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AN EMPIRICAL INVESTIGATION INTO THE RELATIONSHIP BETWEEN FINANCIAL SECTOR DEVELOPMENT AND UNEMPLOYMENT IN NIGERIA

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ABSTRACT

Financial sector development has been identified by financial economists as a veritable way of empowering the poor thereby paving the way for enabling them to become employed and possibly serve as economic agents of change. This study empirically investigates the relationship between financial sector development and unemployment in Nigeria. A time series data was generated from 1980 to 2011 period. Auto Regressive Distributed Lag (ARDL) Bound Testing technique for cointegration was applied to estimate the long run relationship. The study found that there has been persistent unemployment in Nigeria, while formal credit allocation in rural areas has both short run and long run effect of reducing unemployment. Also found in this study is that expansionary monetary measures did not fuel inflation significantly. The study therefore recommends that monetary authority should strengthen and deepen financial services industry, particularly, Deposit Money Banks, to provide necessary financial support to the teeming unemployed youth in the country.

Keywords: Financial development, Financial system, Nigeria, Youth unemployment, Error correction model.

JEL Classification Codes: O16, O47, C32

INTRODUCTION

The wave of globalisation places developing countries in highly integrated world and a major turmoil of global financial crises certainly had implications for their economy. The ripple effects of

this financial crisis had not hit with the same intensity or severity as it had done to the developed world but still there are various channels through which the crisis had impacted the financial sector in particular and developing economy in general (Zaman *et al.*, 2012). The financial crisis of 2007-2009 and the subsequent recession have caused massive job destructions and that recovering pre-crisis levels of employment requires over 20 million new jobs worldwide (ILO, 2010). The aftermath of this bad omen is the deterioration of labour market conditions which is perceived as the worst on record since the financial crisis of 1940s (Elshy *et al.*, 2010). Even though, Nigeria is marred with high rate of unemployment before the commencement of the crisis but relevant data from National Bureau of Statistics (2011) shows that the national unemployment rate stood at 23.9 percent in 2011 compared to 21.1% in 2010 and 19.7% in 2009 while the rate is higher in the rural area (25.6%) than in the urban area (17.1%).

It has been argued that financial development has the capacity of reducing unemployment. It is along this line Dromel *et al.* (2010) contend that development of private credit (which is a measure of financial development) would significantly lower unemployment persistence. Less Developed Countries (LDCs) are characterised with oft-found triple problem of smallness – small transaction, small financial institution, and small marked size thereby leading to persistence unemployment (Pant *et al.*, 2009; Ibrahim and Aliero, 2012). This led Ibrahim and Aliero (2012) to argue that enhancing access to formal financial services especially credit to the rural populace has not only have the capacity of reducing unemployment but also is a mean of reducing poverty in developing countries. Research in his direction has concentrated in providing answer to two major questions. First, does financial development produce jobless growth by easing financing constraints allowing firms to invest in more capital-intensive technologies thereby expanding output but not employment? Second, to what extent does better-developed financial markets eases liquidity deficiencies of producers and consumers alike which in turn will generate economic growth that will stem from increase in employment as consumption and production increases, *ceteris peribus*. The objective of this paper is therefore to investigate the effect of financial development on unemployment in Nigeria. In achieving this objective the paper is divided into five sections including this introduction. Section two presents the literature review. Section three contains the methodology of the study. Section four is the result and discussion while the last section concludes the paper.

LITERATURE REVIEW

Studies on finance-growth nexus revolve toward addressing three fundamental hypotheses (i.e. the Supply leading hypothesis (finance-led growth), Demand following hypothesis (growth-led finance) and neutrality hypothesis), unfortunately ended of producing unanimous results. Those whose findings favour finance-led growth were Caporale *et al.* (2009), Khadraoui and Smida (2012), Zaman *et al.* (2012), Ibrahim and Aliero (2012) among others. While Muhammad and

Umer, (2010), Abubakar and Gani (2013) among others, upheld a growth-led finance hypothesis. In spite of the conflicting findings, scholars however have a common stand that there exist relationship between financial sector development and economic growth.

