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Research paper

A Study on the Relationship between Minimum Wage and Income Rise on Economic Growth in Nigeria

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ABSTRACT: Minimum wages and income rise are capable of improving the living standards of laborers, especially the poor. This paper examines the effects of minimum wage and income rise on economic growth in Nigeria. To achieve this task a model of investment was specified explaining minimum wage, Interest Rate, Credit to Private Sector and Inflation Rate in Nigeria. Johansen co-integration was used to analyze both short and long run relationship between variables. Research findings reveal that there is an inverse relationship between Investment (INV), interest rate INT and credit to private sector CPS in the long run while minimum wage MWG and inflation rate INF are having a direct relationship with investment in the long run. The long-run result conforms to the a priori expectation of inverse relationship between Investment (INV), interest rate INT and credit to private sector CPS in the long run. Based on our findings this work therefore recommends that; there is need for stakeholders, particularly the labor union organizations to have severally called for wage indexation in Nigeria. The minimum wage is required to ensure the basic needs of the laborers and dependents in their family. Economic growth and price inflation require the adjustment of minimum wages. Therefore, government must be ready to adjust the minimum wage when there is a change in prices of commodities and services. Government on their part should ensure that her economic policies are geared toward development of a good industrial climate and environment that encourages industrial harmony, and which will also boost organizational and national development. Workers should therefore develop themselves to acquire more relevant skills and competencies in order to avoid becoming skill obsolete and possible redundancy in order to remain relevant in existing and emerging industrial relations trends and issues.

Keywords: Minimum wage, income rise, credit to private sector, inflation

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INTRODUCTION

The possible benefits of minimum wage policy, such as improved earnings for low-wage workers, lower public benefits, and increased perceived justice, should be balanced against the potential costs, such as reduced employment and hours for low-income workers. The minimum wage is a legally enforceable directive issued by the government to employers on the smallest amount to pay as compensation to employees. The Nigerian minimum wage has changed four times since 1981. The most recent rise in the minimum wage occurred in early 2019, when the Federal Government of Nigeria approved an increase of 66.67% to ₦30,000 from the ₦18,000 minimum wage established in 2011. The National Labour Congress (NLC) has been a significant champion for raising the minimum wage in Nigeria, emphasizing the need to improve people's living standards. There is strong evidence that the labor market is not always characterized by a straightforward supply and demand structure that is totally competitive. Instead, businesses seem to have some control on wage setting. A higher minimum wage might not eliminate jobs in a labor market with imperfect competition, but it might decrease turnover and job openings. Of course, a higher minimum wage will eventually result in less employment.

An empirical question is how high the minimum wage may be raised before employment losses become noticeable (Strain and Clemens, 2022).

A substantial corpus of excellent research has examined the effect of minimum wages on employment in the US. This set of evidence suggests that, so far, the impact on employment at low wages has been relatively muted. Recent research has made it easier to understand how the minimum wage level may affect this impact. The strongest data across US states points to negligible employment effects up to about 59% of the median salary. This was supported by evidence utilizing sub-state county-level variance, even in lower wage counties where the minimum wage might reach 81% of the median wage. According to research done for this paper, employment effects have been similarly subdued in the seven US states with the highest minimum wages, where the minimum wage is mandatory for about 17% of the workforce.

The ongoing controversy over the passage and implementation of a minimum wage rise in Nigeria served as the impetus for this study. The discussion centers on the trade-offs that should be made in policy between the gains made by labor interest groups like the Nigerian Labour Congress and Trade Union Congress and the costs associated with the increased minimum wage that must be shared by reluctance in both public and private companies. Due to labor strike actions, this has throughout time caused numerous disruptions in the labor market, many Nigerians' means of subsistence, and even the level of economic activity (Isaac, 2010). It is necessary to evaluate the macroeconomic perspective that results from the suggested minimum wage rise.

Literature review

However, policy discussions frequently highlight concerns regarding its impact on employment, prices, and most importantly on non-wage job qualities (Clemens et al., 2018). The minimum wage has been widely featured among the policy tools deployed to promote the well-being of low-skilled workers. Evidence suggests that the minimum wage may not necessarily boost workers' welfare, especially when businesses try to reduce non-cash expenses as a cost-hedging measure. Such non-wage job characteristics, or non-cash component of pay, give important value to workers in the employment arrangement; claim Mas and Pallais (2017). According to a study by Clemens et al. (2018), a $1 increase in the minimum wage for people in low-paying jobs was linked to a 4% decrease in employers' willingness to offer health insurance plans, causing the effect of the minimum wage increase to spread into the macroeconomy.

