0 | HGAFSOD | x(199) = 0 | constraint no. 199 TRUE : -190.5249 <= 375.6321 | |
| 0 | HGAFSUN | x(200) = 0 | constraint no. 200 TRUE : 371.734 <= 371.734 | |
| 0 | HGAFSEM | x(201) = 0 | constraint no. 201 TRUE : -1.64e+03 <= 126.8336 | |
| 0 | HGAFSPO | x(202) = 0 | constraint no. 202 TRUE : -24.3002 <= 158.3865 | |
| 0 | HGAFSAP | x(203) = 0 | constraint no. 203 TRUE : 626.0522 <= 626.0522 | |
| 1 | PRDTIVTY | x(204) = 7.6261 | constraint no. 204 TRUE : -10.1592 <= 2.98 | |
| 1 | LPROVITY | x(205) = 3.49e+05 | constraint no. 205 TRUE : 1.63e+05 <= 1.87e+06 | |

Corruption will experience a shift of 3.0139, while the demand for money and demand pressure education will increase by N2.03e+06 and 4.59e+03 respectively. Poverty will increase by 6.8366 units and the Naira will depreciate by N227.08/US$. Rural poverty will increase by 7.66e+04 and the absolute poor will go hungry. Optimization of productivity also requires that investment in Fishery be increased by N3.09e+04, while the primary lending rate and the interest rate be increased by 2% and 56.66% respectively which represent a hard nut to crack. The feedback is that National productivity and Labor productivity should be increased further by N7.6261/N of Labour compensation and N3.49e+05/worker respectively. It will seem that optimizing productivity under the extant paradigm of the Nigerian economy will be counterproductive and self-defeating.

**Conclusion**

It is now evident that to attempt to optimize productivity in Nigeria under the existing state of affairs of the Nigerian economy without first fixing the entire economy as well as the citizens will be counter-productive and self-defeating; as this will only promote and fuel corruption, inflation and poverty in Nigeria. Nigeria needs a paradigm shift and the citizens, reorientation and attitudinal change. In addition, the country needs a good and honest leader, who is bold, courageous and pragmatic in his leadership and who has the political will to implement the range of recommendations emanating from this study. Tackling Nigeria's low productivity requires aggressive investments in critical infrastructure (such as reliable power and transportation networks), widespread human capital development through vocational and digital skills training, and economic reforms that support SMEs, modernize agriculture, and promote regional trade. The need to upgrade the Infrastructure is overwhelming. Indeed, Nigeria's massive infrastructure deficit directly inflates the cost of doing business and severely limits output. It requires fixing the national grid, reducing energy losses, and promoting decentralized off-grid renewable energy solutions that are essential to keep factories and businesses running. Shifting the reliance from only road transport to intermodal systems—specifically expanding the railway networks for freight and commuting—will dramatically reduce logistics bottlenecks and supply chain waste; while investing in Human Capital and Skills to produce a highly skilled and healthy workforce is the backbone of a productive economy.

The need to transform the Agricultural and Manufacturing Sectors cannot be overemphasized.

Shifting Nigeria's heavy reliance on raw resource distribution to value-addition is key to long-term prosperity. Modernizing agriculture through better irrigation, improved cold storage, and modern processing technology reduces post-harvest waste and increases export value. Investing in Special Economic Zones (SEZs) and industrial parks helps link local raw materials to export-oriented manufacturing, which drives job creation and innovation. Support for Small and medium-sized enterprises (SMEs) are the engine of the Nigerian economy, yet they face severe operational hurdles. Access to Finance and Creating targeted funds, lowering borrowing costs, and providing startup incentives to help local businesses scale their operations should be encouraged and made simpler.

Strengthening of Governance and Policy Consistency to coordinate efforts in structural and institutional reforms are necessary. Aligning skills training, employment initiatives, and trade policies through national strategies (such as those championed by the Nigerian Economic Summit Group) ensures that labor output matches market demand. Fully leveraging the African Continental Free Trade Area (AfCFTA) allows Nigerian businesses to tap into larger regional markets, attract foreign investment, and foster regional cooperation.

**Recommendations**

The following recommendations would be apt:

