



## Impact of National Minimum Wage Increase on Unemployment and Inflation Rates in Nigeria: An Empirical Analysis

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### Abstract

This study examined the impact of national minimum wage increase on unemployment and inflation rate in Nigeria. It employed the Federal Government national minimum wage from 1980 to date, unemployment and inflation rates as released by the National Bureau of Statistics 2019 series. ARDL models of cointegration and ECM were employed to analyze the data, keeping unemployment rate as dependent variable in model 1 and inflation rate as dependent variable in model 2. It was evident in the findings that national minimum wage has a positive and significant impact on unemployment and inflation rate in both the short and long run in the Nigerian economy. A 10 per cent increase in national minimum wage, on the average, led to approximately 1 and 2.3 per cent increase in unemployment rate in the short and long-run periods. Also, a 10 per cent increase in national minimum wage, on the average, caused a corresponding increase in inflation rate by 1.3 and 1.1 per cent in the short and long-run periods. This work therefore recommends that while both parties of the federal government and the Nigerian Labour Congress, recognize the implication of high increase in national minimum wage on unemployment and inflation rates, the government could have a steady and mild increase intermittently without any negotiation or call for strike by the labour union. This, from the findings, will not result to any significant effect on the two rates.

**Keywords:** Minimum Wage, Unemployment, Inflation, ARDL

**JEL Classification:** J21, J23, J38, J63

**Paper Classification:** Research Paper

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### Introduction

Based on the just concluded negotiation on national minimum wage increase between the federal government of Nigeria and Nigerian Labour Congress (NLC), and the intuition of many Nigerians that national minimum wage increase will lead to another round of increase in unemployment rate and general price level (inflation), this research was carried out to refute or affirm the intuition and theory as it applies to the Nigerian economy.

Impact of national minimum wage on the economy is what people and the government do about right from when public officers are paid. Some say it will cause inflation immediately when there is a national pay rise. Some say it will make the government unable to pay promptly and

unable to employ more workers causing an increase in labour turnover and hence unemployment. The gainfully employed workers say national minimum wage increase is needed to improve and increase the standard of living and believe that Nigeria has an automatic stabilizer that will not make the economy experience any adverse effect and so the invisible hand will correct the situation and make things go normal. Sequel to these submissions, some economists opine that it will give consumers/workers more purchasing powers to demand more goods, thereby increasing the aggregate demand for goods, which, when not backed up with a proportional increase in aggregate supply, prices of goods will go high and then inflation will inevitably erupt. Others say that when national minimum wage increases in the public sector without an equal rate of increase between the private and public workers, there could be move for transition of workers from one sector to another. The effect of this could heavily bang on the fixed income earners who do not expect any pay rise. For the non-salary earners to be at par with national minimum wage workers, they tend to place high prices on their products, making them have their share in the wage increase. When this becomes general and persists, the economy is gulped with inflation. From the side of employers, in order to maintain the same profit margin, they shrink their workers and increase the workload of the retained few workers. In essence, the consequence of minimum wage is viral more than ever in the developing economies like Nigeria. However, all these statements could be intuitions until when empirically proven true.

On the minimum wage increase in the Nigerian economy, the Federal Government and Nigerian Labour Congress (NLC) have been engaging in a terrible negotiation about the minimum wage which ended very recently. One contending issue is that a large minimum wage increase could lead to an increase in the unemployment rate. Taking from the instance of Nigeria, the NLC clamour was an average increase of 66.7 per cent which makes this fear to hold.

Introduction of minimum wage and minimum wage increase is always controversial. While some believe that when the minimum wage is increased, inflation comes up, employers reduce employees and/or reduce their profit depending on the elasticity of the minimum wage, some thought it will bring about the high living standard, in addition to alleviate poverty. The UK experience of minimum wage could be a good instance which, after deliberation, the government's Low Pay Commission recommended a national minimum wage from early 1999 for all workers above the age of 21, with the main aim being to lessen poverty and the utilization of employees who have small or no negotiating power with their employers (Bamford & Grant, 2010). As part of the benefit, some noted that there could be a small increase in tax revenue when there is minimum wage increase. Opponents believe that jobs would be lost, and other low-paid workers would seek an increase to maintain their differences with the lowest paid. Cost-push inflation, to them, could result, so affecting the economy as a whole. However, these impacts are still intuitions to the Nigerian economy until it has been empirically tested.

Thus, this research represents a significant contribution to knowledge since it analyses the effect of national minimum wage increase on unemployment and inflation rate in Nigeria over a period of thirty-nine years, providing a point of reference in economic literature. These appraisals also add to economic literature by donating an effort of current deliberation and discussion over the course of unemployment and inflation challenges of national minimum wage increase in Nigeria.

### Research Questions

The questions this study shall answer are:

1. What is the short run effect of the national minimum wage increase on unemployment rate in Nigeria?

2. In the long-run, is there any effect of increase in national minimum wage on unemployment?
3. What is the short-run impact of national minimum wage increase on price level?
4. In the long-run, does national minimum wage increase affect inflation?

