

# Impact Assessment of Industrial Actions On Labour Productivity and Economic Growth in Nigeria

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## Abstract

This study assessed the impact of industrial actions on labour productivity and economic growth in Nigeria, using annual time series data on man day loss, inflation rate, income inequality, wage employment and real gross domestic product (RGDP). Empirical findings from the ECM indicated that strikes have negative multiplier effects on labor productivity, economic growth and development; the coefficient of wage employment (WGE) has a positive and non-significant ( $p > 0.05$ ) relationship with economic growth within the period under review. In addition, man day loss revealed a negative and significant relationship with economic growth ( $p > 0.05$ ). Inflation rate (INFLR) was found negative and have a significant impact on industrial actions and economic growth in Nigeria ( $p > 0.05$ ). It was also found that income inequality proxied by GINI coefficient index was negative but significant ( $p > 0.05$ ) in bringing about changes in the growth. There was a significant causal relationship between economic growth (RGDP) and inflation rate (INFLR), wage employment (WGE) and man day loss (MDL), wage employment (WGE) and economic growth (RGDP). The major recommendations are that strikes are harmful and must be avoided, the Ministry of Labour and Productivity should device alternative means of speedy resolution of disputes. Government should always respect and implement agreements reached with labor unions to prevent face-off with the unions. An adequate and effective system of consultation between management and some workers should be adopted in all industrial establishments. Finally, the public sector should continue to take the issue of human resource development programs seriously as a way of improving competency and efficiency of workers and to improve productivity.

## Introduction

In the 18th and 19th centuries, industrial revolution transformed the structure of European and American economies. This change brought about a cyclical economic boom. It depended on the adoption of new techniques of production. There were positive changes in agriculture, industry, communication, transport and commerce. There was a shift in population from rural to urban centers, the number and size of towns multiplied rapidly. These changes brought with them parallel changes in the skills of workers. New skills replaced the old. More jobs were created. Profits were high for the capitalists and large industries were created with low unemployment. In the factory system, workers worked together in factories instead of small farms and small personal workshops. They labor under the same working conditions of misery that enriched the capitalist with very little opportunity for self development. They interacted under the same atmosphere of exploitation and long working hours without compensation for over-time. These fostered their desire for collective action. They had similar needs and problems. They worked long hours in the same miserable con-

dition. In this way the atmosphere necessary for the growth and development of trade unionism was created. There were problems of low wages, urban squalor and slums, child labor, machine-driven labor conditions, pollution, diseases, inequality, and poverty of the majority, exploitation and alienation of labor. The factory system created by machines further displaced labor. With trade union acts of 1871 and 1875 being passed, workers were able to assemble under one roof for collective bargain, they responded in unison to achieve common goal. It is on this background that trade unionism evolved. Trade union activities started to increase after the French Revolution. Trade unions are professional bodies or a body of people that are organized for the purpose of protecting their labor or services and for defending their rights as well as asking for better conditions of their members. Strike action also called labor strike is stoppage of work caused by the mass refusal of employees to work, usually takes place in response to employee grievances. Strikes are sometimes used to pressure the employer or the government to change policies and or infrastructural development and welfare of staff and citizens of a country. Strikes are often part of a

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broader social movement taking the form of a campaign of civil resistance undertaken by trade unions during collective bargaining. Strike consists of workers refusing to attend work and picketing outside the workplace to prevent or dissuade people from working in their place or conducting business with their employer (Eric & Urho, 2018; Femi et al.,2019).

In Africa, the formation of trade unions of indigenous African workers started during and especially after the Second World War, when the colonial administrations both in British and French Africa put in place the legal prerequisites for the creation of indigenous labor organizations. In the absence of a significant manufacturing sector, African trade unions emerged mainly in the public service and the public transport sector, mostly for teachers, railway and port workers. Trade unions were also formed in the export enclaves of the mining industry (e.g. in Zambia, the then Northern Rhodesia), and, to a lesser extent, in the plantation economy of East Africa. Unionization has been on the decline since the end of the 1970s, again apart from South Africa. This reflects the failure of the industrialization efforts in most African countries [1, 2]. Productivity on the other hand is the best use of different resources (such as the inputs of labor, capital, entrepreneurship and technology), in the fulfillment of organizational goals. Productivity level of employees is influenced by a wide variety of skills, characteristics and attitudes. These include formal training and qualification, motivation levels, initiative, team work, skills, attention to detail Judgment, multi-task abilities, communication skills, general attitudes and work ethics The Nigerian labor market over the years has experienced problems of industrial actions, wage discrimination, unemployment, underemployment that have significantly led to reduction in productivity. Inputs are the amount of time and effort spent working, (which is affected by strike), while outputs are the results. If the outputs are equivalent or more than inputs, the worker is considered productive. Productivity is linked to employee's quality of training and morale which are handled by human resource development for improved quality and efficiency. Since the wake of the 21st century, industrial action has become unprecedented in view of the current democratic system of governance in the country. Between the periods, 1999 to 2002, though the incidence of strike was visibly irregular, it witnessed about 153 work stoppages, and had a very high number (19,674,052) of man-days lost. From 2005 to 2015, Nigeria witnessed about 935 trade disputes, 2422 work stoppages involving about 1,988,335 workers, resulting to 29,353,391 man-days lost [3, 4]. For the year 2018, the national bureau for Statistics estimated a total of 159 work stoppages; virtually all sectors of the economy have witnessed one form of industrial action or the other. It is worthy of note to mention that even the 'essential service' workers, for the Nigerian police force have embarked on a strike action Industrial actions have become prevalent that in Nigeria every sector is bedeviled with this series. The roll call of these unions includes the Academic Staff Union of Universities (ASUU), Non Academic Staff Union of Universities (NASUU), and Nigerian Union of Teachers (NUT) [5]. Others are Medical and Health Workers Union, Nigerian Union of Journalists

(NUJ), National Union of Petroleum and Natural Gas (NUPENG) workers. Included, of course, are the 'umbrella unions' - Nigerian Labor Congress (NLC) and the Trade Union Congress (TUC), among others.

