MINIMUM WAGE AND INDUSTRIAL OUTPUT NEXUS IN NIGERIA: X-RAYING CAUSATION

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Abstract

The industrial sector substitutes labour intensive means of massive production to capital intensive means of production in Nigeria, all in a bid to avoid the negative impact of increasing national minimum wage, thereby resulting to increased lay off of workers, improved numerical strength of adverse poverty and reduced standard of living in the country based on empirical literature. This points out that there is likely causality between minimum wage and industrial sector output in Nigeria. Consequently, this study investigates the causality between minimum wage and industrial output in Nigeria. Time series data were sourced on broad money supply, gross domestic private investment, inflation, national minimum wage and industrial output and analyzed based on an ex-post facto design. Granger Causality was employed to test the direction of causality between variables. The result from pairwise granger causality shows that national minimum wage exhibited a one way causality with broad money supply. The outcome indicates that changes in broad money supply which escalates inflation also influences national minimum wage rate. Industrial output is seen to cause gross domestic private investment in Nigeria between 1981 and 2021. It was recommended based on empirical result that, policy makers should rather device more profitable ways to improve industrial output in Nigeria in the face of hyperinflation rate and continuous currency devaluation. The study concludes that, in the case of Nigeria, what the nation need is a better management of macroeconomic variables that would foster the value of every naira and not increasing the national minimum wage in the face of a free rising inflation and exchange rate volatility.

Keywords: Minimum Wage, Industrial Output, Inflation, Broad Money Supply, Nigeria

INTRODUCTION

The evolution of Federal Minimum Wage represents government's most significant intervention in the world of work. It is one of the means through which government improved living conditions of its citizens. Though it's major objective is to prevent the

exploitation of workers by their employers, its implementation remains a major bone of contention in labour-management relations in Nigeria (Oyedele, 2016).

It is on record that the Nigerian workforce had been clamoring for better minimum wage over the years but the decision to arrive at the eighteen thousand naira current minimum wage was agreed upon early 2011, given its importance, the Nigerian senate approved the N18, 000: $ 50) minimum wage for workers which has consequently given birth to the Section 2 (1) of the National Minimum Wage Act, that "As from the commencement of this act, it shall be the duty of every employer to pay a wage not less than the national minimum wage of (N18,000: $50) per month to every worker under his establishment." (Elekwa & Eme, 2011).

Although the principal aim of the minimum wage among other things includes the alleviation of poverty – through improved welfare, Elekwa and Eme, (2011) said the policy had been severally adjudged by most Nigerians as a mere political statement. Sulaiman, Olanrewaju and Tinuke (2012) opine that the attitudes of majority of the state governors who played important roles in negotiating the national minimum wage, failed to implement or pay workers' salaries in their respective states, as at when due. While this situation is not an entirely new phenomenon in the history of Nigeria, the widespread nature of the present scenario is unprecedented (Ukah, 2016). Ifegwu, Okeagu, and Daniel (2019) recorded that more than a quarter of the 36 states of the federation owed workers' salaries in arrears believed to be over 110 billion naira.

The menace of wages delay has resulted to all forms of workers unrest, leading to slow movement of files in offices, nonchalant attitude towards staff duties among others. In some states, workers have resulted to protests and strike actions while others have adopted various strategies to survive. This lingering problem has resulted to some state governments trading blame over the unpaid wages of civil servants on past governments and insufficient statutory allocation (Ukah, 2016).

