SERVICE SECTOR INVESTMENT AND UNEMPLOYMENT RATE IN NIGERIA

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ABSTRACT
The main motivation for this study is to empirically examine if the service sector can reduce unemployment rate in Nigeria. This study looks at service sector performance and unemployment rate from 1980 - 2020. Annual data on unemployment rate, education services, tourism services, transport services and utilities were used. The study Dynamic Ordinary Least Square (DOLS), the Augmented Dickey –Fuller (ADF) and Phillip- Perron (P-P), Johansen Co-integration test and the Error Correction Mechanism (ECM) tests. Based on the DOLS result, the study revealed that three variables were variables conformed to economic theory and apriori expectations. Three of the variables used key determinants of service sector performance in Nigeria, being found to be statistically significant. The R^2 result shows that about 77 per cent variations in service sector are explained by the independent variables used in the model. The Unit root test indicates that the variables are stationary at their first differences i.e. 1(0) and 1(1) for both the ADF and the PP tests. The Johansen Co-integration test revels that a long run relationship exists among the variables.The pairwise Granger causality test indicate that there is no causation in any direction amongst the variables. The ECM (t-1) result is rightly signed and indicated that the speed of adjustments from the short run disequilibrium to its long run equilibrium is about -0.307847 or 30 per cent and very significant statistically. The study concludes that there is need for a stable macroeconomic environment to increases service sector performance in Nigeria and the study recommends adequate investment in the service sector to reduce the spate of unemployment rate in Nigeria.
Keywords: Service Sector, Education Services, Utilities, Transport services, Unemployment Rate.

Introduction
The service sector is a fundamental element of every country's economy, and it has been recognized as a sector with the competence to become an important driver of sustained growth in Africa (Udo, 2016). The services sector is now a foremost growth carter in the Nigerian economy. The sector encompasses domestic trade, tourism or hotel or restaurant, transportation, post and communication technology, banking, entertainment, social services, utilities, finance and insurance, real estate and education (Antai, Udo, and Effiong,, 2016; Adetokunbo and Edioye, 2020). It accounted for 53.32% and 50.18% of the total gross domestic

product growth in 2010 and 2016 correspondingly. The robust growth rate of the services sector was enabled by improved activities in domestic trade and the telecommunications sector. Notwithstanding the remarkable growth of the services sub-sectors in the last couple of years, the sub-sectors cannot be considered as the mainstay of the economy when the nation's output balance sheet is x-rayed anatomically as well as in terms of link with the rest of the world (Pavlos and Nikolaos, 2014; Paul, Chibueze and Callistus, 2016). Although merchandise trade in the Balance of Payments had been in surplus over the years, the services account has dependably recorded deficits, reflecting its weak linkage with the rest of the economy (Ede, Ndubisi, and Nwankwo, 2013; Akram, 2016; Ndugbu, Osuka and Duruechi, 2019).

Nigeria as a nation has passed through numerous forms of economic, political and social unrest and in the recent times, unemployment rate has snowballed caused by individuals and government forces hence the list of the social evils we see today in Nigeria (Elsby, Hobijn and Sahin, 2013; Wahab, 2020)). Thus, unemployment is now a world-wide occurrence demanding for amplified attention, given the devastating impact in developing nation like Nigeria. Statistics from the National Bureau of Statistics (2012), observed that the unemployment rate stand at 19.7% in1985. Over the years, Nigeria's economy has depended so much on its oil sector and, as such, has been in encrustation with macroeconomic volatility driven largely by external terms of trade shocks and large dependence on oil export earnings (Bassey and Atan, 2012).

The service sector continued to perform impressively and has remained one of the chief drivers of the growth in the Nigerian economy. Growth in this sector has been phenomenal in recent years. For instance, the sector grew from 15.3 per cent in 1960 to 0.16 per cent in 1980. It reduced to 3.78 per cent in 2000 and 3.77 per cent in 2010. The unemployment rates are 4.56% in 2014, 4.31 % in 2015, 7.06 % in 2016, 8.39 per cent in 2017, 8.24 % in 2018 and 8.10% in 2019 respectively. Estimate of employment elasticity suggests that services sector has employment potentials of 0.5 relative to agriculture's –0.1 per cent and manufacturing sectors' 0.3 per cent (Mujahid and Alam, 2014; Clem and Alajekwu, 2016). Consequently, the necessity for expansion of non-oil sector cannot be overemphasised because of the fact that crude oil, which is the main source of Nigeria's foreign exchange earnings, is not inexhaustible. Arising from the fact that oil price is volatile in nature; earnings from the sub-sector should be encouraged to boast the revenue base of the ailing economy (Abaukaka, 2014; Bottazzi and Gragnolati, 2015).