1. The least recognized, but yet the most militating factor, against Nigeria's development and social progress is "corruption and indiscipline". This has so eaten deep into the fabrics of society and government that they are no longer recognized as odd. Therefore, the fight against corruption and indiscipline should be holistic, with no sacred cows; Nigerian Government, present and future should embark on massive campaigns of reorientation of Nigerians on the need to shun corruption and indiscipline in whatever guise it takes.
2. Government must revive the educational landscape in terms of qualitative education; Nigeria needs technological and innovative education but regrettably, one cannot teach and impart to others what one does not know or understand fully and can apply practically. This requires expertise which are rare in the country; therefore, Government should seek experts who have the knowledge and skills of imparting and training Nigerians in technology, electronics and artificial intelligence and pay them international salaries and allowances to ensure that they deliver. The present paradigm of earning paper certificates which qualifies as meal tickets rather than the value they could add should be discontinued. In particular, Nigeria must embark on Education and Skills development and **Leveraging Technology; by** focusing on education reform, fostering entrepreneurship, and investing in high-potential sectors like technology and agriculture. Key strategies include aligning education with job market demands, enhancing vocational training, promoting digital skills and creating jobs as well as modernize curricula to focus on Science, Technology, Engineering, and Mathematics (STEM) and digital skills.
3. Government should consciously and deliberately transform the economic and industrial landscape of the entire country by investing in infrastructure, manufacturing, electricity generation, transmission and distribution, services, construction, including factories and industries as well as creating the right environment for Private Sector-led investments. In particular, investments should be converted into physical infrastructure including factories and industries.
4. Agriculture still has a lot of potentials for promoting growth and development in Nigeria. A quantum leap investment drive in Agriculture and deliberate modernization of operations in Nigeria will not only boost investment in the economy and therefore promote growth and development. More factories and industries including food processing should be established in the rural areas of Nigeria if the problem of unemployment is to be solved. More banks should be established in rural areas of Nigeria and Agricultural credits should be made more available and accessible. Agricultural infrastructure, including the development and rehabilitation of rural roads should be embarked upon by Nigerian government. Nigeria, should address the Land use policy to solve the fragmental nature of extant agriculture thus creating room for Large scale and intensive mechanized farming. Cattle ranching as opposed to free range nomadic livestock herding should be adopted. Precision agriculture, vertical farming, genetic engineering, sustainable practices, robotics and block chain which are transformative forces reshaping the agricultural landscape should be pursued and adopted in Nigeria. The practice of aquaculture should be promoted and expanded in Nigeria. Afforestation and reforestation of degraded lands, coupled with agro-forestry, wildlife ranching should also be pursued with vigor.
5. Government should empower the citizens of Nigeria financially and this requires an optimal redistribution of income which appears to be skewed against the Poor under the present Nigeria. In particular, Government should embark on an effective social security plan to provide food for the absolute poor who are really disadvantaged.

6. Above all, Government should maintain good governance, which transcends all ramifications, at all levels of Government in Nigeria and lead by example; and must be resilient in ensuring the security of life and property in Nigeria and be seen to curtail all forms of religious terrorism and violence in the country for Nigeria to be united and thus attract foreign investors and investments.

IJSSMR

**References**

Adeyoju, S. K. (1975). Forestry and the Nigerian economy. Ibadan University Press, Nigeria.

Aruofor R. O. (2000): Forestry Outlook Study for Africa (FOSA): The Nigerian Country Outlook Paper. www.fao.org/DOCREP/004/AB592E/Ab592E02.htm FAO Corporate Document Repository. FDF Abuja/FAO Rome August, 2000.

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. (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 National 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. K. (2020b): EPILOGUE TO ECONOMIC SYSTEMS ENGINEERING: The Religious Angle and the Good News. Amazon Books, ISBN: 9798554307843

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, (2022a): The Buhari-Osinbajo Regime in Nigeria: A Post Mortem. *Journal of Public Administration and Social Welfare Research E- ISSN 2756-5475 P-ISSN 2695-2440 Vol. 7 No. 1 pp 17-34, 2022*

Aruofor, R. O. and Ogbeide, D. R, (2022b): The Impact Of Boko 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, (2023a): The Impact Of Fuel Subsidy On The Nigerian Economy In The Fourth Republic: An Analysis. *International Journal of Social Sciences and Management Research (IJSSMR) E-Issn 2545-5303 P-Issn 2695- Vol. 9 Issue 5, pp 63-80, June 2023.*

Aruofor, R. O. and Ogbeide, D. R, (2023b): Evaluation Of The Consequences And Implications Of The Domestic Petrol Pump Price Increase In Nigeria By The Bola Tinubu Administration. *Journal of Humanities & Social Policy (JESP) Volume 9 September Issue, 2023, pp 42-61*

Aruofor, R. O. and Ogbeide, D. R, (2024a): Analysis Of Poverty And Unemployment In Nigeria's Fourth Republic: An Outlook To Year 2035. *International Journal of Social Sciences and Management Research, (IJSSMR)* Vol 10 No. 1, pp 42-54, 2024.

Aruofor, R. O. and Ogbeide, D. R, (2024b):An Escalating Analysis of the Role, Impact and Ramification of Investment in the Nigerian Economy and Outlook to Year 2035

*International Journal of Social Sciences and Management Research E-ISSN 2545-5303 P-ISSN 2695-2203 Vol 10. No. 3 pp. 77-104, 2024www.iiardjournals.org*IIA

Aruofor, R. O. and Ogbeide, D. R, (2024c): A Simulation Analysis of President Bola Tinubu's Price Deregulation Policy on the Nigerian Economy: An Outlook to Year 2035 *Journal of Public Administration and Social Welfare Research E-ISSN 2756-5475 P-ISSN 2695-2440 Vol. 9 No. 1, pp. 74-100, 2024 jpaswrwww.iiardjournals.org*

