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## Financial Integration, Employment and Wages Nexus: Evidence from Nigeria

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### ARTICLE INFO

Received October 23, 2018  
Revised from November 25, 2018  
Accepted December 28, 2018  
Available online March 15, 2019

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**JEL classification:**

F35; J6; J01; D69.

**DOI:** 10.14254/1800-5845/2019.15-1.11

**Keywords:**

Financial Integration,  
employment,  
wages,  
Nigeria

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### ABSTRACT

This study investigates the impact of financial integration on wages and employment in Nigeria through the channels documented in the literature. The Autoregressive Distributed Lags is used to examine the long-run relationship. The Structural Vector Autoregressive is used to estimate the shock impact, while the Granger Non-causality was used to investigate the causal effects. The findings reveal the existence of long-run relationship when employment is used as a dependent variable and no long-run relationship when wage is used. In the long-run, employment is negatively statistically significant with financial integration, conforming to the proposition of Lucas Paradox. Evidence from the forecast error shock shows that financial integration shock shows more variations in employment more than the wage. The causality test results revealed no causal relationship between financial integration and wage, but unidirectional relationship from financial integration to employment; this follows the supply-leading view. The implication of the findings is that financial integration leads to weaken competitiveness of Nigeria economy and causes it to be more vulnerable to capital reversal, which may endanger employment in the long-run. The study suggested the development of domestic policies measures such as capital controls to be designed to shape the composition of inflows, among others to improve the situation.

## INTRODUCTION

High unemployment rate and low income are some of the most critical problems faced by most developing countries. They have hindered economic development, despite the endowment of resources in those economies. In Nigeria, the unemployment rate has been on the increasing trend despite the economic growth witnessed by the country before the recession in the second quarter of 2016. In 2014, there was a sharp drop in the unemployment rate from 23.90 per cent in 2011 to 6.4 per cent in 2014. The substantial fall in the rate of the employment rate was attributed to the redefinition of the unemployment rate by the Nigerian government NBS (2017). In spite of the low unemployment rate in the years 2014 and 2015, the rate of underemployment was 17.9 and 19.7 per cent in 2014 and 2015 respectively (NBS, 2017). Likewise, scholars have stressed that the wage structure in Nigeria needs to be improved in order to increase welfare and help to address the basic needs of the workers (Asaleye, Olurinola, Oloni and Ogunjobi, 2017; Oloni, Asaleye, Abiodun and Adeyemi, 2017).

In order to maximise benefit through financial sector on employment, income generation and overall development in the economy, most developing economies during the period of the 1980s and 1990s liberalised financial sector. This programme on financial liberalisation was supported by the International Monetary Fund (IMF) and the World Bank. Scholars have argued that the liberalisation to some certain level improved the economic performance, most especially in Africa (Allen et al, 2016). Regardless of the improvement of the financial sector on macroeconomic performance, questions have been raised on its implications for wages and employment in developing economies most especially Nigeria. R. Hoveen and M. Lubker (2006) stressed the direct and indirect effects of financial integration on the economy. The direct effects arise as a result of capital flow, which is seen as additional capital to be invested while the indirect effects are due to the larger amount of foreign reserve required to hold, which in returns will reduce the income and potential growth. Similarly, M. Larrain (2012) reported that financial integration has negative implications for skilled factors in developing economies due to capital-skill complementarity.

Consequently, given the rate of capital inflows in developing countries and its presumption to promote economic development, there is still no consensus among scholars on the implications of financial integration on economic performance. Some authors believed that financial integration promotes macroeconomic performance (Mendoza, Quadri and Riou-Rill, 2007; Levine, 2002), while others are of the opinion that has adverse effects on the economy (Fashina, Asaleye, Ogunjobi and Lawal, 2018; Boyd & Smith, 1990; Krugman, 1993; Stiglitz, 2000). Theoretically, financial liberalisation is seen as an efficient means in the presence of no restrictions on trade and deregulation of industry. In the competitive market, it is assumed that income will flow from developed economies to developing economies due to high capital to labour ratio, which other hands will promote employment and wages in the developing economies. In a contrary view, Lucas Paradox opined that as a result of liberalisation, capital flow from developing economies to developed economies, which on the long-run will have adverse effects on employment and wages (Lucas, 1988). A. Ocampo et al. (2008) also documented that high capital mobility may cause a capital reversal.

