

CAUSES AND EFFECTS OF INDUSTRIAL CRISIS IN NIGERIA: SOME EMPIRICAL CLARIFICATIONS

By

OSABUOHIEN, Evans S.C.
B.Sc, M.Sc, PhD [in view]

Economics & Development Studies Department,
College of Business and Social Sciences
Covenant University, Ota, Ogun State, Nigeria.
Email: ecosofdestiny4@yahoo.co.uk
GSM: 08028858727; 08035826693

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Dr OGUNRINOLA, I.O
B.Sc, M.Sc, PhD (*Senior Lecturer*)

Department of Economics & Development Studies,
College of Business and Social Sciences
Covenant University, Ota, Ogun State, Nigeria.
Email: rantiogunrinola@yahoo.co.uk

Causes and Effects of Industrial Crisis in Nigeria: Some Empirical Clarifications

Abstract

A harmonious workplace that guarantees satisfaction of workers' and employers' aspirations is very essential for enhanced productivity. But when the interest of either or both of the parties involved in industrial relations is unsatisfied, industrial crisis becomes imminent. Using asymmetric information and pluralistic industrial relations theoretical framework, the study established that unions' intensity, inflation rate and unemployment rate had direct influence on industrial crisis, while wage and measure of trade liberalization had inverse impact on it. The results of the econometric analysis also revealed that industrial crisis exerts negative effects on the level of economic activities in Nigeria, denoting that industrial crisis portends great cost to the economy as a result of reduction in productive hours. Some recommendations such as improvement of minimum wage policy of the government, reduction in inflation and unemployment rates that will help ameliorate the level of industrial crisis, were suggested.

Keywords: Asymmetric information; Industrial crisis; Industrial relations; Employers; Workers.

JEL Codes: J28, J52, J53.

1.0 INTRODUCTION.

The nature of workplace in any organization both at the microeconomic level and macroeconomic platform is very crucial in determining the level at which productive activities are carried out in an economy. This is because work activities do not take place in a vacuum but within a given work-context. Therefore, a sound and harmonious industrial relations in an enterprise is essential not only to employers and workers but also to the society because efficient production of goods and services depends on it. The existence of harmonious industrial relations will reflect efficiency and quality which depends on the level of workers' motivation. Hence, interactive processes are always involved. The two parties involved in the interaction are the workers on one hand and the employer(s) on the other (Borjas)¹. The employer primarily engages the workers with the belief that such an engagement will help in realizing the organizational goals. On the other hand, the workers chose to work (against pleasure) because they expect that such employment will help in fulfilling their aspirations. Thus, if any of these beliefs are not met there is reduction in expectation.

A harmonious workplace that ensures that the workers' aspirations are considerably satisfied and the employer's expectations are relatively met is very paramount for high productivity. This is because both of them will work in ensuring that the vision of the organization is pursued with utmost dexterity (a kind of partners in progress). In other words, as workers are motivated, their morale and sense of value will be boosted which will increase their productivity, which will lead to improvement in the organizational output that will translate to the level of profitability. With

¹ Borjas, G (2005) *Labour Economics 3rd Edition*, NY: McGraw-Hill.

multiplier's effects the output of the economy will increase given that the total output of an economy involves the agglomeration of the various firms across the sectors. Thus, meeting the workers' aspirations and employers' expectations, are essential conditions for industrial peace, otherwise industrial crisis will set in.

Industrial crisis includes any form of work dissatisfaction that can manifest in several ways such as absenteeism, strike, high labour turnover, among others. It affects the immediate parties involved, which normally trickles down to the entire society especially when it occurs at a national level (Yesufu)². Some of the causes that have been attributed to the spate of persistent industrial crisis in Nigeria include, *inter alia*, poor infrastructural base in the workplace, low level of motivation, insecurity of jobs, policy inconsistencies and variance in management styles, breach of collective agreement (Dauda)³.

Studies on the causes and effects of industrial crisis exist in literature but there have not been sufficient empirical-econometric works to support the issue especially in Nigeria. Owoye⁴ and Nyong⁵ gave insight to this quest. While the former attributed the causes to factors like increase in cost of living, the latter assessed the effects of a notable strike that occurred in the country. It is with this further quest for recent empirical-econometric facts that motivated this study, poised with the aim of finding out the factors that are responsible for industrial crisis in the country in recent times and assess the extent of its effects. It is equally aimed at providing policy information for employers as well as government. The remaining part of the study is structured as follows: next is literature review that encases the concept, causes and effects of industrial crisis, followed by the theoretical framework. Methodology and analysis of data are in section IV. Conclusion is in the last section.

2.0 LITERATURE REVIEW.

2.1 Industrial Crisis Conceptualized.

² Yesufu, T.M (1982) *An Introduction to Industrial Relation in Nigeria*, London: Oxford University Press.

³ Dauda, Y.A (2006) "Employment of Independent Arbitrators in the Management of Trade Disputes and Industrial Crises in Nigeria", *Nigerian Journal of Labour Law and Industrial Relations*, Vol.1, No.1, Pp.26-44.

⁴ Owoye, O (1991) "An Econometric Investigation of Strikes in Nigeria, 1950-1985", *The Nigerian Journal of Economic and Social Studies*, Vol.33, No.3, Pp. 165-176.