### Objective of the Study

The broad purpose of this study is to examine the consequences of change in minimum wage on unemployment and inflation rate in Nigeria. Specifically, the study wants to

1. Investigate the short-run impact of national minimum wage increase on the unemployment rate in Nigeria.
2. Examine the long-run effect of national minimum wage increase on the unemployment rate.
3. Investigate the short run effect of national minimum wage increase on inflation rate in Nigeria.
4. Determine the long run impact of national minimum wage increase on inflation rate in Nigeria.

### Research Hypotheses

$H_{0_1}$ : The National minimum wage increase has no short-run significant impact on unemployment rate in Nigeria.

$H_{0_2}$ : National minimum wage increase has no long-run significant consequence on unemployment rate in Nigeria.

$H_{0_3}$ : National minimum wage increase has no short-run significant challenge on the rate of inflation in Nigeria.

$H_{0_4}$ : National minimum wage increase has no long-run significant effect on the inflation rate.

### Significance of the Study

The just concluded issue between the federal government and NLC on national minimum wage increase has brought the need for this study into limelight again. While some people are clamouring for job, some workers are protesting for increase in their wages within the public servants with a belief that the spill-over effect will reach the private sector. The fear is that, 'will this not lead to another round of increase in inflation rate and unemployment at the same time?' Hence, this study is out to clear the fox of intuition which is yet to be diffused in recent time. In essence, the work will be helpful to the government, NLC and Nigerians as a whole, on the implication of the government's increase of minimum wage in the Nigerian economy.

### Brief Evolution of Minimum Wage in Nigeria

National minimum wage in Nigeria echoes in crises, employees' repudiations and demonstrations. According to the current President of NLC, comrade Ayuba Wabba, workers in Nigeria have never in the past got any rise in wage on a platter of gold. In its stead, it has always been achieved all the way through confrontations, encounter and oppositions with the government of the day. It was before 1978 that the NLC was put in place under its first President, Comrade Hassan Sunmonu when there was no notable structure for national minimum wage in Nigeria as of now, even though there was the famous Udoji pay package of 1975 which came up because of the oil boom. When Nigeria elected its new leaders under the democratic civilian era and a pay increase was implemented for political leaders, the president of NLC was given

the impetus to mobilize labour force to agitate for a ₦300 new minimum wage. This resulted in a major strike under the presidency of Alhaji Shehu Shagari who then agreed with the leadership of NLC to a ₦125 monthly national minimum wage package, which was the first major step forward in the history of minimum wage.

In 1989, when Pascal Bafyau became the President of NLC with Comrade Adams Oshiomole as his deputy, another agitation for minimum wage increase, led by Comrade Adams, came up in 1990 which resulted in ₦250 as minimum wage. Between 1998 and 1999, when General Abdulsalami Abubakar was the Head of State under the military regime, Nigerian public servants demanded for increase in the minimum wage which was successfully increased to ₦3000/month under the leadership of a team of industrial union led by Comrade Sylvester Ejiofor since the then military banned NLC at that time.

Following the successful transfer of power to civilian government through the 1999 presidential election, the past military Head of State, General Olusegun Obasanjo became the President, and the NLC rose again under Adams Oshiomole as the President and led the aggressive demand for a new minimum wage in 2000. In 2001, the federal government agreed and implemented ₦5,500 for state employees and ₦7,500 for federal and state employees producing oil as minimum wage. Also, it was agreed, just as obtainable in other enlightened parts of the world. that there should be provisions for pay rise after few years, and a 15 per cent increment in 2002 across the board and 25 per cent in 2003.

When President Goodluck Ebele Jonathan came into power, another stream of negotiations came into limelight under the immediate past President of NLC, Comrade Abdulwaheed Umar and the government agreed to pay a minimum wage of ₦18,000. Alongside, the National Assembly signed a bill into law that there will be a constant review of the national minimum wage every five years, meaning that another national minimum wage review was outstanding in 2015.

When President Muhammadu Buhari came into power in 2015, the provision was not followed and that stimulated the agitation for minimum wage increase by the NLC in the past four years. The government was mandated to set up the Tripartite Committee of the Minimum Wage which was headed by Ms. Ama Pepple, an ex-head of civil service of the federation, to bargain with the NLC, a pleasing wage for the Nigerian workers in 2017. While waiting for the outcome of this committee, in the last quarter of 2018, NLC threatened to go on a nationwide strike and demanded ₦30,000 as minimum wage. The federal government immediately started the negotiation that continued for long under the Minister of Labour and Employment, Chris Ngige who agreed to pay ₦27,000. The NLC refused to accept this offer. President Muhammadu Buhari finally approved the said ₦30,000 National Minimum Wage for Nigerian workers in the first quarter of 2019 (Fagbemi, 2019).