Different channels have been identified in the literature in which financial integration affects the economy. Some scholars' hypothetical the relationship through the long-run impact (Asaleye, Adama & Ogunjobi, 2018; Shaikh, Glavee-Geo & Karjaluo, 2017). Also, developing economies are subjected to demand shock as a result of liberalisation which alters relative good prices and causes resources to move from one activity to another. This evidence was also documented in the studies of Brambilla and Porto (2012) and H. Nazier (2012). Finally according to the finance-growth nexus, four main channels are identified, namely; the supply-leading view, demand-following view, mutual impact view and the independent view. The supply-leading proposes that financial indicator causes macroeconomic performance; the demand-following view stressed that financial growth follows development in the economy, the mutual impact view and independent view emphasised on a bidirectional relationship and no relationship respectively. Studies in rela-

tion to financial integration, wages and employment are not widely established in developing economies, most especially Nigeria. A strand of literature on the subject focused on trade openness, growth and macroeconomic performance. In order to maximise the benefit from financial integration on wages and employment, this study investigates the impact of financial integration on wages and employment in Nigeria through the channel identified in the literature in which finance affects the macroeconomic performance.

This paper is streamlined as follows: after the Introductory Section, follows by the Review of literature in Section 2. Section 3 presents the Methodology of the study while Section 4 is the Results and Discussion. Section 5 concludes with Policy recommendation and conclusion.

## 1. LITERATURE REVIEW

Theoretically, R. McKinnon (1973) and E. Shaw (1973) shared the view of the neoclassical perspective on the efficiency of the market in the optimal allocation of scarce resources. The belief on this perspective presumed that gains from financial integration are through the competitive market. For developing economies, it was assumed that they will receive capital from developed economies due to high capital to labour ratio. Likewise, E. Mendoza, V. Quadrini and J. Riou-Rill (2007) and R. Levine (2005) documented that a positive relationship exists between financial integration and economic development. M. Miller (1988) also shows how financial integration can promote development. M. Obstfeld (2009), D. Acemoglu and F. Zilibotti (1997) shared a similar view that financial integration encourages specialisation which in the long-run will spur production through the efficient allocation of resources and risk sharing. On contrary to these views, J. Stiglitz (2000) stressed that inefficiency arises in the process of encouraging financial integration to promote development due to asymmetric information. According to him, this might cause financial constraint and have an adverse effect on wages and employment. This view was also supported by the study carried out by T. Hellmann, K. Murdock and J. Stiglitz (2000). More so, R. Lucas (1988) pointed out that the capital assumed is inadequate to promote development as envisaged by the standard theory. It was argued further by R Lucas (1988) that through financial integration the developed economies benefited to the detriment of developing economies. He emphasised that resources move from poorer countries to rich countries when financial liberalisation is encouraged generally referred to as Lucas Paradox. Also, P. Krugman (1993) stressed that the analysis of growth put relatively little weight on capital in general; according to the scholar, this offers little reason to support the argument that financial integration will do much to promote development in the developing countries.

From the theoretical perspective, the implications of financial integration on the economy are ambiguous most especially for developing economies. Similarly, from the empirical point of view, the general picture that emerges is that implications of financial integration on developing economies remain inconclusive (Eichengreen, 2001; Edison et al, 2004; Prasad et al, 2003). However, most of the recent empirical studies focused on the impact of financial integration on remittance, non-tradable inflation, private credit, financial development, factor productivity, sectoral effects, income and equality, among others (Bremus and Buch, 2017; Rodriguez, 2017; Andreasen and Valenzuela, 2016; Luoa, Tannab and Vita, 2016; Hur and Lartey, 2016; Zhang, Zhu and Lu, 2015; Zhang, Zhu and Lu, 2015; Fischer and Valenzuela, 2013; Beine, Lodigiani and Vermeulen, 2012; Lartey, 2012), with not established studies on financial integration implications on wages and employment. Nevertheless, the study by G. Lim and P. McNelis (2016) examined the nexus between income growth, financial openness and inequality. It was documented by the authors that both trade and financial openness can lead to improvements in both income growth and equality once an economy crosses a critical threshold in capital intensity and in the use of imported intermediate goods in the production process. More so, A. Fernandes and P. Ferreira (2017) investigated the relationship between financing constraints and fixed-term employment. It was concluded by the scholars that that firms in more financially constrained industries will hire a larger proportion of

fixed-term workers with respect to permanent workers after the 2008-9 crisis, relative to less financially vulnerable firms. M. Larrain (2012) documented that financial integration affects wages inequality disproportionately; industries with rigid labour have the higher differential effect on wages relative to the flexible labour market.