Fig 1: Joint trend of industrial minimum wage and industrial output level in Nigeria
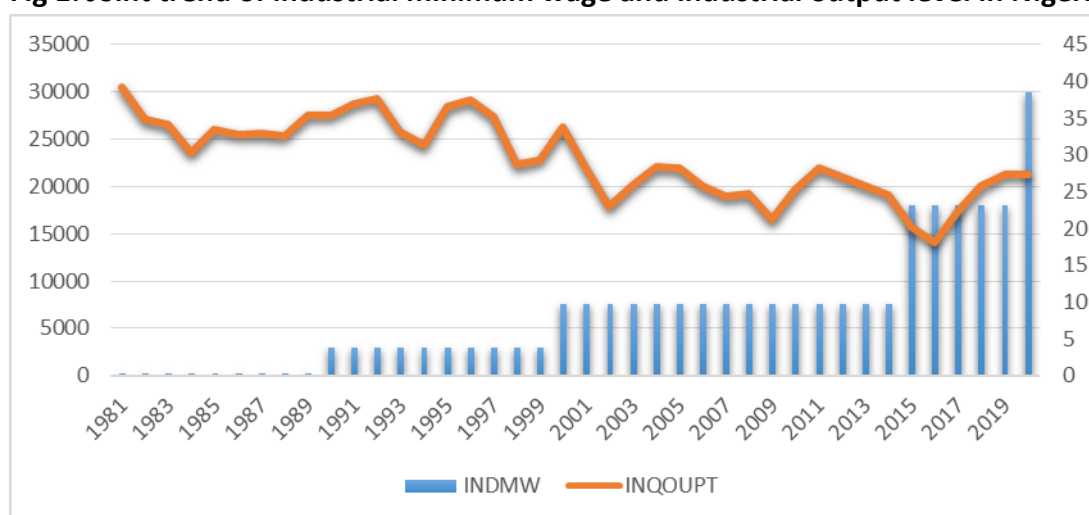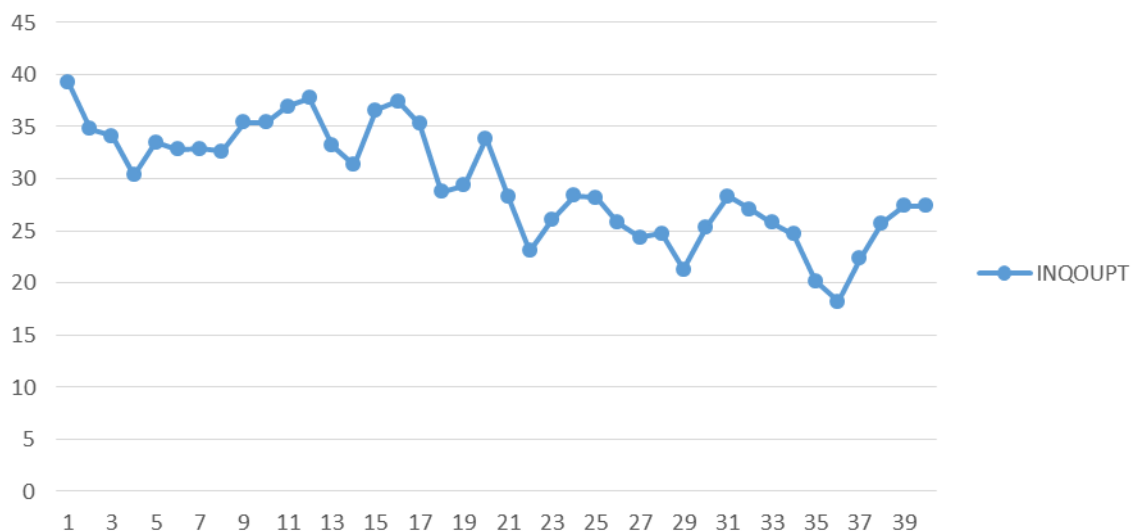

Source: *Researcher Desk, 2021*

Historically speaking, the relationship between minimum wage and industrial sector output in the country has not reflected a positive addition to the Nigerian economy over the years, with the available statistical data's showing that, there exist an inherent inverse relationship between minimum wage and industrial output growth in the nation. The graphical illustration presented above therefore juxtaposes that, as the national minimum

wage in Nigeria remained at a low base of 300 naira in the 1980's, the level of industrial output was on the rising trend, while subsequent increases in the minimum wage over the years only resulted to greater degree of fluctuation and decline in the level of industrial sector output in the country as graphically elucidated above. Given this ugly economic trend in Nigeria, the researcher is interested investigating the direction of causality between minimum wage and industrial output in Nigeria.

Problem of the Study

The agitations by the Nigeria Labour Congress (NLC) for an upward review of minimum wage from the current (N18,000: $50) to (N66,500: $184.7) has generated divergent views, on the ability and willingness of states government to implement it, especially when the proposed amount (N66,500: $184.7) is more than 100 percent increase on the current rate (N18,000: $50). Furthermore, the industrial performance has not additively influenced greater economic growth or general boost on employment generation and poverty reduction in the country, rather the industrial sector in the nation, which is basically characterized by the primary extractive sector, predominantly dominated by the private sector has suffered allot from changes in national minimum wage, therefore resulting to increased unemployment and reduced industrial output in the nation. hence the industrial sector now substitutes labour intensive means of massive production to capital intensive means of production in the country, all in a bid to avoid the negative impact of increasing national minimum wage, thereby resulting to increased laying off of workers, improved numerical strength of adverse poverty and reduced standard of living in the country (Sulaiman *et al,* 2012).