⁵ Nyong, M.O (1998) "June 12 Strike Activity and Economic Development in Nigeria", *The Nigerian Journal of Economic and Social Studies*, Vol.40, No.3, Pp.351-369.

Industrial crisis which entails inadequacy or absence of industrial peace in workplace raises series of concern both to the workers and employer(s). This normally translates to the society especially when the organization involved renders essential services. It is this injurious nature that any management and government strive to keep it to a bearable minimum (Borjas)⁶. Though it is not peculiar to developing countries, its occurrence and severity tend to be more as a result of variance in industrial and structural factors (Tongo and Osabuohien)⁷.

Industrial crisis include any form of work discontent which show up in several ways such as absenteeism, go-slow, loss of man-hour, high labour turnover, work to rule, picketing, strike, sabotage, walk-in and sit-in, over time ban, high rate of sickness, lockout, suspension, and high incidence of query issuance (Yesufu)⁸. Most of them are tools in the hand of the employees while only few (lockout, suspension and issuance of query) are used by the employers for discipline and to serve as deterrent for others⁹.

Industrial crisis could also be defined as work stoppage on the part of the employees to force their demands on the employer(s) or to resist a particular demand/rule made by the employer. Kornhouser and Durbin¹⁰ defined the concept as the total range of behaviours and attitudes that express opposition and divergent orientation between individual owners and managers on one hand and the working people and their union on the other. Others have similar opinions that industrial crisis is a state of tension when one party perceives that its expectations are being undermined by another in the work relation (Ehigie)¹¹. Fashoyin¹² puts it as enduring power struggle between workers and employers. When workers get disenchanted about their service and the organization can longer boast of the quality of workers' performance, then there is the existence of emotional hazards in their interests. This situation flames industrial crisis because each party may tend to work to undo the other as against the traditional work relation of mutual benefits. Industrial crisis could

⁶ ibid 1

⁷ Tongo, C.I and Osabuohien, E.S.C (2007) "Emergent and Recurrent Issues in Contemporary Industrial Relations: Pathways for Converging Employment Relationships", *Journal of Management and Enterprise Development*, Vol. 4 (2): 41-50,

⁸ ibid 2

⁹ Emphasis is mainly on strike, which appears to be the strongest weapon used by the workers. Also it is the kind of industrial crisis that leads to work stoppage which has a great cost to the workers and employers as well as the national economy.

¹⁰ Kornhouser, A and Durbin, R (1985) *Industrial Conflict*, NY: McGraw-Hill

¹¹ Ehigie, B.O (1998) "The Role of Information and Aspiration Bargaining Power Behaviour", *The Nigerian Journal of Economic and Management Studies*, Vol.3 No.1&2, Pp 74-80.

¹² Fashoyin, T (1992) *Industrial Relations in Nigeria, 2nd Edition*, Ikeja: Longman Ltd.

be internal (between a particular organization and its unions) or external (between the association of employers and the national bodies of the unions) Otobo¹³. In this study, industrial crisis is used to capture the generality of unhealthy work relation, which could also mean industrial conflict, trade dispute or industrial actions.

2.2 Causes of Industrial Crisis in Nigeria.

Fashina¹⁴ attributes the causes of industrial crisis in the Nigerian workplace to policy inconsistencies and wrong placement in organizational priorities on the part of the management. When employers place higher premium on capital input far above the workers without appreciating that the latter makes the former productive, would brood industrial rancor. This connotes that poor remuneration may be a strong cause of industrial crisis. Low level of workers' motivations with respect to remuneration (both promptness and total package) has been a bone of contention between the workers and employers¹⁵.

The wave of globalization (trade liberalization amongst various economies of the world in global trade relations) had been said to have created inequality in bargaining power between corporations and workers (Aremu)¹⁶. It could have the potency of intensifying different forms of competition, resulting in stronger responses from labour by stimulating quest for information (Kanfam)¹⁷. This portrays that increased international competition resulting from increased interdependence between different economies of the world would exert pressure that would result in increased labour market flexibility and dampened labour protection. This is because when employers tend to have strong bargaining power, they may become authoritative which will affect the management style and work rules.

The above had been corroborated by the high level of unemployment in the country, which makes employers to believe that they can always replace workers that do not comply with their domineering initiatives (Mas)¹⁸. Then workers are provoked to join force to resist such propensities

¹³ Otobo, D (2000) *Industrial Relations: Theory and Controversies*, Lagos: Malthouse Ltd.

¹⁴ Fashina, D.(2001) "Nigerian Tertiary Education: What Future" in S.Jegede, A. Ale and E.Akinola (eds.), *Nigeria's Tertiary Institution and Human Rights*, Ikeja: Committee for Defence of Human Rights (CHDR), Pp.18-24

¹⁵ However, there have been enhancements in wages via minimum wage policy in recent times. More has to be done in this respect to boost workers' morale and instill industrial peace in the workplace.

¹⁶ Aremu, J.A (2006) "Ethical Dimensions of Globalization: Developing Countries' Perspective", *Globalization Review*, Vol.2 Nos.1&2, Pp.1-29.

¹⁷ Kanfam, B. (2000) "The Case of the Company Union", *Labor History*, Vol.41, Pp.321-350.