Despite the remarkable growth recorded in the service sector, it has not been translated to reducing unemployment rate in Nigeria over the years as it appears too worrisome due its alarming increase. The growth rate of gross domestic product was 15. 3 per cent as a share of the sectors' contribution in 1960-1970 and 16.5 per cent in 1971 to 1980 but dropped to 0.12 per cent from 1980 to 1990. This ugly situation reveals that the Nigerian economy cannot in the interim support the employment of its citizenry or not too adequate to sufficiently generate employment (Aminu. and Mustapha, 2014; Oluseun and Olusoji, 2020) . It is therefore in line with the above that the study seeks to examine the link between the service sector performance and unemployment rate in Nigeria from 1980-2020.

Statement of Problem

The level of unemployment in Nigeria has grown large that it cannot be addressed by mere campaign or words. It required the joint efforts of both individuals and the government of the country in particular and the world at large to articulate a lasting solution to it. Unemployment in Nigeria has affected the youth and the economic development of the country from a broad spectrum of socio-economic perspective. It is obvious that unemployment especially that of graduates impedes Nigeria's progress in several ways. Apart from the economic waste it brought to the nation, it also constitutes political unrest for the country. Unemployment situation in Nigeria is worrying and even more discouraging that the country's economic condition cannot engross an optimal proportion of its labour force. This situation has contributed to the upsurge in crimes and other social vices experienced in our society in recent time, because an idle mind is always the devils workshop. Another problem facing the employment situation in Nigeria cantered on power generation. The poor power generation of resources in Nigeria has led to the level of unemployed people. Despite all the efforts made by both the past and present administration to save the problem of epileptic power supply, the country has experienced little or no change. Since the problem of power cannot be tackled, the industries, institutions and agencies which are anticipated to provide the much needed employment flaw out of the country for some improved opportunities, so leaving our work force unemployed.

Theoretical Framework
The Big Push Theory

The theory behind the study is the big push theory which is an addition of the balanced growth approach. The big push theory has been presented by Rosenstein Rodan. The notion behind this theory is that an all-inclusive investment can be supportive to bring economic development and reduce unemployment rate in the society. In other words, a sure minimum amount of resources must be put for overall developmental growth in an economy, suggesting that, big push is needed by a government to help her economy grows in a balanced way. The theory is established on the assumption that an economy must have many sectors that can be developed for growth instead of relying on few one. This is to prevent disequilibrium that may arise in case of shocks from one or few sectors. To sustain economic growth, a massive investment is essential in the development of several sectors. The big push theory is embraced because it identifies hitches in the way of economic diversification/development; and foresees the need for investment across different channels of growth so that each channel withstands the growth of others by providing the necessary demand-base. Accordingly, diversification will lead to balanced Growth of the economy. This theory could be absolute or relative and could be short-term or long-term oriented.

Empirical Literature Reviewed

Adetokunbo and Edioye (2020) used annual data series, endogenous growth model, and autoregressive distributed lag technique and found that transportation and communication service subsector is significant and positively related to economic growth. Health service sub-sector and transportation and communication sub-service sector are significant and positively

related to economic growth when governance indicators were accounted for. Interface of the sub-service sectors with governance indicators displays that none of the service sub-sectors were significant but were positively related to economic growth. The study indicates that the activities of the education sub-sector have not contributed significantly to economic growth. Therefore, for education to contribute positively to economic growth there is a necessity for upsurge in budgetary allocation to education sub-sector. Efforts made to control corruption and promote government effectiveness should be brush up frequently to checkmate the processes of governance, so that bureaucratic processes would not deter services from contributing significantly to economic growth.

Oluseun and Olusoji (2020) used quarterly time series data by applying the OLS from 2010 to 2016 to account for new sub-sectors introduced from 2010 following the rebasing of the Nigerian economy. The study uses a disaggregated model to capture the individual productivities of subsectors. Series stationarity was tested with the ADF and PP test, the Johansen technique was applied. The outcomes indicate that while both services and the industrial sector contributed significantly to the economic growth (GDP) of Nigeria, some subsectors i.e. public administration, professional, scientific and technical services, transport (road, rail, pipeline, air, water), utilities (electricity, gas, and water supply, sewage, waste management) were found to be deficient. Lastly, this study draws some policy suggestions to further reinforce the service and industrial sectors so as to make best use of the potentials therein through the direction of sector-specific policies.

