

Research Article

Examining Nigeria Manufacturing Sector Output and Capacity Utilization: An Issue for Sustainable Economic Growth

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Abstract: It has been observed that Nigeria has not been able to maintain the growth rate which is important to reduce some of the challenges its face. The country suffers from lack of balanced development in which its social, economic and environmental aspect are not taken into account for sustainable development. The objective of the study is to examine the activities of Nigeria manufacturing sector output and its capacity utilization an issue for sustainable development in the country. The study employed historical data covering the period of 2002-2018 sourced from CBN. The regression estimation result revealed that average exchange rate and manufacturing output exert positive relationship while average capacity utilization and commercial bank loans exert a negative impact on gross domestic product.

The study recommended that basic infrastructure should be refurbish so as to boost manufacturing output, exchange rate should be manage so as to improve the value of Naira. Commercial banks should be encouraged to finance the activities of manufacturing sector so as to enhance economic development.

Keywords: Gross domestic product, capacity utilization, exchange rate, manufacturing sector output, commercial bank.

Background of the Study

Before the relative importance of petroleum industry in Nigeria, the economy rely on agriculture, such as agricultural sector, exploitation of solid minerals, manufacturing sectors, services industries among others is very important. This has led the country to economy instability and led to unemployment, poverty and other challenges. The hope of rapid growth such as in transportation, electricity, portable water, inconsistent government policies, investable fund have discouraged the establishment of manufacturing and other industries.

Measuring Nigeria's sustainable development is a crucial step to succeed in the post-2016 development agenda. Michael and Anthony (2015) noted that Nigeria has to use its large natural and human resources for the development of the industrial sectors.

Statement of the Problem

According to trading economics (2020) the Nigeria economy advanced by 1.87% in the first quarter of 2020 compared to a 2.55% growth in the previous time. The Gross Domestic Product reduced 14.27%, following a 5.59% increase in the previous time. Nigeria economic developmental issue not taken into account for sustainable development. Economically, when a nation develop, it's inhabitant are expected to enjoy, usually in terms of their well-being. This means that improvement in material well-being of citizens should be in a sustainable way such that today's consumption does not imperil

the future. That is, development should be continuous and uninterrupted and aim at maintaining economic advancement and progress. The interrupted development experienced in Nigeria is a call for concern.

Objective of the Study

The objective of the study is to examine Nigeria manufacturing sector output and capacity utilization for sustainable economic development.

Literature Review

Conceptual Framework

Sustainable Development and Economic Growth

The government of Nigeria considered economic growth as its task and this has resulted to its interest to grow the country's economy. The quality of its environment has been declining, the environmental pollution and resource depletion have become a problem that require government policies. The need for industrial sector to be sustainable is recognized globally. Ekpo (2015) noted that economic growth and rise in GDP is not enough for development to be sustainable. Economic development is more than a growth that is sustainable, it has to be sharing, equity and fairness. This means development has to rise in arithmetic or geometric progression. Once an economy shift forward with a step and then backwards with two steps, and rise in poverty, it is not developing. Development need to include all parts of a population bettering the standard of living of all people. James (2015) observed that economic sustainability is an important aspect of development that is sustainable. Even though the country has many resources it is rated low in performance in terms of economic development. The growth of economic is measure from the pieces of information on gross domestic product calculated by statistical agencies of countries. Meadows and Randers (2014) define economic growth as the growth in inflation with a change in market value of services or goods manufactured at a particular time. Economic growth occur by a rise in a country's production capacity. James (2015) noted that when economic growth rate is large, the services or goods produced increases and this will result to decrease in the rate of unemployment, increase in job opportunities and standard of living of the population. Therefore, a long economic growth nourish human development.

Economic Growth and Exchange Rate

Ibenta (2012) defined exchange rate as price of the standard of measuring of a quantity of a country's currency that is equivalent means other country's currency. In the words of Danladi and Uba (2016) it assert that it is a country's money compare to a different country quantity of money that can purchase another country quantity of money in unit. Nigeria has experience changes since 1960s till the present time. Arrangement of fixed rate was used in 1960s. Later, from the period of 1970s to 1980s when the structural adjustment programme SAP was introduced, difference system of organized exchange rate system was adopted. In terms of manufacturing sectors output, the exchange rate is useful for manufacturers who want to export their produce to other countries can use it to determine the country whose exchange rate value is sustainable for business transaction and sustainable economic development in Nigeria.