Different channels have been identified in the literature in which finance affects the economy. A. Asaleye, J. Adama and J. Ogunjobi (2018), A. Shaikh, R. Glavee-Geo and H. Karjaluoto (2017), A. Andreasen and P. Valenzuela (2016) and C. Zhang, Y. Zhu and Z. Lu (2015) showed the impact is transmitted through the long-run relationship. Studies by E. Artue, G. Bet, I. Brambilla and G. Porto (2012), H. Nazier (2012) and R. Carneiro (2011), showed evidence of integration shock affecting the economy in developing economies. Small open economies are subjected to demand shock as a result of liberalisation. The shock will alter relative good prices and cause resources to move from one activity to another. If the shock is on import-competing good (with high demand), this will result to decrease in demand for labour in the market, however, this depends on the structure of the labour market. Similarly, in all economic model of labour market with international trade, there is a common report that various international shocks shift the demand curves for different type of labour in different ways, affecting both wages and employment (Asaleye, Okodua, Oloni and Ogunjobi, 2017; Kerishna, Poole and Mine 2012; Peluffo, 2013; Zadeh, 2013; among others). Finance-growth nexus identified four channels, namely; the first channel known as supply-leading view emphasised the importance of finance to cause improvement in the economy, the second channel referred to as the demand-following view believes finance response to an improvement in the economy (Robinson, 1952). Thirdly, the mutual perspective views that finance and development in the economy cause each other. The study by Y. Luo, S. Tannab and G. Vita supported this argument. Finally, N. Apergis, I. Filippidis and C. Economidou (2007) argue no relationship between finance and growth in the economy.

On the measurement, different approaches were used in the literature such as the banking sector liberalisation, capital account liberalisation and equity market liberalisation to measure financial integration. This study uses the capital account liberalisation with focus on de facto given as actual capital flows and stock of capital. This approach relative to others is less vulnerable to measurement error, the studies by H. Edison et al. (2004) and M. Kose et al. (2006) used this approach of measurement. Also, the general approach of competitive equilibrium of the labour market by A. Revenga (1992) has been used widely to examine the relationship between international trade and labour market performance. The reduced-form from the general approach permits to measure the quantitative effects on labour market indicators in relative to changes in the variables of interest (Asaleye, Okodua, Oloni and Ogunjobi, 2017; Gaston and Trefler, 1997). Simorangkir (2006) uses Structural Vector Autoregression (SVAR) to investigate the impact of trade and financial openness on the Indonesian economy using GDP, employment rate, consumer price index, interest rate and exchange rate. In a similar study by A. Asaleye, H. Okodua, E. Oloni and J. Ogunjobi (2017) in Nigeria, the variables used by the scholars included trade openness (measured by total import and export relative to nominal GDP), consumer price index, interest rate, wages, employment, exchange rate and gross domestic product. From the foregoing, this study used the general approach by A. Revenga (1992) as the theoretical framework and other variables considered are the exchange rate, consumer price index, interest rate and gross domestic product.

From the foregoing, the implications of financial integration on wages and employment remain indecisive. The neoclassical theory emphasized on the efficiency of the market in the optimal allocation of scarce resources, while Lucas Paradox stressed that resources move from poorer countries to rich countries when financial liberalisation is encouraged. Likewise, from the empirical point of view, it emerges that implications of financial integration remain inconclusive. A strand of the literature focused on trade openness, remittance, non-tradable inflation, private credit, financial development, factor productivity, sectoral effects, income and equality.

In the light of the gap identified in the literature, this study examines the nexus between financial integration, wages and employment through the main channels documented in the literature in which finance affects the economy. The Autoregressive Distributed Lags (ARDL) is used to examine the long-run relationship. This approach is preferred since it enables estimation to be valid irrespective of if the series are integrated of order zero or order one. The Structural Vector Autoregressive (SVAR) is used to estimate the shock impact while the Granger Non-causality is used to investigate the causal effects. This study can be distinguished from others by examining the effects of financial integration on wages and employment in Nigeria through the channels identified in the literature, the long-run impact, shock effect and the causal effects.

## 2. METHODOLOGY

### 2.1 Theoretical Framework

This study uses the general equilibrium approach of the competitive labour market as the theoretical framework. The reduced form of the approach is given by Revenga (1992) as:

$$\Delta \ln(EM_{it}) = \partial \Delta Dd_{it} + \alpha_1 \Delta FI_{it} + \alpha_2 \Delta WG_{it} + e_{1it} \quad (2.1)$$

In equation (2.1), the first difference equation is given as:  $\Delta \ln(EM_{it}) = \ln(EM_{it}) - \ln(EM_{it-1})$ .  $Dd_{it}$  represent the vector of demand determinants for a given industry 'i' at the period of time 't'. The variable  $FI_{it}$  is the vector representing the impact of international trade variable on the labour market such as financial integration;  $WG_{it}$  and  $EM_{it}$  represent wages and employment respectively. Revenga (1992) expresses the labour supply equation in the first-difference form as:

$$\Delta \ln(EM_{it}) = \alpha_3 \Delta \ln(WG_{it}) + \alpha_4 \ln \Delta(LS_{it}) + e_{2it} \quad (2.2)$$