In a similar vein, theoretical schools of thought hold that minimum wage laws misalign policy advocacy that suggests raising the minimum wage could potentially reduce poverty and improve welfare by reducing low-skilled participation and favoring higher earners more than lower earners (Stigler, 1946; Mckenzie, 1980; Lee and Saez, 2012). The aforementioned theoretical and empirical claim suggests that the minimum wage adjustment has multidimensional implications beyond a simple income effect. Therefore, it is necessary to evaluate the resultant macroeconomic prognosis following the proposed minimum wage rise given the dynamic nature of the Nigerian labor market, which includes the fact that over 56% of families are not part of the regulated labor market, and the unstable macroeconomic environment.

The macroeconomic impacts of raising the minimum wage are well documented in the literature, particularly with regard to how it affects employment, wage distribution, and output. A moderate increase in the minimum wage, as is generally agreed upon and supported by Card and Krueger (1994) and Bauducco and Janiak (2018), has a moderately positive impact on employment while a very big increase has a negative impact. However, Neumark and Wascher (2018) point out that raising the minimum wage compresses the pay distribution while increasing the spillover effects for higher workers. Following the implementation of a $10 minimum wage, a policy experimental test by Bauducco and Janiak (2018) in the US economy revealed a 2.8% reduction in employment and increases of 4% and 1.8% in capital and production. By implementing a $9 minimum wage, the policy experiment was continued while maintaining unemployment and increasing capital accumulation. This data supports the claim made earlier by Card and Krueger, (1994). In the similar vein, Sauer (2018) investigated the macroeconomic effects of raising the statutory minimum wage using US data and the DSGE model. According to the study, a raise in the minimum wage hinders employment for unskilled workers more because businesses modify employment contracts as a result of the increased competition. According to empirical data, there was a 3.85% increase in unskilled unemployment. Unskilled workers became more expensive as a result of the salary increase, thus the company decided there was no longer a need for many of them. Overall employment decreased by 0.21% on average. In general, households with low skill levels were most affected by a rise in the minimum wage, while families with higher skill levels and aggregate characteristics were hardly affected.

Increases in the minimum wage's effects on the South African economy were evaluated by Strauss et al. (2017). By increasing the portion of income accruable to workers, this was accomplished. The study created a hypothetical situation in which wage compensation was implemented so that labor productivity outpaced real wage increase. A higher real pay rebalances national income by increasing the share of labor in the economy given an increase in relative and constant employment. The South African economy is expected to grow as the share of labor

increases. Additionally, when the nation's revenue flows to wage earners, who now have a high inclination to consume, consumer expenditure rises. Additionally, the survey discovered a slight reduction in employment and deterioration of the current account. In a similar vein, studies on the effects of national wage increases on employment, output, and poverty conducted by Pauw (2009), Pauw and Leibbrandt (2012), and Development Policy Research Unit (2008, 2016) came to the conclusion that unskilled employment declined with a greater impact in the short run and a marginal fall in general employment level. Regarding the impact of a higher minimum wage on macroeconomic indicators other than employment, Macleod took a different stance. He asserted that all economic measures fell after a wage increase, with real GDP decreasing by as much as 3.7%. The study by Fajana (1983), which discovered a 0.23% reduction in employment as a result of a 1% rise in the federal minimum wage, is among the noteworthy pieces of data from Nigeria. Okolo and Attamah (2018) found comparable data. Their research also demonstrated that a minimum wage hike is likely to be followed by an increase in tax burden, which will degrade capital productivity growth and reduce long-term economic potential. Both researches came to the conclusion that wage growth and employment in Nigeria had a strong inverse relationship. Adegoriola and Adolphus (2016) found evidence supporting this association in Canada, America, and Nigeria. This line of research supports a widely accepted consensus; nonetheless, the literature currently lacks pertinent empirical studies on the effects of a higher minimum wage on significant macroeconomic variables in Nigeria.

