

## *Original Paper*

# Estimating the Disparate Quantitative Cumulative Impact of ASUU Strike on the Economic Growth: Evidence from North- East Nigeria

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### ***Abstract***

*The study explores estimating the disparate quantitative cumulative impact of ASUU-strike on the economic growth: Evidence from North-East Nigeria. First, we study strike actions by the Academic Staff Union of Universities (ASUU) in Nigeria and recent changes in the actions of the employer (Federal-Government-of-Nigeria), using primary data collection from each of the Federal and State own Universities of the six states of the North-Eastern Nigeria demographics over the period 2022-2023. We employed structured questionnaires and random sampling distribution to gather data for analysis. Next, we used panel data analysis to estimate data collected with particular emphasis on random effect. We find that the average effect of food-vendors, taxi-drivers & Okada-riders, landlord, banks domiciled on campuses and stationary sellers over ASUU-Strikes when all these independent variables changes across time and between universities increases by 1%, ASUU-Strikes decreases the incomes of food-vendors, taxi-drivers & Okada-riders, landlord, banks domiciled on campuses and stationary-sellers by about 2%, 3,9%, 9.3%, 14.7% and 9% respectively, holding all other predictors constant. We discuss implications for policy, indicating that ASUU-strike affects the level of economic activities of businesses domiciled in the university system and neighborhood-shops around the university campuses thereby further depresses nation's economy. Finally, we make recommendations.*

### ***Keywords***

*asuu strike, economic-value-chains, Federal-Government, university, Poor-Condition-of-Services*

## 1. Introduction

Today's fast-paced Nigerian University system is becoming increasingly characterized by incessant strikes facilitated by Academic Staff Union of Universities (ASUU) over poor development of the educational sector, poor condition of services, increased environmental stress and increase agitation for the general well-being of civil servants. Growing numbers of staff (teaching staff and non-teaching staff) interact with students to create services outcomes and research without interacting deeply with industries that demands the services of their output (graduates), and government do not create adequate enabling environment for all. Lecturing, training, facilitating, mentoring, teaching, research and enabling environment are interfaces that enable university staff to produce quality and adequate manpower graduates (outcomes) for national and global development. Examples of half-baked graduates abound without them fitting well into the industries system, cultism, and other criminal gang seems to affect academic and enabling environment as well.

Although extensive literature has explored the characteristics and dynamics of strikes in the Nigerian University system and interactions between the employer (Federal Government of Nigeria), ASUU and collective bargaining, using various approaches, methods and techniques (Aina, Awolusi, & Odunlami, 2015; Ajayi, 2014; Ajewole, 2014; Famurewa, 2014; Ige, 2013) have employed various methodologies in the context of the extant literature. Classical labor union activities as in ASUU versus FGN had been investigated using various approaches, methods and techniques. For example, Ajayi (2013) employed multistage sampling method; Albar and Onye (2016) used qualitative approach to carry out two interview sessions; Wickens (2011) uses method of psychosocial, emotional reaction, cognitive/attitudinal reaction behavioral reactions and health-related reaction to address the issue of labor unions and strikes on university campuses. The continuing proliferation (Kotze, n.d.) of ASUU strikes conveys the need for research that extends beyond qualitative and descriptive analysis into this quantitative econometrics analysis oriented context. This need is explained in many ways (Kotze, n.d.): Take for example, most of the studied literature are carried out in either qualitative and/or descriptive analysis, and the few quantitative analysis are not thoroughly analyzed econometrically (Albar & Onye, 2016; Wickens, 2011; Ajayi, 2013). Therefore, this gap is pressing and urgent for a holistic, adequate and comprehensive understanding of the relationship between ASUU strike and the employer.

It is increasingly evident that this technique (econometric analysis of ASUU strike and the employer) and advances will continue to be a critical component of ASUU-FGN interactions, in order to explain in monetary terms the implications of the economic value chains of businesses within and around Nigerian Universities during ASUU strike actions. This method of analysis is expected to become a key criterion for long-term understanding of economic value chains of business success on Campuses. In addition, many researchers have acknowledged a need for better understanding this technique area (see Albar & Uriel, 2016; Becard & Gauthier, 2022; Jungherr & Schott, 2022), little is known about how interactions with these ASUU strike and FGN relationship options affect economic value chains, economic behavior and evaluation.

To further our understanding, we investigate economic value chains within and around the Nigerian University system involving ASUU strikes and the employer showdown to identify the effects on the owners of businesses and others domiciled in the Universities in the North-Eastern Nigeria. The gaps driving this research are:

- ❖ What is the perception of an average vendor and business owner on strike by ASUU?
- ❖ How does the strike action by ASUU influence vendors, taxi cabs, Keke-Marwa, Okada, and other businesses domiciled in the university campus?
- ❖ How does the strike action by ASUU affect landlord's income?
- ❖ What can be done to reduce the economic impact of the ASUU strike on vendors and businesses domiciled and around the university campuses?

To explore these questions, we employed the technique of building models with dependent, independent variables, their parameters and the error term or White noise, with quantitative measures of income loss during strikes of vendors, taxi cabs, keke-Marwa, Okada, landlords, owners of photo-copying machines, other small business owners (kiosks), and the behavior of the economic value chains during periods of no strike actions.

The rest of this study is organized as follows: Section 2 presents the extant literature on ASUU strikes in relationship with the FGN and economic value chains domiciled in the Universities in the North-Eastern Nigeria. This is followed by detail research methods and procedures employed in the research work in section 3. Section 4 discussed the findings of our enquiry. The final results and findings, implications and direction for further research are offered.