In equation (2.2),  $LS_{it}$  represent the vector of labour supply determinants and  $e_{2it}$  is the shock arising from the supply. Using the labour market clearing condition, the equations for wage and employment in the market are expressed as follows:

$$\Delta \ln(EM_{it}) = \beta_{01} + \beta_{11} \Delta EP_{it} + \beta_{12} \Delta DS_{it} + \beta_{13} \Delta FI_{it} + \varepsilon_{it} \quad (2.3)$$

$$\Delta \ln(WG_{it}) = \beta_{02} + \beta_{21} \Delta EP_{it} + \beta_{22} \Delta DS_{it} + \beta_{23} \Delta FI_{it} + \varepsilon_{2it} \quad (2.4)$$

In equations (2.3) and (2.4),  $EP_{it}$  represents other explanatory variables that influence employment and wages in the industries;  $DS_{it}$  represents the demand and supply variables such as equilibrium output. Equation (2.3) is the reduced form for employment equation while equation (2.4) is the reduced form for wage equation. The explanatory variables considered for this study are interest rate, exchange rate and consumer price index.<sup>1</sup> The equilibrium output for demand and supply is proxied by the gross domestic output (GDP). The total labour employed and government expenditure on wages and salaries are used for employment and wages. To achieve the objective of this study, financial integration is used at the international trade variable affecting employment and wage in the labour market model. The error terms are  $\varepsilon_{1t}$  and  $\varepsilon_{2t}$ , assumed to be uncorrelated.

<sup>1</sup> The inclusion of the variables is based on their importance from the empirical review.

In the long-run, a positive relationship between output and wages/employment is expected; this follows from the growth model and efficiency wage theory. A negative relationship between interest and wages/employment is expected (Bahmani-Oskooee and Kandil, 2007). The relationship between exchange rate and employment/wages can either be negative or positive; this follows from the Marshall-Lerner condition. Theory suggests a positive relationship between consumer price index and employment/wages. The Phillips curve explains the trade-off between the unemployment rate and inflation rate. The impact of financial integration on employment and wages can either be positive or negative, the neoclassical perspective on the efficiency of the market in the optimal allocation of scarce resources presumed that gains from financial integration are through the competitive market. For developing economies, it was assumed that they will receive capital from developed economies due to high capital to labour ratio, which in returns will have a positive impact on employment and wages (Mckinnon, 1973; Shaw, 1973). This view was criticised by Lucas Paradox, pointed out that the capital assumed is inadequate to promote development as envisaged by the standard neoclassical theory. More so, resources move from poorer countries to rich countries when financial integration is encouraged resulting in negative implications for wages and employment (Lucas, 1988).

## 2.2 Model Specification and Techniques of Estimations Long-Run Relationship

The Auto Regressive Distributed Lag (ARDL) model was used to test the long-run relationship between financial integration and labour market indicators, wages and employment. This approach was developed by Pesaran and Pesaran (1997). The strengths of the model can be applied irrespective of the variable are integrated of order zero or one. Likewise, it allows the sufficient number of lags to capture the dynamic adjustment in the model. Following the theoretical framework of this study, wages and employment are used as dependent variables referred to as Models 1 and 2 respectively given as:

### Model 1: Using Employment (EM) as Dependent Variable

$$\Delta EM_t = \lambda_0 + \lambda_1 EM_{t-i} + \lambda_2 \Delta FI_{t-i} + \lambda_3 WG_{t-i} + \lambda_4 IT_{t-i} + \lambda_5 EX_{t-i} + \lambda_6 CP_{t-i} + \lambda_7 GD_{t-i} + \sum_{i=0}^n \phi_{1i} \Delta EM_{t-i} + \sum_{i=0}^n \phi_{2i} \Delta FI_{t-i} + \sum_{i=0}^n \phi_{3i} \Delta WG_{t-i} + \sum_{i=0}^n \phi_{4i} \Delta IT_{t-i} + \sum_{i=0}^n \phi_{5i} \Delta EX_{t-i} + \sum_{i=0}^n \phi_{6i} \Delta CP_{t-i} + \sum_{i=0}^n \phi_{7i} \Delta GD_{t-i} + v_{1t} \quad (2.5)$$

### Model 2: Using Wage (WG) as Dependent Variable

$$\Delta WE_t = \gamma_0 + \gamma_1 WE_{t-i} + \gamma_2 \Delta FI_{t-i} + \gamma_3 EM_{t-i} + \gamma_4 IT_{t-i} + \gamma_5 EX_{t-i} + \gamma_6 CP_{t-i} + \gamma_7 GD_{t-i} + \sum_{i=0}^n \phi_{1i} \Delta WE_{t-i} + \sum_{i=0}^n \phi_{2i} \Delta FI_{t-i} + \sum_{i=0}^n \phi_{3i} \Delta EM_{t-i} + \sum_{i=0}^n \phi_{4i} \Delta IT_{t-i} + \sum_{i=0}^n \phi_{5i} \Delta EX_{t-i} + \sum_{i=0}^n \phi_{6i} \Delta CP_{t-i} + \sum_{i=0}^n \phi_{7i} \Delta GD_{t-i} + v_{2t} \quad (2.6)$$