The gap will be evaluated using a macroeconomic model capable of analyzing the effects of various wage scenarios on the overall economy in the current re-examination of the influence of the minimum wage on significant macroeconomic variables in Nigeria. This study is closely related to Folawewo (2007), who employed the computable general equilibrium technique, based on its usage of the general equilibrium framework. This paper, however, stands out because it offers the most recent general equilibrium evidence of the effects of minimum wage rises in Nigeria, particularly the instances from 2011 and 2019 that Folawewo (2007) neglected to take into account.

METHODOLOGY

Empirical model

According to Obeng (2015), the study makes the assumption that investment is the mechanism by which wage policy influences economic growth. This study illustrates the long-run wage-investment relation as follows to establish the wage-growth linkage:

$$INV = {}_0 + \beta_1 MWG + \beta_2 INT + \beta_3 CPS + \beta_4 INF + \mu_t$$

Where:

INV = Investment, MWG = Minimum Wage, INT= Interest Rate, CPS = Credit to Private Sector and INF = Inflation

$B_1\beta_2\beta_3\beta_4$ are the parameters to be estimated

Sources and measurement

The minimum wage data were sourced from Wage Indicator Foundation (2019), while the series on investment, inflation rate, and economic growth were gathered from the World Bank Development Indicators (2019), and the data on credit to the private sector and rate of interest were sourced from Central Bank of Nigeria (CBN) Statistical Bulletin (2018). The real value is computed as a ratio of nominal minimum wage to the Consumer Price Index (CPI) over the study period. This is with a view to providing for the effect of inflation on the nominal value of the minimum wage. While investment is proxied by Gross Fixed Capital Formation (GFCF), interest rate is proxied by the prime rate in Nigeria, and economic growth is proxied by Gross Domestic Product Per Capita (GDPC). The study period spanned 1986 - 2018. This study employed Error Correction Mechanism approach to analyze the relationship between investment, minimum wage interest rate, credit to private sector and inflation rate All variables were tested to confirm the absence or presence of unit root problems using Augmented Dickey-Fuller (ADF) in order to avoid spurious regression.

RESULTS

Unit roots outputs

Since the study used time series data, the first step is to establish the stationarity or otherwise of the variables, a unit root test was carried out by using the ADF methodology. The unit root test results show that Investment, Minimum Wage, Interest Rate, Credit to Private Sector, and Inflation Rate are all integrated of the same order of I (1), respectively. This means that the variables are stationary at their respective first differences. Because the requirements for Johansen co-integration have been met (Table 1).

Co-integration test results

After confirming the stationarity of the variables, we ascertain whether the model's variables have a long-term equilibrium connection. This study uses Johansen Co-integration techniques to carry it out (Table 2). There is a long-run equilibrium relationship in the model, as seen in (Table 2). Given that the likelihood ratio (41.0445) is more

Table 1: Summary of ADF Unit Root Test with trend and intercept

Variable	ADF test statistics	Mackinon Critical value @ 5%	No of time difference	Remark
LN INV	-3.065307	- 2.941103	I (1)	Stationary
LN MWG	-5.710270	-2.194721	I(1)	Stationary
LN INT	-4.675331	-2.574901	I (1)	Stationary
LN CPS	-3.267431	-2.643221	I (1)	Stationary
LN INF	-4.384324	-2.965481	I (1)	Stationary

Source: Computed by the Authors 2023

Table 2: Johansen Co-Integration Test.(Trace Statistics).

Hypothesized number of (ECS)	Eigen value	Trace statistics or likelihood ratio	5% critical value	Prob**
None*	0.404306	41.04455	34.84323	0.0006
At most 1*	0.240747	21.22341	15.72047	0.0226
At most 2	0.221175	10.64205	13.20971	0.1065
At most 3	0.053364	2.545305	3.840326	0.1056

Source: Computed by the Authors 2023

Table 3: Johansen Co-Integration Test (Maximum Eigen Statistics).

Hypothesized No of Ecs	Ergen Value	Max Eigen Statistics	5% Critical Value	Prob**
*None**	0.404752	25.75577	22.36034	0.0143
At most 1	0.367269	17.43342	20.12072	0.0611
At most 2	0.107647	6.234729	12.24540	0.3512
At most 3	0.074530	2.543755	3.821006	0.1063

Source: Computed by the Authors 2023

Table 4: Long run results.