Ndugbu, Osuka and Duruechi (2019) examined private sector investments and unemployment in Nigeria from 1986 -2016. The study aimed at ascertaining the impact of private sector investments on unemployment level in Nigeria using time series data on private domestic investment foreign direct investment, foreign portfolio investment and unemployment rate. The Johansen co-integration analysis, Vector Error Correction (VECM) analysis, and Pairwise Granger causality analysis were utilised in the data analysis. The Johansen co-integration result indicated the existence of long-run relationship between private sector investment variables and unemployment rate in Nigeria. The Vector Error Correction Model (ECM) estimate equation is properly signed with a negative coefficient of -0.006644 but with an insignificant t-statistic probability value of 0.7376 at 5% significance level. The insignificant t-statistic implies that private sector investments do not granger cause unemployment rate in the long-run. Nevertheless, a significant but negative link was found between past unemployment rate and private domestic investment lagged one period and unemployment rate in Nigeria. The study consequently recommended that viable policies that will ensure and encourage growth of private sector investments should be dynamically pursued by stakeholders in the industry. These policies could come in form of access to cheap funds subsidization of inputs in the production process, tax waivers or newly established firms among other policy initiatives.

Olusoji and Odeleye (2018) used quarterly data from 1981 to 2015 and applied Multiple regression analysis to examine the association between the gross domestic product and some variables like non-oil agriculture, non-oil manufacturing and services. The outcomes of the analysis designate that agricultural sector is the utmost contributor to gross domestic product

trailed by the service sector during the pre-rebasing period (1981-2013) but the outcomes diverge to some extent when the period is extended to cover post-rebasing period (1981-2015). The extra time of estimation to post-rebasing period displays an increase in the service sector's contribution to gross domestic product, which is a signal that the service sector has potentials to add immensely to gross domestic product if more consideration is given to it. It is recommended that more attention be concentrated on investment in the service sector to boost the unemployment reduction and enhance gross domestic product.

Hamidah, Rosfadzimi, Abu, AbdHalim and Noorazilah (2016) examined the impact of foreign direct investment on unemployment rate in Malaysia. Other factors such as the number of foreign workers, gross domestic product and exchange rate were also comprised in the study. Data used in the study were annual data spanning from 1980 to 2012. Autoregressive distributed lag (ARDL) model was employed to examine the long run link between the variables. The study revealed that foreign direct investment, number of foreign workers and gross domestic product suggestively impacted on gross domestic product and the unemployment rate in Malaysia.

Data Sets and Estimation Techniques

The data used in this study were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin (various years). The data obtained relates to unemployment rate, education services, Transportation services and utility services.

Model Specification

This study seeks to determine the service sector and unemployment rate in Nigeria for the periods 1980-2020. To achieve this, DOLS regression model was adopted for this work. This is to allow us advance on the linearity of the model. The model for the study is specified as;

$$UNPR = f(ACTN,\ TRTS,\ TNPS,\ ULTS) \qquad \textbf{(1)}$$

Explicitly the above equation can be stated thus

$$UNPR = \phi_0 + \phi_1 ACTN + \phi_2 TRTS + \phi_3 TNPS + \phi_4 ULTS_5 + \mu_t \qquad \textbf{(2)}$$

The linear form of the model is stated as follows

$$UNPR = \phi_0 + \phi_1 \ln \sum_{t-1}^{n} ECTN_t + \phi_2 \ln \sum_{t=1}^{n} TRTS_t + \phi_3 \ln \sum_{t-1}^{n} TNPS_t + \phi_4 \ln \sum_{t-1}^{n} ULTS_t + \mu_t \qquad \textbf{(3)}$$

Where
UNPR= Unemployment rate
ECTN= Education services
TRTS = Tourism services
TNPS= Transport services
ULTS = Utilities

$\phi_0 = \text{constant}$

$\phi_1 - \phi_4 > 0. \text{coefficients of the explanatory variables}$

$\mu_t = \text{Error term}$

Data Analysis and Result Interpretation
Table 1: Unit Root Test Result (P-P)