Unlike the empirical study on the relationship between financial development indicators and economic growth, there is dearth of literature on the correlation between financial sector development and level of unemployment for both developed and developing economies. Ibrahim and Aliero (2012) investigate the impact of financial services on poverty reduction in rural areas of Katsina state based on the coexisting positive relationship between unemployment and poverty. A cross-sectional primary data was analysed using multinomial logit model and the result revealed a significant negative relationship between financial services and poverty level. The implication of this finding is that financial development has the first order role to play in generating employment which could deteriorate the level of poverty in LDCs. Acemoglu (2001) posit a theoretical underpinning on how credit constraints can affect the dynamics of unemployment, and concluded that credit market imperfections increase the level and persistence of unemployment. The pioneering empirical study on financial sector development-unemployment nexus to our knowledge by Dromel *et al.* (2010) investigates the impact of the credit market development on the level and persistence of unemployment using a panel data of 19 OECD countries over the period 1982 to 2003. Using Generalized Least Square estimation method to allow for heteroscedastic errors, the study reported negative relationship between persistence of unemployment and financial development.

The recent (2008) global economic meltdown and its attendant's consequences have propelled number of studies on the effect of financial development on the level of employment. Pagano and Pica (2011) investigate the impact of financial development on employment level using panel data drawn from both developed and developing countries for 1970 to 2003 period. The study found that the standard measures of financial development were indeed associated with greater employment growth, but do so only in non-OECD countries. In addition, the study shows some evidence of "dark side" of financial development during banking crisis, negative shocks damage employment growth disproportionately more in financially dependent sectors of the countries with greater financial development. Shabbir *et al.* (2012) use Auto Regressive Distributed Lag (ARDL) bound testing technique for cointegration to estimate the long run relationship between financial sector development and unemployment in Pakistan for 1973 to 2007 period. Their study found that increased of financial sector activities have significant positive impact in reducing unemployment in short run as well as in the long run. Further, Granger causality test revealed the important of credit disbursement to private sector in improving job opportunities and increasing employment rate.

METHODOLOGY

This study uses secondary data for the relevant variables which was sourced from CBN statistical bulletin of various issues, National Bureau of Statistics, international financial statistics and world development indicators. The data covers 1980-2011period and variables were expressed in their natural logarithm.

We borrowed heavily the econometric model used by Dromel *et al.* (2010) to analyses the effect of financial sector development and persistence of unemployment; we first estimate the following model of unemployment:

$$umrate_t = \beta_0 + \beta_1 unmrate_{t-1} + \beta_2 \chi_t + \varepsilon_t .....(1)$$

Where $umrate_t$ is the aggregate rate of unemployment, $umrate_{t-1}$ is the lagged rate of unemployment which is expected to measure persistent unemployment rate, x_t summarizes the unemployment determinants, which include GDP, Foreign Direct Investment (FDI), population level and inflation rate.

Secondly, we analyse the relationship between unemployment and financial sector development by introducing financial development indicators like Credit to the Private Sector (CPC), M_2 is the broad money supply, M_2/GDP is the ratio of money supply to GDP. We also propose two new proxies of financial development indicators which could be superior to other proxies especially to countries in early developmental stage. These new proxies consist of rural bank branch deposit mobilised which is denoted by rudepo and formal loan allocated to the rural dwellers by the rural bank branches which is denoted by ruloan. These two new indicators are expected to show the extent of financial development in LDCs, since over two-third of population in LDCs resides in rural areas, where is characterised by higher rate of unemployment with minimal financial institutions while the bulk of financial institutions are found in the cities.

$$umrate_t = \alpha.umrate_{t-1} + \lambda.\chi_t + \phi.findev_t + \mu_t .....(2)$$

$Findev_t$ is the vector of financial development indicators and μ is uncorrelated white noise error term.

In time series econometrics, regression between two non-stationary variables produces bogus results. Most time series show the increasing or decreasing tendency over the time and so association between series depicting specific inclinations may turn out to have considerable results with high R^2, but may not be authentic (Granger and Newbold, 1974). However, there are variant ways of checking stationarity of series but Augmented Dickey Fuller is the most widely applied econometric method for testing unit root in order to avoid problems of the spurious regression

results. A series which is stationary after being differenced once is said to be integrated of order 1 and was denoted by I (1). In general a series, that is stationary after being differenced *n* times is integrated of order *n*, denoted by I (*n*) while a series that appears stationary without differencing, is said to be I (0) (Shabbir *et al.*, 2012).