That all the sectors of the economy are bedeviled with industrial actions suggests that the wheel that is turning the nation is gradually grinding to a stop. This increasing incidence of strike implies that the very fabric of the Nigerian economy is being threatened, with looming severe socioeconomic adversities ( Adeniji,2015). Instances of these abound. During the 9 months (march to December, 2020) ASUU strike in the universities, economic and social activities that usually boomed in these universities and their vicinities experienced set back, also not forgetting the impact of end SARS protest that plummet the economy into recession, the result manifested in a fall in real domestic product(RGDP)and caused a rise in inflation Nigeria has suffered from several healthcare workers' strikes in the past 36 months, involving all categories of health workers. Frequent healthcare workers' strikes result in the closure of public healthcare institutions preventing Nigerians' access to quality health services. Industrial actions affects both patients and healthcare by increasing the financial burden on patients; increased morbidity and mortality, especially amongst the poor; collapse of publically funded health facilities; loss of confidence in the health system; unequal access to quality medical care; emigration of qualified health workers; increased spread of contagious diseases; and negative impact on national productivity [6-8]. An improvement in health status of the citizenry is an important prerequisite for achieving human capital development in every economy with its multiplier effect in skillful, efficient and productive investment in human capital that will translate into economic growth and development.

Healthcare and education hold a significant place in the quality of human capital. The increased expenditure in healthcare and education increases the productivity of human capital, thus making a positive contribution to economic growth. Health is an asset individual possess, which has intrinsic value (being healthy is a very important source of well-being) as well as instrumental value. In instrumental terms, health impacts economic growth in a number of ways. For example, it reduces production losses due to worker illness, it increases the productivity of adult as a result of better nutrition, and it lowers absenteeism rates and improves learning among school children. Health also allows for the use of natural resources that used to be totally or partially inaccessible due to illnesses. Finally, it permits the different use of financial resources that might normally be destined for the treatment of ill health. In sum, health affects economic growth directly through labor productivity and the economic burden of illnesses, for example. Health also indirectly impacts economic growth since aspects such as child health affect the future income of people through the impact health has on education. When a family is healthy, both the mother and the father can hold a job, earn money which allows them to feed, protect and send their children to school. Healthy

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and well-nourished children will perform better in school and a better performance in school will positively impact their future income. If parents ensure that their children have a high probability of reaching adulthood, in general they will have fewer children and they will be able to invest more in health and education for each of them. Additionally, the loss of health affects the poor to a greater extent since the main, and at times, only asset they have is their labor. When they become ill they have fewer alternative solutions and suffer greater consequences [9]. The effect of health on worker's productivity suggests a relationship between health and aggregate output. Healthy workers lose less time from work due to ill health and are more productive when working. The causes of this trade dispute have generally been established as the inability of the concerned parties to settle their differences which consequently impact negatively on the growth of the Nigerian economy. It is against this background that this study seeks to assess the impact of labour/trade unions on the economic growth of Nigeria.

### Statement of the Problem

It is generally obvious and quite indisputable that industrial action has impacted on the Nigerian economy. Strike actions are reoccurring, have become thorny, critical and unconventional weapon of labor unions in Nigeria. Who feels the brunt of strikes the most? Parents, Are they students, the government, lecturers, medical doctors. Patients in the hospitals, Small businesses, the public, employers or employees? The incessant industrial actions in our institutions of higher learning have in no small measure contributed to low quality of graduates, distortion of academic calendar that parents can no longer determine or know when their children will be graduating from school and parents and guidance are burdened more since their children stay at home due to strikes. For example, the industrial action by Academic Staff Union of Universities in Nigeria has affected many sectors of the economy.

The industrial action embarked by Nigeria Labor Congress in September, 2020 has cost the country millions of naira as all the sectors of the economy which engaged in productive activities in order to boost the gross domestic product were closed down. Furthermore, Industrial actions have paralyzed healthcare delivery services at the detriment of people's lives. The health sector is under-funded. Nigeria's overall healthcare; health status or sector performance outcomes have not been encouraging. Nigerian medical doctors highly under-valued at home are leaving to Europe, America and other continents in search of greener pastures resulting to serious brain drain. It leaves any researcher to wonder what would be the colossal impact on productivity and economic growth in Nigeria. The following research questions are a guide to this study:

1. Does any causal relationship exist among strike action, quality of education and productivity in Nigeria?
2. Do health workers' strikes have any significant impact on productivity and economic growth in Nigeria?
3. What are the challenges of trade/Labour unions in Nigeria?

### Objectives of the Study

The broad objective of this research is to assess the impact of industrial actions on labour productivity and economic growth in Nigeria. Specifically, this research work is set out to achieve the following objectives;

1. To examine the causal relationship between strike action, quality of education and productivity?
2. To determine whether health workers' strikes have any significant impact on productivity and economic growth in Nigeria.
3. To identify the challenges of trade/Labour unions in Nigeria.

### Significance of the Study

It is workers that produce the wealth with their brain and their muscles, but seem not to be treated well in terms of wages and working conditions as employees and as pensioners. Industrial action is key to Nigeria's economic growth. The findings of this research will benefit stakeholders in health, education and industry like the government, managers, the private sector, the formal and informal sectors, policy makers, labor unions, parents and students.

This study will be of benefit to the government in formulating policies that aim at promoting industrial harmony, workers welfare and or general conditions of service of workers to prevent work stoppages which often leads to low productivity. Besides, the study can help the government in terms of re-evaluating their inputs to policy making towards managing strike actions for the overall good of the economy.

It could assist policy makers, managers and a country at large in formulating policies and strategies to find solutions to labor market crisis for the good of the Nations productivity. It will also guide education administrators and planners in making policies and regulations that will create enabling environment that will offer the best so as to improve the quality of graduates and increase their productivity.

In terms of research, this study will form the basis for further studies and sustain the existing knowledge on the subject matter. This study will also be significant in practice because it will help in understanding the effect of strikes on the growth of the economy. The study will be of great benefit to student's undertaking research on similar topic by adding to existing literature and hence contribute to knowledge.