Phillip-Perron Test						
Variables	**Levels**			**First difference**		**Order of integration**
	P-P Stat	**Test critical value (5%)**	**Remark**	**P-P Stat**	**Test critical value (5%)**	**Remark**	
UNPR	-4.127000	-3.529758	S	-13.74867	-3.533083	S	1(1)
ECTN	-4.140921	-3.529758	S	-7.971857	-3.533083	S	1(1)
TRTS	-4.037107	-3.529758	S	-8.437119	-3.533083	S	1(1)
TNPS	-2.268759	-3.529758	NS	-8.303459	-3.533083	S	1(0)
UTLS	-4.092213	-3.529758	S	-8.250704	-3.533083	S	1(1)
Note: P-P Tests for $H_0 Xt$ as 1(1) against $H_1 Xt$ as 1(0)						

Source: Authors' computation (E.view 9.0)

From Table 1, the variables have a mix of integration i.e 1(0) and 1(1) using the P-P test to determine the time series properties of the model. TNPS variable became stationary at levels while UNPR, ECTN, TRTS and ULTS became stationary at their first differences thus fostering the problem of spurious regression linked with time series data.

Table 2: Johansen Co-integration Test Results (Trace & Max-Eigen Statistic)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05Critical Value	Prob.**	Max-Eigen Statistic	0.05Critical Value	Prob.**
None *	0.596440	81.98148	79.34145	0.0312	40.76004	37.16359	0.0376
At most 1*	0.560124	50.22144	55.24578	0.1288	28.74415	30.81507	0.0877
At most 2	0.372466	21.47730	35.01090	0.6100	16.30852	24.25202	0.3887
At most 3	0.129361	5.168773	18.39771	0.9258	4.848485	17.14769	0.9134
At most 4	0.009109	0.320289	3.841466	0.5714	0.320289	3.841466	0.5714

Source: **Authors' computation (E.view 9.0)**

There exist two co-integrating equations as the null hypothesis of no Co-integration is rejected at 5%. This is because the Johansen Co-integration Test (Trace Statistics and the Maximum Eigen) values were higher than the critical values. This is also corroborated by the p-values which are less than 0.05. The implication of this finding is that in the long run, variables can attain equilibrium, even in the face of temporary shocks that may bring about distortion. Co-integration exists between the variables and the hypothesized fundamentals for the period under consideration, 1980 – 2020. Grounded on the establishment of a long run relationship among the variables, we are confident to run error correction mechanism.

Granger Causality Test
Granger causality test was carried out to determine the direction of causation between the service and industrial sectors in Nigeria. The pairwise Granger causality test indicates that there is no causation in any direction amongst the variables. This is contrary to theoretical expectation that causality will run one way from service sector to unemployment rate.

Table 3:

Null Hypothesis	Obs	F-Statistic	Pro
ECTN -UNPR	38	0.94644	0.3984
UNPR-ECTN		0.48877	0.6178
RSTS-UNPR	38	0.48877	0.0792
UNPR-RSTS		0.42808	0.6553
TNPS-UNPR	38	1.34008	0.2757
UNPR-TNPS		1.14544	0.3304
RSTS-ECTN	38	0.34181	0.7130
ECTN-TNPS		0.24394	0.7849
TNPS-ECTN	38	0.40631	0.6694
ECTN-TNPS		1.90697	0.1645
TNPS-RSTS	38	1.90697	0.1816
RSTS-TNPS		1.90697	0.2455

Source: Authors' computation (E.view 9.0)

Table 4: Parsimonious Error Correction Model (ECM).

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.738165	0.698879	1.056213	0.2993
LOG(ECTN)	0.139744	0.140591	0.993980	0.3282
LOG(ECTN(-2))	-98.03209	30.05647	-3.261597	0.0028
LOG(RSTS(-1))	-0.125332	0.113754	-1.101786	0.2793
LOG(TNPS)	0.111771	0.127816	0.874472	0.3888
LOG(TNPS(-1))	-0.020714	0.132232	-0.156652	0.8766
LOG(UTLS(-2))	98.09147	30.03116	3.266323	0.0027
ECM(-1)	-0.307847	0.052112	-2.350575	0.0313
Adj. R2 =0.323028; F= 7.482460; DW =1.553183				

Source: Authors' computation (E.view 9.0)