¹⁸ Mas,A (2004) 'Labor Unrest and the Quality of Production: Evidence from the Construction Equipment Resale Market', *Industrial Relations/Labor Economics Seminar*, Berkeley: Princeton University.

of the employer, thereby straining the strand of industrial tranquility that hitherto existed. This is because it intensifies the strength and strategies of workers as well, thereby prompting them to rely on the tools of trade unionisms to push forth their rights and privileges that are being dampened (Kim and Kim)¹⁹. Even if there is the existence of ‘yellow dog contract’ (where workers are not allowed to unionize), industrial crisis may still occur. Though the workers may not be able to stop work, their attitudes towards their work will be negatively affected leading to other forms of grievance expressions such as lateness, absenteeism, high rate of turnover, sabotage, among others, which will ultimately affect productivity.

Industrial crisis could also result from conflict of opinions when there is asymmetric information between the workers and employers. This arises from clash of interests during the process of negotiation and incompatibility resulting from incomplete means in the pursuance of their respective goals. Adesina²⁰ had also acknowledged that the government (especially the military regimes) had profound impacts on the trade unions, which manifested in the alteration of the rules of engagement between the State and the unions in Nigeria. This could also be as a result of insensitivity and insincerity in handling union demands by the government and managements (Otobo)²¹.

Another source of the crisis is the breach of collective agreement that has been reached (CHDR)²². Ideally, once decisions are reached via the process of collective agreement (or by other means) each party is supposed to adhere strictly to the terms and conditions. Employers (and government) have in most cases been guilty of this, due to their seemingly stronger force. The University of Ilorin crisis is a very clear instance, which has lingered on for some years where the management refused to reinstate the sacked lecturers as directed²³ by the court (Ojiabor and Faloseyi)²³.

In addition, the use of contingent workers (temporal workers that are not usually entitled to some employment benefits besides wages) is another issue. The Nigerian Labour Congress-NLC has

¹⁹ Kim, D and Kim S, (2003) ‘Globalization, Financial Crisis, and Industrial Relations: the Case of South Korea’, *Industrial Relations*, Vol.42, No.3, Pp.341-367.

²⁰ Adesina, J. O (2003) “Labour Policies of a Neo-Fuhrer State: the Nigerian Case”, *Annals of the Social Science Academy*, Nos.14 &15, Jan-Dec., Pp49-66.

²¹ Otobo, D (1983) “Strike in Nigeria: Some Considerations”, *The Nigerian Journal of Economic and Social Studies*, Vol.25, No.3, Pp.301-318.

²² Committee for Defence of Human Rights (CDHR) (2002) *2001 Annual Reports on the Human Rights Situation in Nigeria*, Ikeja: CDHR.

²³ Ojiabor, O and Faloseyi, M (2005) “NLC Writes Obasanjo Over 49 Sacked Lecturers”, *Punch*, Vol.17, No.19417, August 24, P.8.

frowned at and fought against the use of casual workers (Fashakin)²⁴. The use of contingent workers makes the employers not to compensate satisfactorily their regular staff in as much as there are other cheaper ways of using labour resource. The economic situation especially the inflationary trend in the country has not equally helped matters. The inflationary trend has always been worsened as a result of fluctuations (increases) in the prices of petroleum products which translate to increased transportation cost and higher cost of living (Osabuohien)²⁵. This devalues of the workers' income, which is capable of increasing their agitations that could lead to industrial crisis.

2.3 Industrial Crisis and the Nigerian Economy.

The effects of industrial crisis that normally result when the workers and employers are unable to reach a resolution are not usually beneficial to the economy. The effects have both micro and macro implications. At the microeconomic level, the workers of the unions involved lose their immediate pay and hence their market purchasing power that results to reduction in welfare. On the other hand, the employer whose workers are on strike loses the union services and as a result becomes unable to meet their customers' orders; this invariably affects their returns and profit margin. While at the macroeconomic level, it results to loss of output of goods and services (Mas)²⁶. From linkage effects, other firms that use their products as inputs are affected and their production slows down or comes to a halt. At the long-run the society are part of those that bear the brunt. This is usually captured by man-days-lost for the purpose of empirical evidence. For instance, in 2002 it was estimated at over 5.5 million naira (CBN)²⁷.

The effects of industrial crises are usually more severe when it affects higher institutions. This is because when they suffer protracted industrial crisis, students are tempted to study mainly to pass as against the tradition of studying for knowledge acquisitions. This affects academic performance and standard of education in the country. Therefore, it may not be surprising to see students forget the title of the courses offered when they come for their transcripts after graduation. This could also be one of the reasons why most employers of labour insist on second-class upper division and above for their applicants. In some cases the higher institutions lose a whole academic year as a result of the unresolved industrial crisis. For instance, the industrial action between the Federal Government and Academic Staff Union of Universities-ASUU lasted for six full months in 2003, which made

²⁴ Fashakin, O.O (2005) "Trade Union and Government Relations", *The Guardian*, Nov.10, Pp.33-&43.

²⁵ Osabuohien, E.S.C (2005) "Advent of Private Universities in Nigeria and Effects on the Endangered Species", *International Journal of Research in Education*, Vol.2 (1 &2), Pp.78-87.

²⁶ *ibid* 15

²⁷ Central Bank of Nigeria (2004) *Annual Reports and Statements of Accounts*.

most universities lose 2002/2003 academic session (CBN)²⁸. This is in addition to the 1993\1994 academic session that was earlier lost as a result of ‘*June 12 strike*’ for virtually all Nigerian higher institutions (Nyong)²⁹. This is a great loss for the students as they spend more both in terms of direct costs and the opportunity cost of being in school. Their parents and guardians are not left out in the pains as they suffer some dashed aspirations of their children/wards’ graduation. Above all the society loses with respect to the quality of human capital formation.