## 2. Literature Review

We now place our studies in the context of the extant literature. Classical ASUU strikes indicates that frequent strikes action leads to disruption of academic calendar of University system, this in turn affects students' academic pursuit and performance as in Ajayi (2014). Tide (2022) signals the impacts of ASUU strikes on the economic value chain in Nigerian University system, as in Waziri (2022) also deals with the prolong ASUU strike creating #1.08 billion loss in a university with 20,000 students. Paschal and Lawrence (2022) argue in the same vein, their works see ASUU strikes as mismanaged labor-government conflicts which leads to crisis affecting the economic prosperity of the country. Albert (2014) concurs that ASUU strikes often last for months, consequently businesses and other activities domiciled in them are shut down as well, thereby affecting the economic value chain. In contrast, Chigoze (2020) focuses on the Integrated Payroll and Personnel Information System (IPPIS) platform and University Transparency and Accountability Solution (UTAS) for payment of salaries of teaching staff as the key issue responsible for setting tongues wagging between ASUU and the Federal Government of Nigeria (FGN). Another classical literature related in context considers the strategic impacts of ASUU strikes on the educational systems and students learning and information seeking behaviors in in the country (e.g., Albar & Onye, 2016; Ajewole, 2014). The work of Ajewole (2014) uses a case study approach due to the

“damaging effects of ASUU strikes” (p. 35), and finds that ASUU strikes tended to pull government down. Also in Ajewole (2014), the study stresses that ASUU usually employ various means and tactics, for examples, meetings with stakeholders, dialogue, consultations, lobbying and collective bargaining before and after the strike actions. Related to this, Wickens (2011) argues that employee unionization and labor strikes affect research productivity and mentoring relationship between teachers and students. In addition, the study reveals a positive correlation between strikes in the university system and students learning, grades and dropouts. The effects of ASUU strikes on the students’ academic performance in the Nigerian university system is further developed into a theoretical framework using ex-post-facto research design by Aremu, Salako, Lawrence and Ayelotan (2015).

Aina, Awolusi and Odunlami (2015) argues that education funding has been the key concern for all stakeholders in the education sector in Nigeria. The study maintains that the magnitude of the problem is chiefly responsible for the incessant strikes actions by the ASUU. In ASUU-strike archetypal, the point of incessant strikes is to convince the decision makers and the general public that the University system is underfunded and welfare of staff are very poor in comparison to other African countries with little resource endowment and gross domestic products (GDP). Related to this, Ajayi (2014) maintains that University progresses when “it is able to provide knowledge and value,” as investment in University education is a critical component of national development effort. Ajayi (2014) places the context of the incessant strikes on the demand of ASUU the government failed to fulfill an agreement it reached with it in 2009, aimed at saving the nation’s Universities from total collapse, while the government employed a piecemeal selective approach due to limited resources available. Similarly, Famurewa (2014) argues that the industrial disputes brouhaha between ASUU and FGN adversely affected the Nigerian University Ranking in the continent, as no Nigerian University is found within the first seven universities.

Typically, Anugwom (2014) contrasts the general believe, the study connects the crisis between ASUU and FGN to external factors. The study traced the history of the industrial disputes back to 1990s, and affirms that “direct off-shoot of macroeconomic adjustment programs foisted on the country” (p. 141), consequently leads to reduction in government funding of education in the country. The findings suggest that the crisis can be resolved only with the amelioration of the fundamental problems confronting the nation. However, Abert (2014) studies an emotional reaction of the media, the public and agents of social control with respect to an emerging social problem with respect to the industrial disputes between ASUU and FGN. The findings suggest that members of public often cast ASUU versus FGN face off in moral modes and tended to blame ASUU more than the FGN for keeping most of the students out of classroom.

### *2.1 Empirical Evidences*

More concretely, a large branch of the literature studies contest the structure of university system funding in Nigeria, low morale of teaching staff and poor salary platform, inadequate capacity to negotiate altruistically with labor union manager officials (ASUU), failure to implement agreements reached with the unions and lack of vibrant civil society in the country that is rooted and deeply concerned with the conditions of teachers in the country (Albert, 2014). More closely related, for example, Aina, Awolusi

and Odunlami (2015), Ajayi (2014), Ajewole (2014), Famurewa (2014), Ige (2013), which establishes that university system in the country is grossly underfunded.

Tide (2022) reinforces the economic importance of siting a university in any part of the world. The study wonders why our policy makers seem aloof and unaware of the multiplier effects of shutting down businesses-generating sub-sectors like universities. All over the world, universities and other institutions of learning are considered to be among business hubs for employment generation, income redistribution, and live-testing of the efficacy of macroeconomic policies. Hence, the direct and indirect negative impacts of this ASUU strike could slow down the continuation of more than 20 million businesses. We cannot build the desired future we all yearn for when policy makers cannot think of the impact of policies on the general well-being of the people.

In the research work of Tide (2022), the study stresses the consequences of the ongoing strike action, “ASUU strike is taking a toll on the Nigeria economy” (p. 1). The strike is not just punishing the university teachers but an entire value chain is closed which is a recipe for unanticipated bigger crisis. The study urged the government to hasten the return of the university teachers to classes. The paper further argues that “this would not only ensure those already employed remain employed but also those who eke out a living in the universities remain busy”. Nigerians need to be busier than they are now if we want sustainable economic growth. Slowing down private business activities is dangerous for any economy, and this exactly is what the ASUU strike, is achieving.