The Error Correction Model (ECM) dynamics in equations (2.5) and (2.6) are represented by the terms on the summation signs. The coefficients  $\lambda_1, \lambda_2, \lambda_3, \dots, \lambda_7$  and  $\gamma_1, \gamma_2, \gamma_3, \dots, \gamma_7$  represent the long-run multipliers while the constant terms are given as  $\lambda_0$  and  $\gamma_0$  for equations (2.5) and (2.6) respectively. The bound test was used to estimate if the variables move together in the long-run while the long-run cointegrating equation was to test the statistical and economic significances of the variables on wages and employment.

## Shock Effects

This study imposed short-run restrictions to identify the contemporaneous relationship between the variables. The traditional VAR system is written without any explicit contemporaneous relationship among the variables.

$$\begin{pmatrix} 1 & 0 & 0 & 0 & 0 & 0 & 0 \\ b_{21} & 1 & 0 & 0 & 0 & 0 & 0 \\ b_{31} & b_{32} & 1 & 0 & 0 & 0 & 0 \\ b_{41} & b_{42} & b_{43} & 1 & 0 & 0 & 0 \\ b_{51} & b_{52} & b_{53} & b_{54} & 1 & 0 & 0 \\ b_{61} & b_{62} & b_{63} & b_{64} & b_{65} & 1 & 0 \\ b_{71} & b_{72} & b_{74} & b_{75} & b_{76} & b_{77} & 1 \end{pmatrix} \begin{pmatrix} GD_t \\ IT_t \\ FI_t \\ EX_t \\ CP_t \\ WG_t \\ EM_t \end{pmatrix} = c_{ij} \begin{pmatrix} GD_t \\ IT_t \\ FI_t \\ EX_t \\ CP_t \\ WG_t \\ EM_t \end{pmatrix} \quad (2.7)$$

Equation 2.7 shows the restrictions in the system, this makes it possible to decompose the covariance matrix in a way that solves for the parameters. By imposing restrictions enables the identification of structural shocks known as contemporaneous restrictions (Amisano & Giannini, 1997). The study imposed just identified restrictions since the forecast error variance decomposition (FEVD) was used to analyse the short-run impact shock of financial integration on wages and employment in Nigeria.

## Causal Effects

The Granger Non-Causality approach by Toda and Yamamoto (1995) was used to investigate the causal behaviour between the financial integration and the labour market indicators, wages and employment. This approach ensures that the asymptotic distribution of the WALD statistics and it is preferred to the normal Granger Causality. The former puts into consideration the order of integration and number of lags included in the model which are ignored in the latter. Assuming that the labour market indicators are given as  $LD_t$  and the financial integration is represented by  $FI_t$ . The equations that show the causal relationship can be written as:

$$LD_t = \alpha_0 + \sum_{i=1}^K \alpha_{1i} LD_{t-i} + \sum_{j=k+1}^{d_{\max}} \alpha_{2j} LD_{t-j} + \sum_{i=1}^k \phi_{1i} FI_{t-i} + \sum_{j=k+1}^{d_{\max}} \phi_{2j} FI_{t-j} + \omega_{1t} \quad (2.8)$$

$$FI_t = \beta_0 + \sum_{i=1}^k \beta_{1i} FI_{t-i} + \sum_{j=k+1}^{d_{\max}} \beta_{2j} FI_{t-j} + \sum_{i=1}^k \partial_{1i} LD_{t-i} + \sum_{j=k+1}^{d_{\max}} \partial_{2j} LD_{t-j} + \omega_{2t} \quad (2.9)$$

In equations (2.8) and (2.9),  $\alpha_0$  and  $\beta_0$  are constant terms for former and latter respectively. Furthermore,  $\alpha_{1i}$ ,  $\alpha_{2j}$ ,  $\phi_{1i}$ ,  $\phi_{2j}$ ,  $\beta_{1i}$ ,  $\beta_{2j}$ ,  $\partial_{1i}$ ,  $\partial_{2j}$  are the coefficients of the lags of variables LD and FI, the error terms  $\omega_{1t}$  and  $\omega_{2t}$  are the assumed to be uncorrelated. The number of lags used choosing the Akaike Information Criterion (AIC). In the equations, K is given as the maximal order of integration and  $d_{MAX}$  is the maximum lag, and then  $(K + d_{MAX})^{th}$  order of VAR was estimated, while in the process of estimation, the coefficient of the last lagged  $(K + d_{MAX})^{th}$  vectors are not considered (Toda and Yamamoto, 1995).