Management of Working Capital for sustainable development

One of the very important criteria for the successful operations of all manufacturing firms in Nigeria is efficient working capital management. Management of circulating capital is considered as a significant part of corporate finance because it has direct effect on the performance of a company. The main focus of business decisions regarding working capital is proper control of the relationship that exist between a firm's current assets and current liabilities to ensure the continuous operation of its business activities and the availability of enough cash flows to settle maturing debts and running costs economically as it works towards increase in corporate profitability. Barine (2012) asserts that working capital means the level of short-term assets and short-term liabilities that is necessary to be mixed with non-current assets for effective daily operation of a firm. The capital required for

everyday working in an organization such as buying of raw materials, payments of wages and salaries, rent and rates, advertising, electricity bills and the like are generally referred as working capital. One of the difficult task management faces is that of proper determination of actual working capital required because while a company's liquidity is impaired by insufficient working capital, surplus working capital reduces profit. Moreover, the amount of liquidity needed by firms differs due to factors like their nature of business, credit policy, availability of raw materials, scale of operation, production cycle, etc. Liquidity is seen as current assets less current liabilities. It can also be called "circulating capital" which in most case is used to refer to those possessions that can be converted quickly from one form to another for example, cash is used to purchase raw material, raw material is processed into work-in-progress which finally becomes finished goods, and ending with realization of cash from debtors. The main concern of working capital is how to keep a business entity solvent and profitable. According to Asadi and Azizi (2008) liquidity discloses the readiness of an entity in discharging its short-term responsibilities.

Mueller (1953) did a pioneer study on firms circulating capital and liquidity. He was motivated into the study because of the difficulty in arriving at a uniform definition of the term "working capital". With the aid of quantitative analysis, the study concluded by providing answers to the three problems the paper was directed to address namely: "what is meant by corporate working capital, liquidity and sources of liquidity?" Indeed the research ended by asserting that "working capital" should be co-extensive with short-term assets being a revolving capital as disclosed by its function. The research also observed that the determination of an assets nature is by its functions and not name. The work concluded that the source of liquidity is attained through working capital.

Short-term financial needs of a company are met by working capital. Being a circulating capital it is not allowed to remain in a company in the same form for more than one year. The need for manufacturing firms to maintain proportionate circulating capital cannot be over-emphasized. As blood circulation is very vital to the existence and maintenance of human life that is how cash inflow is very important for the maintenance of organizations. A company cannot survive weak cash inflow. Insufficient liquidity is always considered as the main cause of failure of small businesses in several countries. The ability of a company to raise cash receipts far above its disbursement will largely determine its success. A lot of business organizations are faced with cash flow difficulties because of ineffective financial management and cash planning.

Liquidity management is an aspect of finance study that has influence on the efficient administration of companies entirely. Efficient management of circulating capital indicate sound financial position of companies, it is also essential to the performance (financially) of all scale of businesses. The solvency and profitability of an enterprise are affected when funds are tied up as a result of deficient liquidity management (Akinlo, 2011). He also postulated that it is expected of companies with declining profits to properly check their liquidity management. Maintaining the most favorable level among each of the working capital components is the main goal of liquidity management. Hence, financial managers who desire to achieve this goal spend most of their time and efforts in trying to identify the less favorable levels of short-term assets and short-term liabilities in order to bring them to most favorable levels. Therefore, all managerial decisions which include monitoring continuously, the most favorable levels of components of working capital taken by managers in order to maintain equilibrium between solvency and profitability while conducting the daily activities of a firm can be considered as working capital management. Working capital management entails to regulate, adjust and control the balance of short-term assets and short-term liabilities of a concern in such a way that maturing obligations are complied with, and the non-current assets are properly maintained. In financial theory, the use of ratios makes management of working capital possible. Components of circulating capital are analyzed using ratios; it tries to show the effectiveness with which managers handle the inventories and receivables. Also, they help to detect signs of too much or too little as regards the level and value of inventories and receivables. Sales and cost of sales are related to inventories in determining their fluctuations with time. How quickly debts are collected from trade

credit is established by debtors-to-credit sales ratio, and an indication of how long it takes a concern to meet with its obligation to suppliers is done by creditors-to-purchases ratio. The level of response by a firm as regards meeting its maturing obligations is determined by the liquidity ratios: current and quick ratios. The level of 2:1 current ratio and 1:1 acid-test ratio is ideal for firms.