However, few studies (Tide, 2022; Waziri, 2022; Collins, 2013) explore the nexus between the ASUU strikes and the economic value chain in the Nigerian university system. To the knowledge of this study, no work has carried out detail econometrics analysis of the quantitative magnitude impact of ASUU strike actions on the economic value chain domicile in the university system in Nigeria. Therefore, we examine the economics of strike from a University perspective.

## *2.2 Theoretical Background*

There are different theories of trade unionism (industrial relations). When it comes to the nexus between FGN (employers) and employees (ASUU), “there are three main theories that take precedence today” (Weedmark, 2019, September 20). The works of Weedmark, 2019, September 20) argues that the theories remain the same in the past 50 years. Two of these theories describes the relationship in terms of conflict, while the third emphasizes cooperation (see Weedmark, 2019, September 20; Dabscheck, 1983; Poole, 2021). The main theories of trade unionism are the Marxist theory, pluralist and unitary theories. The theoretical thrust of the ASUU versus FGN relationship locates itself in Marx’s class theory (Chigoze, 2020).

### *2.2.1 The Marxist Perspective*

The Marxist conceives industrial relations as a clash between the employer (capitalist) and the peasant (employee). The employer’s goal is to maximize profit by paying worker or peasant as little as he can while striving for a monopoly in his industry to control prices (Weedmark, 2019, September 20; Poole, 2021). Workers on the other hand, believe that they are the most important part of production and strive

to get their fair share of profits through the formation of trade unions as in Weedmark (2019, September 20) and Dabscheck (1983). Thus, from the angle of Marxist perspective, the inevitable result of this clash is a worker revolution, where workers take control of companies, eliminating the capitalist altogether.

### 2.2.2 The Pluralist Perspective

In this theory, the nexus between capitalists and peasants is also one of conflict but not to the extent Marxism portrays it. Through trade unions, workers argue for higher wages/salary, increased benefits and better working conditions, while employers want to keep as much money as they can for profit (Weedmark, 2019, September 20). Rather than violence, however, the two sides negotiate to reach a middle ground.

A vital part of this model is that workers recognize that it's in their best interest for the company to thrive, so while they are loyal to the union, they are also loyal to the employer. Employers on the other hand, understand that fair wages and good working conditions make employee more productive. Weedmark (2019, September 20) reinforce the argument that this delicate balancing act between interests became prominent in the 1930s during Roosevelt's New Deal Government and is still a popular model at many organizations and institutions today.

### 2.2.3 Unitary Perspective

The unitary theory on employee relations is one of cooperation. Employers and employees are seen as being on the same team or even the same family. Both employer and worker have the same interests and share the same values and goals. In this model, conflict is seen as distasteful, and both sides strives for consensus.

Those who subscribe to this theory (employers and workers alike) despise trade unions. Unions are portrayed as an outside force that competes for the employer's loyalty and pits employees against management. Many small businesses operate with this theory as well as any company where workers reject the idea of unionizing. Governments that favor this theory will place restrictions on unions or even make them illegal.

### 2.2.4 Industrial Relations in Practice

The works of Weedmark (2019, September 20) argues that industrial relations is the study of one portion of a society. It is regarded as an abstraction that can't take into account all of the factors that affect human behavior or the complexities of society as a whole. Consequently, theories on trade unions can only highlights some vital aspects of employer-worker relationships and do not provide a full picture of these relationships.

## 3. Methodology

Many studies (Aina, Awolusi, & Odunlami, 2015; Ajayi, 2014; Ajewole, 2014; Famurewa, 2014; Ige, 2013) have employed various methodologies in the context of the extant literature. Classical labor union activities as in ASUU versus FGN had been investigated using various approaches, methods and techniques. For example, Ajayi (2013) employed multistage sampling method; Albar and Onye (2016)

used qualitative approach to carry out two interview sessions; Wickens (2011) uses method of psychosocial, emotional reaction, cognitive/attitudinal reaction behavioral reactions and health-related reaction to address the issue of labor unions and strikes on university campuses.

Since few studies employed quantitative method, the need to use triangulation method (both quantitative and qualitative methods) is urgent and pressing to thoroughly determine cause and effect. This study will use both quantitative and qualitative methods to assess the link between the ASUU strike actions and the economic value chains domiciled in the Universities in the North-Eastern Nigeria. Questionnaires' will be drawn and distributed using simple random sampling and purposive methods in order to achieve the targeted population. Econometrics techniques will be employed to build the models after data are collected, and STATA software packages will be used to analyze data.

### *3.1 Research Design*

#### *3.1.1 Study Area/Sites and Subjects*

The study area was mostly confined to North-Eastern Nigeria, where data for quantitative studies were collected. Data were collected from all who were involved in the economic value chains domiciled in the university system.

This research project employed quantitative (empirical) method, which is a procedure for gathering, analyzing and using both empirical and qualitative data at some stage of the study process within a single study, to understand a study problem more completely (Ivankova, Creswell, & Stick 2006). The rationale for mixing is that neither of the two methods are sufficient by themselves to capture the trends and details of the situation, such as a complex issues as the relationship between ASUU and economic value chain of businesses domiciled in the university system.

In empirical study, an investigator relies on numerical data. He uses post-positivist claims for developing knowledge, such as cause and effect thinking. Alternatively, qualitative research is an inquiry process of understanding where the researcher develops a complex, holistic picture, analyses words and reports detailed views of informants. However, this study lays emphasis on the quantitative approach given the objective of the study.