Fig 2: Trend of industrial output growth in Nigeria 1981-2020

Following the degree of fluctuation on industrial sector performance in the country over the years under review, it is statistically proven that the industrial sector output contribution to the economy has not been stable over the years, which could be concurrently attributed to increasing wage rate in the country without increasing industrial sector protection, though government industrial intervention funds, industrial subsidy and other economic programs to improve industrial sector performance in the midst of rising wage rate in the country.

A causal look at the relationship between minimum wage trend in Nigeria and industrial output in the country over the past decade indicates that, while the national minimum wage has been rising from the basement of 300 naira in the year 1981 to 1989, with approximately lower inflation rate and a corresponding stability in the purchasing power of the naira, while retaining a strong exchange rate with the dollar in the country.

Thereafter, the national minimum wage was increased in 1990 from 300 naira to 3000 naira and subsequently in the year 2000 to 7500 naira, which lasted over a decade unchanged till 2015, when Dr. Ebele Goodluck Jonathan administration raised the national minimum wage rate from 7500 naira to 18,000 naira. Currently the national minimum wage has been stable at 30,000 naira following the inception of President Muhamed Buhari administration in the country (National Bureau of Statistics, 2019). It therefor pitiable that despite government policy efforts to increase the national minimum wage in the country over the years, the industrial sector in the country has not performed better, as unemployment remains on the rise, poverty and dwindling economic growth coupled with rising inflation and declining standard of living in Nigeria as remained an unchanged trend of the national economy even the midst of increased wage rate in the country.

i.   Validated the direction of causality flow between minimum wage and industrial output in Nigeria.

ii. Evaluated the impact of minimum wage on industrial output in Nigeria.

REVIEW OF RELATED LITERATURE

Minimum Wage in Nigeria

Minimum wage can be defined as the smallest hourly wage that is paid to employee as mandated by law. Onyeche and Nse-Abasi (2017) define minimum wage as the lowest wage an employer is allowed to pay workers. The essence of a minimum wage as set out in International Labour Organization (ILO) is to give wage-earners the necessary social protection in terms of minimum permissible levels of wages (Bashiru, Afees & Ahmed, 2013). According to Atseye *et al* (2014), the importance of wage or salary to employees cannot be over stressed. Indeed, its administration is a major personnel or human resource management function which must receive adequate attention by any organization.

Chiara, (2011) minimum wage is the lowest remuneration that employers can legally pay their workers the price floor below which workers may not sell their labor. Supply and demand models suggest that there may be welfare and employment losses from minimum wages. However, if the labor market is in a state of monopsony, with only one employer available who is hiring, minimum wages can increase the efficiency of the market. There is debate about the effect of minimum wages (Coleman, 2013).

The movement for minimum wages was first motivated as a way to stop the exploitation of workers in sweatshops, by employers who were thought to have unfair bargaining power over them. Over time, minimum wages came to be seen as a way to help lower-income families (Chiara, 2011).

Nigeria's Industry Sector

Industrial development therefore is the application of modern technology, equipments and machineries for the production of goods and services, alleviating human suffering and to ensure continuous improvement in their welfare. Modern manufacturing processes are characterized by high technological innovations, the development of managerial and entrepreneurial talents and improvement in technical skills which normally

promote productivity and better living conditions. In recognition of this, successive governments in Nigeria have continued to articulate policy measures and programme to achieve industrial growth and development. This cannot be attained until manufacturing capacity is utilized to a reasonable extent (Jude & Ernest, 2015).

In Nigeria, as in many other developing countries, the word industry is used essentially as a synonym for manufacturing. This is because manufacturing is the most dynamic component of the industrial sector. Industrialization has come to be regarded as a crucial and powerful engine in the overall development process. The World Bank has classified Nigeria as inward oriented by trade orientation. Using data for 1963 – 73 and 1973 – 1985, she was deemed moderately inward oriented for the production period 1963 – 1973, but strongly inward oriented for the period 1973 – 1985. Since 2001, Nigeria has enjoyed a long period of sustained expansion of the non-oil economy, with growth occurring across all sectors of the economy and accelerating at about 7%. This growth rate increased to about 8-9% in 2003 despite the financial crisis. This has more than doubled the growth rate in the country prior to 1999 (Eme & Sam, 2011).