Operating Efficiency

This entails utilization of resources in the most favorable way possible. An entity can reduce its need for liquidity through efficient control of operating costs. Utilization of working capital is seriously enhanced and pace of cash cycle is increased whenever there is operating efficiency. Profitability is improved whenever there is efficient use of resources. One of the ratios commonly used to ascertain the liquidity position of a firm is current ratio. It shows the connection between short-term assets and short-term liabilities. Mostly used for analysis of short-term financial position, it measures general liquidity of an organization especially its ability to pay short term and long term obligations (Fabozzi and Peterson, 2003). By dividing total short-term assets by total short-term debts, one can obtain the current ratio;

Current Ratio = $\text{current asset} / \text{current liability}$

The recommended industrial average is ratio 2:1. Because of the desire to secure their money, the entity's creditors will always prefer that the organization maintain the level of current assets higher than the level of current liabilities. The creditors will feel safe if the current assets are higher than the current liabilities. The entity's managers on the other hand may not be in total agreement with this because in as much as they desire to meet maturing obligations, they also work with the knowledge that too much of short-term assets and idle resources producing no return might be costly. Warehouse expense for example will be high as a result of high level of inventory. Therefore, an optimal level of short-term assets which is sufficient to meet short-term obligations instead of excessive short-term assets (debtors, cash, and inventory) is more desirable for managers. Investing the excess amount with aim of earning some return will also be desirable for managers. Hence, choice has to be made by managers between two intense positions.

Receivable Management

Business entities are engaged in the sales of either product or services to their buyers. Raising their sales to its greatest value is also what they desire. Different policies are therefore put in place to attract buyers in an attempt to increase the volume of sales, and offering trade credit is an example of these policies. An organization making sales now but expecting payment at a specified future date is issuing trade credit. Fabozzi and Peterson (2003) pointed out that accounts receivable or trade credit is created when an entity permits buyers to make payments for goods and services at a future date. Since the company will not be able to meet the need for investment in other areas with these funds until they are collected, opportunity cost is therefore associated with trade credit (account receivables). More trade credit can result to increased sales which will also increase profit but it might turn difficult to realize the effect of high opportunity cost of money invested in trade credit and unrecoverable debts. Therefore, it is needful for the credit managers to make careful analysis and prudently manage the trade credit of the organization.

Maximization of the firm value by realizing a trade-off between profitability and risk is the objective of receivables management. Therefore obtaining the most favorable value of sales, and controlling costs of receivables, collection, unrecoverable debts, administrative expenses and the costs of forgone alternative of resources blocked in the trade credits should be done by the finance manager.

Furthermore, maintaining the book debts at its minimum with regard to the policy of the firm pertaining credits offered to customers as well as taking into consideration the cost of receivable and cost of forgone alternative of resources stuck in the receivables when offering suitable cash discounts should be done by the financial manager (Gallagher and Joseph, 2000).

Manufacturing Sectors Capacity Utilization and Commercial Bank Loans

Manufacturing sector has been portray and as a sector for speeding economic growth. Adofi, Taiga and Tijani (2015) assert that it produces goods for the purpose to sale. Tools, labour, machine, biological and chemical formation are use in the process of production Ayodele and Falukun (2003) noted that in modern economy, industrial development are determine by technological advancement or creative actions. This means a change from primitive low output of production to a modern system of large production which includes efficient automated method through deliberate and sustained combination of application of management techniques that promote suitable and high production technology. It pass through a lot of challenges which include relying on imports for socio-economic infrastructure and for consumption. As SMEs invest in different areas of the economy, their contributions culminate into growth of Gross Domestic product. Past and present government in Nigeria emphasized the need for internal development through the contributions and encouragement of SMEs. They play an important role in the economy. Adofi, Taiga and Tijani (2015) noted that the amount of joblessness in Nigeria is high and majority of the population live in poverty. They are of the opinion that because of this issue, this can be attributed to the absence of loan to manufacturing industries as one of the significant and importance point that hinder the production output of the manufacturing sectors. In addition, it was observed that one of the challenges is government attention. Government does not consider or give chance when making policies. It was pointed out that large organizations are given attention. This hinders their potentials, makes financing a constraining force which would have led to sustainable economic development. Findings from many study in the past indicated that SMEs and other manufacturing sectors faces a lot of problems in accessing bank loan (Cuevas and Carlos, 1989). The common challenges for them to access bank credit is their inability to present acceptable collateral which is an incentive to offset losses and repay in case of default.