#### *3.2 Variables in the Quantitative Analysis*

The research questions is the first, quantitative phase 'What factors (internal and external) predict the relationship between ASUU and the economic value chain in the North-East Nigerian Universities' predetermines a set of variables for this study?

#### *3.3 Target Population and Sample*

The target population for this research were the individual food vendors, taxi drivers who ply campuses, landlords who house students, banks sited on campuses, Okada (Achaba), Keke-NAPEP, Kiosks owners on campuses and/or around the campuses, owners of stationaries and photocopying machines, photographers, neighborhood-shops within and around campuses, and other small businesses on the campuses, etc.). Also part of the target population will be casual workers who only work when ASUU

are not on strike, students and staff who also buy and sell items, because they are involved in the economic loss.

Recruitment of participants occurred through the database of the available target population in all the public universities involved in the strike actions representing the North-East Nigerian University system, geo-political zones of Nigeria. The North-Eastern Nigeria geo-political zone comprises of 6 states (Adamawa, Bauchi, Bornu, Gombe and Taraba). A total target of 600 participants were given structured questionnaires to respond to.

For the empirical phase of the study, a simple random sampling was used to select from all the target population. The qualitative phase of the study used purposeful sample, which implies intentionally selecting individuals to learn to understand the central phenomenon.

### *3.4 Phase I Quantitative/Empirical Method*

#### *3.4.1 Data Collection*

The first, quantitative phase of the research of the study focused on identifying internal and external factors contributing to and/or impeding ASUU and economic value chain domiciled in the University system relationship. The cause and effect of ASUU strikes on economic value chain of businesses domiciled in the university system were determined. The primary technique for gathering the quantitative data was a self-developed questionnaire.

#### *3.4.2 Data Analysis*

Statistical analysis of the quantitative survey results was conducted. Data screening was also carried out to determine potential multicollinearity and outliers in the data.

### *3.5 Phase II Qualitative Method*

For the qualitative phase of the study, the main idea was to purposefully select informants, who will best answer the research questions. Eleven participants representing a typical response from the target population were selected for case study analysis. In the survey informed consent form, the participants were well informed of follow ups and other developments.

#### *3.5.1 Data Collection*

The primary technique was conducted in-depth using structured questionnaires and semi-structured interviews with participants.

#### *3.5.2 Data Analysis*

In the qualitative method, data gathering and analysis proceeded simultaneously. The text and image data obtained through the interviews, documents were coded and analyzed for themes with the help of the Qualitative Software packages. The qualitative findings were not reported because of the volume of the pages, because I hope to develop it into a book.

### *3.6 Limitations of the Sequential Explanatory Mixed Methods Design*

The following are some of the limitations:

- ❖ As any mixed methods design, it requires lengthy time to complete
- ❖ Feasibility of resources to collect and analyze both types of data were very important.



### 3.7 Research Permission and Ethical Considerations

Ethical issues were addressed at each phase in the study. In compliance with the regulations of the Ethics Institutional Review Committee of the TETFUND and Nigeria.

### 3.8 The Connections between ASUU Strike, Factors causing ASUU Strike and Different Aspects of the Effects of ASUU Strike on the Economic Value Chains of Businesses Domicile in the North–East, Nigerian Universities

This research has adopted the longitudinal method or panel data analysis technique to test the significance of the linkages between predictor variables (independent variables) and dependent variable. This regression technique has been applied in this section by keeping in view the fact that this is a well-accepted method and has commonly been used in certain pertinent studies (see Shah & Khan, 2007; Van der Wijst & Thurik, 1993; Agrawal, 2015; Zeitun, 2012; Daniele & Marani, 2011; Akinlo & Apanisile, 2014).

In this study, the decision about the acceptance or rejection of the study hypotheses has been made primarily based on the panel data regression analysis of the publicly own Universities by the government (both Federal and State Governments) of Adamawa, Bauchi, Bornu, Gombe, Taraba and Yobe states. The following longitudinal regression model has been applied in order to evaluate the connection between the predictor variables and the outcome variable (dependent variable) of this study.

This study constructs three models to achieve the objectives of the research work and answer the research questions adequately: First, we developed a model that captured the factors motivating ASUU to always go on strike. Second, the model determines the direct impacts of ASUU strikes on multiplier effects of the variables that impacts the economic value chains of businesses domiciled in the North-east Universities of Nigeria, being the target population. The third model explicitly detailed how ASUU strikes affect the key different economic value chains domiciled in the universities campuses.

The following factors are considered as the variables that influence strikes by ASUU:

Poor Development of the Educational Sector (PDOES)

Poor Condition of Services (PCS)

Increased Environmental Stress (IES)

Agitation for Civil Servants Welfare (AfCSW)

Poor Salary Platform (PSP)

Thus, the first model becomes:

$$ASUU\ Strike = f(PDOES, PCS, IES, AfCSW, PSP)$$

$$ASUU\ Strike = \alpha + \beta PDOES + \theta PCS + \delta IES + \lambda AfCSW + \mu PSP + \varepsilon \dots \quad (3.1)$$

Where:

PDOES is the poor development of the educational sector, PCS is the poor condition of services, IES is the increased environmental stress, AfCSW is the agitation for civil servants welfare and PSP is the poor salary platform.  $\alpha$  is the intercept;  $\beta$ ,  $\theta$ ,  $\delta$ ,  $\lambda$  and  $\mu$  are parameters, and  $\varepsilon$  is the error term.