### Literature Review

The International Labor Organization (ILO) was set up in 1919 for the purpose of discussing labor questions to the international level. Industrial actions include any form of work discontent which shows up in several ways such as absenteeism, go-slow, loss of man-hour, high labor turnover, and 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 [10, 11]. It shows that both employers and employees can embark on industrial action against each other. According to a research conducted

by Okunola, incessant strikes have crippled the public health institutions causing damages to lives, productivity and economy [12]. According to Osakede, the country overall health performance was ranked 187th among the 191 member states by the World Health Organization (WHO) in 2000, though infant mortality rate fell from 140 in the 1970s to 87.8 and 80.4 per 1000 birth in 2008 and 2011 respectively [9].

Spring (2005), opined that good health improves the ability and capacity to learn and work while illness undermines productivity. In a similar dimension, Omeje & Ogbu (2019), carried out a study on the Impact of Labour Union Strikes on Public Institutions: A study of ASUU-EBSU 2016/2017 Strike [13]. To achieve the broad and specific objectives, four hypotheses were formulated while the study was based on class and functionalism theory of Marx 1978. The data generated from the administered questionnaire were analyzed with weighted mean scores while Chi-Square was adopted as the statistical tool for the test of formulated hypotheses. The findings shows that labour Union strike brought about disruption of institution's academic calendar, altered the normal skill acquisition processes among students of Ebonyi State University. Based on the findings, the study recommended that employers of labor should devise appropriate motivational strategies for their employees for greater productivity. All the stakeholders and parties to collective bargaining should comply with the resolutions of the bargaining to avert strikes.

Industrial actions seem to impact on job performance, job satisfaction and labor productivity. Aries & Rizqi (2013) adopted survey method with the aid of Structural Equation Modeling (SEM) to explain and empirically test the effect of attitude towards work, job satisfaction, and organizational commitment to the employee's job performance at Bottom line technologies. The result showed that organizational commitment has a significant effect on job satisfaction and employee's job performance.

According to a study by Kabuoh et al, (2014) collective bargaining agreements often institutionalized settlement through dialogue. For instance, a collective agreement may provide the method by which disputes between the parties will be settled. In that event, the parties know beforehand that if they are in disagreement, there is an agreed method by which such disagreement may be resolved. It is a form of participation. Both parties participate in deciding what proportion of the 'cake' is to be shared by the parties entitled to a share.

Jolayemi & Fatomilola examined the direction of causality between industrial action and economic growth in Nigeria over the period 1986-2018 using endogenous growth model [14]. This was with the view to determining whether or not man-day-lost to industrial crisis in the country through high numbers of industrial action Granger caused economic growth in Nigeria. Data were analysed using co-integration and Vector Error Correction Model Granger causality techniques. Results revealed that there ex-

ists long-run relationship between industrial action and economic growth in Nigeria.

Enya (2017) studied the various employment laws in Nigeria and found inherent defects in them that have impacted negatively on staff productivity. The study maintained that low productive output of the Nigerian worker has adversely affected the growth of the national economy and created room for fraud and corruption in the public service as well as the private sector and public sectors.

Poor work ethics and the poor conditions of service in the labor sector all contribute to low output and productivity. The study recommended that these negative trends can be reversed among them through the amendment of the extant industrial laws and improvement of the working conditions of the Nigerian employee. Obiekwue & Obibhunun (2019) examined the roles of labor unions in Nigeria industrial harmony and development. It notes that strong and united labor unions are pre-requisites to industrial and national development. The study concluded that labor unions play a huge role in industrial relations in Nigeria. However, disunity and politicization of trade unions are major obstacles to the development of strong and stable trade unions. They recommend that union members should ensure that only qualified, tested and trusted leaders who are truly workers should be voted into offices both at the local, state and national levels. Trade unions should also provide for the adequate training and education of their members in order to give room for advancement in labor relations

In a related study, Wokoma analyzed and discussed the socio-economic implications of industrial conflicts, particularly strikes for Nigeria. Industrial conflict was identified as the discord that occurs when the goals, interests or values of different individuals or groups in an industrial setting are incompatible [3]. Such attributes like refusal of union recognition, public policies, failure of collective bargaining, etc, were identified as some of the reasons and causes of industrial conflicts. However, the study identified that strike incidence and propensity have been significantly harmful to economic development. The study therefore, recommended that all stakeholders involved in industrial relations should adopt systematic and sustainable mechanisms including collective bargaining in addition to political solutions toward arresting the embarrassing, incessant and recurring spate of strikes.

Nubuor (2017) investigated the causes and impact of labour unrest on some selected organizations in Accra, Ghana. Through series of field survey and with the application of descriptive approach which entailed interviews and discussions with employers and workers and key informants such as industrial relations and human resource practitioners, and analyses of primary and secondary data. Certain major findings were made by the study which includes the following. Firstly, that labour unrest leads to salary loss of workers, profit loss to employers, revenue loss to the state, productivity loss to employers, job loss to workers and shortage of goods and services affecting society. It also creates social prob-

lems. The study recommended that education of both workers and employers on the law that regulates the employment relationship, and attitudinal change of the social partners in the management and resolution of industrial conflicts

Coopers (2016) in a study on the economic impact of air traffic control strike in Europe, employed a computable general equilibrium (CGE) model for the European Union (EU), based on 2010-2015 data. The results suggest that the overall impact of strikes reduced EU GDP which had cumulative negative impact on employment. The second largest impact is felt through the reduction in productivity associated with longer flights and waiting times. The third largest impact is felt through lower airline sector revenues. This loss in revenue occurs when flights are cancelled so that some passengers choose to forego their trip and cancel their ticket.

## Theoretical Framework

### The Marginal Productivity Theory of Wages (MPTW)

There are many strands of the theory of wages; discussed here are the MPTW, the subsistence theory of wages and the bargaining theory of wages. The MPTW describes real output in the economy (Y) as a function of labor input (N) and capital stock (K), while holding all other inputs constant. As a firm increases employment, the resulting increase in output is given as the marginal productivity of labor (MPL). In periods of economic boom, the demand for outputs would suddenly rise above the available supply, prices would begin to rise. Higher prices would mean increased profit for the employers and they would expand their production (investment) in order to make even greater profits. To do so, they increase employment (hire more labor).