ADF unit root test for stationarity test is based on the following regression model:

$$\Delta Y_t = \beta_0 + \beta_1 T + aY_{t-1} + \sum_{j=1}^{k} d_j \Delta Y_{t-j} + \varepsilon_t \ldots\ldots\ldots\ldots(3)$$

Where Y_t , T and Δ respectively confers a time series, a linear time trend and first difference operator, β_0 is a constant, k is respecting the optimum number of lags on the dependent variable, and ϵ_t is random error term. The null hypothesis for testing non-stationarity is H_0: $\alpha = 0$ meaning economic series are non-stationary. If the hypothesis of non-stationary is established for the underlying variables, it is desirable and important that the time series data are examined for co-integration.

Two or more variables are said to be co-integrated if they share common trends i.e. they have long-run equilibrium relationships (Aqeel and Butt, 2001). There are various methods of detecting these long-run relations between variables. Engel and Granger (1987) approach for co-integration is simple and popular for its certain agreeable attributes. However, it did not permit the testing of hypotheses on the cointegrating relationships themselves, but the Johansen setup does permit the testing of hypotheses about the equilibrium relationships between the variables provided the variables have same order of integration (Brooks, 2008). Unlike Johansen and Juselius procedure, Bounds Testing or Autoregressive Distributed Lag (ARDL) methodology does not depend upon whether variables are integrated at I(0), or I(1) after testing through unit root test (Pesaran *et al.*, 2001). Similarly, failure to test hypothesis due to endogeneity problem associated with Engle and Granger method can be resolved by ARDL and the long and short run parameters of the model can be anticipated simultaneously (Muhammad and Umer, 2010). The ARDL model is thus given below:

$$\Delta y_t = \alpha_0 + \alpha_1 \sum_{j=1}^{k} \Delta y_{t-j} + \alpha_2 \sum_{j=0}^{k} \Delta \chi 1_{t-j} + \alpha_3 \sum_{j=0}^{k} \Delta \chi 2_{t-j} + v_1 y_{t-1} + v_2 \chi 1_{t-1} + v_3 \chi 2_{t-1} + \mu_t \ldots..(4)$$

The sign of addition in the above equation characterizes the short run dynamic while υ coefficients show the long-run relationship. To test the long-run relationship *F*-tests are used. The null hypothesis is (H_0: $\upsilon_1 = \upsilon_2 = \upsilon_3 = 0$) while the alternative hypothesis is (H_1: $\upsilon_1 \neq \upsilon_2 \neq \upsilon_3 \neq 0$). After establishing the cointegration relation among the series we then estimated long-run relation using the following model:

$$y_t = \alpha_0 + \sum_{j-1}^{k} \gamma_{1j} y_{t-j} + \sum_{j-0}^{k} \alpha_{1j} \chi 1_{t-j} + \sum_{j=0}^{k} \alpha_{2j} \chi 2_{t-j} + \rho_t .....(5)$$

The selections of the orders of lags in the ARDL model are very important which is done by selecting minimum value of Schwartz Information Criteria (SIC). The short-run association among the variables is found by regressing error correction model (ECM):

$$\Delta y_t = \alpha_0 + \sum_{j=1}^{k} \gamma_{1j} y_{t-j} + \sum_{j=0}^{k} \alpha_{ij} \Delta \chi 1_{t-j} + \sum_{j=0}^{k} \alpha_{21} \Delta \chi 2_{t-j} + \delta ECM_{t-1} + \varepsilon_t .....(6)$$

Where ECM_{t-1} is the error correction term and its parameter represents the speed of adjustment for short-run to reach in the long-run equilibrium. It also integrates the short-run coefficient with the long-run coefficient without losing long-run information

RESULTS AND DISCUSSION

This section present the result of various estimation procedures described in the preceding section. It begins with the result of Augmented Dickey Fuller unit root test based on equation 3.

Table-1. Result of unit root tests

	Augmented Dickey-Fuller (ADF) Test	
Variable	**Levels**	**First Difference**
Umrate	-1.450	-4.797***
$Umrate_{-1}$	-1.836	-4.796***
Rgdp	-2.565	-5.051***
Pop	-1.298	-4.161***
FDI	-2.183	-4.460***
Infl	-3.425**	-5.731***
CPS	-2.412	-3.732***
$GDPM_2$	-1.515	-4.161***
Ruloan	-0.914	-4.244***
Rudepo	-1.477	-5.601***

*** & ** *indicate significance at 1% and 5% level*

It could be observed from Table 1 above that all the variables are not stationary at their level at 1% level of significance. Nevertheless, they attained stationarity when first differenced.

