

**MICRO ECONOMIC EFFECTS OF MINIMUM WAGE REGIMES AND EMPLOYMENT IN  
NIGERIA: THE CASE OF THE MANUFACTURING INDUSTRY**

**BY**

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**Abstract**

*A great deal is already known about the macro-economic effects of minimum wage, but our understanding of how it works in terms of micro-economic foundation remains contentious. The major contending issue revolves around the effect of minimum wage on the firms' labour cost, output and employment. This study therefore provides a sectoral micro-economic foundation for the effect of minimum wages in response to macro- economic policy adjustment. To achieve this objective, the study used the single equation, involving the use of the Ordinary Least Squares (OLS) multiple regression technique. This was preferred because it has less computational complexities. On the a-priori, we expected a negative relationship between employment level and wage rate while, a positive relationship between employment level and output. This paper therefore is of the view that any measure that could boost employment must be encouraged since an increase in wage rate often result into greater productivity. As an approximation to that, the study suggests that in developing countries, the frontiers of the manufacturing sector must be expanded and a rise in wage rate must not be followed with workers layoffs.*

**1.0 INTRODUCTION**

Government World over, uses wages and salary adjustments as the most direct instrument for influencing personal income. However, Political considerations over the years have continually overshadowed the economic effects. Wages consists of all payments that compensate individuals for time and effort spent in the production of economic goods and services. The dampening effects of income policy on employment and inflation and its potential influence in stimulating economic growth and social development are considerations which have induced government in many

developed countries to adapt this economic measure. The reasoning often cited is that the predominantly monetary and fiscal policies might not be adequate at least in the short run, in achieving the sometimes-conflicting economic, social and political aspirations of a country. In these developing economies, inclusively Nigeria. The concomitant presence of high inflation and unemployment, contrary to the postulates of the Phillips curve, had intensified the search for new methods that would serve as alternative measures, occasioning a tolerable low rate of unemployment without an associated high rate of wages and price policies.

Income policy as a short-term alternative is seen by many countries as capable of preventing the buildup of inflation independently of the pressures on demand. It concentrates primarily on the movement of wages and prices through the issuance of norms or guide lines in which a ceiling is set on the acceptable rates of increase in wages and salaries. In spite of the concern of income policy, its most practical concern remains wages and salaries. Hunter (1973) defines incomes policy as a measure designed to control the upward pressure on prices, which derives from rising costs, among which wage costs usually feature predominantly. Undoubtedly, it was from the problem of wage regulation that the concept of income policy originated, and to this day it is control of wages that looms largest in the minds of those concerned in framing such policies.

Wages are of great importance to workers. They are the returns, which employees receive for their effort in the production process. It is the value of the labour efforts recognized and remunerated by the employers of labour. In advanced economies, wage earners form a large part of the labour force; it constitutes as much as 40-65 percent of the national income. Whereas in less develop countries such as Nigeria, wage earners are comparatively few, the share of wages in national income is as low as 23%. Despite the above statistical reasoning, those who earn wages in Nigeria depend largely on wages for their livelihood. To these categories of workers, wages is of tremendous significance. It is noteworthy therefore, that a great percentage of industrial disputes revolve around the questions of

wages. According to the Federal office of statistics and CBN annual bulleting (1970-2003), the average number of strikes per year was 130. Of these, the yearly average number of strikes over wage allowances and bonuses, and irregular payment of wages amounted to 43 or 47 percent. This was followed by strikes over general conditions such as poor management style, promotion or wrongful termination of appointment. This Study therefore frontier the concept of Minimum Wage (Income policy) and its employment effects in the Nigerian Manufacturing Industry.

## **2.0 MATERIALS AND METHODS**

Over the years, economists have devoted much thought to the question of wage determination. Notable attention has been lent to the role played by Minimum wage (MW) in the process of macroeconomic adjustment. The current professional wisdom highlights the important effects of MWs in raising total labour costs and contribution to open unemployment. Our understanding of how MW work in terms of micro economic foundation is rather limited. In particular the effect of the MWs on the employment probabilities of specific labour force category has not been clearly assessed in the developing countries, Nigeria inclusive. The need for increase in Wage have often been based on three main factors; Viz: (i) changes in cost of living (ii) wage differentials (iii) profit earned by employment

For an individual firm, the link between its output and its inputs of factor services is a technical relationship known as 'production function'. The function specifies the output that is associated with different combinations of factors of inputs (Dernbourg and Mc Dougal 1972). At the macro level, the aggregate production function-relating total inputs to total output can be expressed as;

$$Y = F (N, K^*)\text{-----(i)}$$

Where  $Y$  is the level of output,  $N$  is the employment level and  $K^*$  denotes a short run analysis where capital is assumed constant.