This will offer higher money wages as income in the hands of labor to better their welfare. The reverse holds for Nigeria in the face of economic recession, strike actions. The students, parents and other stakeholders have lost confidence in the public university system, engaging in education tourism to the United Kingdom, USA, Ghana, Kenya, Gambia, South Africa etc. This has in turn further shrink employment of teaching and non-teaching staff with brain drain and declining productivity. According to the marginal productivity theory of wages the producer will pay no more for any factor of production than the value of its marginal product in order not to raise his costs greater his revenue. The higher the wages, the smaller the amount of labor the employer employs. However, this should not apply to public education or health since the government in this case is not an entrepreneur but a provider and promoter of public welfare. Proponents of the marginal productivity theory of wages argue that real wages can be increased only if they are below the value of the marginal productivity of labor. Real wages can also be increased by increasing the efficiency of labor. However, in inflationary conditions, it is easy to increase nominal wages but not real wages. In an inflationary economy like Nigeria, wages become a major cause of strike actions and industrial disputes between employers and employees. Workers are interested in the purchasing power of their wages. Real wage in Nigeria has

fallen more than 200 percent given the current rate of inflation at above 32 percent. This is a fertile ground for industrial actions. Inflation has lowered the real wages earned by workers; doctors, nurses, lecturers and other workers are emigrating. Others that stay behind become vulnerable to price hikes, hardship and strikes. According to Adam Smith, the laborer is rich or poor, is well or ill rewarded in proportion to the real, not the nominal price of his labor.

Wages are wanted only for what they will buy, real wages being wages in terms of goods and services that can be bought with them. The cost of living index or the index of retail prices is based on the expenditure of working class families. However, people in different working groups distribute their expenditures differently. Some have much higher standard of living due to improved earnings, while for others their wages are just from hand to mouth, leading to the discussion on the subsistence theory of wages. Changes in the cost of living index seriously affect fixed income earners or people with fixed salaries resulting to resistance and strike action by the labor unions. Wages does not rise proportionately with the rise in the cost of living.

The subsistence theory, also known as the iron law is associated with Quesnay (1694-1774). This theory of wages was looked upon as a natural law by the French School of Economists, known as the Physiocrats in the eighteenth century seems to be applicable to Nigerian workers in the 21st century. According to this theory, wages tend to keep to the level that will provide the workers only with a bare subsistence. Population growth and competition for employment are linked to this theory. Wages are fixed and reduced to the lowest level by the extreme competition of the workers said Quesnay. However, in Nigeria, with higher inflation and economic depression, real wages have fallen below subsistence level, resulting to malnutrition, serious hazards, sufferings, hardships and death of workers and their dependants. The bargaining theory of wages asserts that the level of wages in an industry depends on the bargaining strength of the trade union concerned. Differences in wages in different occupations are the result of differences in the strength of the respective trade unions. The power of a trade union depends on a number of factors; the size of its membership and the amount of its fighting funds (welfare security) and the extent of the dislocation to the national economy or the inconveniences, damages it can cause to the stakeholders/public by a strike. Example, strike by health workers, Academic Staff Union of Universities (ASUU), Nigerian Union of Teachers (NUT) can be more severe in impact than a strike by transporters, electricity workers, miners or construction workers. However great the bargaining skill of some trade unions, this is less important than the prevailing economic condition such as a depression. They will be weaker.

### Pluralist Theory

The pluralist frame of reference is credited to Alan Fox (1966). Pluralist theory believes that the workplace is composed of diverse sets of beliefs, values, attitudes, and behaviors. There are opposing sources of leadership and attachment in organizations. Conflict

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can be helpful if identified and controlled within institutional responses. Mediating among competing interests is the specific role of management. Conflicts are inevitable because there are inherent competing interests. Trade unions are seen as legitimate representatives of employees, with an additional role of helping employees emphasize their decision-making power. The state promotes public interest and industrial relation stability can be attained through a series of concessions and negotiations between managers and employers through the collective bargaining process (Femi et al., 2019) [15].

The weakness of the pluralist theory is the inclination to dwell on rules and procedures and disregard the processes that also contribute to the resolution of conflicts. For example, through industrial relations, laws can be made that impose certain ways of resolving workplace conflicts, however, the government or management has not always kept to or implemented the roles to itself, as in the case with the Federal Government and the Academic Staff Union of Universities (ASUU) or Resident Medical Doctors. These rules cannot adapt to emerging and different workplace conditions [16, 17]. In addition, the pluralist theory is incapable of realizing that the state also has corrupt officials with commercial interests in union conflicts and not just public interests. It may focus too much on rules which can lead to the inefficiencies of collective bargaining processes.

In spite of the above weaknesses, the pluralist theory is effective because industrial relation interventions can resolve conflicts. A consultative approach can be used by the management in responding to conflicts. Furthermore, it also considers other alternative decision-making processes. Conflict is accepted but managed effectively through stakeholder participation. Conflict can then be used to understand underlying tensions, so that they can be identified and properly addressed. The pluralist theory makes use of conflict management strategies to engage groups that are in conflict, so that resolutions can be discussed and implemented. This theory also embraces a wider array of industrial relations policies. The pluralist theory is also suitable for collective industrial relation systems, because it does not disregard the role of trade unions in managing employee-employer conflicts.

Pluralist theory is adopted as theoretical framework for this study. This perspective attempts to apply the analogy of pluralism in the Nigerian society where there are diverse socio-cultural groups, diverse workers' unions, which compete for power, recognition and scarce resource, for instance, the minimum wage. This diversity could be in terms of union interests, ethnicity, religious affiliation, social class, political orientation among others. The work place is made of individuals and groups who are also diverse. To harmonize these diversities and pluralism, there must be some mechanism at work (collective bargaining) which will bring the competing groups together and hold them back from tearing the work place into pieces.

In the preceding theoretical, conceptual and empirical review, researchers have made elaborate efforts to cover the formation, problems/challenges of industrial actions in Nigeria and beyond. However, very few literatures are available on the assessment of the impact of trade/labor Unions on labor productivity and economic growth in Nigeria. This study is distinctive in the sense that it contributes to existing literature by carefully examining and analyzing the impact of strikes on labor productivity; quality of education and health sectors in Nigeria.