Even in the wake of the global financial crisis in 2009, Nigeria's growth performance fell only to about 4.5 percent. This, according to Oyinola, Ajakaiye and Fakiyesi (2009) has been attributed to the rapid growth rate in the non-oil export. The development of the non-oil economy was in contrast to that of the oil economy, whose contribution has been declining owing to unrest in the Niger Delta. However, an investigation by the World Bank (2012) has revealed that the pattern of growth in the Nigerian economy has not gained significant input from the industrial sector and development.

Till the mid-20th century, Nigeria's industry sectors were dominated by agricultural production. The country's fertile land and abundant mineral resources drove the economy. However, the 1970s oil boom changed the entire equation. The oil sector became the mainstay of the economy. As foreign currency began to pour in through the oil sector, the government neglected the agriculture and non-oil industrial sectors. Massive migration from villages to oil-producing cities resulted in large unemployment and low standard of living (Otu, Echetama, Opara, & Chikwe, 2014).

The mining sector, including the oil and natural gas segment, is the largest Nigeria industry sector. According to the 2005 figures, it accounts for more than 90% of the annual national production and generates more than 80% of the government revenues. The country produces 2.169 million barrels per day (2007 statistics). In terms of oil export volumes, the country ranks 8th in the world (Nwude, 2013). The Nigerian oil sector is regulated by the Nigerian National Oil Corporation (NNOC). It is a member country of the Organization of Petroleum Exporting Countries (OPEC). Although major reforms have been undertaken to liberalize the country's economy, the oil sector is still under the close scrutiny of the government. While, the oil sector is the major source of revenue for Nigeria, it is also central to civil unrest and border disputes. For long-term growth, the government has to strategically plan to develop the non-oil industries in the region (Otu *et al*, 2014).

Theoretical Background

Smith said that the demand for labour could not increase except in proportion to the increase of the funds destined for the payment of wages. Ricardo maintained that an increase in capital would result in an increase in the demand for labour. Statements such as these foreshadowed the wages-fund theory, which held that a predetermined "fund" of wealth existed for the payment of wages. Smith defined this theoretical fund as the surplus

or disposable income that could be used by the wealthy to employ others. Ricardo thought of it in terms of the capital—such as food, clothing, tools, raw materials, or machinery— needed for conditions of employment. The size of the fund could fluctuate over periods of time, but at any given moment the amount was fixed, and the average wage could be determined simply by dividing the value of this fund by the number of workers (Kevin, 2010).

Regardless of the makeup of the fund, the obvious conclusion was that when the fund was large in relation to the number of workers, wages would be high. When it was relatively small, wages would be low. If population increased too rapidly in relation to food and other necessities (as outlined by Malthus), wages would be driven to the subsistence level. Therefore, went the speculation, labourers would be at an advantage if they contributed to the accumulation of capital to enlarge the fund; if they made exorbitant demands on employers or formed labour organizations that diminished capital, they would be reducing the size of the fund, thereby forcing wages down. It followed that legislation designed to raise wages would not be successful, for, with only a fixed fund to draw upon, higher wages for some workers could be won only at the expense of other workers (Shynet & Christine, 2015).

RESEARCH METHODOLOGY

Macro-economic modeling is generally motivated by two objectives: forecasting and more significantly, policy analysis. In pursuit of these objectives, every model should ideally satisfy four criteria. First, it must fit into a theoretical framework. Second, the specification of the model must reflect a clear understanding of the conceptual framework within which policies are formulated and executed along with an envisaged process of adjustment. Third, it is essential that the model is built on a firm and rich data base and finally, the estimated structural model must adequately utilize the rigors and sophistication of econometric methodology.

For the purpose of this research study, the multiple regression analysis will be employed which will express a linear relationship between the dependent variable, Y and K explanatory variables, where 'k' can be any numerical value ranging from 1, 2, 3, … 200 etc. (Egbulonu, 2005).

Based on the nature of this research study, secondary data was used and the design is the ex-post facto. Ex-post facto is a research after the factor has been known and it applies to secondary data.