The Second model address the direct impacts of ASUU strikes on the following variables:

$$ASUU\ Strike = f(EVCBDU, DAC, AAPP, EF)$$

$$ASUU\ Strike = \alpha + \theta EVCBDU + \tau DAC + \psi AAPP + \chi EF + \xi \dots (3.2)$$

Where:

DAC is the disruption of academic calendar, AAPP is the Students' Academic Pursuit and Performance and EVCBDU is defined as the Economic Value Chains of businesses domiciled in the universities.  $\alpha$  is the intercept, and  $\theta$ ,  $\tau$ ,  $\psi$ ,  $\chi$ , are parameters of the influencing variables of ASUU Strike, and  $\xi$  is the error term.

When businesses and other activities domiciled in the universities are shut down, the implications is that it directly affect the economic value chains. Thus, there is a direct relationship between ASUU strike and economic value chains domiciled in the universities. This reinforces educational importance in a country. Furthermore, the multiplier effects of shutting down business- generating sub-sector like universities have its toes on the economic development of the university systems and the neighborhoods business chains. In this sense, universities can be captured to be among business hubs for employment generation, distribution of income and live-testing of the efficacy of economic policies made by decision makers, thereby influencing certain key macroeconomic variables and policies of the country. This analysis now captured our third model:

*ASUU Strike*

= *f (Food vendors, taxi drivers & Okada riders, landlords, banks domiciled on campuses and stationary sellers)*

$$ASUU\ Strike = f(FV, TD\&OR, LAD, BDOC, and STS)$$

$$ASUU\ Strike = \alpha + \rho FV + \gamma TD\&OR + \varphi LAD + \delta BDOC + \rho STS + \varepsilon \dots (3.3a)$$

Were:

*FV* is the Food vendors, *TD&OR* is the taxi drivers & Okada riders, *LAD* is the landlord, *BDOC* is the banks domiciled on campuses and stationary sellers. In addition,  $\alpha$  is the intercept,  $\rho$ ,  $\gamma$ ,  $\varphi$ ,  $\delta$  and  $\rho$  are the coefficients (parameters of the variables), and  $\varepsilon$  is the error term.

The above function permits *GMM estimation* of dynamic models. In addition, it also allows the use of *fixed effects or random effects, generalized least square/feasible generalized least square (GLS/FGLS), panel corrected standard error (PCSE) estimation* techniques, thereby paving way for the analysis of the impact on growth of the driving forces that change over time, as well as exacerbating measurement error (Sianesi & Reenen, 2002; Temple, 1999). Wooldridge (2010); Baltagi (2008); Hsiao (2003) states that in a general panel data analysis, we have:

$$y_{it} = \alpha_i^* + \beta_i x_{it} + e_{it} \quad i = 1, \dots, N, \\ t = 1, \dots, T, \quad (3.3b)$$

where  $x$  is a scalar exogenous variable ( $k=1$ ) and  $e_{it}$  is the error term with mean zero and constant variance  $\sigma_u^2$ . The parameters  $\alpha_i^*$  and  $\beta_i$  may be different for different cross-sectional units, although they stay constant over time. Following this assumption, a variety of sampling distribution may occur. According to Hsiao (2003); Baltagi (2008) such sampling distributions can seriously mislead the least-squares regression of  $y_{it}$  on  $x_{it}$  when all NT are used to estimate the model:

$$y_{it} = \alpha_i^* + \beta x_{it} + e_{it} \quad i = 1, \dots, N,$$

$$t = 1, \dots, T, \quad (3.3c)$$

With respect to equations (3.1.12) and (3.1.13), Hsiao (2003, p. 9) considers the situation that the data are generated as either in the two cases below:

Case 1: Heterogeneous intercept ( $\alpha_i^* \neq \alpha_j^*$ ), homogeneous slope ( $\beta_i = \beta_j$ ). The study maintains that in these cases, pooled regression ignoring heterogeneous intercepts should not be used, since the direction of the bias of the pooled slope estimates is different to identified a priori; ‘it can go either way’.

Case 2: Heterogeneous intercepts and slopes ( $\alpha_i^* \neq \alpha_j^*, \beta_i \neq \beta_j$ ). Hsiao (2003) and Wooldridge (2010) state that a straightforward pooling of all NT observations, assuming identical parameters for all cross-sectional units, would lead to nonsensical results because it would represent an average of coefficients that differ greatly across individuals.

Wooldridge (2010); Baltagi (2008); Hsiao (2003) also consider the classic analysis of covariance procedures. In this case, the studies took into account the assumption that the parameters that characterize all temporal cross-sectional sample observations are identical and examine a number of specifications that permits for differences in behaviour across individuals as well as over time. For example, ‘a single-equation model with observations of  $y$  depending on a vector of characteristic  $X$ ’ can be stated as follows:

- a. When slope coefficients are constant, and the intercept varies over individuals, we have

$$y_{it} = \alpha_i^* + \sum_{k=1}^K \beta_k x_{kit} + e_{it}, \quad i = 1, \dots, N,$$

$$t = 1, \dots, T, \quad (3.3d)$$

- b. When slope coefficients are constant, and the intercept varies over individuals and time, we have

$$y_{it} = \alpha_{it}^* + \sum_{k=1}^K \beta_k x_{kit} + e_{it}, \quad i = 1, \dots, N,$$

$$t = 1, \dots, T, \quad (3.3e)$$

- c. When all coefficients vary over individuals, we have

$$y_{it} = \alpha_i^* + \sum_{k=1}^K \beta_{ki} x_{kit} + e_{it}, \quad i = 1, \dots, N, \\ t = 1, \dots, T, \quad (3.3f)$$

d. When all coefficients vary over time and individuals, we have

$$y_{it} = \alpha_{it}^* + \sum_k \beta_{kit} x_{kit} + e_{it}, \quad i = 1, \dots, N, \\ t = 1, \dots, T, \quad (3.3g)$$

