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Crude Oil Prices and Exchange Rate in India: Evidence from Toda and Yamamoto approach

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Abstract

India is one of the fastest growing economies with a tremendous increase in the import of its oil resources. It imports around 80% of its oil resources which constitutes a thirdof the total import of the country. The unfavourable movement of oil price creates issues like inflation, economic instability and slumped growth in the economy. The objective of this paper is to analyse the dynamic relationship between oil price fluctuation and rupee dollar exchange rate by using daily time series data from 16th February, 2015 to 1st February 2018.To investigate the causal relationship, the study employed innovative and advanced version of Granger non-causality test proposed by Toda and Yamamoto (1995). The results of Granger non-causality test indicate that there is a unidirectional causality running from oil price to

exchange rate, not vice versa. This result is substantiated by the movement of rupee exchange rate during the period of study.
Keywords: Oil price; exchange rate; causality; Toda and Yamamoto; rupee volatility.

Introduction

Oil, used as a source of energy, plays a significant role in the economic development of the countries, all over the world (Kaygusuz, 2007). The importance of the crude oil is reached at such level that there is no country left in the world which doesn't need oil and its by-product. Most of the countries don't have sufficient crude oil reserve to meet their current demand for oil. Therefore, most of the countries import oil and its by-product from producers and payment is done in USD because of the dominance of USD in the price determination. So, the large fluctuation in oil prices affects the economic growth of both, oil importing and oil exporting nations (Wu and Zhang, 2014). On one hand, a sharp increase in oil prices has a negative effect on economic growth and inflation in oil importing countries. On the other hand, a significant drop in oil prices creates a budget problem for oil exporting nations as they mainly depend on petrodollars (Abosedra and Baghestani, 2004). Furthermore, intrinsic and complex price behaviour of oil also has an impact on macroeconomic variables, i.e. gross domestic product and industrial production (Ali Ahmed, Bashar and Wadud, 2012; Pinno and Serletis, 2013), inflation (Abounoori, Nazarian and Amiri, 2014; Kargi, 2014; Misati, Nyamongo and Mwangi, 2013), monetary policy (Ali Ahmed and Wadud, 2011), reduction of investment (Hamilton, 2003; Rafiq, Salim and Bloch, 2009) and stock prices (Huang, Masulis and Stoll, 1996; Sadorsky, 2003).

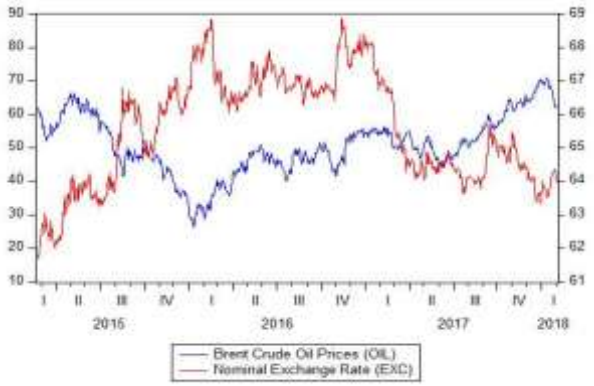
After mid of 2014, international crude oil market experienced a significant drop in the price from 110 $ per barrel to 46$ per barrel in early 2015. It was mainly because of the supply shocks, especially Saudi Arabia, Russia and newly discovered shale oil fields in North Dakota and Texas unlocked the vast quantity of their oil reserve and flooded the entire market with their oil supply (Baffes, Kose, Ohnsorge and Stocker, 2015; Husain et al., 2015). In the meantime, the appreciation of USD among other non-dollar dominating currency was also observed. Therefore, researchers had

dubious on the role of recent persistent oil price drop on the appreciation of USD. This has motivated us to investigate the causal interaction and character of their relationship.

Theoretically, it is argued that theoil price hike, transfers wealth from importing countries to exporting countries and widens the current account deficit of the importing economies (Krugman, 1983a). But falling oil prices can create vulnerabilities in exporting countries, but they overcome this issue by adjusting the supply. So, oil price fluctuation has an impact on the exchange rate of both, importing and exporting economies.

The basic idea behind the causal relationship between exchange rate and oil price is because of the denomination and settlement of oil price in USD (Krugman, 1983a). The fluctuations in the demand and supply conditions of the USD and oil price affect each other. If we consider exchange rate and oil price are asset prices, they will be determined by the equilibrium point where demand and supply intercepts. The increase in the demand for crude oil also increases the demand for USD and vice versa. Oil imports represent a significant portion of trade balance of energy-dependent economies (Dawson, 2007). Fluctuations in oil prices have a vital impact on the value of the currency in such economies. This is more crucial for a country like India, which is the third largest crude oil importer in the world (Kennedy, 2015). The fluctuation of the daily rupee exchange rate and the international oil prices are shown in figure no. 1.