## Review of Literature

### Theoretical Review

One way of tackling low pay is for the government to enforce the national minimum wage on employers. This would be an ideal solution to the problem of poverty amongst workers. However, economic theory predicts that the policy will have undesirable secondary effects. While some workers enjoy the minimum wage increase, some other workers suffer, since firms would have fired their least productive employees due to inability to pay the new pay rise. Hence, minimum wage rise can prevent the market from clearing when there is an increase in unemployment (Anderton 2010).

On the consequence of minimum wage increase on price level (inflation), the theory posits that, minimum wage rise would increase the cost of production of firms since wage of workers has increased. Therefore, a minimum wage would lead to firms transferring the wage increase unto consumers in the form of higher prices though still depending on the structure of the market and elasticity of the product. When the increase in the minimum wage causes expansion in consumer spending, it leads to demand-pull inflation. In theory, summarily, minimum wage increase might cause inflation in either of two ways: cost increase to firms, leading to what is known as cost-push inflation; and from the workers end, expansion in workers' spending, leading to the so-called demand-pull inflation. Nevertheless, in reality, the impact of inflation due to high minimum wage is likely to be truncated since the firm could absorb the inflationary pressure of wage increase through a reduction of profit margin. More so, the wage bill is just a fraction of the overall costs of the firm. Furthermore, firms could manage the increase in the minimum wage through investing in capital in the order to raise the productivity of labour and be able to pay the high wage without increasing prices.

In a similar vein, on the upshot of minimum wage increase on unemployment rate, theory, most especially the Neoclassical model which conceives that, in a homogenous labour market, wage increase over the competitive equilibrium amount will reduce request for labour and increase the quantity of labour ready for job, therefore causing increase in unemployment. Nevertheless, when the market is heterogeneous, unemployment effect will depend on the elasticity of substitution over diverse workers and cross-elasticity of demand across a variety of goods (Neumark & Wascher, 2007 and Majchrowska & Zólkiewsk, 2012). These ambiguity comes in when the market is characterized with a more labour imperfection. When this is obtainable, rise in minimum wage below the competitive level could lead to the reduction in unemployment but may increase unemployment when the wage rises beyond the competitive wage level (Rocheteau & Tasci, 2007).

However, in the real-world situation, situations could mute this effect most especially when the market is not perfectly competitive but has some degree of monopsony powers. Demand for labour could also be wage inelastic so firms could pay the increase with an insignificant fall in demand for labour.

This study is beached on the standard prediction of economic theory that employers will respond to minimum wage increase in three ways: by reducing employment which increases unemployment; by reducing their profit; and/or by increasing prices of goods/services which could lead to inflation.

## Empirical Review

Many economic studies on empirical work about the effect of minimum wage increase on employment posited that its effect is insignificant. This could be due to the analyses being drawn from the United Kingdom and United States and other advanced economies that do have a mild increase in the minimum wage. Pantea (2017) pointed out that the reason why the effect of minimum wage on unemployment is insignificant in some economies could be as a result of their minimum wage being lower than the average wage rate. Such studies are those of Metcalfe (2007), Neumark & Wascher (2006), Schmitt (2013), Manning (2016) among others which are all from the advanced countries. A related issue is the estimation of short and long-run price effects, in which, only Aaronson (2001) and MacDonald, French and Aaronson (2003) estimated the long-run effects for Canada and the US as small and insignificant.

When the UK introduced the implementation of the minimum wage in April 1999, Machin, Manning and Rahman (2003) studied the effect of this minimum wage on residential care homes

industry which was heavily affected by the policy. They used regression analysis to estimate the effect on prices and found out that there was no evidence that prices rose within the market. However, they acknowledged that the main course of this could be the price legislation put in this market which limited the effect of minimum wage on the prices.

In a similar vein, Ericsson and Pytlikova (2004) made use of firm-level data from the Republic of Czech and Slovak to consider the impact of the increase in wages of 30 per cent and 40 per cent, in that order, and found mixed impact for diverse types of firms. Andreica et al. (2010) used the regression technique to analyse macroeconomic data for the period 1999-2009 on Romania. They discovered that 10 per cent rise in minimum wages led to a 0.9 per cent reduction in employment. Imobighe (2007) researched on the influence of minimum wage on employment and level of productivity in the Nigerian economy, using multiple regressions to analyse the data set spanning between 1980 and 1984. He discovered in his result, that the increase in wage had a positive impact on employment and productivity. This research, which is not in line with economic theory, is not adequate and sufficient for two main reasons. Firstly, the data set was too small for such analysis, and secondly, his results are spurious since he did not test for stationarity. Other reason is that the data employed was too old from his publication.

Gregory and Mark (2000) considered the way wage inflation could cause an increase in the price level. They both discovered that wages are helpful in predicting price level. Their findings showed that, inflation helps in forecasting wages, thus they submitted that higher prices pilot wage growth in an economy. Majchrowska and Zólkiewski (2012) investigated the impact of the minimum wage increase on employment in Poland using annual regional data from 1999 to 2010, employing a regression analysis technique. They found out that a 10 per cent increase in the minimum wage in Poland decreases employment by one per cent. If this is compared with the just concluded 67 per cent increment in minimum wage in the Nigerian economy, from extrapolation, it will mean about seven per cent decrease in employment. However, it is yet to be tested adequately on the Nigerian economy. Harasztosi and Lindner (2015) studied the influence of the minimum wage increase on employment in the economy of Hungary by means of firm-level data. They found out that, 10 per cent upsurge in the minimum wage reduced employment by about 0.1 per cent. This is quite insignificant.