Research Method

The study is ex-post factor research, the researchers employed historical data that covered the period of 2002-2018 to examine Nigeria manufacturing sector output and capacity utilization. Sourced from CBN 2019 and presented below:

Table 1. Data Presentation

Year	Gross Domestic Product at Current Basic Prices-Annual (₦' Billion)	Manufacturing at Current Basic Prices-Annual (₦' Billion)	Average Exchange Rate	Average Capacity Utilization	% of Commercial Bank Loans (SMEs)	Commercial Banks Loans to SMEs (₦' Million)
2002	11,332.25	1,127.23	120.97	44.3	24.77	82,368.40
2003	13,301.56	1,304.07	129.36	41.1	20.71	90,176.50
2004	17,321.30	1,516.05	133.5	55.7	19.18	54,981.20
2005	22,269.98	1,778.73	132.15	54.80	17.95	50,672.60
2006	28,662.47	2,082.49	128.65	53.30	16.9	25,713.70
2007	32,995.38	2,401.19	125.83	53.38	16.94	41,100.40
2008	39,157.88	2,761.55	118.6	53.84	15.48	13,512.20
2009	44,285.56	3,170.82	148.9	54.5	18.36	16,366.49
2010	54,612.26	3,578.64	150.3	53	17.59	12,550.30
2011	62,980.40	4,527.45	153.9	57	16.02	15,611.70
2012	71,713.94	5,588.82	157.5	57.5	16.79	13,863.46
2013	80,092.56	7,233.32	157.3	57.75	16.72	15,353.04
2014	89,043.62	8,685.43	158.6	58.2	16.55	16,069.27
2015	94,144.96	8,973.77	192.4	56.5	16.9	12,949.48
2016	101,489.49	8,903.24	253.5	53.6	16.82	10,747.89
2017	113,711.63	10,044.48	305.8	55.96	17.82	12,172.06
2018	127,762.55	12,455.53	306.1	54.6	17.5	44,822.84
2019			306.6	55		

Source: CBN statistical bulletin, 2019

Model Specification

The econometric model employed in this study is specified as thus,

$GDP = f(\text{Capacity Utilization in Manufacturing Industries, Exchange Rate, Commercial Bank Loans to SMEs and Manufacturing Output})$ ----- (1)

$GDP = f(ACU, AER, CBL, MAN)$ ----- (2)

This can be specified in econometric form as:

$GDP = \beta_0 + \beta_1 ACU + \beta_2 AER + \beta_3 CBL + \beta_4 MAN + \mu_t$ ----- (3)

Where,

GDP = Gross Domestic Product

ACU = Average Capacity Utilization

AER = Average Exchange Rate

CBL = Commercial Banks Loans to SMEs

MAN = Manufacturing output in Nigeria

β_0 represents the intercept of the model and $\beta_1 - \beta_4$ indicates coefficients of the independent variables

μ_t represents disturbance or error term

Techniques of Data Analysis

Data collected were analyzed using Granger causality test and regression analysis.

Data Analysis and Findings

Granger Causality Test

Table 2. Causal Relationship between GDP and ACU

Null Hypothesis	F-Statistic	Prob.
ACU does not Granger Cause GDP	0.24932	0.7840
GDP does not Granger Cause ACU	1.65491	0.2394

Granger causality test result presented in table 2 reflects the causal relationship between Gross domestic product and Average capacity utilization of the manufacturing industry. The result reported f-statistics of 0.24932 and 1.65491 alongside probability values of 0.7840 and 0.2394 for the hypotheses tested. The result revealed that there is no causal relationship between capacity utilization of the manufacturing industry and Nigeria economy measured in terms of Gross domestic product.

Table 3. Causal Relationship between GDP and AER

Null Hypothesis	F-Statistic	Prob.
AER does not Granger Cause GDP	8.41290	0.0072
GDP does not Granger Cause AER	5.68262	0.0225

Granger causality test result presented in table 3 reflects the causal relationship between Gross domestic product and Average exchange rate. The result reported f-statistics of 8.41290 and 5.68262 alongside probability values of 0.0072 and 0.0225. The result revealed that there is causal relationship between exchange rate and Nigeria economy measured in terms of Gross domestic product.