In each of the above cases, the model is classified further based on whether the coefficients are assumed to be random or fixed as in Hsiao (2003); Baltagi (2008). Hsiao (2003, p. 14) points out that models with constant slopes and variable intercepts such as (3.3f) and (3.3g) are ‘most widely used when analyzing panel data because they provide simple yet reasonably general alternatives to the assumption that the parameters take values common to all agents at all times’. In addition, the challenge of panel data analysis ‘has been and will continue to be, the best way to formulate statistical models for inference motivated and shaped by substantive problems compatible with our understanding of the processes generating the data’.

Furthermore, the analysis of covariance basically tests two aspects of the estimated regression coefficients: the homogeneity of regression slope coefficients and the homogeneity of regression intercept coefficients. The procedures for testing these two cases are as follows:

- Test whether or not slopes and intercepts simultaneously are homogeneous among different individuals at different times.
- Test whether or not the regression slopes collectively are the same.
- Test whether or not the regression intercept are the same.

That is, we employed random effect as the most effective of the panel data analysis to estimates equation (3.3) below.

$$\ln ASUU Strike_{it} = \check{\alpha}_{it} + \omega \ln FV_{it} + \gamma \ln TD\&OR_{it} + \forall \ln LAD_{it} + \delta \ln BDOC_{it} + \rho \ln STS_{it} + \varepsilon + e_{it} \dots \quad (3.3h)$$

$$\text{Where,} \quad \begin{matrix} i = 1, \dots, N \\ t = 1, \dots, T \end{matrix}$$

$\ln$  is the natural logarithms.  $i$  is each of the government own universities in each of the six states of the North-East geo-political zone of Nigeria.  $t$  is the time period the data was collected.

We therefore, *estimate equation* (3.3i) to answer our research questions and achieve our objectives.

For random effect, the change of the intercept for each group comes from

$\check{\alpha}_{it} = \check{\alpha} + \varepsilon_i$ . Where  $\varepsilon_i$  is a zero mean standard random variable. Therefore, our random effects model becomes equation (3.3h) above.  $\varepsilon_i$  is unobserved, it is absorbed into the error term, so we now write our model as:

$$\ln ASUU Strike_{it}$$

$$= \alpha_{it} + \alpha \ln FV_{it} + \gamma \ln TD\&OR_{it} + \beta \ln LAD_{it} + \delta \ln BDOC_{it} + \rho \ln STS_{it} \\ + \varepsilon_i + e_{it} \dots (3.3i)$$

#### 4. Result

**Table 1. Results of Panel Data Regression Analysis**

**Dependent Variable:**  $\ln ASUU Strike_{it}$

Independent Variables	Coefficient	t	Significance (p)
$\ln FV_{it}$	-0.020 (0.006)	2.96	0.001
$\ln TD\&OR_{it}$	-0.039 (0.020)	1.92	0.056
$\ln LAD_{it}$	-0.093 (0.018)	5.13	0.000
$\ln BDOC_{it}$	-0.147 (0.050)	2.89	0.004
$\ln STS_{it}$	-0.090 (0.036)	2.48	0.002
<b>Intercept</b>	<b>0.110</b> (0.048)	2.30	0.022

*Number of observations* 526  
*Prob. > F* = 0.0000

*Level of acceptance: \*\*\*Significant at  $p \leq 0.001$ , \*\*Significant at  $p \leq 0.01$ , \*Significant at  $p \leq 0.05$ .*

*The values in parentheses are error terms.*

Table 1 above reports the results of the Panel Data regression analysis. The findings indicate that all the predictor variables are significantly related to ASUU Strike ( $\ln ASUU Strike$ ), and the individual relationship of each of the predictor is described onwards.

In addition, Table 1 also shows that the overall model is significant at  $Prob. > F = 0.0000$ . The value of  $R^2$  indicates that all the independent variables explain 16 percent of the variation in the dependent variable.  $R^2$  shows a relative measure of fit, whereas Root MSE (RMSE) indicates an absolute measure of fit (0.245) which bigger than  $R^2$ .

#### 4.1 Discussion

The aim of this section is to provide a detailed discussion of all the quantitative results reported in Section 4 above.

4.1.1 Relationship between  $\ln ASUU\ Strike_{it}$  and  $\ln FV_{it}$ ,  $\ln TD\&OR_{it}$ ,  $\ln LAD_{it}$ ,  $\ln BDOC_{it}$ ,  $\ln STS_{it}$ .

These findings are in line with the findings of certain pertinent works in the local context (Tide, 2022; Waziri, 2022) and in the international context (Pason, 2008; John, 2015). These findings endorse the assertions of ASUU Strikes and impacts of easy to use theory of economic value chains domiciled in the university campuses (Waziri, 2022; John, 2015) that posits the view that ASUU Strike makes the economic value chains to be at a standstill.

It is important to mention here that proper understanding of the causes to decrease in economic value chains of business activities ( $\ln FV_{it}$ ,  $\ln TD\&OR_{it}$ ,  $\ln LAD_{it}$ ,  $\ln BDOC_{it}$ ,  $\ln STS_{it}$ ) domiciled in the university campuses and ASUU Strikes by households and all stakeholders regarding incessant strikes by the union manager officials of the university system points to economic value loss in all the variables, particularly banks domiciled in the university campuses. The findings further shows that *FV* (Food vendors), *TD&OR* (taxi drivers & Okada riders), *LAD* (landlord), *BDOC* (banks domiciled on campuses) and *STS* (stationary sellers) and ASUU Strikes are closely connected.