Pantea (2017) went into deep research on the impact of the minimum wage increase on employment employing a panel of 42 NUTS III regions between 2008 and 2014 in the Romanian economy. The result showed that, averagely, minimum wage rise did not significantly affect employment. IMF (2016) result that employed firm-level data from eleven CEECs between 2009 and 2013 showed that 10 per cent rise in the minimum wage has only 0.4 per cent negative impact on employment rate. Thus, this finding suggests that the impact of the minimum wage increase would depend on the ratio of minimum wage to average wage and the impact is most possible to be inverse when this ratio is over 0.4. However, this position was not backed with any empirical evidence.

Adams (1987) examined the macroeconomic consequences of minimum wage in the American economy by using a macro-econometric model to simulate the outcome of the increase in the minimum wage on economic variables like employment, inflation etc. The result revealed that a rise in minimum wage has an incremental impact on the price level and unemployment. The findings of Adam are not different from those of Brown, Curtis and Kohen (1982), who employed time series regression to examine the impact of minimum wage on employment and unemployment. Their findings revealed that enormity of the impact of wage (minimum) on employment and unemployment is a function of the prevailing economic situation, even though the finding showed a direct connection between minimum wage and unemployment.

Dickens, Machin and Manning (1999) studied the British Wages Councils on industry-base from 1975 to 1992. They found out that minimum wages compressed the circulation of incomes but do not inversely influence employment. Also, in a study, Neumark and Wascher (2004) employed a panel data adjustment in the minimum wage on wages, labour hour, employment and labour income in the American economy. The result revealed that workers who receive low pay benefit most in minimum wage legislation. They found out that, though low-wage workers income increased with the rise in the minimum wage, their hours and employment declined, making an overall inverse effect on wage policy.

A research carried out by the United State Fiscal Policy Institute (2004) claimed that the rise in the minimum wage at the state level did not have any negative impact on employment. However, Fuchs, Krueger and Poterber (1998) has explained this same outcome as a critique, while the submission of the Fiscal Policy Institute has gotten a lot of criticisms from many researchers like Sabia (2006) and Neumark, Schweitzer and Wascher (2005). Burkhauser and Sabia (2004) and Neumark, Schweitzer and Wascher (2005) suggested that increasing the minimum wage is not a good policy tool for supporting low-skilled employees. Another work carried out by Folawewo (2007) employed a static general equilibrium to consider the macroeconomic effects of minimum wage policy in Nigeria. He established that the impact of the increase in minimum wage on employment is diverse; even though it leads to the minor rise in employment in the agricultural sector, there is an insignificant fall in the sector of services employment and no significant effect in manufacturing, mining and oil sectors.

The most recent works on minimum wage, unemployment and inflation are those of Akpansung (2014), Atseye, Takon and Ogar (2014) on the Nigerian economy and Neumark (2015) on the United States. Akpansung (2014) assessed the effect of minimum wage increases on unemployment during democratic governance in Nigeria between 1999 and 2012. He employed Ordinary Least Squares, Granger Causality, CUSUM and CUSUM Squares stability tests, to analyze the data. The result revealed that minimum wage has high positive correlation with unemployment. The result also suggested that minimum wage hikes were associated with increases in unemployment. From his finding, a 1 per cent increase in the national minimum wage decreases employment by about 6.4 per cent in the current year and 9.9 per cent in the subsequent year. Nevertheless, the null hypothesis of stability of the empirical results was accepted in place of being rejected. This finding could not be adequate for many reasons of spurious result analysis as the researcher did not test for stationarity before carrying out his analysis. More so the time period is too short to make any meaningful judgment.

Atseye, Takon and Ogar (2014) investigated the effect of minimum wage on the socio-economic characteristics of low-income workers in Calabar Municipal Council Area of Cross River State, Nigeria. They designed ex post facto research for the study, conducted a random sample and selected 305 respondents within ministries, departments, agencies and parastatals. The research made use of two theoretical frameworks: Relative Deprivation Theory and Public Interest Theory. Questionnaire was prepared to mirror the Likert Scale with 25 items. Data got was analyzed using mean statistics and Pearson Product Moment Correlation coefficient. The results showcased that, the minimum wage did not have any significant influence on employment, poverty, income constancy and saving of low wage earners in the public sector. Their findings proffered practical facts to support a priori expectations and submissions of existing literature in socio-economic studies. However, the research was not holistic since it was carried out on an area council in a state in the country. Neumark (2015), as one of the most recent studies, examined the influence minimum wage has on employment in the U.S. who found out that employment effect is minimum wage elastic.