Variable	Coefficient	Std. Error	t statistics	Probability
C	-3.136216	1.671473	-2.158228.	0.0276
LN MWG	1.132817	0.276312	2.978441	0.0045
LN INT	-1.044133	0.218709	3.160120	0.0023
LN CPS	-0.063814	0.026055	-0.640444	0.5085
LN INF	1.092366	1.201504	0.691200	0.1100

Source: Computed by the Authors 2023

than the 5% critical value (34.84323) at None hypothesized No of Ecs (None*) and that (21.22341) is greater than (15.72047) at the 5% critical value, the trace statistics reveals that there are two co-integration equations among the series. From Table 3, it shows that there exist a long run equilibrium relationship in the model using the Maximum Eigen statistics (25.75577) which is greater than 5 Percent critical Value (22.36034) at None hypothesized No of ECS (None*). All the variables therefore stand significant (Table 3). Having established the long run relationship among the variables in the model, we switch to the long run Error Correction Model. From (Table 4), the results of the long-run shows that INT and CPS are inversely related to Investment which is in conformity to the a priori prediction. However, MWG and INF exhibit direct relationship conforming to the a priori expectation. In addition, the value of the MWG and INT are statistically significant at the 5 per cent level.

Error correction model (ECM)

The error correction model measures the speed of adjustment to equilibrium. The result of the Error Correction Model (ECM) conforms to the rule if the value of its coefficient is negatively signed and also statistically significant if the p-value is found $\leq$ 0.05. The result obtained demonstrate that the present value of the dependent variable will adjusts back to long-run equilibrium in the independent variable at speed of 34 percent approximately. A higher percentage of ECM indicates a feedback of that value or an adjustment of that value from the previous period disequilibrium of the

Table 5: Over-parameterized ECM.

Variable	Coefficient	Std. Error	t statistics	Probability
C	0.251908	0.264002	0.670083	0.2232
D(LNMWG)	-0.273718	0.208052	-1.802031	0.0601
D(LNINT)	0.200165	0.264438	1-130628	0.2628
D(LNCPS)	0.170070	0.210130	0.662665	0.4386
D(LNINF)	0.461207	0.230058	0.208050	0.1103
D(LNMWG(-1)	0.015622	0.127003	0.106146	0.0023
D(LNINT (-1)	0.103466	0.064501	1.033027	0.1420
D(LNCPS (-1)	0.033222	0.173078	0.106723	0.5040
D(LNINF (-1)	-0.076070	0.157620	-0.242006	0.5001
D(LNMWG (-2)	0.020540	0.083412	0.103104	0.0151
D(LNINT (-2)	0.135420	0.301054	0.052380	0.0372
D(LNCPS (-2))	0.115576	0.175602	1.154138	0.1530
D(LNINF (-2))	0.044333	0.264189	0.208833	0.7260
D(LNMWG(-3))	-0.087181	0.258741	-0.353117	0.5102
D(LNINF (-3))	-0.01152	0.183545	-0.113437	0.4100
ECM (-1)	-0.050310	0.024128	-0.204017	0.2064

Source; Computed by the Authors 2023

Table 6: Parsimonious ECM.

Variables	Coefficient	Std Error	T. Statistics	Probability
C	0.234777	0.258632	0.761108	0.2631
D(LNMWG)	0.401716	0.217458	2.336354	0.0151
D(LNINT (-1))	0.082627	0.181174	1.005667	0.3106
D(LNCPS (-1))	-0.100528	0.185677	-1.131871	0.1628
D(LNINF (-1))	0.214577	0.075602	1.155137	0.1530
ECM (-1)	-0.425052	0.115066	-2664578	0.0140