The Parsimonious ECM result indicates that the coefficient of ECTN in level and past lag (2) are negative and positive. The level relationship is in line with apriori expectation and theory and statistically insignificant at 5 per cent level but past lag (2) is negative and statistically significance. The Parsimonious ECM result shows that the coefficient in past lag (-1) of RSTS is negative and not in line with apriori expectation and theory and statistically insignificant at 5 per cent level. The level and past lag (1) of TNPS was statistically significant at 5 per cent level of significance. The Parsimonious ECM result shows that the coefficients of current and past lag (1) of TNPS are both insignificant but past (lag 1) TNPS is not in line with apriori expectation and theory. The Parsimonious ECM result shows that the coefficient of past (lag 1) ULTS was positive and in line with apriori expectation and theory but was not statistically significant at 5 per cent level. The equilibrium correction coefficients term has the expected significant negative sign of -0.307847 indicating that 30 per cent of disequilibrium in the earlier year is corrected speedily to tie the short run dynamics with its long run equilibrium or shows the

possibility of convergence in the long run in the event of a short- run distortion. The null hypotheses of no significant link for these variables were rejected but we do not reject the alternative hypotheses. The coefficient of determination i.e. adjusted R^2 is 0.323028, meaning that it explains 32 per cent variation in the dependent as caused by the independent variables.

Long Run OLS Analysis (DOLS)

The coefficient of ECTN is 0.432982 per cent meaning that 1 per cent increase in ACTN implies an increase in the unemployment rate. The association is rightly signed and in line with economic theory and apriori expectation. The t* > t $_{0.05}$ i.e. (8.671357 > 0.0000) in absolute term at 5 per cent level of significance.

The coefficient of restaurant services (RSTS) is 0.018248 per cent meaning that 1 per cent increase in RSTS implies an increase in the unemployment rate. The link is not rightly signed and is not in line with economic theory. The t* > t $_{0.05}$ i.e. (0.886643 < 0.3813) at 5 per cent level of significance. As RSTS increases, unemployment rate increases.

The coefficient of transport services (TNPS) is 0.008483 per cent meaning that 1 per cent increase in TNPS would imply an increase in unemployment rate. The association is not rightly signed and not in line with economic theory. The t* > t $_{0.05}$ i.e. (2.394251 > 0.0221) in absolute term at 5 per cent level of significance. TNPS is significant statistically. As TNPS improves, it increase employment rate domestically.

The coefficient of utilities services (UTLS) is -0.441048 per cent meaning that 1 per cent decrease in ULTS would imply a decrease in unemployment rate. The bond is rightly signed and in line with economic theory. The t* > t $_{0.05}$ i.e. (-7.652699 > 0.0000) in absolute term at 5 per cent level of significance. UTLS is significant statistically. As UTLS develops, it reduces unemployment rate in Nigeria.

The R^2 value is 0.770397 which implies that about 77 per cent variation in unemployment rate is explained by the independent variables used in the model. The remaining 23 per cent are variables not included in the model but captured by the error term.

Finally, the long run variance is 2.589219 and is not too far from zero**.** Therefore the result could reliably be used for policy purposes in the economy of Nigeria within the period under review.