Of all the empirical studies reviewed, none of the researchers has examined the short-run and long-run effects of national minimum wage increase on unemployment and inflation rates. This gap in economic literature would be filled by this study as intended.

### Methodology

Making inference from the work of Sara (2004), studies in economic literature employ up to five diverse techniques for minimum wage analysis: General equilibrium model analysis; Phillips curve estimation analysis; Input-output model analysis; Difference-indifference estimation analysis and Regression analysis. In essence, the minimum wage effect could be on prices of various industries or/and could also be effect of the minimum wage on price level nationwide. This can be interpolated also as the consequence of minimum wage on unemployment and inflation as in this study.

### Model Specification

For the effect of national minimum wage on unemployment and inflation rates, this study adapted two models from the usual Cobb Douglas production function and previous works of Phillip (1958) and Muhammad et al (2013), which is specified as

$$U = A(AW)^{\beta_1}, (P)^{\lambda_1}, \mu \dots\dots\dots 1$$

$$P = B (AW)^{\beta_2}, (U)^{\omega_1}, \Omega \dots\dots\dots 2$$

Equations 1 and 2 are transformed using the natural log to linear equation and then into econometric models as

$$\ln U = \alpha_1 + \beta_1 \ln AW + \lambda_1 \ln P + \ln \mu \dots\dots\dots 3$$

$$\ln P = \alpha_2 + \beta_2 \ln AW + \omega_1 \ln U + \ln \Omega \dots\dots\dots 4$$

when  $\alpha_1 = \ln A$ ,  $\alpha_2 = \ln B$ ,

where

$\ln U$  = log of unemployment rate

$\ln AW$  =log of Annual national minimum wage

$\ln P$  = log of inflation rate

a priori expectations are in line with theory such that, it is expected that there exists a positive impact of AW on U and P, and then expect negative sign between P and U, therefore

$\beta_1, \beta_2 > 0$ , and  $\lambda_1, \omega_1 < 0$ ,

### Data Issues

Time series data was annually sourced from National Bureau of Statistics (NBS) 2019 from 1980 to 2019. 1980 was chosen because it was the start of significant national minimum wage era in the history of Nigeria’s public workers. It was assumed that first quarter of 2019 was the effective date of the last increment on national minimum wage, as such annualised.

### Technique of Analysis

The Auto-Regression Distributed Lag (ARDL) and Error Correction Mechanism are employed in this study because of the advantage of diffusing effect in lags and into short-term and long-



term impact as Aaronson, French and MacDonald (2003) and Aaronson (2001) did in their studies, though their works were on long run only. Since data set are time series, preliminary tests for stationary are carried out before analysis, and then diagnostic test after.

## Result of Findings

### Unit Root Test Results

The results of unit root tests of two statistics are presented in Table 1. The Augmented Dickey Fuller (ADF) and Phillip Peron (PP) indicate that only LP is stationary at level at 5 per cent significant level.

**Table 1: Unit Root Tests of the Variables in use**

Variable	ADP		PP	
	At Level	At 1st Diff	At Level	At 1st Diff
LP	-3.5183**	-	-3.4012**	-
LU	-1.1889	-6.8142***	-1.0959	-6.8142***
LAW	-1.1445	-7.3235***	-0.5789	-14.2301***

\*\*\* and \*\* indicate 1% and 5% significant level

At level, LU and LAW are found to be non-stationary, although after first difference, the report of the two tests indicates that they are stationary at 1 per cent significance level.

### Results of Model 1

Before analyzing using the ARDL model, the model selection order is first run, which selects ARDL (1, 0, 2) as the most sufficient model out of the top 10 models. This is presented in Table 2

**Table 2: Model Selection Order of Akaike Information for 10 Models**

AIC	Model Specification
0.50423	ARDL(1, 0, 2)
0.54448	ARDL(1, 1, 2)
0.55049	ARDL(1, 2, 2)
0.55388	ARDL(1, 0, 3)
0.55736	ARDL(2, 0, 2)
0.57224	ARDL(1, 3, 2)
0.59230	ARDL(1, 2, 3)
0.59231	ARDL(1, 1, 3)
0.59232	ARDL(2, 1, 2)
0.59233	ARDL(1, 0, 4)

Source: Results from E-Views 9

Therefore, using the selection guide of Table 2, the result of our model 1 (eq. 3) is presented as model ARDL (1,0,2) being the best selection order using the Akaike information criteria.

### ARDL Result of Model 1

From Table 3 which presents the ARDL result of model 1, bearing in mind that LU is the dependent variable, LAW shows a positive impact on LU and this impact is significant at one

per cent level as the t-Statistics (3.170) and probability (0.0003) values indicate, meaning that 10 per cent increase in LAW, on average, leads to approximately one per cent increase in LU. LP at present and LP lagged-two periods have a negative and significant impact on LU. The goodness of fit shown by the R2 implies that model 1 is able to explain about 89 per cent of the variation in LU. More so, the 51.07 of the F-Statistics is on the high side which collaborate the goodness of fit and its probability value (0.0000) indicates significance at one per cent level. Durbin-Watson figure of approximately two indicates the absence of autocorrelation in our model 1.