Other macroeconomic effect of industrial crisis is the exodus of trained personnel to other nations of the world where it is believed that their services would be better rewarded (Christensen et al)³⁰, thus resulting to brain drain. The brain drain syndrome portends a great adverse effect to the Nigerian economy because the nation requires quality human capital for her advancement. In addition, frequent occurrence of industrial crisis portend a great risk as it tends to increase cost of investment which will ripple off on the pace of economic growth of the country (Fajana)³¹.

3.0 THEORETICAL FRAMEWORK.

This study draws insights from the asymmetric information theory, which is complemented by the pluralistic industrial relations theory. In this framework, workers and employers-the two parties involved in the industrial relations are believed to have strong bargaining power (the ability to persuade, cajole or prompt the other party to accept a demand or an offer) and they usually seek to maximize their respective interests (Borjas)³². The employer seeks to maximize productivity using unions’ (workers) services while the workers maximize their utilities (e.g. satisfactory wages, bonuses etc) by offering their services. Whereas the employer owns the organizational resources and prerogative in decision making, the workers supply labour resource needed by the organization (and may enjoy supports from workers in other organizations/sectors and the larger society).

The pluralistic industrial relations theory illustrates not only the relations between employer and worker(s) (i.e. the individual relations) but also the relations between employers and unions and between them and the State (collective relations). Thus, in the pluralistic industrial relations theory the focus is more on the collective aspect of relations. This is as a result of the fundamental issues

²⁸ Op cit 24.

²⁹ Ibid 5.

³⁰ Christensen B.J Lentz, R, Mortensen, D, T, Neumann, G.R and Werwatz, A (2005) “On-the-Job Search and the Wage Distribution,” *Journal of Labour Economics*, Vol.23, No.1, Pp.31-58.

³¹ Fajana,S (2000) *Industrial Relations in Nigeria: Theory and Features* 2ed, Lagos: Labofin & Co.

³² ibid 1.

that pertain to labour law, freedom of association, collective bargaining, trade unionism and so on (de Silva)³³. However, in the Marxist industrial relation perspective the pro-cyclical nature of industrial crisis demonstrates that crises are products of the bargaining power held by workers and employers. That is, industrial crises can be embarked upon by workers when they are displeased by management's actions (or labour policy). Nonetheless, during period when the union bargaining power is relatively weak, the union is less likely to press its demands and less likely to resort to an industrial action in seeking a more favorable employment terms. In this light, it could be said that while the Marxist theory points more towards the individual industrial relations, the pluralistic industrial relations theory is collective in its perception. Accordingly given a study with macroeconomic perspective such as this, the pluralistic industrial relations theory appears more appealing than the Marxists'.

It is worthwhile to mention that negotiations between employers and workers usually involve a number of issues beside wage. However, Hicks³⁴ surmised that the parties-employers and workers essentially negotiate over wages and/or all items at the '*negotiation table*' (which usually result to industrial crisis when agreements are not reached) can be reduced to monetary terms that can be represented by wage. Thus, it is not that other issues are not of paramount importance but it is conjectured that they tend towards measurable monetary terms.

In furtherance, it is believed that each party will prefer to resolve any form of industrial crisis as soon as possible and may not want it to deteriorate due to its deleterious nature. This is predicated on the fact that the employer will lose the services offered by the workers during the industrial crisis period. As a result, they would not be able to meet up with their customers' orders. For example, the cost that resulted from lost of service flow due to inferior quality equipment emanating from trade dispute was estimated at 240 billion US dollars in the construction equipment resale market alone in the United States (Mas)³⁵. The workers on the other hand suffer some psychological shocks and

³³ de Silva S.R (1998) Human Resource Management, Industrial Relations And Achieving Management Objectives, Geneva: International Labour Organization.

³⁴ Hicks, J.R (1932) *The Theory of Wages*, London: Macmillan.

³⁵ *ibid* 15

temporary loss of income (utility) as long as the crisis persists. In fact, it can lead to permanent job displacements (Mas)³⁶.

It is also interesting to note that the both parties may not bear the direct and indirect burden of the industrial crisis alone. It will affect the society at large resulting from low output, poor products qualities, not meeting the consumers' satisfaction, reduction in expectation of those that depend on the workers to eke out a livelihood, among others. A ready example is the general strike of 2004 that involved financial institution and several sectors of the economy in which meaningful economic activities were negatively affected (CBN)³⁷. Another instance is the general strike of 1993 which is commonly referred to as the '*June 12 Strike*' that involved most workers in all sectors of the economy, which was embarked upon to express gross displeasure for the annulment of 1993 Presidential Election by the government in power then (Nyong)³⁸.

The analysis in this framework can be simplified using diagrammatical representation in *Fig.1*. The employer usually wishes to pay low wages in order to minimize cost of production, while the workers normally demand for high pay to enhance their welfare³⁹. In the figure, the employer is only willing to offer D_0 to the workers to maximize its own share at M_0 , (point C along the curve) but the workers on the other hand are making D_1 demand at point A. As a result of this, coupled with asymmetry information (imperfect knowledge) at the bargaining table, workers refuse the D_0 offer and the employer disagrees with their D_1 demand, because it will reduce its interest to M_1 . This '*war-of-attrition*' goes on and the two parties stand on separate grounds (at point A and C respectively), making agreement not to be reached, which will culminate in industrial crisis.