Source: Computed by the Authors 2023

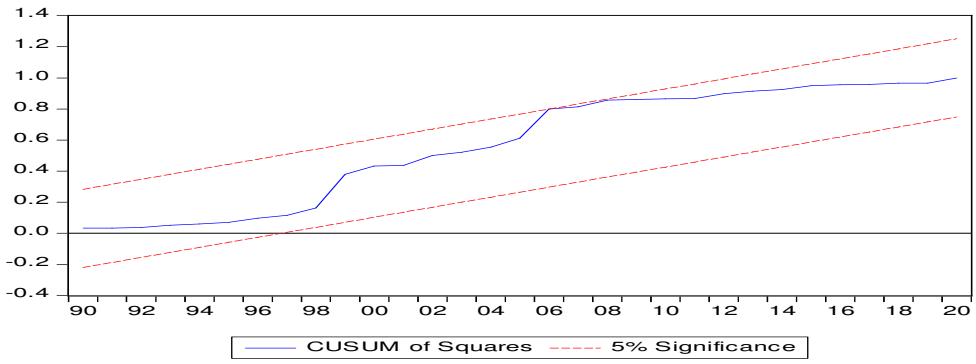

Figure 1: The stability tests

present level of dependent variable and the present and past level of the independent variables. The over-parameterized ECM is being made by the lagged value of each variable while the parsimonious ECM considers the variables that adjust rapidly to equilibrium among the lagged variables. The (Tables 5 and 6) below show the result of both the over-parameterized and the parsimonious ECM for the given parameters. The (Tables 5 and 6) show the over-parameterized and parsimonious results. The negative sign of the ECM values in Tables 5 and 6 indicates that the ECM has a reasonable sign and is statistically significant at the 0.05 per cent level. This means that the present value of 0.425052 has a feedback of about 42.50% from the previous period of imbalance to the present level of INV in a bed to determine the causality between the past level of INV and the present and past level of MWG, INT, CPS and INF. The result of the above CUSUM test obtained from the model shows that the coefficient is stable at 5% significance level in the CUSUM test as the cumulative sum is within the range between the two critical lines (Figure 1).

DISCUSSION

The result of our findings from the long run results indicates an inverse relationship between investment

(INV), interest rate INT and credit to private sector CPS in the long run while minimum wage MWG and inflation rate INF are having a direct relationship with investment in the long run. The long-run result conforms to the a priori expectation of inverse relationship between Investment (INV), interest rate INT and credit to private sector CPS in the long run, this is in line with the work of Strauss et al. (2017) who examined the impact of minimum wage increases on the South African economy with similar result. The positive relationship between minimum wage MWG and inflation rate INF are having a direct relationship in the long run. This finding is in agreement with the results of Bauducco and Janiak (2018),who examined the same topic.

Conclusion

This study examines the effects of minimum wage and income rise on economic growth in Nigeria. An increase in the minimum wage would increase employees' spending rate on good and service. This implies that minimum wages increase the living standards of laborers, especially the poor. In addition, minimum wage increases have positive effects such as promoting labors' work effort and productivity, reducing people covered in subsidy programs, increasing consumption, aggregate demand and generation of multiplier effects. Minimum wage increases can lead to negative impacts such inflation rate per items. In the traditional economic theory, firms will respond to an increase in labor cost by reducing demand for labor or increasing the output prices. As a result, unemployment and inflation can be increased. Poor laborers, whom governments aim to protect by minimum wages, can be hurt by minimum wage increases. Although minimum wage increases are expected to increase prices, the magnitude of price increase depends on several factors such as the demand elasticity and competition degree. The result of our findings indicates an inverse relationship between Investment (INV), interest rate INT and credit to private sector CPS in the long run while minimum wage MWG and inflation rate INF are having a direct relationship with investment in the long run. The long-run result conforms to the a priori expectation of inverse relationship between Investment (INV), interest rate INT and credit to private sector CPS in the long run. Based on the findings of this study the following recommendations were made;

Recommendations

1) Wage increases in Nigeria do not match up with the rate of increase in price of products and service. As a result there are always agitations from the labor union for persistent wages and salaries increase. There is need for stakeholders, particularly the labor union organizations to have severally called for wage indexation in Nigeria.

2.) The minimum wage is required to ensure the basic needs of the laborers and dependents in their family. Economic growth and price inflation require the adjustment of minimum wages. Therefore, government must adjust the minimum wage when there is a change in prices of commodities and services.

3.) Government on their part should ensure that her economic policies are geared toward development of a good industrial climate and environment that encourages industrial harmony, and which will also boost organizational and national development.

4.) Workers should strive to use collective means to address any situation that may arise out of their employment contract with management, and should also be ready to accept changes that may arise in the workplace due to need for innovation and improve product quality. Workers should therefore develop themselves to acquire more relevant skills and competencies in order to avoid becoming skill obsolete and possible redundancy in order to remain relevant in existing and emerging industrial relations trends and issues.

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