Therefore the data satisfy precondition for Bound Testing approach to cointegration, which requires the dependent variable to be I(1) irrespective of the order of integration of the regressors.

Table-2. Bound testing for cointegration

Critical value	**F-statistics = 8.54*** (1),**	**9.65*** (2)**
	Lower Bound	**Upper Bound**
1%	5.08	8.86
5%	3.19	6.07
10%	2.42	4.95

*** *indicate significance at 1% level of significance. The lag length k=2 was selected based on the SIC. Critical values are obtained Turner (2006).*

The results of the Bounds F-test in Table 2 reveal that the calculated F value is greater than upper bound at 1% level of significance. This indicates that there is evidence of long-run relation among the variables. In turn the table 3 below presents the result of long-run relation of variables of the study.

Table-3. ARDL coefficient for long run

Variables	**Coefficient**	
	1	**2**
$Umrate_{-1}$	006 (6.37)***	007 (6.92)***
FDI	2.53 (2.99)***	0.32 (3.13)***
Pop	6.21 (3.13)***	-9.87 (-4.83)***
Inflation	-0.61 (-0.18)	-0.90 (-1.48)
Ruloan		0.14 (-0.76)
Rudepo		0.14 (0.28)
CPS		3.03 (-1.90)*
M/GDP		-0.24 (-0.19)**
M_2		-0.24 (-3.86)**

***, ** &* *indicates significant at 1%, 5% and 10% levels respectively*

It could be discerned from Table 3 above that the coefficient of lag value of unemployment ($umrate_{-1}$) has a significant positive sign which signifies the existence of persistent unemployment in Nigeria. This finding is consistent with the findings of Dromel *et al.* (2010) and that of Pagano and Pica (2011). Surprisingly, the coefficient of FDI possesses a positive sign which means the variable is contributing in perpetuating unemployment problems in Nigeria. However, evidence from the current happening in the country, indicates that there is low inflow of FDI, more especially in the traditional sectors where vast majority of the working population are employed. Even in the urban centres where most multi-national companies operate they adopt capital-intensive production techniques thereby perpetuating the problems of unemployment.

In the long-run, population growth will not constitute problem of unemployment if financial intermediaries are channelling resources to the productive sectors of the economy. As can be seen in the Table 3 above, introduction of financial development indicators in the column marked by 2 changes the sign of the parameter form positive to negative which means that as population increases consumption will increases leading to more employment opportunities. While the coefficient of inflation is negative this means an inverse relationship between inflation and unemployment (evidence of Phillips curve). All the coefficient of financial indicators used in this study, exhibits negative signs with the notable exception of deposit of rural areas (which is a leakage). This indicates that financial sector development in the long-run has the capacity of ameliorating unemployment in Nigeria.

Table-4. ARDL coefficient for short run

Variables	**Coefficient**	
	1	**2**
$DUmrate_{-1}$	009 (15.37)***	017 (10.92)***
DFDI	0.02 (3.21)***	0.53 (3.51)***
Dpop	-0.17 (-5.13)***	-0.15 (-5.41)***
DInflation	-0.10 (-0.58)	-0.11 (-0.52)
DRuloan		-0.08 (-3.13)***
DRudepo		0.04 (2.13)**
DCPS		-0.03 (-4.51)***
DM/GDP		0.03 (0.41)
DM_2		0.24 (2.49)**
ECM(-1)	-0.251 (2.59)***	-0.493 (-3.54)***

*** &** *indicates significant at 1% and 5% levels respectively*

The value of error correction coefficient for equation 6 based on model one and two is -0.251 and -0.493 respectively, and statistically significant at 1% percent level, perhaps has right signs (negative). The estimated value of ECM suggested the speed of adjustment of the long-run disequilibrium caused by the short-run disturbance of the previous year with the feedback coefficient of -0.251 and -0.493 respectively. The differenced values of rural loan and credit to private sector are robust in addressing unemployment challenges in Nigeria in the short-run. This finding concur with the findings of Shabbir *et al.* (2012) which revealed that financial development has a retarding effect on unemployment in Pakistan. On the other hand, the positive signs of M_2,

M/GDP and deposit of rural bank branches indicated that in the short-run they are causing increase in unemployment.