³⁶ Op cit 32

³⁷ ibid 25

³⁸ Ibid 5

³⁹ Given the Hicksian view that items in the negotiation table can be reduced to monetary terms measurable in wages.

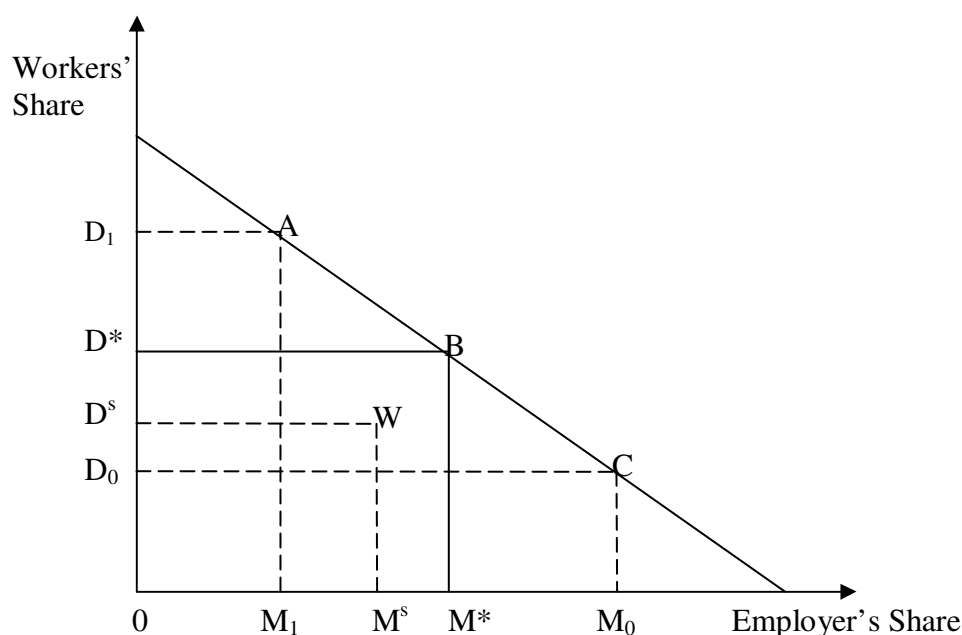


Fig.1 The Effects of Industrial Crisis.

A careful look at the figure would suggest that the each party would have been better-off at point B where they will have M^* and D^* shares, respectively. However, due to asymmetric information this optimal point is not realized. The reason is apparent: each party wants to have the larger share of the 'pie', which results in bargaining impasse. The existence of this information asymmetric has been observed as a strong factor that makes the employer not to disclose its true financial position and the workers to be high handed in their demands (Schnell and Gramm)⁴⁰.

The industrial action that occurred as a result of the bargaining impasse is generally costly to both parties. As a result, it will pressure them to start post-crisis negotiations that are usually done with lower resistance in order to reach post-crisis agreement. This will finally occur at point W, leaving M^s share to the employer and D^s to the workers. This is apparently lower than the optimal point at B. In the final analysis both lose, the loss to the employer is M^*-M^s , while the workers lose D^*-D^s . As it was pointed earlier, the brunt of the crisis is not only borne by the two parties in the workplace but it trickles down to the national economy.

4.0 METHODOLOGY AND ANALYSIS OF DATA.

4.1 Models Specification.

⁴⁰ Schnell,J.F and Gramm, C.L (1987) "Learning by Striking: Estimates of the Teettotaller Effect", *Journal of Labor Economics* , Vol5,No2,February.

To give empirical evidence to the issues raised in the study about the causes and effects of industrial crisis in Nigeria, two models were specified. The first model focuses on the determinants of industrial crisis, capturing the variables that could be responsible for its occurrence. The second model examines the possible effects of industrial crisis on the economy.

Model 1. This model relates industrial crisis (D) to explanatory variables that can affect it. The explanatory variables include; union intensity (N), wage level (W), inflation rate (I), measure of trade liberalization (TL), the nature of political situation and governance in Nigeria (P), and unemployment rate (Ur). In similar fashion with Nyong⁴¹, man-day-lost was used as a proxy for D to capture the general level of industrial crisis in Nigeria because it shows the cost to the industrial sector of a trade dispute in the economy within a given period. This presumably is better than using the number of strike incidence. Union intensity which reflects the pushfulness and intensity of the unions is proxied by number of workers involved in a given crisis, as the numerical size would tend to have a significant effect on the strength of the unions and their demands. Wage (W) is estimated from the average minimum annual wage paid in public service both at the junior and senior cadres. This is because in Nigeria the public service is a major employer of labour.

The measure of trade liberalization, TL is measured by the ratio of trade volume (sum of export and import) to Gross Domestic Products (GDP). This variable was included to provide empirical clarification about the purported influence of the trend of globalization (trade liberalization) on workers' and employers' relationship. Unemployment rate (Ur) and Inflation rate (I) were introduced to help in analyzing the impact of macroeconomic variables on industrial crisis, D. The political environment was captured by the dummy variable, P which is an adjusted variable derived from the Polity IV⁴² usually reported for various political situations in different countries, Nigeria inclusive. The years with 0, 5, 4 and -88 (not applicable, competitive, transition and transition periods, respectively) that are favourable for socio-economic activities are represented by 1. Other years with 1, 2, -66, 3 and -77 (repressive, suppressive, interruption, factional and interregnum, respectively), which suggest unfavourable socio-political situation are represented as 0.