### **Industrial Actions And Labour Productivity In Nigeria**

Macro economically, Labor productivity refers to the total volume of output (measured in terms of Gross Domestic Product, GDP) produced per unit of labor (the number of employed persons) during a given time period. This indicator allows data users to assess GDP-to-labor input levels. It can also be defined as real economic output per labor hour. The problem with labor productivity arose when this labor hour is wasted in periods of incessant and indefinite strikes, captured by man-days-lost. In the higher institutions for instance, protracted industrial actions affect academic performance and standard of education in Nigeria. Growth in labor productivity is measured by the change in economic output per labor hour over a defined period (Fashoyin, 2007 [18]). Industrial actions 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 powers which 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.

At the macroeconomic level, industrial action results to loss of output of goods and services [19-21]. Labor productivity is a key measure of economic growth. The industrial action between the Federal Government and the Academic Staff Union of Universities, (ASUU) lasted for nine months in 2020, which made most universities lose 2018/2019 academic session [22]. By 2021 there was another ASUU strike, and by February 2022 ASUU had embarked on another one month warning strike, extended by two months. There is the challenge of absenteeism and loss of valuable work time. This is a great loss for all the stakeholders in the educational sector. A short survey by this study shows that these strikes have adversely impacted on skills, responsibility, mental effort, working condition, concentration, basic knowledge, quality control, academic calendar and training time. The driving forces of labor productivity are: industrial harmony, the accumulation of machinery and equipment, improvements in organizational and physical and infrastructures, improved health and skills of workers (human capital development) and the generation of new technologies.

### **Methodology**

This study adopts descriptive and quantitative research design. A multiple regression model was formulated with four independent

variables which are relevant to the study. The dependent variable is Real Gross Domestic Product (RGDP), while the explanatory variables include Man day loss (MDL), Income inequality (GINI), Wage employment (WGE) and Inflation rate (INFLR).

Secondary time series data were sourced mainly from the publications of the Central Bank of Nigeria (CBN) and National Bureau of Statistics. Real GDP and man-day loss were sourced from CBN Statistical Bulletin, while inflation and unemployment were collected from the NBS Annual Abstract of Statistics for the period 1980 – 2019. Data is presented in the appendices.

Man-day-loss (MDL is used as a proxy to capture the general level of industrial actions or strikes in Nigeria because it shows the costs to the industrial sector of a trade dispute in the economy within a given period), Income inequality (YI) which is proxied by Gini coefficient index (GINI), measures the extent to which wage discrimination and salary scale differentials among workers, the casualization of labor impact on industrial actions. The distribution of real income or consumption expenditure among individuals or households within the economy deviates from a perfectly equal distribution which is considered to be a major cause of labor agitations, captured by Wage employment (WGE) and inflation rate (INFLR), while Real GDP (RGDP) is the dependent variable and serves as a proxy for productivity and economic growth.

$$RGDP=F(GINI,MDL,WGE,INFLR)..... (1)$$

Where:

RGDP = Real gross domestic product

GINI = Income Inequality index

MDL = Man Day Loss

WGE = Wage employment

INFLR = Inflation Rate

The function relationship in equation (1) above is transformed into

mathematical model of the form:

$$RGDP=\beta_0 - \beta_1GINI - \beta_2MDL+ \beta_3WGE - \beta_4INFLR.....(2)$$

Equation (2) is further transformed into an econometric model as follows:

$$RGDP=\beta_0- \beta_1GINI- \beta_2MDL + \beta_3WGE - \beta_4INFL+\mu..... (3)$$

This equation is the econometric model where the error term ( $\mu$ ) is added to account for all the omitted variables not included in the model and also capture the influence of any measured error that might affect the dependent variable (RGDP).

Where:  $\beta_0$  is the intercept of the regression equation,  $\mu$  denotes the residuals, and,  $\beta_1- \beta_4$  are the parameters to be estimated that measures the rate of change in the dependent variable with respect to variations in the explanatory variables [23, 24].

Given the time-series characteristics of the secondary data used, the variables concerned were non-stationary at level but of the same order, after taking first difference. Consequently, a test of cointegration using johansen multivariable cointegration was conducted. The variables were cointegrated of the same order (say I(I) as well as based on the Johansen multivariable cointegration test, hence error correction Model (ECM) as specified by Engle and Granger (1987) was applied to assess the impact of industrial action on labor productivity and economic growth in Nigeria. In order to adequately measure the impact, indicate and restore the speed of adjustment to the long run equilibrium, various techniques are being employed. The techniques of analysis employed in this study are; unit root test (augmented Dickey-Fuller), cointegration test, error correction mechanism, granger causality test and multiple regression analysis.

## Results of Data Analysis

**Table 1: Descriptive Statistics**

	RGDP	WGE	MDL	INFLR	GINI
Mean	10.33480	17.55040	16.20276	2.785567	3.779031
Median	10.10501	17.44018	15.86841	2.694129	3.771557
Maximum	11.99652	20.21818	21.06918	4.340684	4.025352
Minimum	9.530920	16.90975	11.68430	1.283708	3.589059
Std. Dev.	0.626059	0.677074	2.462077	0.706182	0.119233
Skewness	0.538910	3.017492	-0.128540	0.337439	0.313642
Kurtosis	2.339805	12.55791	1.935326	2.850753	2.239693
Jarque-Bera	2.662588	212.9578	1.999368	0.796224	1.619252
Probability	0.264135	0.000000	0.367996	0.671587	0.445024
Sum	413.3919	702.0162	648.1105	111.4227	151.1612
Sum Sq. Dev.	15.28606	17.87872	236.4110	19.44901	0.554444
Observations	40	40	40	40	40

Source: Authors Computation, 2021

It can be observed from Table 1 that RGDP had an average of 10.33. The maximum value recorded for GDP is 11.99 and a standard deviation of 0.62. WGE had a mean value of 17.55 and the deviation around the mean was 0.677. MDL recorded an average of 16.20 and minimum value of 21.069. For inflation rate, the mean was 2.785 and a maximum value of 4.34 while GINI recorded an

average of 3.77 and minimum and maximum values of 3.58 and 4.02 respectively. In addition, RGDP, WGE, INFLR and GINI are positively skewed while MDL is negatively skewed. Furthermore, since the probability values of the Jarque-Bera statistic for RGDP, INFLR and GINI are greater than 0.05, the null hypothesis that the variables are normally distributed cannot be rejected.