Aruofor, R. O. and Ogbeide, D. R, (2024d): The 2024 Minimum Wage Review Exercise in Nigeria: Critical Issues to Note. *Journal of Public Administration and Social Welfare Research E-ISSN 2756-5475 P-ISSN 2695-2440 Vol. 9 No. 3, pp. 28-49, 2024 jpaswr*www.iiardjournals.org *Online Version.*

Aruofor, R. O. and Ogbeide, D. R, (2024e):The Development of Nigeria and the Bane of Development: A Search for A Satisficing Investment Policy for A Self-Reliant Economy *International Journal of Social Sciences and Management Research E- ISSN 2545-5303 P-ISSN 2695-2203 Vol 10. No. 8 pp. 263-277, 2024 www.iiardjournals.org Online Version*

Aruofor, R. O. and Ogbeide, D. R, (2024f): The Role and Impact of the Banking Industry on the Nigerian Economy: An Outlook to Year 2030 IIARD *International Journal of Banking and Finance Research E-ISSN 2695-1886 P-ISSN 2672-4979 Vol 10. No.8 2024*www.iiardjournals.org Online Version

Aruofor, R. O. and Ogbeide, D. R, (2024g): Analysis of the Impact of Taxation on A Nation's Citizenry: The Implications of Maximizing Tax Revenue Under Nigeria's Extant Paradigm. *International Journal of Economics and Financial Management (IJEFM) E-ISSN 2545-5966 P-ISSN 2695-1932 Vol 9. No. 9 2024 www.iiardjournals.org Online Version IIARD – International Institute of Academic Research and Development Page 14-31*

Aruofor, R. O. and Ogbeide, D. R, (2024h): Analysis of the Impact of External Debt on the Nigerian Economy: The Implications and Consequences of the Recent Request for $2.2 Billion Loan. *International Journal of Economics and Financial Management (IJEFM) E-ISSN 2545-5966 P-ISSN 2695-1932 Vol 9. No. 9 2024 www.iiardjournals.org Online Version pp242-267*

Aruofor, R. O. and Ogbeide, D. R, (2025): Assessment of the Impact of Inflation and Unemployment on the Nigerian Economy: Some Mathematical Systems Predictions for Politico-Economic Growth and Development. *IIARD International Journal Of Economics And Business Management E-ISSN 2489-0065 P-ISSN 2695-186X Vol 11. No. 2 pp. 167-1942025* www.iiardjournals.org *online version*

Aruofor, R. O. and Ogbeide, D. R, (2025): *Sustained Development Of Nigeria: An Assessment Of The Impact Of Investment Drive In The Agricultural Sector Of The Economy. International Journal of Agriculture and Earth Science (IJAES) E-ISSN 2489- 0081 P-ISSN 2695-1894 Vol 9. No.11 No.5 2025 www.iiardjournals.org Online Version pp 109-130.*

Aruofor, R. O. and Ogbeide, D. R. (2025):*President Bola Tinubu's Administration in Nigeria: Mid-Way Evaluation of Performance in the First Term. Journal of Political Science and Leadership Research E-ISSN 2504-883X P-ISSN 2695 2432 Vol. 11 No. 6 2025* www.iiardjournals.org *online version pp26-48.*

Aruofor, R. O. and Ogbeide, D. R. (2025): Demand Pressures on the Welfare of Nigerian Citizens: Requirements for Minimisation of Impact on the Economy.*International*

*Journal of Social Sciences and Management Research E-ISSN 2545-5303 P-ISSN 2695-2203 Vol 11. No. 8 2025 www.iiardjournals.org online version pp659-682*

Aruofor, R. O. and Ogbeide, D. R, (2025): Poverty and Hunger in the Nigerian Economy: An Impact Assessment*Journal of Public Administration and Social Welfare Research E-ISSN 2756-5475 P-ISSN 2695-2440 Vol. 10 No. 7, pp.76-102, 2025 jpaswr*www.iiardjournals.org *Online Version.*

Aruofor, R. O. and Ogbeide, D. R, (2025): Optimal Control Of The Nigerian Economy Under Extant Paradigm: Implications And Consequences. *International Journal of Social Sciences and Management Research E-ISSN 2545-5303P-ISSN 2695-2203 Vol 11. No. 10, pp. 430-453, 2025 www.iiardjournals.org online version*

Aruofor, R. O. and Ogbeide, D. R, (2026): Poverty and Hunger Among Nigerian Citizens and Requirements for Minimizing Them: Further Escalation. International *Journal of Social Sciences and Management Research E-ISSN 2545-5303 P-ISSN 2695-2203 Vol 12. No.4, pp301-321, 2026 www.iiardjournals.org Online version*

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 Political Economy,*pp 489-525.

Koutsoyiannis, A.( 1977): Theory of econometrics. The Macmillan Press Ltd., London and Basingstoke.

Stolper, W. F.(1966):*Planning without facts.* Harvard University Press, Cambridge, Massachussetts.