The model can be specified in a functional form as follows:

$$D_t = f(W_t, I_t, N_t, TL_t, Ur_t, P_t, u_t) \text{ -----(1)}$$

⁴¹ Ibid 5

⁴² Marshall, M. G. and Jaggers, K (2005) Polity IV Country Reports Series 2000 and 2003
<<http://www.cidcm.umd.edu/inscr/polity/index.htm>>.

where;

- D - Industrial crisis,
- W - Average minimum wage level at both junior and senior cadre,
- I - Inflation rate,
- N - Union intensity
- TL - Measure of trade liberalization
- Ur -Unemployment rate,
- P -Socio-political situation,
- u - Stochastic variable capturing other variables not included in the model

Subscript ‘t’ indicates the time dimension (year).

The explicit form of equation (1) above can be expressed by extending the suggestion in the literature (Kaufman⁴³, Owoye⁴⁴ and Nyong⁴⁵) and using variables of interest as follows⁴⁶:

$$D = \delta W^{\beta_1} I^{\beta_2} N^{\beta_3} TL^{\beta_4} Ur^{\beta_5} e^{\beta_6 P} \cdot u \text{ -----(2)}$$

Linearising equation (2) using logarithmic transformation results in equation 3 below:

$$\text{Log}D = \beta_0 + \beta_1 \log W + \beta_2 \log I + \beta_3 \log N + \beta_4 \log TL + \beta_5 \log Ur + \beta_6 P + v \text{ -----(3)}$$

Where $\beta_0 = \text{Log} \delta$, the intercept, $v = \text{Log} u$, denoting the residuals and the $\beta_{i's}$ ($i = 1, 2, \dots, 6$) are the parameters to be estimated. Others are as previously defined.

The a priori expectations of the estimates $\beta_{i's}$ ($i = 1, 2, \dots, 6$) are given as $\beta_1, \beta_4, \beta_6 < 0$; $\beta_2, \beta_3, \beta_5 > 0$.

Model 2: This model specifies an augmented version of Cobb-Douglas production function in order to capture the impact of industrial crisis, measured by man-days lost (D), on the Nigerian economy between 1984-2005. In doing this, real GDP was made the dependent variable, while D is one of the specified explanatory variables. Other independent variable specified in the model include: real

⁴³ Kaufman, B.E. (1982) “The Determinants of Strikes in The United States, 1900-1977”, *Industrial and Labor Relations Review*, Vol. 35, No. 4, pp. 473-490.

⁴⁴ Ibid 4.

⁴⁵ Ibid 5.

⁴⁶ This differs significantly from empirical literature reviewed (e.g. Kaufman, Nwoye and Nyong). Kaufman examined the pattern of strike activity in the United States 1900-1977; Nwoye investigated the causes of strike in Nigeria from 1950-1985; while Nyong looked at the impact of June 12 Strike in Nigeria.

capital stock-K, derived by dividing gross fixed capital formation by consumer price index-CPI), labour force (L)⁴⁷.

The functional form of our model is given as:

$$rgdp = f(K, L, D, u) \text{ -----(4)}$$

where;

rgdp - real gross domestic product (GDP at 1990 constant prices),

K - real capital stock,

L - labour force,

Others are as earlier defined.

We have further expressed equation (4) in explicit form as follows;

$$rgdp = AK^{\alpha_1} L^{\alpha_2} D^{\alpha_3} u \text{ -----(5)}$$

Linearizing by taking the logarithms on both sides of equation (5), we have:

$$\text{Logrgdp} = \alpha_0 + \alpha_1 \log K + \alpha_2 \log L + \alpha_3 \log D + v \text{ ----- (6)}$$

Where: α_0 is log A, which is the intercept of the regression equation, v is log u which denotes the log of residuals, and, α_{i_s} ($i = 1,2,3$) are the parameters to be estimated that measures the rate of change in the dependent variable with given variations in the explanatory variables.

The a priori expectations are as follows; $\alpha_1, \alpha_2, > 0$, while $\alpha_3 < 0$

4.2 Unit Root and Cointegration Tests of Variables.

The study employs secondary data sourced from Central Bank of Nigeria-CBN⁴⁸ and Polity IV data for the period 1984-2005. The choice of this scope is to give recent empirical evidence to the issue. The data was analyzed using regression technique with the aid of E-Views package.

It is usually very helpful in econometric analysis to test for the stationarity of variables because most macroeconomic time series data may not be stationary (Engle and Granger)⁴⁹. This indicates that most Ordinary Least Squares (OLS) regressions that are done using the levels of variables may be unreliable. A conventional way of achieving this is to test for unit root of the selected variables. To avoid spurious results in the study, the nature of the data examined to know whether the

⁴⁷ This was obtained as defined in World Bank in Iyoha, M (2004:260) *Macroeconomics: Theory and Policy*, Benin: Mindex Press, however figures few years were extrapolated using the average growth rate.

⁴⁸ CBN (2005) *Statistical Bulletin*, Vol.16, December.