For ASUU Strikes (the regression results are shown in (Table 1), the impact of *FV* (Food vendors), *TD&OR* (taxi drivers & Okada riders), *LAD* (landlord), *BDOC* (banks domiciled on campuses) and *STS* (stationary sellers) are statistically significant and negative for all the ASUU Strikes action, on the average when all other variables are controlled. In this case, the findings suggest that the average effect of food vendors, taxi drivers & Okada riders, landlord, banks domiciled on campuses and stationary sellers over ASUU Strikes when all these independent variables changes across time and between universities increases by 1%, ASUU Strikes decreases the incomes of *food vendors, taxi drivers & Okada riders, landlord, banks domiciled on campuses and stationary sellers* by about 2%, 3.9%, 9.3%, 14.7% and 9% respectively, holding all other predictors constant.

#### 5. Conclusions

A steady but significant decrease can be seen in the percentage of all the incomes of Food vendors, taxi drivers & Okada riders, landlord, banks domiciled on campuses and stationary sellers during the ASUU Strikes. Just about fifteen percent (14.7%) of banks' income domiciled on the campuses whereas landlords and stationary sellers about 9% decreased.

An analysis of the data by level of banking services indicates that falling levels of income correspond to ASUU Strikes in the period strike took place. During the same period this primary data was gathered, only 9.3% of income were lost by landlords. There were also considerable loss of approximately 9 percentage income by the stationary sellers. However, food vendors and taxi drivers and Okada riders

proved to have the lowest level of income loss in these data analyzed, at 2 percentage and 3.9 percentage respectively.

The last decade has seen a substantial growth in ASUU Strike in general, which provoked our investigation into the effects of ASUU Strikes on the economic value chains businesses activities domiciled on campuses.

In conclusion, this study believe there is some validity to the notion that ASUU Strike does not only affect students. It is apparent that trip students make to the campus by public transport or commercial transport and students photocopying, inject lots of money into the economy of university system. The food vendors, landlords, banks and business centers also generate income to the owners which influence the level of economic activities of the university system, and indeed the nation's economy. Looking beyond this research, however, it is apparent that ASUU still preserved an old-fashion conscience approach of strike to achieve their welfare and other demands, given the poor quality of governance.

## **6. Recommendations and Policy Advice**

The study, therefore, makes the following recommendations:

- i. Suggest new ways to support national commitment to eradicate incessant strikes in the university system which posed increasing threats to educational quality. Thus, affecting the foundations of economic well-beings of the host communities and the nation's economy at large.
- ii. The salary of teachers' and other welfare packages should always be weighed with other teachers across the various institutions in the continent in other to boost their morale and minimize role the impacts of ASUU strikes pose to the quality of education, economic value chains of all businesses domiciled in the university environment.
- iii. The decision makers should always maximize the use of collective bargaining to tame ASUU immediately before it embarks on strike may be a new paradigm.
- iv. ASUU strikes and FGN crises are real-world phenomena that occur outside the laboratory, there are innumerable variables to consider. At stake is the well-being of students, teachers, economic value chains of businesses domiciled in the university system, staff, the institution and the economy at large.
- v. We suggest new ways of funding the University system aside FGN funding. This way, synchronization of ASUU and FGN objectives with national policies on education and economy may be achieved.
- vi. Decision makers should not play politics with educational system. Thus, the need to always review the salary and welfare packages of staff in line with what obtains in other clines is pressing and urgent. In order to achieve sound and good quality training of the citizenry for national and global development.

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### References

- Abiodun-Oyebanji, J. O. (n.d.). *Lecturer's perception of academic staff strike actions in Nigerian Universities*.
- Agrawal, G. (2015). Foreign direct investment and economic growth in BRICS economies: A panel data analysis. *Journal of economics, business and management*, 3(4), 421-424. <https://doi.org/10.7763/JOEBM.2015.V3.221>
- Aina, S. A., Awolusi O. D., & Dele, S. A. (2015). Dynamics of conflict in Nigerian educational system: Evidence from Nigerian universities. *International journal of energy policy and management*, 1(2), 33-42.
- Ajayi, O. J. (2014). ASUU strikes and academic performance of students in Ekiti State University, Ado-Ekiti. *International journal of management business resources*, 4(1), 19-34.
- Ajewole, I. P. (2014). Managing labour unrest in Nigerian Universities. *Journal of education and policy review*, 6(2), 75-90.
- Akinlo, T., & Apanisile, O. T. (2014). Relationship between insurance and economic growth in sub-Saharan African: A panel data analysis. *Modern economy*, 2014. <https://doi.org/10.4236/me.2014.52014>
- Albar, A. A., & Onye, U. U. (2016). The influence of university strikes on education systems: An exploratory pilot study on Nigerian students. *International Journal of Business, Humanities and Technology*, 6(3), 45-51.
- Albert, I. O. (2014). Beyond moral panic: Negotiation theory and the university strikes in Nigeria. *Journal of global initiatives*, 9(2), 81-98.
- Anonaba, P. C. G. (2015). *Strikes in Nigeria higher education: An appraisal. Paper presented at the 3<sup>rd</sup> school of education and humanities international conference on the future of higher education in Africa*, held at Babcock University, August 24-26.
- Anugwom, E. (2014). Cogs in the wheel: Academic trade unionism, government, and the crisis in tertiary education in Nigeria. *African studies review*, 45(2), 141-155. <https://doi.org/10.1017/S0002020600031462>
- Aremu, Y. S., Salako, M. A., Lawrence, A., & Ayelotan, O. I. (2015). Implications of academic staff union strike action on students' academic performance: Ex-post-factor evidence from University of Lagos, Akoka, Nigeria. *Global Journal of Arts, Humanities and Social Sciences*, 3(8), 12-24.
- Becard, Y., & Gauthier, D. (2022). Collateral Shocks. *American Economic Journal: Macroeconomics*, 14(1), 83-103. <https://doi.org/10.1257/mac.20190306>