**Table 2: Augmented Dickey Fuller (ADF) unit root test result**

VARIABLE	LEVEL 5%	T-STATISTIC (1ST DIFF)	PROBABILITY VALUE	DECISION	STATIONARITY
RGDP	-2.941145	-56.87548	0.0001	1(1)	Stationary
WGE	-2.945842	-6.181235	0.0000	1(1)	Stationary
GINI	-2.941145	-3.253761	0.0244	1(1)	Stationary
IFLR	-2.943427	-7.422176	0.0000	1(1)	Stationary
MDL	-2.941145	-4.117098	0.0026	1(1)	Stationary

Source: Authors Computation, 2021

The result of the unit root test in Table 3 shows that RGDP, WGE, GINI, INFLR and MDL were all stationary at first differencing with intercept at 5 percent level of significance and probability value (p-value) of 0.0001, 0.0000, 0.0244, 0.0070 and 0.0026 less than 0.05 levels respectively.

**Table 3: Unrestricted Cointegration Rank Test (Maximum Eigenvalue)**

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value
None *	0.583598	76.42584	69.81889
At most 1	0.428725	43.13393	47.85613
At most 2	0.331069	21.85833	29.79707
At most 3	0.119716	6.579524	15.49471
At most 4	0.044609	1.734124	3.841466

Max-Eigen statistic indicates 1 cointegrating equations  
Source: Authors Computation, 2021

From this model  $GDP = f(MDL, WGE, GINI, INFLR)$  the co-integration test result reported in Table 3 shows that there is a long run relationship between the variables in the study (MDL, WGE, GINI and INFLR). The maximum Eigenvalue test shows evidence of one co-integrating equation. The test was carried out at 5% level of significance.

Having carried out the co-integration test in which long run relationship exist between the variables, there was need to carry out Error correction mechanism (ECM). The result for the Error Correction Mechanism (ECM) test is contained in Table 4:

**Table 4: Summary of Error Correction Model (ECM) Result**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.024657	0.049727	-0.495854	0.6233
D(WGE)	0.173754	0.136701	1.271048	0.2126
D(MDL)	0.046635	0.027457	1.698493	0.0988
D(INFLR)	-0.124907	0.062803	-1.988872	0.0551
D(GINI)	-1.537990	1.245315	-1.235020	0.2255
ECM(-1)	-0.694235	0.130680	-5.312464	0.0000
R-squared	0.485493			
Adjusted R-squared	0.407538			
F-statistic	6.227821	Durbin-Watson stat		0.433452
Prob(F-statistic)	0.000360			



The estimates in Table 4 suggest that the speed of adjustment (Error Correction Mechanism) in the long run is high at -0.69 percent and statistically significant at five percent (5%). The negative sign implies that the error correction model was adjusting with the previous system disequilibrium annually. It also means that the ECM

term actually corrects disequilibrium in the system or is corrected in the current year. It also implies that man day loss, inflation rate, income inequality and wage employment have longrun effect on economic growth in Nigeria.

**Table 5: Summary of OLS results**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.560193	3.219649	2.658735	0.0117
WGE	0.281074	0.131667	2.134735	0.0399
MDL	0.113350	0.041698	2.718324	0.0101
INFLR	-0.301603	0.106038	-2.844298	0.0074
GINI	-1.099436	0.768883	-1.429912	0.1616
R-squared	0.525733			
Adjusted R-squared	0.471531			
F-statistic	9.699524	Durbin-Watson stat		1.258001
Prob(F-statistic)	0.000022			

As revealed from Table 5, the impact of wage employment is positive and statistically significant with coefficient as 0.281074. The probability value of 0.0399 is less than 0.05 which confirms the significance of the impact and agrees with the apriori expectation. This indicates that wage employment has positive and significant impact on the growth of the Nigerian economy. The result also showed that an increase in MDL will lead to a 0.11 unit increase in GDP and is statistically significant ( $p < 0.05$ ). Again as revealed from the table the impact of inflation rate was negative and significant with coefficient of -0.301603 and probability value of 0.0074 which is less than 0.05 again confirms the significance of the impact and agrees with the apriori expectation. This indicates that inflation rate has negative and significant impact on the growth of the Nigerian economy. The table also revealed the impact of income inequality as negative and insignificant with coefficient as -1.09994 and the probability value of 0.1616 which is greater than 0.05 and confirms the insignificance of the impact and it agrees with the apriori expectation. This indicates that income inequality has a negative and insignificant impact on the growth of the Nigerian economy.

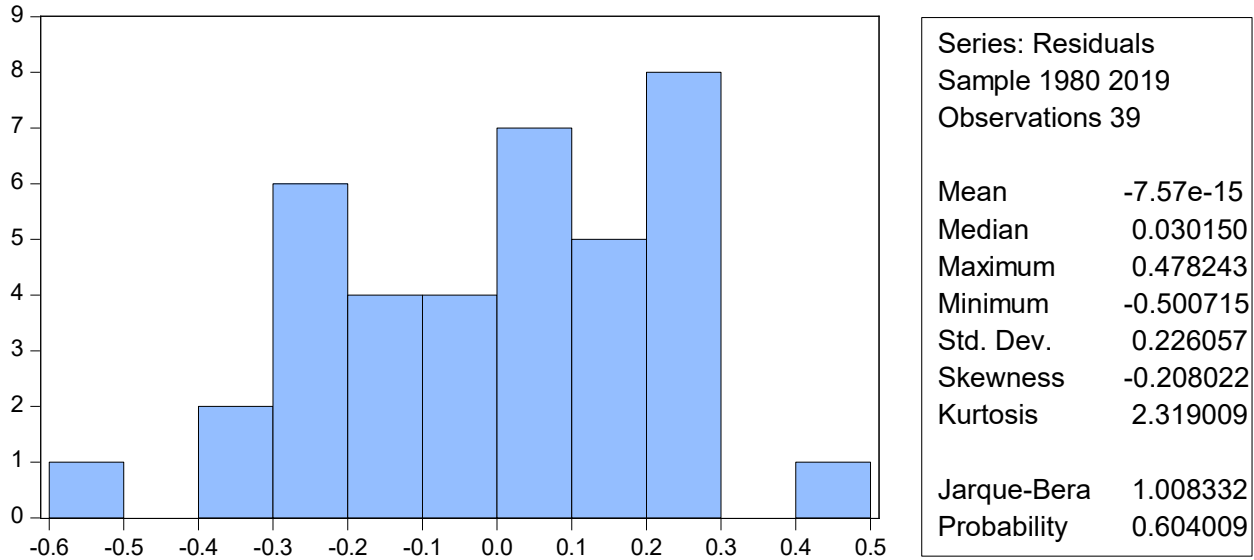
On the whole the coefficient of determination as revealed by R-square ( $R^2$ ) = 0.525733, indicates that about 53 percent of the variations observed in the dependent variable (gross domestic product growth) were explained by changes in the independent variables (wage employment, income inequality, and man day loss and inflation rate). This means that about 47 percent of variations in the GDP are explained outside the model. The test of goodness of fit of the model as indicated by  $R^2$  was properly adjusted by the Adjusted R-Square of 0.47. On the whole, the value of F-statistic of 9.699524 and overall probability of (F-statistics) of 0.000022 which is less than 0.05 properly explains the significance of strike actions on economic growth in Nigeria within the period under review.