⁴⁹ Engle, R.F. and Granger, C.W.J, (1987) "Cointegration and Error Correction: Representation, Estimation and Testing", *Econometrica*, Vol.55, Pp 251-276.

variables are stationary and also establish the series of their stationarity. Hence, unit root test was done using Augmented Dickey-Fuller (ADF) test, which is presented in Table 4.1.

Table 4.1 Augmented Dickey-Fuller (ADF) Test of Variables

<i>Variables</i>	<i>Intercept no trend</i>	<i>Intercept & Trend</i>	<i>Decision</i>
logrgdp	-2.1760	-3.3908	I (1)
dlogrgdp	-3.9670	-4.0324	
logD	-1.5456	-0.7722	I (1)
dlogD	-3.8427	-4.2218	
logi	-3.4033	-3.4846	I (1)
dlogi	-4.5461	-4.4404	
logw	-1.6319	-1.0618	I (1)
dlogw	-3.3385	-4.1367	
logn	-2.4698	-1.7681	I (1)
dlogn	-4.6865	-5.0529	
logtl	-1.9641	-2.0419	I (1)
dlogtl	-4.2990	-4.9372	
logur	-1.8614	-1.4259	I (1)
dlogur	-3.2707	-3.4513	
logk	-3.2110	-3.1856	I (1)
dlogk	-4.1795	-4.0884	
log l	1.0301	-3.0122	I (1)
dlog l	-3.3957	-3.9511	
<i>C.V @ 5%</i>			
Levels	-3.0114	-3.6746	
1st Difference	-3.0400	-3.6920	

Notes: C.V: critical values. A variable is stationary when the absolute ADF > C.V.

Table 4.1 shows that all the variables (except dummy variable, P which was not subjected to stationarity test) became stationary at first difference i.e. I(1). This means that they would yield meaningful results when differenced once.

When variables that are known to be I(1) series produce a stationary process when combined, then the variables can be said to be cointegrated. This indicates that there is possible existence of a long run relationship between them. In order to establish whether long run relationship exist between the variables, cointegration test using Johansen's approach was carried out and reported in Table 4.2.

From Table 4.2 it could be observed that the null hypotheses (H_0) of no cointegration and at most one cointegrating vector among the variables are not sustainable both at 5% and 1% significant level because their Likelihood Ratio exceeds the critical values. The implication of this is that a

long run relationship exists between the variables and the coefficients of estimated regression can be regarded as equilibrium values.

Table 4.2 Johansen's Cointegration Test.

H ₀ :	Eigenvalue	Likelihood Ratio	5 % C.V	1 % C.V
None *	0.898351	100.5837	68.52	76.07
At most 1 *	0.807025	57.14532	47.21	54.46
At most 2	0.536897	25.88658	29.68	35.65
At most 3	0.359221	11.26029	15.41	20.04
At most 4	0.137203	2.803947	3.76	6.65

Notes: C.V: critical values, * Reject H₀ of no cointegration of variables at 5% and 1% level of significance.

The next step is to estimate the regression equations employing parsimonious general-to-specific error correction model (ECM), which is reported in next sub-section.

4.3 Regression Results and Discussions.

The regression results obtained when the models in equations (3) and (6) were fitted into data are reported in Tables 4.3 and 4.4 respectively.

The regression results in Table 4.3 shows that all the variables, except TL, met their a priori expectations. In terms of their significance, it is apparent from the t-statistics and the Prob-values that W and P were statistically significant at 10% while all others were significant at 5%. For the overall model, the value of R² (coefficient of determination) indicates that about 93.1% of the changes in the dependent variable (D) were jointly explained by variations in the explanatory variables. The F-statistic (a measure of association between the dependent and explanatory variables) is statistically significant at 1% connoting that the model does not suffer specification bias. This was corroborated by the value of sum of error of regression which is small, while the Durbin-Watson (D.W) statistic is 2.01 revealing that there was no serial correlation problem.

Another variable in the regression results shown in Table 4.3 is ECM (-1), the error correction term. The variable has the expected sign and is statistically significant at 1 %. Its absolute value of about 0.91 is close to unity implying that the speed of adjustment of the model from the short run to the long run is very high.

Table 4.3 Results of the Error Correction Mechanism for Model 1

Dependent Variable: D(LOGD)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.122007	0.389797	0.313003	0.7614
D(LOGN)	0.910663	0.289910	3.141188	**0.0119
D(LOGI)	0.921554	0.299282	3.079218	**0.0132
D(LOGTL)	-2.590373	0.933367	-2.775299	**0.0216
D(LOGUR)	1.723770	0.761042	2.265013	**0.0498
D(LOGW)	-2.419175	1.224849	-1.975080	***0.0797
P	0.624349	0.342603	1.831125	***0.0977
ECM(-1)	-0.906414	0.250835	-3.613579	*0.0056
R-squared	0.931135	Mean dependent var		0.170551
Adjusted R-squared	0.862270	S.D. dependent var		2.036950
S.E. of regression	0.755954	F-statistic		13.52111
Sum squared resid	5.143197	Prob(F-statistic)		*0.000319
Log likelihood	-14.54557	Durbin-Watson stat		2.011069

Note: *, **and *** means significant at 1, 5 and 10 % respectively.