CONCLUSION AND POLICY IMPLICATION

This study investigates the impact of financial sector development on the level of unemployment. Time series data was generated for 1980 to 2011 period and bound test approach was applied which shows that financial sector development has a long run relation with the unemployment level in Nigeria. The study found that there is persistence of unemployment in Nigeria, while credit allocation in rural areas has both short run and long run effect of reducing unemployment. The study also found that expansionary monetary measures did not fuel inflation significantly during the study period. The study therefore recommends that CBN should strengthen and deepen financial services industry, particularly Deposit Money Banks, which could enable them to provide the necessary financial support to the teeming unemployed youth in the country. Expansionary monetary policy should be pursued so that velocity of money in circulation would speed up the volume of transactions of good and services. This will increase the demand for labour in order to contain the demand pressure of goods and services and so severity of unemployment would drastically fall to the barest minimum.

REFERENCES

Abubakar, A. and I.M. Gani, 2013. Impact of banking sector development on economic growth: Another look at the evidence from Nigeria. Journal of Business Management & Social Sciences Research, 2(4): 47-57.

Acemoglu, D., 2001. Credit market imperfections and persistent unemployment. European Economic Review, 45(4-6): 665-679.

Aqeel, A. and M. Butt, 2001. The relationship between energy consumption and economic growth in Pakistan. Asian Pacific Development Journal, 8(2): 101-110.

Brooks, C., 2008. Introductory econometrics for finance. New York: Cambridge University Press.

Caporale, M., C. Rault, R. Sova and A. Sova, 2009. Financial development and economic growth: Evidence from ten new eu members. German institute for economic research. Discussion Paper no. 940: 1-43.

Dromel, N.L., E. Kolakez and E. Lehmann, 2010. Credit constraints and persistence of unemployment, Labour Economics no., 17: 823 - 834.

Elshy, M., B. Hobijn and A. Sahin, 2010. The labour market in the great recession. Nber working paper no., 15979: 1-69.

Engel, R. and W. Granger, 1987. Cointegration and error correction representation, estimation and testing. Econometrica, 55(2): 251-276.

Granger, W. and P. Newbold, 1974. Spurious regression in econometrics. Journal of Econometrics, 2: 111-120.

Ibrahim, S.S. and H.M. Aliero, 2012. Does access to finance reduce poverty? Evidence from rural areas of katsina state. Mediterranean Journal of Social Science, 3(4): 575-581.

ILO, 2010. World of work report 2010: From one crisis to the next? Geneva.

Khadraoui, N. and M. Smida, 2012. Financial development and economic growth: Static and dynamic panel data analysis. International Journal of Economics and Finance, 4(5): 94-104. DOI 10.5539/ijef.v4n5p94.

Muhammad, S. and M. Umer, 2010. The bound testing approach for co-integration and causality between financial development and economic growth in case of Pakistan. European Journal of Social Sciences, 13(4): 525-531.

National Bureau of Statistics, 2011. Annual socio-economic report.

Pagano, M. and G. Pica, 2011. Finance and employment. Centre for studies in economics and finance. Working paper no.283.

Pant, M., P. Chowdhury and G. Singh, 2009. Financial intermediation and employment. Centre for international trade and development. Discussion paper no., 09-08: 1-29

Pesaran, M.H., Y. Shin and R.J. Smith, 2001. Bounds testing approaches to the analysis of level relationships. Journal of Applied Econometrics, 16: 289-326.

Shabbir, G., S. Anwar, Z. Hussain and M. Iman, 2012. Contribution of financial sector development in reducing unemployment in Pakistan. International Journal of Economics and Finance, 4(1): 260-268. Available from http://dx.doi.org/10.5539/ijef.vn1p260.

Turner, P., 2006. Response surfaces for an f-test for cointegration. Applied Economics Letters, 13: 479-482.

Zaman, K., Z. Izhar, M. Khan and M. Ahmad, 2012. The relationship between financial indicators and human development in Pakistan. Economic Modelling, 29: 1515-1523.