Model Specification

In line with wage fund theory, the model is specified to capture, industrial out as the dependent variables; while the prevailing wage rate, money supply, inflation and general level of private sector investment being the regressors in the regression line. Thus;

The functional form of the model is therefore specified thus;

$$INQ = f(NMW, INFR, BMS, GPDI)$$

The econometric form of the model is therefore specified as thus;

$$INQ = \beta_0 + \beta_1 NMW_t + \beta_2 INFR_t + \beta_3 BMS_t + \beta_4 GPDI_t + U_t$$

Granger Causality Equation

Granger Causality was employed to test the direction and bi-directional of causality between variables; in Nigerian economy. This approach tests whether current values of these variables (***INQ, NMW, INFR, BMS and GPDI)***) explained causality by their previous values. In other words, these variables (***INQ, NMW, INFR, BMS and GPDI***) Granger causes, if its f- and the probability statistical values are statistically significant in this regression. Granger Causality between the variables will be test based on the model below.

(*INQ* → *NMW, INFR, BMS….GPDI*)

$$INQ_t = \Sigma \beta_i \, INQ_{t-i} + \Sigma \lambda_i \, NMW_{t-j} \; ..... \; + \Sigma \lambda GPDI + U_{1t} \qquad ...(3.24a)$$
$$\quad i=i \qquad\qquad j=i \qquad\qquad\qquad j=i$$

(*INQ* → *NMW, INFR, BMS….GPDI*)
$$n \qquad\quad n \qquad\quad n$$
$$NMW_t = \Sigma \beta_i \, NMW_{t-i} + \Sigma \lambda_i \, GPDI_{t-j} + ... \; \Sigma \lambda_i \, INQ_{t-} + U_{2t} \qquad ...(3.24b)$$
$$\quad =i \qquad\qquad\qquad i=i \qquad\qquad\qquad j=i$$

Decision Rule

Causality in the first null hypothesis (D(MS) does not Granger cause D(CPI) require that the estimates of at least one of $D(CPI)_t$, $D(CPI)_{t-1}$, $D(CPI)_{t-2}$, is statistically significant. The test will also test the bi-directional granger cause side of the model with the F-statistic help of *Eview* statistic package. This means that if the F − cal is greater than the F − tab or F-probability at 5% level of significance, we reject (Ho) the null hypotheses and conclude that one of the variables do Granger causes to the other. Otherwise, accept the null hypotheses.

RESULT AND DISCUSSION

Standard Augmented Dickey and Fuller Test

The study further regressed for the individual statistical properties of the variables under investigation during this period, by imploring ADF standard unit root test using deter metric trend and intercept, intercept no trend and at none. The result is summarized in the table below.

Parameter	Statistic	@ 5% Prob**	Order of integration	Remark
DMS	-6.158173	0.0000	1(1)	**Constant, Linear Trend**
NMW	-8.816606	0.0000	1(2)	**None***
INQ	-6.193225	0.0000	1(1)	**Constant, Linear Trend**
INFR	-3.262146	0.0236	1(0)	**Constant**
GDPI	-3.589083	0.0439	1(0)	**Constant, Linear Trend**

Source: Researchers Desk 2022 (E-view 12)

To avoid running into a spurious regression, the researcher carried out augmented dickey and fuller unit root analysis of the implored variables in the regression line to ascertain the individual stationarity of the variables. The outcome therefore empirically validates that, the statistical properties of broad money supply in the economy only becames stationary after the first difference was taken using constant and linear trend in the deter metric equation line with a significant probability values of 0.0000%. National minimum wage also became statistically stationary duing this period (1981-2021) after the second difference was taken without trend and intercept in the deter metric equation line. The decision was arrived following the outcome of the probability values being significant at the required statistical significance threshold of 0.0000%.

In addition, industrial output for the period witnessed stationarity in its statistical properties after the first difference was taken, judging from a probability value of 0.0000%.

Inflationary trend, which measures the value of money, in this peculiar case, the values of national minimum wage earned by workers in the economy was stationary at levels with a satisfactory probability values of 0.0236%, while gross domestic private investment in the economy, which determines the degree of economic involvements of the private sector in the economy, which is capable of fostering increased employment demand and an upward shift in demand for labour force, which would invariably lead to increased wage demand became stationary at levels following constant and trend in the deter metric equation line at the probability values of 0.0439%. The above result is indicative of statistical diversity in stationarity, and hence the study is justified to adopt the use of ordinary least square estimation technique against auto regressive distributive lag approach following a second difference stationarity witnessed above.