### Normality Test

A normality test is used for determining if a set of data is well modeled and if such a function represents the distribution of many random variables on a bell-shaped graph. The JarqueBera test is used to test whether the random variables are normally distributed or not. The hypothesis is stated as follows:

H0 = the residuals are not normally distributed

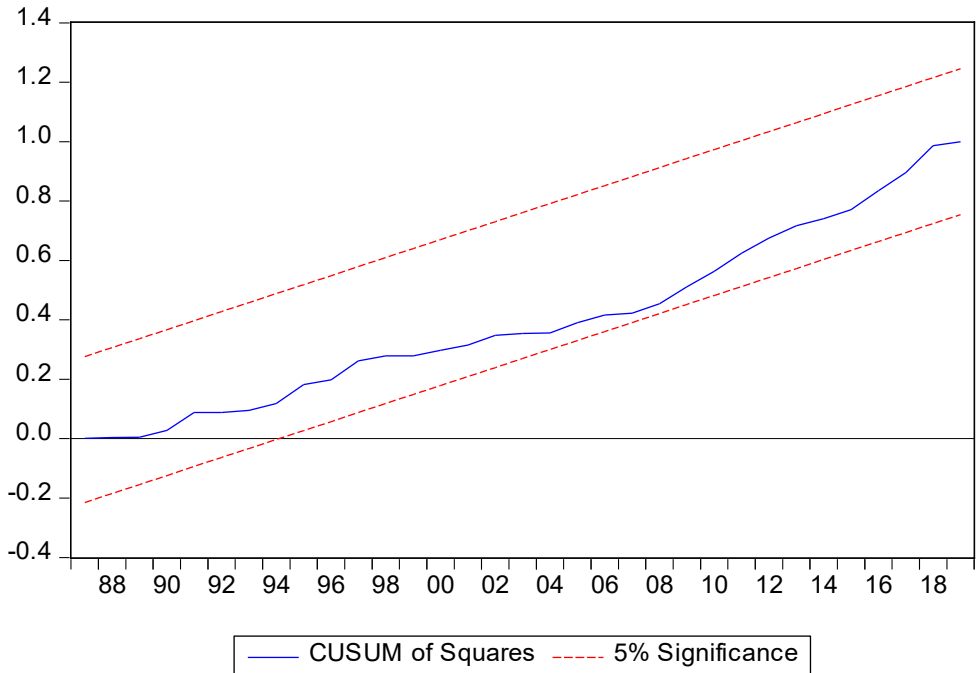
H1 = the residuals are normally distributed



**Figure 1: Normality Test Results**  
 Source: Authors computation, 2021

**Stability Test Results**

The stability of the model is determined with the use of the CUSUM test to ensure that residuals were stable and part of its cumulative sums were located within the standard deviation bands.



**Figure 2: Cusum Test of Stability**  
 Source: Authors Computation, 2021

**Table 6: Granger causality test result.**

Null Hypothesis:	Obs F-Statistic	Prob.	Direction of Causality
INFLR does not Granger Cause GINI GINI does not Granger Cause INFLR	38 0.14513 1.20926	0.8655 0.3113	INFLR ↔ GINI No causality
MDL does not Granger Cause GINI GINI does not Granger Cause MDL	38 1.43222 0.21501	0.2532 0.8077	MDL ↔ GINI No causality
RGDP does not Granger Cause GINI GINI does not Granger Cause RGDP	38 0.17159 2.81186	0.8431 0.0745	RGDP ↔ GINI No causality
WGE does not Granger Cause GINI GINI does not Granger Cause WGE	38 0.32699 0.06354	0.7234 0.9386	WGE ↔ GINI No causality
MDL does not Granger Cause INFLR INFLR does not Granger Cause MDL	38 2.27961 0.7464	0.1182 0.4819	MDL ↔ INFLR No causality
RGDP does not Granger Cause INFLR INFLR does not Granger Cause RGDP	38 3.81319 0.79877	0.0324 0.4584	RGDP → INFLR Unidirectional causality
WGE does not Granger Cause INFLR INFLR does not Granger Cause WGE	38 1.60913 0.49528	0.2154 0.6139	WGE ↔ INFLR No causality
RGDP does not Granger Cause MDL MDL does not Granger Cause RGDP	38 3.05380 1.17592	0.0607 0.3211	RGDP ↔ MDL No causality
WGE does not Granger Cause MDL MDL does not Granger Cause WGE	38 4.55247 0.03597	0.0179 0.9647	WGE → MDL Unidirectional causality
WGE does not Granger Cause RGDP RGDP does not Granger Cause WGE	38 3.30681 0.17835	0.0491 0.8374	WGE → RGDP Unidirectional causality
Source: Authors Computation, 2021			

The causal relationship between RGDP, INFLR, MDL, WGE and GINI is a major focus of this empirical investigation. Generally, the Pairwise Granger test helps to determine the direction of causality between the variables in the specified model. According to Gujarati and Porter (2009), the rule of Granger causality test states that the p-value must be greater than 0.05 in order to reject the null hypothesis. Rejecting the null hypothesis means that one of the variables actually granger caused the other, while accepting the null hypothesis confirms that there is no causality between the variables at 5% level of significance.