Table 4.4 Results of the Error Correction Mechanism for Model 2

Dependent Variable: D(LOGRGDP)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.067167	0.107504	0.624790	0.5422
D(LOGK)	0.528490	0.094770	5.576548	*0.0001
D(LOGL)	0.602149	0.306396	1.965264	***0.0687
D(LOGD)	-0.025359	0.009518	-2.664276	**0.0185
ECM (-1)	-0.905590	0.238004	-4.435187	*0.0006
R-squared	0.802281	Mean dependent var		0.017796
Adjusted R-squared	0.745790	S.D. dependent var		0.159226
S.E. of regression	0.080280	F-statistic		14.20188
Sum squared resid	0.090229	Prob(F-statistic)		*0.000078
Log likelihood	23.86367	Durbin-Watson stat		1.933100

Note: *, **and *** means significant at 1, 5 and 10 % respectively

In Table 4.4, the explanatory variables have the expected signs. With respect to their significance; K, D and L were significant at 1%, 5% and 10% respectively. The R-squared value of 0.8023 attests that about 80.23% of the changes in rgdp were accounted for by the independent variables specified in the model. The F-value of 14.20 also indicates that the model has a good fit while D.W value of about 1.93 reveals the absence of serial correlation. In the same vein, the ECM (-1) value of -0.90 indicates a very high speed of adjustment of the model from the short run to the long run.

4.3 Implication of Results.

The results obtained from the parsimonious general-to-specific error correction model (ECM) presented in the previous sub-section reveal that inflation rate, unemployment rate, socio-political situation in the country and the strength of the unions had strong positive and significant influence on industrial crisis. From their coefficients, it could be inferred that a unit increase in inflation rate, unemployment rate, socio-political situation and unions' strength will result in about 0.921, 1.724,

0.624, and 0.911 units increase in industrial crisis, respectively. On the other hand wage and index of trade liberalization in the country were found to have negative impact on industrial crisis consequent upon their statistically significant inverse relationships. This implies that a unit increase in wage level and measure of globalization will result in about 2.419 and 2.590 units decrease in industrial crisis, respectively.

The deduction to be drawn from above is that some indicators like inflation rate and the nature of socio-political environment have significant and direct impact on industrial crisis. This could be as a result of the influence they have in affecting workers' living condition which will increase their agitations. Unemployment rate also had strong positive effect on industrial crisis; the reason could be that it will likely make the employers to be hard in their policies given the premise that it is possible to replace workers from the bulk of unemployed masses (*ceteris paribus*). This stance has the ability of straining industrial peace because the workers may resist such unfriendly policies. Also union intensity was found to have a direct cause on industrial crisis, this means that the stronger the union the more will be their pushfulness resulting from the internal strength available in charting their way. Little wonder most government reforms on labour tend to look for means of reducing their coverage.

In addition, wage was found to have strong inverse impact on industrial crisis, which connotes that a comfortable wage level will help to ameliorate the spate of industrial crisis in Nigeria. Therefore, the recent minimum wage policy of the government can be said to be a right step in the right direction and more should be done (given the inflationary trend) so as to keep the real wage relatively satisfactory. Another empirical clarification emanating from the study is that contrary to some theoretical issues reviewed in the literature (e.g. Aremu, 2006)⁵⁰; the results reveal that the measure of trade liberalization has an inverse and significant relationship on industrial crisis. This could stem from the fact that competitiveness of the market will make employer(s) and workers to resolve disagreements as quickly as possible to avoid being forced out of the market by their competitors. This is a major finding from the study as it was not included in previous studies (e.g Owoeye, 1991 and Nyong, 1998)⁵¹. Perhaps, the intensity of trade liberalization was not much at the time of their studies; hence it did not attract their attention.

⁵⁰ Ibid 16

⁵¹ Ibid 4 and 5 respectively.

In terms of the effects, the study found that industrial crisis had negative and significant effect on the real growth of gross domestic product. The implication is that industrial crisis leads to loss of productive hours-a scarce and non-renewable resource, thereby resulting in decreased total productivity.

5.0 CONCLUSION.

Industrial crisis portends a great issue of concern not only to the workers and employers but the society due to its effects on national productivity. The study found-using the asymmetric information and pluralistic industrial relation as theoretical framework that the causes of the industrial crisis in Nigeria include: inflation rate, socio-political situation, unions' strength and unemployment rate. In addition, the results show that wage level and measure of trade liberalization had inverse associations with industrial crisis. On the other hand, the study established that industrial crisis had negative and significant effect on the level of economic activity in Nigeria denoting that industrial crisis has great cost to the Nigerian economy as a result of its effects in the loss of productive hours.

The empirical clarification from the study is that some indicators like inflation rate and the nature of socio-political environment, union density have significant and direct impact on industrial crisis. This is because they affect workers' living condition which will increase their agitations and internal strength of the workers in pushing forward their demands which will threaten industrial peace. Other factors like unemployment rate also had strong positive effect on industrial crisis. In addition, wage was found to have inverse impact on industrial crisis. It then implies that a comfortable wage will help to ameliorate the level of industrial crisis in Nigeria. Thus, the minimum wage policy of the Federal Government can be said to be appropriate which needs to be improved in order to keep the real wage relatively satisfactory. Also policies that can reduce inflation and unemployment rates will help ameliorating the level of industrial crisis. The study also clarified that the measure of trade liberalization has an inverse and significant relationship with industrial crisis contrary to previous theoretical suggestions.