The impact of minimum wage regulations on specific population groups, as studied in industrial economies (Regan 1982, Cunningban 1982, and Linnerman 1982) is particularly relevant for developing economies. The role actually played by the minimum wage in developing countries is influenced most likely by other labour market characteristics that determine not only its potential coverage, but also their connection to other observed economic outcomes. In several models of segmented labour markets, the role played by the minimum wage is considered vital, particularly in connection with the presence of a large and competitive informal market dominated by the presence of quasi – voluntary unemployment. This view of the labour market makes the minimum wage a crucial variable in the context of macroeconomic adjustment (Lopez and Riveros 1987). However, in apparent contradiction with the idea that the structure of the labour market is more complex than usually assumed, analyses of the role played by the minimum wage in macroeconomic models has not relied on microeconomic evidence. This evidence includes some relevant factors such as partial coverage, and the direct and indirect effects of the minimum wages on different types of workers. The possible bias of minimum wage laws against more disadvantaged groups of the labour force is consistent with the observed importance of structural unemployment in many developing countries. This has led to the recommendations by scholars for the deregulation of the labour market to attain equilibrium. There are serious problems inherent in trying to study the employment effects of minimum wages, as well as other problems that results from the way the Nigerian government chooses to approach the issue.

One problem that plagues minimum wage effects studies is getting statistical data for the specific workers directly affected by the minimum wage. Such workers are often only a small fraction of the

work force. Even where a substantial proportion of workers directly affected lose their jobs as a result of a minimum wage increase, this effect can be lost statistically in the random fluctuations in employment of the much larger number of workers whose wages were always above the minimum. As a result of their different procedures for grappling with this problem, economists' numerical estimates of the employment effect of the law differ – a variation seized upon by proponents of minimum wages – but it is increasingly clear that the consensus of these studies is that the law does cause substantial employment, and that is more fundamental than the question of exact numbers. One of the simplest ways of reducing the statistical 'noise' in the data is by selecting some sectors, which is known to receive very low wages, so that a relatively high percentage of the people in the category chosen are earning low enough wages to be directly affected by minimum wage changes. Here economists operating independently of one another have repeatedly demonstrated the serious employment effect of minimum wage rates and using different statistical methods. Extremely high unemployment rates among teenagers and fresh school leavers have been so highly publicized in recent years, and so automatically attributed to employer discrimination, that certain historical facts must be noted. The employment effect of minimum wages can also be seen in international comparisons of countries that do and do not exempt young people from the adult minimum wage. In countries where such exemptions are slight or nonexistent – such as the United States and Canada – youth unemployment is some multiple of adult unemployment. But where there are exemptions that are large and cover a number of working ears – as in England, Germany and The Netherlands—there are no significant differences between youth unemployment rates and adult unemployment rates. In Nigeria, there is no dichotomy between the unemployment adult and youth as it relates to minimum wages; usually it is fixed across board. These findings may reflect the special vulnerability of teenagers and fresh school graduates as inexperienced and relatively unskilled group – or they may reflect the greater statistical ease of determining the facts for this group. A recent survey of minimum wage studies notes 'the lack of acceptable continuing data on low-wage adults (Ragan 2003). The

same things known to be happening to teenagers may also be happening to other very low-wage people. The economic analysis, which concludes that minimum wages reduces the employment level of low-wage workers, rest essentially on the belief that labour is no exception to the general rule that less is demanded at a higher price than at a lower price.

### 3.0 THE MODEL

The secondary method of data collection has been used in this study to collect data. The employment rate, Average Real Wage and Output of workers in the Nigerian Manufacturing Industries ranging from 1990-2010 were obtained from the Statistical Bulletin of the Federal Office of Statistics (FOS) and that of the Central Bank of Nigeria (CBN).

In this paper we have adopted the Cobb-Douglas production function. This is premised on the similar work of Milner and Wright (1998)

$$Q_t = A \gamma K_i^\alpha L_i^\beta \quad \text{----- (i)}$$

Where Q is real output, K is capital stock and L is units of units of labour used in production. For simplicity sake, labour is assumed to be mobile between the various manufacturing sectors of the economy.  $\alpha$  and  $\beta$  represents the capital and labour factor input share coefficients,  $\gamma$  allows for factor changing the efficiency of the production process, and i represents the manufacturing sector (i = 1,2,...N).