Table 4. Causal Relationship between GDP and CBL

Null Hypothesis	F-Statistic	Prob.
CBL does not Granger Cause GDP	0.39745	0.6822
GDP does not Granger Cause CBL	5.91373	0.0202

Granger causality test result presented in table 4 reflects the causal relationship between Gross domestic product and commercial banks loans to SMEs in Nigeria. The result reported f-statistics of 0.39745 and 5.91373 alongside probability values of 0.6822 and 0.0202. The result revealed that commercial bank loans has no causal relationship with Nigeria's economy as measured in terms of Gross domestic product.

Table 5. Causal Relationship between GDP and MAN

Null Hypothesis	F-Statistic	Prob.
MAN does not Granger Cause GDP	2.46013	0.1352
GDP does not Granger Cause MAN	4.31918	0.0445

Granger causality test result presented in table 5 reflects the causal relationship between Gross domestic product and manufacturing output in Nigeria. The result reported f-statistics of 2.46013 and 4.31918 alongside probability values of 0.1352 and 0.0445. The result revealed that manufacturing output has no causal relationship with Nigeria's economy as measured in terms of Gross domestic product.

Table 6. Regression Estimation Result

Dependent Variable: GDP				
Method: Least Squares				
Date: 06/29/20; Time: 13:26				
Sample: 2002 2018				
Included observations: 17				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	31198.52	19749.47	1.579714	0.1402
ACU	-321.3726	331.8417	-0.968451	0.3519
AER	71.27972	31.02227	2.297695	0.0404
CBL	-0.286056	0.057528	-4.972501	0.0003
MAN	8.302164	0.583915	14.21810	0.0000
R-squared	0.993620	Mean dependent var		59110.46
Adjusted R-squared	0.991493	S.D. dependent var		37047.12
S.E. of regression	3416.915	Akaike info criterion		19.35079
Sum squared resid	1.40E+08	Schwarz criterion		19.59586
Log likelihood	-159.4817	Hannan-Quinn criter.		19.37515
F-statistic	467.2193	Durbin-Watson stat		1.157468
Prob (F-statistic)	0.000000			

The Findings

The result of table 6 indicated an impact of average capacity utilization in the manufacturing industry, average exchange rate, commercial bank loans to SMEs, and manufacturing output on Nigeria economy measured in terms of GDP. It shows that AER and MAN exert positive, while ACU and CBL exert negative impacts on the GDP. Relative impact of Average capacity utilization of the manufacturing industry in Nigeria on the GDP stood at -321.3726 with probability value of $0.3519 > 0.05$. Relative impact of Average exchange rate stood at 71.27972 with probability value of $0.0404 < 0.05$. Relative impact of commercial bank loans to SMEs on GDP stood at -0.286056, with a probability value of $0.0003 < 0.05$. Relative impact of manufacturing output stood at 8.302164, with a probability value of $0.0000 < 0.05$. Reported R-square value stood at 0.993620 which implies

that about 99% of the systematic variation in Nigeria economy measured in terms of the gross domestic product can be explained by the four independent variables. The findings of the study implied that commercial bank loan, average capacity utilization does not impact significantly on the productivity of manufacturing sectors in Nigeria. The amount of loan given was not commensurate to the business activities of manufacturing sectors operations in the country.

Conclusion

Manufacturing activities of companies in Nigeria as well as supply of goods to buyers are affected. These elements also affect importers of finished product. Bad transportation facilities has obstructed transportation of raw materials to manufacturers and finished products to buyers within Nigeria. The purchase of company's goods have been affected by low capital disposable income of buyers in Nigeria. the stock of raw materials is therefore influenced by insufficient foreign exchange, poor transportation network. This is unfavourable for sustainable economic development.

Recommendations

- a) There is need for improvement in capacity utilization so as to increase the Gross Domestic Product.
- b) Industries should intensify efforts towards seeing that, monies with their debtors would not be delayed, even when there is such delay, it will not affect significantly the liquidation of the companies.
- c) The problem of irregular supply of electricity, deplorable roads and basic infrastructure in the country should be refurbish so as to boost industrial or manufacturing production capacity.
- d) Exchange rate of naira should be manage so as to improve the value of naira.
- e) Commercial banks should be encouraged to finance the activities of manufacturing sector so as to enhance economic development.

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