**Table 3: ARDL Result of Model 1**

Variable	Coefficient	Standard Error	t-Statistics	Prob
LU(-1)	0.5776	0.0948	6.0901	0.0000
LAW	0.0977	0.0308	3.1702	0.0033
LP	-0.3268	0.0868	-3.7631	0.0007
LP(-1)	0.1334	0.0951	1.4028	0.1703
LP(-2)	-0.3254	0.0888	-3.6651	0.0009
C	1.2991	0.4613	2.8161	0.0083
R-Square	0.8886			
R-Square Adj.	0.8712			
F-Statistics	51.0701			
Prob. (F-Stat)	0.0000			
DW. Stat.	2.12998			

Source: Results from E-Views 9

### ARDL Bound Test Result for Model 1

Table 4 presents the bound test of model 1, gives a guide toward identifying the presence of long-run relationship in the model, with a null hypothesis of no long-run relationship. From the Table, the test statistics (F-Statistics) value shows 8.13 which falls outside the critical value bounds, even at one per cent. Hence, the null hypothesis is rejected and accept that there is long-run relationship in model 1 of our specification. This makes the study to go ahead in analyzing the cointegrating equation and error correction model (ECM).

**Table 4: ARDL Bound Test Results for Model 1**

Test Statistics	Value	K
F-Statistics	8.1350	2
<b>Critical Value Bounds</b>		
Significance	10 Bound	11 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Source: Results from E-Views 9

### ARDL Cointegrating Equation and Long-run Form for Model 1

Table 5 showcases the results of short-run impact and the error correction per annum, holding the LU as the dependent variable. In the short-run, national minimum wage (LAW) has a positive

and significant impact on the unemployment rate (LU). This indicates that, a one per cent change in LAW, on the average, leads to about 0.098 per cent change in LU or in another word, a ten per cent increase in LAW, on average, will lead to about one per cent increase in LU. LP shows a negative and significant impact on LU in the short-run. The ECM coefficient (-0.422) indicates that the speed of adjusting from short-run to long-run is quite low, 42.2 per cent. However, it shows the correct negative sign and significant at 1 per cent level.

**Table 5: Results of Cointegrating Equation and the ECM of Model 1**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
D(LAW)	0.0977	0.0308	3.1702	0.0033
D(LP)	-0.3268	0.0868	-3.7632	0.0007
D(LP(-1))	0.3254	0.0888	3.6651	0.0009
ECM (-1)	-0.4224	0.0948	-4.4543	0.0001
Cointeq = LU- (0.2312LAW -1.2282LP+3.0753)				

Source: Results from E-Views 9

In the long-run, as shown on Table 6, LAW also shows a positive sign meaning that 1 per cent increase in national minimum wage (LAW), on average, will increase unemployment rate (LU) by about 0.23 per cent. This implies that, a 10 per cent increase in LAW leads to 2.3 per cent increase in LU. The result also indicates that its impact is significant at 1 per cent level as the t-Statistics (3.788) and p-value (0.0006) indicate. The LP, in the long run still shows a negative impact on LU meaning that LAW has an inverse effect on LU and the impact is quite significant at 1 per cent level.

**Table 6: Results of Long-run Coefficients**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
LAW	0.2312	0.0610	3.7884	0.0006
LP	-1.2282	0.2385	-5.1491	0.0000
C	3.0753	0.9520	3.2304	0.0029

Source: Results from E-Views 9

In order to confirm the ability of this model 1, the study carries out residual/diagnostic test on the error terms. The results are presented on Table 7

### Residual Test Result on Model 1

In Table 7, the two test statistics employed indicate that the study accepts the null hypotheses that, there is no serial correlation and no conditional heteroskedasticity in the model used.

**Table 7: Residual Test for Model 1**

Test	Null Hypothesis	t-Statistic	Prob.
Lagrange Multiplier (LM)	There is no serial correlation	0.3674	0.6956
White (CH-sq)	There is no conditional heteroskedasticity	0.2632	0.9298

Source: Results from E-Views 9

In model 2, Table 8 showcases the automatic model selection order using the AIC test of top 10 models. Model ARDL (2, 0, 0) is selected. Thus, the study uses this selection for model 2 analyses all through.

## Results of Model 2

### Model Selection Order

Using the Akaike Information Criteria (AIC) to select the best model among the top 10 models, AIC has selected ARDL (2, 0, 0) as clearly stated in Table 8.