The result from Table 6 showed that the p-value of INFR and GINI are 0.8655 and 0.5113 respectively which means are more than 0.05 level of significance, we therefore reject the null hypothesis and accept the alternative hypothesis meaning there is causality between INFLR and GINI. The probabilities of MDL and GINI are 0.5532 and 0.8077 also showed there is causal relationship between MDL and GINI. There is a unidirectional causal relationship from Industrial action to RGDP and INFLR in the Nigerian economy within the period of study.

### Discussion Of Findings

The results indicated that there was a positive and insignificant relationship between MDL and economic growth. This implies that an increase in man day loss will lead to a corresponding increase in labour productivity and economic growth. This result is not in

line with economic theory or expectation. Again the findings of the study revealed that the influence of inflation rate (INFLR) on RGDP was negative and significant. The significance of the impact agrees with the apriori expectation. This means that there is a significant inverse relationship amongst inflation, labor productivity and economic growth. This further shows that increase inflationary rate impedes economic growth in Nigeria within the period under study. It could also be interpreted that workers in Nigeria worry about the purchasing power of their wages during inflationary periods, and would engage in strike action to demand wage increases that would enable them to keep up with inflation in order to maintain their standard of living.

The regression results further showed that income inequality proxied by GINI index was negative and significant in bringing about changes in RGDP. This is in line with the apriori expectation of a negative relationship with economic growth and income inequality. As the gap in income between the poor and rich increases, economic growth will definitely be slowed down. Consequently, government should work towards addressing income differentials between the political office holders and the civil servants, bridging the gap in income between the rich and poor. The objectives of this study earlier stated are fully met by these findings.

### Summary and Conclusion

This study assessed the impact of industrial actions on labor pro-

ductivity and economic growth in Nigeria using annual time series data for the period 1980-2019. The main objective of the study was to examine whether industrial actions have impacted significantly on labor productivity and economic growth in Nigeria. In order to achieve this objective, Quantitative and qualitative techniques involving the Ordinary Least Square regression analysis and the Error Correction Model (ECM) were adopted as suitable, and applied to time series data.

From the result of regression estimates of the study, it was found that there is a significant relationship between strikes, labor productivity and economic growth in Nigeria. Wage employment (WGE) has a positive but weak relationship with economic growth within the period under review. In addition, man day loss (MDL) indicated a significant negative relationship with economic growth. Inflation rate (INFLR) was found to have a negative and significant impact on economic growth in Nigeria. This could be as a result of the influence it has on the money wage and the real wage of the workers and their worsening living conditions which increases their agitations. The regression results further showed that income inequality proxied by GINI coefficient index also had a significant positive impact on labor agitations and significant negative impact on economic growth in Nigeria.

Industrial actions such as the ASUU strikes and Resident Doctors' strikes have adversely affected labor productivity and economic growth in Nigeria. Students' achievements and/or performances are limited, with a reduction in quality delivery. In order to build a harmonious industrial environment, ASUU and Resident Doctors' industrial actions should be addressed on a global scale without politics. Industrial actions rob off academic time from school administrators and upon resuming from strikes; academic work is bound to the rushed leading to poor productivity at work place, upon graduation the quality of graduates become questionable in the present day highly competitive labor market.. Resident doctor's strikes have also become a serious problem to the quality of healthcare delivery in Nigeria.

Industrial actions have been an issue of great concern in Nigeria, not only to the workers and employers, but also to the society due to its impact on national productivity and economic growth. The empirical evidence from this study shows that some indicators like inflation rate, income inequality, wage employment and man day loss have significant impact on productivity and economic growth. The study also concludes that wage employment can stimulate productivity which will in turn lead to increase in gross national output. This will happen if only government remains committed to its contractual terms and conditions of service of workers and providing the necessary macroeconomic environment and proper policy implementation.

### Recommendations

1. The welfare of workers. Government-management should make it a point of duty and a necessary obligation in ensuring

that the general working conditions and welfare of all workers are collectively enhanced. Wages and salaries of workers should be paid as at when due. Most workers have no other sources of income outside their monthly entitlement.

2. Disputes resolution. The Ministry of Labor and Productivity that is saddled with the responsibility of labor relations should device alternative and proactive dispute resolution to facilitate speedy resolution of disputes. Stakeholders should always organize meetings at the instance of the Ministry to deliberate on issues before they deteriorate into full industrial action.
3. Agreements. The experiences with Federal Government-ASUU 2009 agreement, the resident doctors' strike, the Nigeria Labor Congress (NLC), have shown that government has often not been keeping to agreements. This is not fair for harmonious industrial relations. Government should always respect and implement agreements reached with workers through their unions to forestall face-off with the unions. However, where there is a failure on the side of the government, the process of adjudication must be allowed to take its due course without manipulation by any of the parties involved and there should be a more disciplined and focused leadership dedicated to its role of protecting the rights of its members.
4. Management-Employees relations. An adequate and effective system of consultation between management and employees should be adopted in our industrial establishments. More often than not, decisions and policies affecting workers on whom the responsibility of implemented action falls are taken without their active participation. For instance, a decision on the working conditions, resentment of some staff, cutting wages and salaries, withdrawal of fringe benefits and so on, without popular consultation the workers who are going to bear the brunt of all these stringent measures would inevitably spark off a chain of resistance.
5. Human Capital Development. Government-employers should continue to take the issue of human resource development programs seriously as a way of improving quality of negotiations, competency and efficiency of workers and to improve productivity. This can be achieved by a strategic and purposive HRD practices that will improve the quality of human resources in Nigeria. It is also critical that policy makers implement appropriate policies at the macroeconomic level targeted at curbing inflation and unemployment as well as domestic economic stabilization that would enable all workers to have confidence and enjoy their real wages.

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