Long Run Relationship (Johansen Criterion*)

Following the statistical diversity inherent in the parameter estimates expressed above by augmented dickey and fuller result, it is expedient that the researcher carry out johansen test of cointegrations to ascertain the nature of relationships prevailing between the variables in the regression line.

Hypothesuzed Number of Cointegrations	Eigenvalues	Trace Statistics	0.05% Critical Values	Probability**
None*	0.615899	81.30646	69.81889	0.0046
At most 1	0.385001	43.98936	47.85613	0.1102
At most 2	0.301970	25.03014	29.79707	0.1604
At most 3	0.140645	11.00992	15.49471	0.2109
At most 4*	0.122547	5.098551	3.841465	0.0239

Source: Researchers Desk 2022 (E-view 12)

The outcome of Johansen test for long run relationship indicates an inherent long run association between the variables (national minimum wage, broad money supply, inflation rate, industrial output and gross domestic private investment). This judgment was arrived at following critical values for at None* 69.81889 being less than the trace statistics at 81.30646 with a significant probability values of 0.0046, furthermore, at most 4* also indicates long run relationships following the critically values being less than the trace statistics and a complimentary significant probability values of 0.0239%. This result therefore proves that, the regressed and the regressors in the model estimate has long run association ship, which is not desirable, hence our current investigation is more interested in the foreseeable short run effect of minimum wages on industrial output in the country. We therefore proceed to check the speed of adjustment from a long run equilibrium relationship to short run using vector error correction estimate.

Trend of Cointegration

Figure 3: Trend of Cointegrating Equation
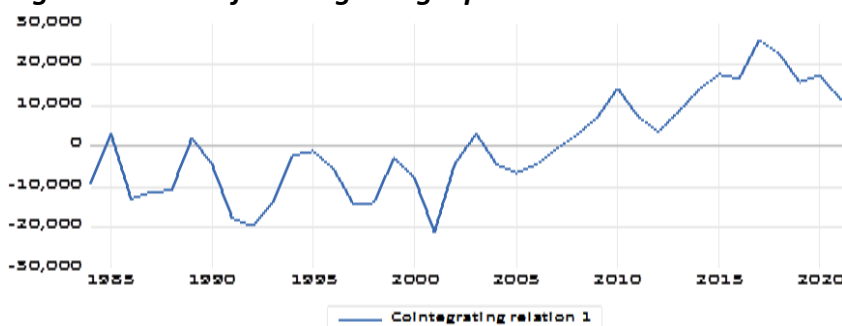
Source: Authors Compilation from E-views 12 output

The graphical illustration above justifies the existence of a long run relationship between the series in the regression, given the cointegrating line cross the long run equilibrium as displayed in the above diagram.

Error Correction Estimate (OLS Approach)

To examine the effect of minimum wage on industrial sector output in the country, the researcher regressed the independent variables (broad money supply, inflation, gross domestic private investment and minimum wage) for the period against the dependent variable (Industrial output). The empirical results are explained below.

Dependent Variable: (INQ 1)
Method: Least Square
Date: 11/05/22 Time. 16:08
Sample (Adjusted) 1981 2019
Included observations: 39 after adjustments

Variables	Coefficient	Std. Error	T-Statistics	Probabilities
C	33.79564	4.333458	7.798768	0.0000
BMS(1)	-0.000161	0.000148	-1.087638	0.2844
GDPI	-0.194888	0.191102	-1.-019814	0.3150
INFR	0.098578	0.037579	2.623233	0.0129
NMW(2)	-0.000100	0.000216	-0.464119	0.6455
ECM (-)	0.080363	0.021449	3.746700	0.0007

R-Squared 0.495383, Adjusted R-Squared 0.436017, F-Statistics 8.344465   Prob* 0.000084

Effect of national minimum wage on industrial output in Nigeria has been empirically regressed between 1981 and 2021 with statistical parameters on: inflation, broad money supply, gross domestic private investment and national minimum wage for the period dully extracted from Nigerian central bank statistical portal, world development indicator for the country in 2021 and national bureau of statistics portal 2021. The variables were dully regressed in order of their integrations following the outcome of augmented dickey and fuller unit root test carried out above.