**Table 8: Model Selection for Model 2**

AIC	Model Specification
1.47123	ARDL(2, 0, 0)
1.49213	ARDL(2, 4, 0)
1.49321	ARDL(4, 0, 0)
1.51231	ARDL(3, 0, 0)
1.51896	ARDL(2, 0, 1)
1.51923	ARDL(2, 1, 0)
1.53896	ARDL(4, 0, 1)
1.54678	ARDL(3, 4, 0)
1.54768	ARDL(4, 1, 0)
1.54988	ARDL(2, 4, 1)

Source: Results from E-Views 9

### ARDL Results of Model 2

Table 9 presents the ARDL results of model 2 with LP (inflation rate) as the dependent variable. From the Table, apart from LP at one-lag and two-lag that significantly affect LP at present, LAW (national minimum wage) positively and significantly affect LP. This means that, a 10 per cent increase in LAW, on the average, leads to a 1.3 per cent increase in LP. The impact is significant at five per cent level. Also, the result shows that LU has a negative and significant impact (at one per cent level) on LP. The overall goodness of fit of the model indicates an average of 56 per cent variability in general price (LP) is being explained by the model as the R2 shows. The F-Statistics shows a large acceptable figure (10.52) as the probability (0.0000) of F-Statistics indicates. Furthermore, the Durbin-Watson statistics (approximate value of 2.0) shows that there is absence of autocorrelation threat.

**Table 9: ARDL Model 2 Result**

Variable	Coefficient	Standard Error	t-Statistics	Prob
LP(-1)	0.447816	0.141008	3.175822	0.0032
LP(-2)	-0.557280	0.149878	-3.718229	0.0007
LAW	0.127494	0.056163	2.270082	0.0299
LU	-0.701263	0.165606	-4.234534	0.0002
C	3.150181	0.689649	4.567802	0.0001
R-Square	0.560503			
R-Square Adj.	0.507231			
F-Statistics	10.52147			
Prob. (F-Stat)	0.000013			
DW. Stat.	1.880050			

## Result of ARDL Bound Test for Model 2

To test for the existence of long run relationship in the model 2, the study runs a bound test to guide the analysis. The result is presented in Table 10. In this Table, since the F-Statistics value (6.483) falls outside the critical value bounds, even at one per cent, the null hypothesis is rejected, and it is accepted that there is indication of long run relationship in model 2.

**Table 10: ARDL Bound Test for Model 2**

Test Statistics	Value	K
F-Statistics	6.483100	2
Critical Value Bounds		
Significance	10 Bound	11 Bound
10%	3.17	4.14
5%	3.79	4.85
2.5%	4.41	5.52
1%	5.15	6.36

Source: Results from E-Views 9

This result paves way to move ahead in analyzing for cointegrating equation and the ECM, thus, Tables 11 and 12 are presented for the ARDL cointegrating and long run form of model 2.

## Results of ARDL Cointegrating Equation and Long-run Form for Model 2

From Table 11, holding LP as the dependent variable, LP lag-one shows a positive and significant (one per cent) impact on present LP. The LAW indicates a positive impact on LP and the impact is significant at five per cent level, meaning that, in the short run, *ceretis paribus*, a 10 per cent increase in LAW (national minimum wage), on the average, leads to about 1.3 per cent increase in LP (inflation rate). However, LU has a negative and significant impact on LP. The ECM value (-1.109) shows the correct and expected negative sign, with a very high speed of adjustment. This means that model 2 has about 110.9 per cent ability and capability of adjusting the LP back to equilibrium. More so, the value of the ECM is significant at one per cent level as the standard error (0.176), the t-Statistics (-6.299) and the probability (0.0000) values show.

**Table 11: Cointegrating Equation and the ECM of Model 2**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
D(LP(-1))	0.557280	0.149878	3.718229	0.0007
D(LAW)	0.127494	0.056163	2.270082	0.0299
D(LU)	-0.701263	0.165606	-4.234534	0.0002
ECM (-1)	-1.109463	0.176141	-6.298735	0.0000
Cointeq = LP - (0.1149*LAW -0.6321*LU + 2.8394 )				

Source: Results from E-Views 9

Table 12 presents the long run analysis of model 2, which indicates that LAW still have a positive and significant (at five per cent level) impact on LP. This is an indication that, in the long

run, a 10 per cent increase in LAW, on the average, has about 1.1 per cent increase in LP. However, LU, in the long run shows a negative and significant impact on LP.

**Table 12: Long-run Coefficient**

Variable	Coefficient	Std. Error	t-Statistics	Prob.
LAW	0.114915	0.048085	2.389849	0.0227
LU	-0.632074	0.113774	-5.555512	0.0000
C	2.839374	0.409415	6.935202	0.0000

Source: Results from E-Views 9

## Result of Residual Test on Model 2

To check the accuracy of the model 2, residual tests are carried out and the results are presented in Table 13. From the Table, three assumptions of the error terms are tested. All three statistics employed indicate that: the error term is normally distributed from the Jarque-Bera statistics (0.789) with probability (0.674) value indicating that the null hypothesis (normal distribution) be accepted; both the null hypotheses of no serial correlation and no conditional heteroskedasticity are accepted as well, as their respective probability (0.704, 0.279) values show. Hence, it is concluded that the model 2 is reliable.