A profit maximizing firm will employ labour and capital at such levels that the marginal revenue of labour equals wage W and the marginal revenue product of capital equals user cost C. Solving simultaneously, to eliminate capital from the expression for firms output allows us to obtain the following expression;

$$Q_t = \frac{A \gamma \alpha L_i \times W/c}{\alpha L_i^\beta} \quad \text{-----(ii)}$$

Taking the logarithms and re-arranging equation (2) allows us to derive demand for labour as follows

$$\ln L_t = \theta_0 \alpha + \theta_1 \ln W / C + \theta_2 \ln \theta_1 \quad \text{-----(iii)}$$

Since the data set will be used as a cross-sectional and time series element, the estimating labour equation for the manufacturing industry in our study is of the form;

$$\ln L_{it} = \beta_0 + \theta_1 \ln W_{it} + \theta_2 \ln Q_{it} + \theta_3 X_{it} + U_{it} \quad \text{----(iv)}$$

Where  $L_{it}$  is total employment,  $W_{it}$  is average real wage (determined with regard to the general price index in the manufacturing sector),  $Q_{it}$  is real output in industry  $i$  in time  $t$  ( $t = 1, 2, \dots, T$ ) and  $X_{it}$  is a vector of variables which affect the efficiency of the production process.  $\beta_0$  is the overall intercept and  $\theta_1, \theta_2$  and  $\theta_3$  are unknown parameters to be estimated.  $U_{it}$  is the error term

#### **4.0 METHOD OF ANALYSIS**

The analytical tool used for the study was the single equation, involving the use of the ordinary least squares (OLS) multiple regression technique. The Durbin-Watson test, the F-test, Coefficient of determination ( $R^2$ ) and the adjusted coefficient of determination ( $R^2$ ) were carried out.

$$\ln L_{it} = 146.682 - 2.01 \ln W_{it} + 4.156 \ln Q_{it} - 10.072 \ln X_{it} \dots(v)$$

S.e            (25.700)            (0.002)            (273.518)            (7.538)

$$R^2 = 0.907 \quad (R^2) = 0.952$$

$$F\text{-Ratio} = 9.755 \quad DW = 2.956$$

From the result of this study, F-ratio was 9.755, which were significant at both 5% and 10% levels of significance. The Correlation coefficient  $R^2$  was 0.907 indicating that the explanatory variables explained about ninety one percent of the variability in the dependent variable. On a priori, we expected a negative relationship between employment level and wage rate. This is premised on the law of demand and supply of labour. The higher the wage rate, the lower the number of workers demanded while vice-versa is also correct. Every thing being equal, the higher the level of employment, the more the output level projected to be realized. A positive relationship is however expected among the factors, which affect the efficiency of the production process such as government policy and other allied sectors; in contrast a negative sign was obtained. This can be attributed to unstable political climate, corruption and shortsightedness of government developmental policies. It is not a gain saying that this has led to the demise of majority of the manufacturing sectors in Nigeria.

#### **5.0 CONCLUSION AND RECOMMENDATIONS**

The belief that the traditional cures of unemployment and inflation –monetary and fiscal policy –has failed and therefore the need for an alternative measure is gaining momentum. This is so because of the short run benefits to be derived when the minimum wage policy is used. Income policy (Minimum wages) over the years has been observed by many countries as a short –term alternative that is capable of preventing the build up inflation independently of the pressures on demand. It

concentrates primarily on the movement of wages and prices through the issuance of norms in which a ceiling is set on the acceptable rates of increase in wages and salaries, and usually likened to other social and economic objectives, such as income distribution and rising productivity. Minimum wages varies in their formulation and applications across countries of the world ranging from strict enforcement at one end of the spectrum, to voluntary or mere moral suasion at the other end. As a society, we have an economic and moral interest in ensuring that those who work earn a wage that allows them to live in dignity and above poverty line.

In view of the fact that employment expansion ought to be a central macro economic policy objective in a labour -surplus economy such as the one we find ourselves, the recent call for down sizing of workers in the public sector and manufacturing industries is a misplaced aggression. This paper is of the view that measures that could boost employment level should be vigorously pursued. As an approximation to that, the study suggests that in developing economies, the frontiers of the manufacturing sector should be expanded. This should be provided simultaneously with the expansion of labour related and infrastructure expenditure by the government. Given this more realistic view of the labour market, it is no surprise that the vast majority of recent research on increases in state and federal minimum wage has found no alarming drop in employment level. It is note worthy to mention that training and development will also go a long way in improving workers productivity.



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