## 2.3 Data Sources and Measurement

This work uses secondary data from the publications of the Central Bank of Nigeria Statistical Bulletin (CBN) and National Bureau of Statistics (NBS). The data include the Gross Domestic Product (GD), interest rate (IT), consumer price index (CP), exchange rate (EX), employment (EM), foreign direct investment, portfolio investment, and wages. Financial integration (FI) is computed from total foreign direct investment and portfolio investment inflow divided by nominal GDP. Government expenditure on wages and salaries is used for wages (WG) computed by recurrent expenditure minus transfers, social and community cost. The data on gross domestic product, interest rate, exchange rate, foreign direct investment, wages and consumer price index were obtained from the CBN Statistical Bulletin while employment was obtained from NBS.

## 3. PRESENTATION OF RESULT

### 3.1 Long-run Results

Evidence from the unit root tests using Augmented Dickey-Fuller and Phillip Perron show that all series are not stationary at level form except the interest rate. Based on the outcome of the tests, the study estimates the long-run relationship using the ARDL Model. The result of the ARDL bound test is presented in table 1.

**Table 1.** Bound Test Result

<i>Using Employment as Dependent Variable: ARDL (1,3,2,3,2,0,1)</i>					
<i>Significance</i>	<i>I0 Bound</i>	<i>I1 Bound</i>	<i>F-statistic</i>	<i>K</i>	<i>Hypothesis</i>
10 per cent	2.12	3.23.	8.486729	6	Rejected
5 per cent	2.45	3.61	8.486729	6	Rejected
2.5 per cent	2.75	3.99	8.486729	6	Rejected
1 per cent	3.15	4.43	8.486729	6	Rejected
<i>Using Wages as Dependent Variable: ARDL (1, 0, 1,3,1,2,0)</i>					
<i>Significance</i>	<i>I0 Bound</i>	<i>I1 Bound</i>	<i>F-statistic</i>	<i>K</i>	<i>Hypothesis</i>
10 per cent	2.12	3.23.	1.132012	6	Accepted
5 per cent	2.45	3.61	1.132012	6	Accepted
2.5 per cent	2.75	3.99	1.132012	6	Accepted
1 per cent	3.15	4.43	1.132012	6	Accepted
Null Hypothesis: No long-run relationship					

Source: Authors' Computation

Using employment as the dependent variable, the appropriate model is ARDL (1, 3, 2, 3, 2, 0, 1). The Hannan Quinn lag criterion was used to select the appropriate lags for the ARDL models. The F-statistic using employment as the dependent variable is 8.486729 which is greater than the lower (I0) and upper (I1) bounds as shown in Table 1. Hence, long-run exists among the variables. Using wages as the dependent variable, the appropriate model is ARDL (1, 0, 1, 3, 1, 2, 0), the F-statistics is 1.132012 which is lower than the lower bound as portrayed in Table 1. Therefore, there is no cointegration among the variables when using wages as the dependent variable. The ARDL long-run form estimation is presented in Table 2.

**Table 2.** Long-run Coefficients

<i>Dependent Variable: Employment: ARDL (1,3,2,3,2,0,1)</i>				
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Prob.</i>
FI	-2.722128***	0.340617	-7.991747	0.0000
WG	8.993726***	2.180856	4.123943	0.0010
IT	-1.130988***	0.195345	-5.789697	0.0000
EX	-0.012494	0.027621	-0.452339	0.6580
CP	1.247751***	0.084507	14.76515	0.0000
GD	-7.488339	5.572218	-1.343871	0.1884
C	-283.610875**	125.410317	-2.261464	0.0402
ECM	-0.896244***	0.176880	-5.066970	0.0002
<b>R-squared:</b> 0.896987		<b>Durbin-Watson:</b> 2.219509		
<b>Adjusted R-squared:</b> 0.893112		<b>F-statistics:</b> 2.219509. Prob. ( <b>F-statistic</b> ): 0.000000		

\*, \*\* and \*\*\* show significance at the levels of 10 per cent, 5 per cent and 1 per cent respectively

Source: Authors' Computation

Table 2 shows the long-run coefficients using employment as the dependent variable. The values of the R-squared and the adjusted R-squared are 0.896987 and 0.893112 respectively; this shows that the model has a good fit. The Durbin Watson value is 2.219509, closer to 2, which falls in the region of no evidence of autocorrelation. The F-statistics is 2.219509 with probability value less than 0.05; this indicates that the independent variables jointly explained the dependent at 5 per cent significance level. The ECM is the error correction term, the negative value of the coefficient and its significance at the level of 5 per cent validates the presence of the long-run relationship among the series. The financial integration (FI), wages (WG), interest rate (IT) and consumer price (CP) are statistically significant while exchange rate (EX) and output (GD) are not statistically significant. FI and IT have a negative relationship with employment (EM). The result contradicts the findings of Quadrini and Riou-Rill (2007), Levine (2005) and, G. Lim and P. McNelis (2006), who stressed that financial integration, will promote economic development and employment generation. However, the finding is in line with the studies of J. Stiglitz (2000) and Krugman (1993). Also, the variables WG and CP have positive relationships with EM.