**Table 13: Residual Test for Model 2**

Test	Null Hypothesis	t-Statistic	Prob.
Jarque-Bera (JB)	There is a normal distribution	0.7894	0.6739
Lagrange Multiplier (LM)	No serial correlation	0.3546	0.7043
White (CH-sq)	No conditional heteroskedasticity	1.3323	0.2786

Source: Results from E-Views 9

## Discussion of Findings

Based on the just-concluded negotiation on national minimum wage increase between the Federal Government of Nigeria and Nigerian Labour Congress (NLC), and the intuition of many Nigerians that national minimum wage increase will lead to another round of increase in the unemployment rate and general price level (inflation), this research was carried out to refute or affirm the intuition and theory as it applies to the Nigerian economy.

The first and second null hypotheses of the study highlight that, in the short and long-run, the national minimum wage does not have a significant impact on the unemployment rate in Nigeria. The findings divulged that, in the Nigerian economy, increase in national minimum wage has both short and long run significant impact on the unemployment rate. This was evident in the result of cointegrating equation and error correction mechanism in model 1 of the study that 10 per cent increase in national minimum wage, on the average, will lead to approximately 1 and 2.3 per cent increase in the unemployment rate in the short and long-run periods, and in a more economic term, unemployment is elastic to change in the national minimum wage. Hence, the null hypotheses were rejected. This result is in tandem with the findings of Brown et al (1982), Adams (1987), Newmark et al (2004), Folawewo (2007), Majchrowska and Zolkiewsk (2012), Neumark (2015) and Akpansung (2014) but in contrast with the studies of Neumark and Wascher (2006), Metcalfe (2007), Schmitt (2013), IMF (2016), Manning (2016) and Pantea (2017).

The third and fourth hypotheses submitted that, in both short and long-run, national minimum wage does not have significant impact on inflation rate in Nigeria. These hypotheses were captured in model 2 of the study. Analyses, using ARDL models of cointegration and ECM showed that there exists a positive and significant impact of national minimum wage on inflation rate. When the government increases minimum wage by 10 per cent, there will be a corresponding increase in inflation rate by 1.3 and 1.1 per cent in the short and long run periods as evident in the findings. Thus, the null hypotheses were rejected. This result is also in line with the findings of Gregory and Mark (2000) and Atseye, Takon and Ogar (2014) but in contrast with the study of Machin, Manning and Rahman (2003).

Theory is straight forward on the implication of minimum wage as it affects unemployment and general price level. Economists have explained how its effect could be significant or insignificant depending on the rate of increase (small or large) and whether it is above the competitive equilibrium wage or below. Looking at the rate of increase in national minimum wage right from 1980 till date, the increment, though not regular and frequent, has been quite large and above 50 per cent. The last increase in 2019 was approximately 67 per cent. Therefore, the impact is meant to be positive and significant in economies like Nigeria.

## Conclusion

This study examined the impact of national minimum wage on unemployment and inflation rate in Nigeria. The work employed the federal government national minimum wage (AW) from 1980 to date, unemployment and inflation rates as released by the National Bureau of Statistics 2019 series. ARDL models of cointegration and ECM were made use of to analyze the data set, keeping unemployment rate as dependent variable in model 1 and inflation rate as dependent variable in model 2. It was evident in the findings that the national minimum wage has a positive and significant impact on unemployment and inflation rate in both the short and long run.

This work therefore recommends that while both parties of the Federal Government and the Nigerian Labour Congress, recognize the implication of high increase in national minimum wage on unemployment and inflation rates, the government could have a steady and mild increase intermittently without any negotiation or call for strike by the labour union. This, from the findings, will not result in any significant effect on the two rates.

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### **Author's Profile**

**Abdurrauf Babalola**, whose origin is Ibadan, Oyo State of Nigeria, obtained a Bachelor of Science Degree in Education and Economics from the University of Ilorin, Kwara State, Nigeria in 1997, proceeded to Imo State University, Owerri, Imo State, where he obtained a Master of Science Degree in Economics in 2003. He underwent professional development courses with the University of Cambridge International Examination in Economics in 2010 and 2012. He then bagged his Doctor of Philosophy Degree in Economics from the University of Abuja, Abuja, Federal Capital Territory of Nigeria, in 2018 with core areas in Macroeconomics, Monetary Economics and Econometrics. He has over sixteen years of teaching experience in various fields including Economics, Business Studies, Further Mathematics, Business Mathematics and Econometrics, in various institutions including Kwara State Polytechnic, Ilorin, Imo State University, Owerri, Nurul-Bayan International Academy, Wuse 5 Abuja, University of Abuja, Abuja, Sixth Form College of Capital Science Academy, Kuje Abuja and Galaxy University Preparatory Centre, Wuse II at Advanced Level Cambridge, Edexcel and International University Foundation. He was also involved in the World Bank Project of Out-of-School Children in Nigeria under the National Institute of Legislative Studies, Maitama, Abuja, all in Nigeria, holding various portfolios such as teaching, lecturing, head of department, vice principal and research officer. Abdurrauf Babalola is presently a Lecturer 1 in the Department of Economics, Faculty of Management Sciences, Al-Hikmah University, Ilorin, Nigeria.

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