- Chigoze, U. B. (2020). Academic Staff Union of Universities (ASUU) and the politics of integrated payroll and personnel information system (IPPIS) in Nigerian federal universities. *Economics and social Sciences Academic Journal*, 12(8), 8-20.
- Collins, D. (2003). The University of Bridgeport faculty strikes: Introduction to the special issue. *Journal of Academic Ethics*, 1, 233-237. <https://doi.org/10.1023/B:JAET.0000014628.06898.a8>
- Dabscheck, B. (1983). Of mountains and routes over them: The survey of theories of industrial relations. *Journal of industrial relations*. <https://doi.org/10.1177/002218568302500406>
- Daniele, V., & Marani, U. (2011). Organized crime, the quality of local institutions and FDI in Italy: A panel data analysis. *European journal of political economy*, 27(1), 132-142. <https://doi.org/10.1016/j.ejpoleco.2010.04.003>
- Famurewa, I. O. (2014). Inadequate funding as the bane of tertiary education in Nigeria. *Greener Journal of Economics and Accountancy*, 3(2), 020-025. <https://doi.org/10.15580/GJEA.2014.2.0515014237>
- Ige, T. (2013). *Effects of labour strikes on the quality of university education in Nigeria. Assess online from Walden University, on October 2013*. Being a dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy, October 2013.
- Ivankova, N. V., Creswell, J. W., & Stick, S. (2006, February). Using mixed methods sequential explanatory design: From theory to practice. *Field Methods*, 18(1), 3-20. <https://doi.org/10.15580/GJEA.2014.2.0515014237>
- John, A. O. (2015). Labour unions and conflict management in Nigeria: A case study of academic staff union of Nigeria Universities (ASUU). *World Journal of Management and Behavioural Studies*, 3(1), 29-35.
- Jungherr, J., & Schott, I. (2022). Slow debt, deep recessions. *American Economic Journal: Macroeconomics*, 14(1), 224-259. <https://doi.org/10.1257/mac.20190306>
- Herskovits, M. J. (1930). The Negro in the New World: The statement of a problem. *American anthropologist new series*, 32(1), 145-155. <https://doi.org/10.1525/aa.1930.32.1.02a00070>
- Kotze, T. (n.d.). *Guidelines on writing a first quantitative academic article*. Department of marketing & communication management, University of Pretoria, South Africa.
- Paschal, I. I., & Lawrence, E. C. (2022). Crises management, strike actions and government-ASUU negotiations: Focus on the perceptions of ASUU members in Anambra State, Nigeria. *Journal of Research in Humanities and Social Sciences*, 10(3), 4-9.
- Pason, A. (2008). We are all workers: A class analysis of university labor strikes. *Ephemera*, 8(3), 322-330.
- Poole, M. (2021). Theories of trade unionism. *A sociology of industrial relations* (1st ed.) Routledge. London. <https://doi.org/10.4324/9781003133360>
- Shah, A., & Khan, S. (2007). Determinants of capital structure: Evidence from Pakistani panel data. *International Review of Business Research Papers*, 3(4), 265-282.

- Sianesi, B., & Reenen, J. V. (2002). The returns to education: A review of the empirical macro-economic literature. *Forthcoming in the journal of economic surveys*. The Institute for Fiscal Studies. WPO2/05. <https://doi.org/10.1920/wp.ifs.2002.0205>
- Temple, J. (1999). The new growth evidence. *Journal of economic literature*, 37, 112-156. <https://doi.org/10.1257/jel.37.1.112>
- Tide, A. (2022). *The Economics of ASUU strike*. Retrieved May 22, 2022, from <https://mail.google.com/mail/u/0/#search/ASUU/FMfcgzGpFzzdLXKKTWWPQSSWplRmphpk>.
- Van der Wijst, N., & Thurik, R. (1993). Determinants of small firm debt ratios: An analysis of retail panel data. *Small Business Economics*, 5(1), 55-65. <https://doi.org/10.1007/BF01539318>
- Waziri, M. (2022). *Does ASUU strike affect only students?* Retrieved May 22, 2022, from <https://www.nairaland.com/7122382/does-asuu-strike-affect-only>.
- Weedmark, D. (2019, September, 20). *What are the different theories of industrial relations?* Updated September, 20. theclassroom.com. Retrieved from <https://www.theclssroom.com/what-are-the-different-theories-of-industrial-relations-13638534.html>
- Wickens, C. M. (2011). The academic and psychological impact of labor unions and strikes on university campuses. In M. E. Poulsen (Ed.), *Higher Education: Teaching, internationalization and students issues* (pp. 107-133). Hauppauge, NY: Nova Science Publishers.
- Zeitun, R. (2012). Determinants of Islamic and conventional banks performance in GCC countries using panel data analysis. *Global Economy and Finance Journal*, 5(1), 53-72.