### 3.2 Shock effects

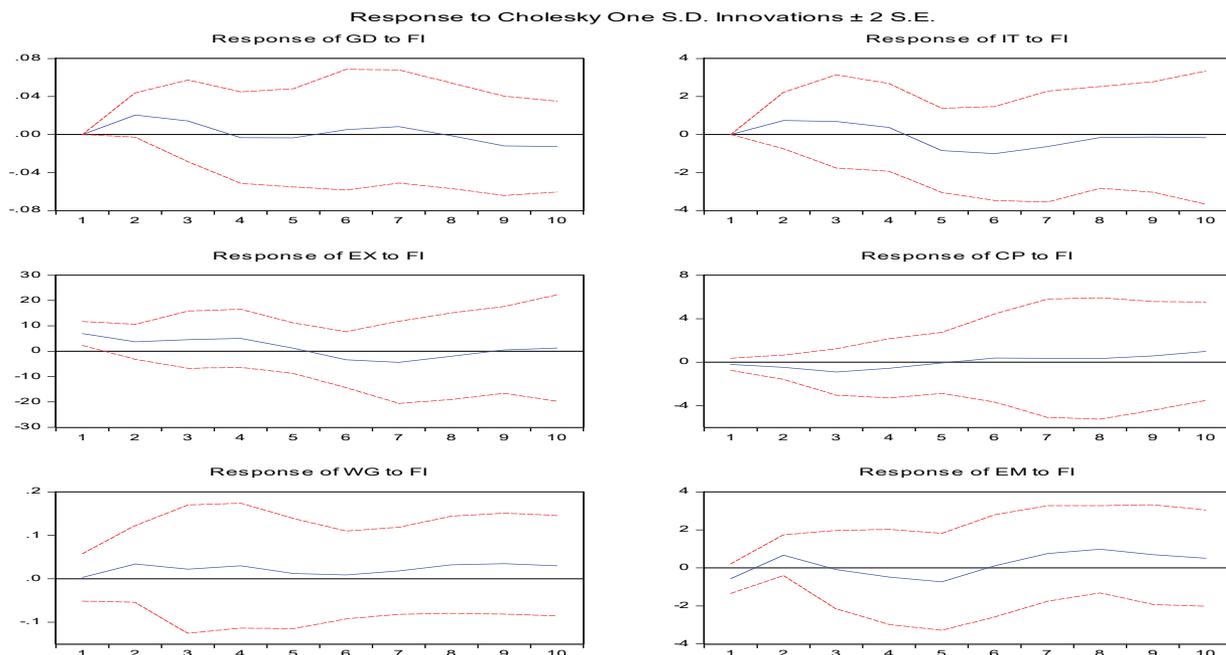
**Table 3.** Variance Decomposition of FI

<i>Pd.</i>	<i>GD</i>	<i>IT</i>	<i>FI</i>	<i>EX</i>	<i>CP</i>	<i>WG</i>	<i>EM</i>
1	0.011559	0.041596	99.94685	0.000000	0.000000	0.000000	0.000000
2	45.56153	0.070691	46.13521	1.629170	2.276463	0.082658	4.244279
3	56.23288	3.155142	30.13982	2.361535	2.429685	1.900963	3.779975
4	44.69935	2.397435	27.10351	4.438578	6.513983	6.754040	8.093111
5	41.65700	3.874993	22.19064	3.610309	8.206581	10.83552	9.624956
6	41.95455	6.892437	18.01666	6.493655	6.775591	11.92588	7.941229
7	39.82967	6.662193	15.88742	10.28103	5.962883	12.12348	9.253325
8	36.69092	6.411462	15.04921	10.54335	5.460357	11.82921	14.01548
9	34.51650	7.633468	13.94845	9.776476	5.217795	11.06185	17.84546
10	33.14109	9.121817	14.39530	9.161344	4.926663	10.51155	18.74223
Pd indicates period							

Source: Authors' Computation

Table 3 presents the variance decomposition of financial integration; emphasis of the result is on wages and employment. It can be depicted from the result that the forecast error shock of financial integration affects employment more than wage in horizons 2, 3, 4, 5, 8, 9 and 10. In horizons 5, 6 and 7, the forecast error shock of financial integration shows more variations in employment than wages.