Error Correction Model: Vector error correction model was explored to assess the speed of adjustment in an evident of a long run equilibrium relationship between the parameters in the model for the duration of this investigation. Following error correction result of 0.080363, it implies that it would take 80.36% annually for every long run relationship to be re-adjusted back to short run relationship. This therefore provides empirical stands that our model has a strong self-adjustment mechanism and hence satisfactory

Effect of broad money supply on industrial output: The circular flow of money in the economy goes a long way in determining and likewise influencing economic progress of different countries of the world, with Nigeria not excluded. The speed of currency circulations over time can determine the growth of industrial sector activities in the nation, hence the need to include broad money supply in the equation line for the study. The coefficient of broad money supply for the study duration was regressed for significance following the outcome of augmented dickey and fuller test that proved its stationarity at first difference. Consequently, broad money supply indicated a negative implication on industrial output in the face of minimum wage increases. The statistical data by implications shows that increasing the coefficient of broad money supply during the period would reduce industrial output by an insignificant figure 0.0000161%.

Gross domestic private investment and industrial output in Nigeria: Economically, it is assured that increased domestic investment by the private sector in the country would spur increased industrial productivity, which would result to increased demand for labour and its spillover result to increasing demand for wages given the demand for potential labour force exceeding the supply in the economy at the given time. Hence the need to include domestic private investment trend in the model to regress the statistical conditions an increased minimum wage would exert on industrial sector productivity in the Nation during this period. Unfortunately, the statistical outcome indicates that, in the face of increasing minimum wage or an increased national minimum wage in the economy, private domestic investment would grossly decline.

This result could be associated with firm's behavior towards additional cost of input. Thus following the outcome of the result above, improving on the existing minimum wage for the period would negatively impact on private domestic investment in the Nation. This would likewise influence industrial output as proven by the negative association between gross domestic private investment and industrial output in Nigeria at -19.49%. The result corresponds with the findings obtained by Akpansung, (2014) who opined that firms has a negative reactions towards increased cost of production.

Effect of inflation on industrial output: Based on economic apriori expectations, inflation was expected to exert a negative influence over industrial output for the period under considerations, but the result indicated otherwise with a positive relationship. This outcome could be associated with higher tendencies of firms in the country to increase their general price range above slight inflation margin, which is inherent in the Nigerian economy, where a slight increase in the price level receives an overwhelming response of price increases from the industrial sector of the nation, thereby making abnormal profit in such cases. The evidence provided above is indicative that, a percent increase in inflation rate would result to 98.57% increases in industrial out in the country for the period of this study, while the probability values of 0.012% indicates that, inflationary trend is a significant parameter to measure changes in industrial output in Nigeria between 1981 and 2021.

Effect of national minimum wage on industrial output in Nigeria: The quest for increased national minimum wage in Nigeria has seen the country adjust its payment structure to the current thirty thousand naira mark, although the economic and social implication of increasing minimum wage has not been duly understood in the Nigerian context, given the persistent rise in the prices of goods and services, following each upward review of the minimum wage in the economy. Consequently, the coefficient for national minimum wage indicated a negative relationship with industrial output for the period, meaning that increasing the national minimum have always exerted a negative economic consequence on the industrial sector at -0.001%

Summary of Granger Causality Tests

The study is anchored on granger causality testing approach, hence the need to carry out pairwise granger causality test on the model for the period of this investigation.

Pairwise Granger Causality Tests

Date: 11/07/22   Time: 17:51
Sample: 1981 2021
Lag: 2

| Null Hypothesis	Observations	F-Statistics	Probability*
INFR does not granger cause BMS	39	0.67728	0.5147
BMS does not granger cause INFR		8.14259	0.0013
NMW does not granger cause BMS	39	2.25469	0.1204
BMS does not granger cause NMW		5.14768	0.0111
INQ does not granger cause GPDI	39	9.76760	0.0004
GPDI does not granger cause INQ		1.14939	0. 3288
NMW does not granger cause INQ	39	0.04755	0.9536
INQ does not granger cause NMW		0.12147	0.8860

Source: Researchers Desk 2022 (E-view 12)

The study also regressed for granger causality linkage between the parameter estimates in the model, as the researcher is interested in estimating and identifying the direction of causality flow between national minimum wage and industrial output in Nigeria during this given period. It is therefore evident that, there exist a uni-directional causality flow between inflation and broad money supply in the economy, implying that broad money supply influences inflation rate in the economy with a statistically sufficient probability values of 0.0013%. This result is in consonance with economic a priori expectation that increasing money supply for a given period is likewise expected to exert an additive impact on inflationary trend for the given period of time. Furthermore, national minimum wage exhibited a one way causality with broad money supply at 0.0111%.