Stability Test

The stability tests carried out shows that all the variables are stable since the Recursive Residuals test, CUSUM and the CUSUM of Squares test falls within 5 per cent critical bound for stability.
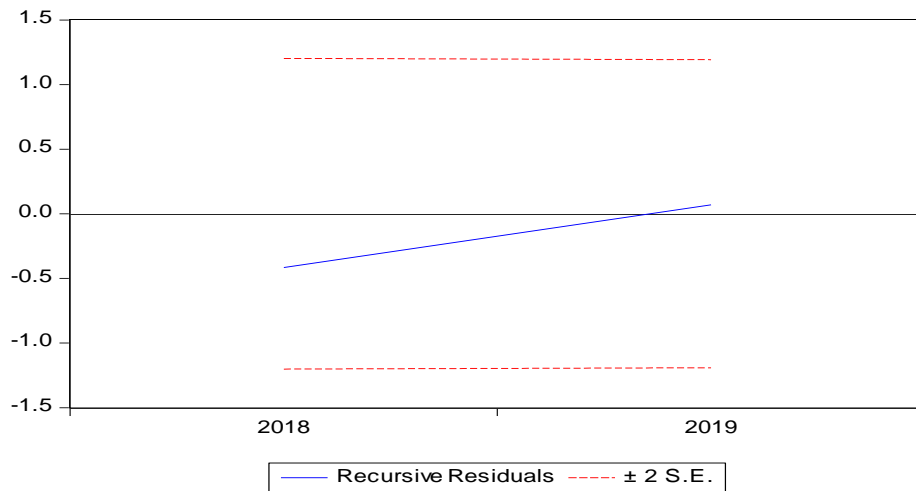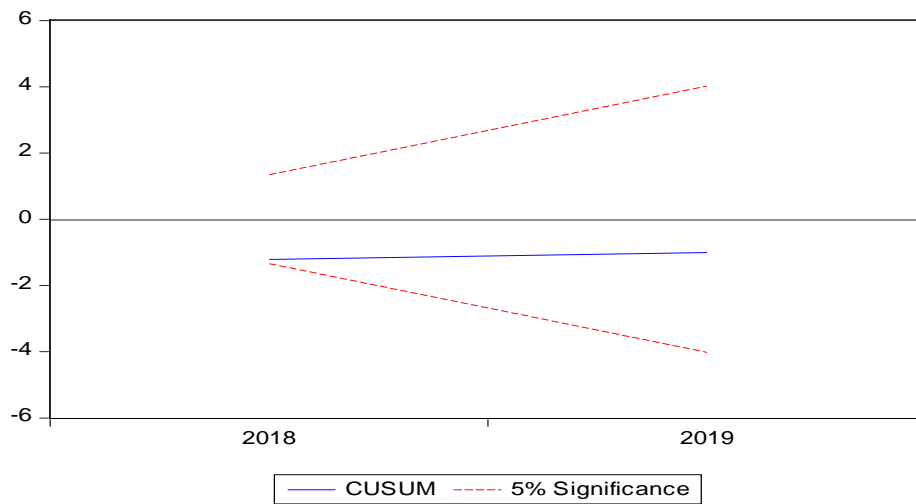
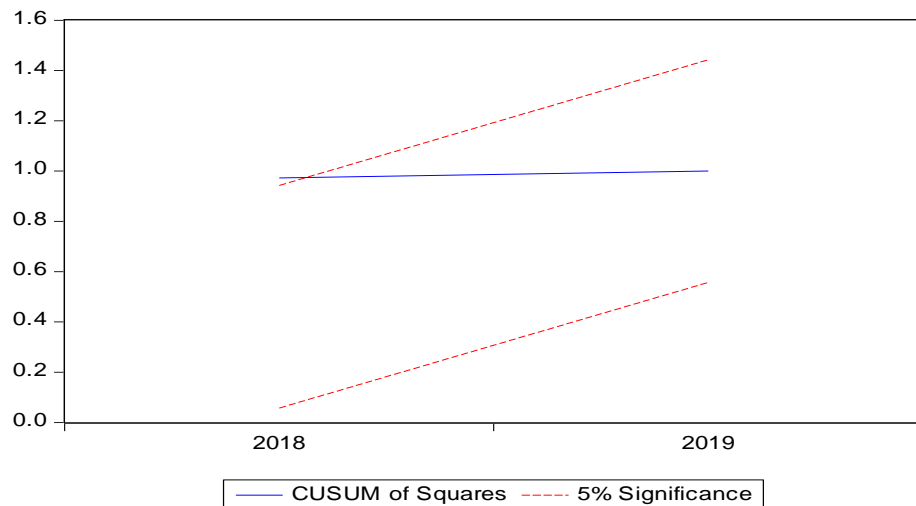**Fig 1.** Recursive Residuals

Fig 2. CUSUM

Fig 3. CUSUM of Squares

Conclusion

The study provided empirical insight on the association between service sector and unemployment rate in Nigeria. Based on the analyses and results of the Johansen Co-integration test, Error Correction Mechanism, Granger causality test and Dynamic Ordinary Least, it was discovered that a long run link between service sector and unemployment rate in Nigeria exists.

Recommendations

A process or programme directed towards training youths in Nigeria in the act of entrepreneurship should be a priority of the government. This is premised on the saying that knowledge in power. Programmes like National Directorate of Employment and the inculcation of entrepreneurship development skills in all higher institutions curriculum in Nigeria should be revitalised. There should be a government controlled methods of entrepreneurial development support devoid of politics and the likes that have crippled those developments in Nigeria in terms of financial funding as lack of access to finance has led to the foremost problems of entrepreneurship development in Nigeria in order to reduce the spate of unemployment.

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