**Figure 1.** Impulse Response Function of Financial Integration



.Source: Authors' Computation

Figure 1 presents the impulse responses of output (GD), interest rate (IT), exchange rate (EX), consumer price index (CP), wages (WG) and employment (EM) to financial integration. The response of the variables to a one standard deviation increase in financial integration shock shows that: response to the output, employment, exchange rate and interest rate are negative and positive along the zero line. Consumer price index was negative till period 5, afterwards positive. The response of wages is positive along the time horizon.

### 3.3 Causality Relationship

Table 4 shows the causality result between financial integration and labour market indicators, employment and wages. Evidence from the result indicates no causal relationship between wages and financial integration, this result is in the study of N. Apergis, I. Filippidis and C. Economidiu (2007) that stressed no relationship between financial integration and macroeconomic performance. However, it was depicted that unidirectional relationship exists from financial integration to employment. This follows the supply-leading view, which emphasised the importance of finance to cause improvement in the economy.

**Table 4.** Causality Result

<i>Causality between FI and WG</i>					
<i>Dependent Variable</i>	<i>K</i>	<i>D<sub>max</sub></i>	<i>Chi-Square</i>	<i>Prob. Value</i>	<i>Decision</i>
FI	1	6	6.298693	0.3906	No causality
WG	1	6	0.993783	0.9858	
<i>Causality between FI and EM</i>					
<i>Dependent Variable</i>	<i>K</i>	<i>D<sub>max</sub></i>	<i>Chi-Square</i>	<i>Prob. Value</i>	<i>Decision</i>
FI	1	6	4.592638	0.5970	<i>EM ← FI</i>
EM	1	6	15.08805	0.0196*	
The lag selection was carried out using the Akaike Information Criterion (AIC) and Hannan-Quinn Criterion (HQ) using the maximum of 7 lags. *indicates significance at 5 per cent					

Source: Authors' Computation using Eviews 9.5

### 3.4 Discussion of Result

This study examines the nexus between financial integration, wages and employment through the main channels documented in the literature in which finance affects the economy. The Autoregressive Distributed Lags (ARDL) was used to examine the long-run relationship. The Structural Vector Autoregressive (SVAR) is used to estimate the shock impact while the Granger Non-causality was used to investigate the causal effects. Using employment as the dependent variable, the ARDL Bound test shows that long-run exists among the variables while using wages as the dependent variable, evidence of no cointegration among the variables was established. The long-run coefficients equation using employment as the dependent variable shows that financial integration, wages, interest rate and consumer price index are statistically significant while the exchange rate and gross domestic product are not statistically significant. Similarly, it was observed that financial integration and interest rate have negative relationships with employment; this result is conforming to the Lucas Paradox. However, wages and consumer price index have positive relationships with employment. The forecast error shock shows that financial integration shock shows more variations in explaining the variation in employment than the wage. The causality test results revealed no causal relationship between financial integration and wage, but unidirectional relationship exists from financial integration to employment. The economic implication is that financial integration leads to weaken competitiveness of Nigeria in the financial international market, having negative implications for employment. Also, financial integration causes the Nigerian economy to be more susceptible to capital reversal, which may endanger economic performance in the long-run.

### POLICY RECOMMENDATIONS AND CONCLUSION

There is no consensus among scholars on the implications of financial integration on employment and wages most especially in developing economies. Some scholars believed that liberalisation to some certain extent improved the economic performance. However, questions have been raised on its implications for wages and employment in developing economies most especially Nigeria. In addition, given the rate of capital flows in developing countries in recent times and its presumption to promote economic development, there is a need to investigate the impact of financial integration on employment and wages. Theoretically, financial liberalisation is seen as an efficient means of laissez-faire. In the competitive market, it is assumed that income will flow from developed economies to developing economies due to high capital to labour ratio, which other hands will promote employment and wages in the developing economies. In a contrary view, Lucas Paradox opined that capital flow from developing economies to developed economies, which on the long-run will have adverse effects on employment and wages.

The main findings of the work showed that financial integration have negative relationships with employment; this result is conforming to the Lucas Paradox. The forecast error shock shows that financial integration shock shows more variations in explaining the variation in employment than the wage. The causality test results revealed no causal relationship between financial integration and wage, but unidirectional relationship exists from financial integration to employment. Based on the findings, the study suggested the need to move from the short term benefit of financial integration on income generation and promote long-term gains through employment for Nigeria and other developing economies with similar structure. In order to achieve this, generation of fund locally and less reliance on the inflow of capital should be encouraged by the government of the recipient countries; development of domestic policies measures such as capital controls should be designed to shape the volume or composition of inflows. This on the order hand will make the market competitive for the local investor and have a positive implication on employment in the long-run. Finally, this study suggests examining the implication of financial integration on formal and informal employment in developing economies for further study. This will help to maximise the benefit of financial integration in developing economies.

## ACKNOWLEDGEMENT

The authors are thankful to Landmark University, Omu-Aran, Kwara State, Nigeria for financial support to publish this article.

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