The outcome indicates that changes in broad money supply which escalates inflation also influences national minimum wage rate. Industrial output is seen to cause gross domestic private investment in Nigeria between 1981 and 2021 at 0.0004% level, while national minimum wage and industrial output exhibited no causality flow at 0.95% and 0.88% respectively.

Model Stability

To test the stability of the model $INQ = \beta0 + \beta1NMW_t + \beta2INFR_t + \beta3BMS_t + \beta4GPDI_t + U_t$, we implored recursive Cusum test of squares.
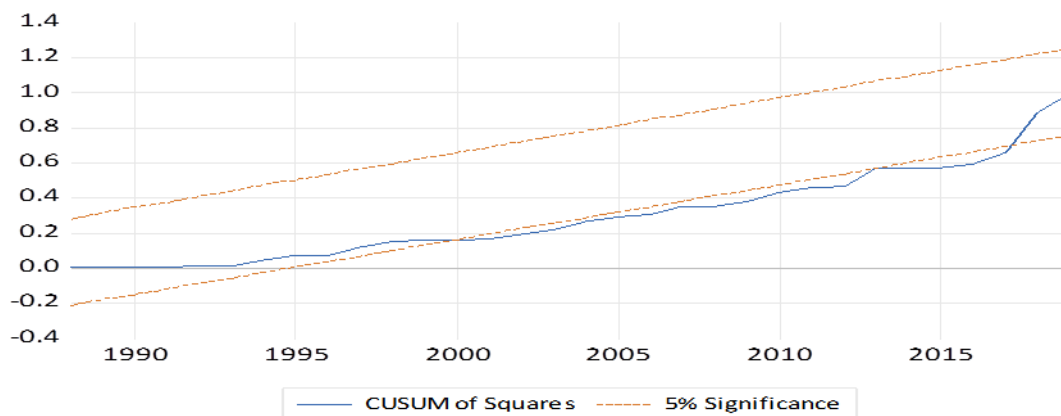
The model stability test was carried out to ascertain the significance of the general model at the given 5% level of significance for the period under review. The above trend line is indicative of the model line crossing the boundary lines on a number of occasion, this could easily be associated with various changes that has occurred on national minimum wage in Nigeria between the period 1981 and 2021.

CONCLUSION

Minimum wage increase in Nigeria has always been a welcome idea from the stand post of civil servants across the Nation, but to the government, it implies spending more

than necessarily advocated for, while the industrial sector is not also left alone on the negative implication of increase wages on industrial output and profitability trend. Based on this diverse challenges associated with national minimum wage in the Nation, the study empirically investigate the impact of national minimum wage on industrial output in Nigeria from 1981 through 2021, with data's obtained from central bank of Nigeria annual bulletin for the year 2021. Objectively the study investigate the direction of causality flow between national minimum wages and industrial output level in the country, while the result from pairwise granger causality shows no direction of causality flow between the regressed and the regressor in the regression line. It was recommended based on empirical result that, the government should rather device more profitable ways to improve workers standard of living not only by raising per capita income in the face of increasing exchange rate, hyper inflation rate and continuous currency devaluation. The study concludes that, in the case of Nigeria, what the nation need is a better management of macroeconomic variables that would foster the value of every naira and not increasing the national minimum wage in the face of a free rising inflation and exchange rate volatility.

The following recommendation are reached in adherence to economic principles and in the light of the empirical findings obtained in the regression line for the duration of this study.

- Broad money supply indicated a negative relationship with industrial output for the period under examination. It is therefore important that the monetary authorities in the country checkmate the supply of money in the economy in other to put inflation under check and balances, while spurring increased industrial output in the country.

- Evidence from the study also shows that keeping constant the regressors (national minimum wage, inflationary rate, gross domestic private investment and broad money supply) for the period 1981 through 2021, industrial output was positive at 33.79% and sufficiently significant at 0.0000%. The study therefore calls for a deeper monitoring and regulation of this variables in other to keeping the industrial sector at an ever growth pace.

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