Fig. no. 1. Oil Price and Exchange Rate Nexus



Source: Author's calculation using Eviews software, version 8.1

Crude oil prices and the exchange rate are getting more attention in the Indian scenario as the economy is shifting to a more and more liberalised economic framework. Rapid economic transformation and economic growth increased the demand for non-renewable energy sources like crude oil, which has limited domestic production. The massive depreciation of INR during this period enhanced the export earnings, but it was at the cost of increased inflation which might be derived from the record hike in crude oil price. Similarly, the energy subsidy during this period also contributed to a sizeable fiscal deficit. It can be noticed that during this period, the rupee was depreciating rapidly, while the crude oil price was increasing.

More than one-third of India's gross import is constituted by crude oil alone, so fluctuations in the price of crude oil directly influence the Balance of Trade. These fluctuations also broaden the current account which leads to the depletion of foreign exchange reserve. Theoretically, the current account is a major long-term determinant of exchange rate (Mussa, 1984). Any increase in the oil price will result in current account deficit and this will, in turn, reflect on the exchange rate. Petroleum products are used as an input for different industries, due to which oil price hike affects price levels through the cost of products. In case of India, such price hikes were not fully transmitted to the domestic prices because of the regulatory measures of the government. But it affected the exchange rate because USD is the accepted currency in the international oil market. In the present Indian scenario, the ongoing price deregulation of petroleum products shall cause inflation if the Reserve Bank of India (RBI) fails in its inflation targeting policy during a period of unfavourable movement in oil price.

Understanding the causal relationship between oil price and exchange rate is important in case of emerging markets because of their continuing growth and contribution to the global economy. This study argues that the oil price plays a unique role in rupee-dollar exchange rate determination in case of India. Historically, devaluation of the INR has happened solely during periods of Balance of Prices crises or expected payment crises. Import payment, especially related to import oil is considered a crucial lead variable contributing to the crisis situations. It has been observed that historically, all instances of such crises in India were preceded by a hike in crude oil price. The last few

decades have witnessed tremendous fluctuations in crude oil price. Similarly, currency volatility also increased in this period.

It is essential to understand the causal relationship between exchange rate and oil price in a developing country like India, especially since rupee-dollar exchange rate and crude oil prices have recorded extreme fluctuations during a small period of time recently. Inspired by these recent incidents of fluctuations, the present study, with the help of Toda and Yamamoto (1995)approach, seeks to find out how rupee-dollar exchange rate and crude oil price influence each other.

Theoretical and Empirical Review

Theoretical arguments of Golub (1983) and Krugman (1983a, 1983b) about the dynamics of the exchange rate and oil price is quite popular in the literature. Researchers summarised three transmission channels through which oil price fluctuations transmit to exchange rate: wealth effect channel, portfolio reallocation channel and terms of trade channel (Habib, Bützer and Stracca, 2016). The terms of trade channel emphasise oil as a major determinant of the terms of trade (Amano and van Norden, 1998). It assumes that each sector uses both tradable input (oil) and non-tradable input (labour). If the non-tradable sector is more energy intensive than the tradable sector, a hike in oil price increases the output price and appreciates the real exchange rates of exporting countries. As per the theory, oil price hike increases the price of tradable goods than that of non-tradable goods in an oil importing country, and thus cause depreciation of domestic currency. Similarly, any hike in oil price increases the inflation and depreciates the domestic currency.

Theory of international portfolio and wealth channel by Krugman (1983a,1983b) and Golub (1983), depends on the three country approach. It assumes that theoil price hike causes wealth transfer from an oil importing country to oil exporting nations. The wealth channel reveals the short-run effect because it assumes that oil exporters have an aggressive preference on USD denominated assets than US goods. So, oil price hike will affect only for short-run, not for long-run. But portfolio channel assumes that oil price impact extends to a medium to long-term period because the wealth transfer improves the current account balance of the exporting country. This results an appreciation of domestic currency. But on the contrary, increased current account deficit in the importing country depreciates its currency.

Following these arguments, Blomberg and Harris (1995) explained the impact of exchange rate movement on oil price with the help of the law of one price. It assumes that the homogeneity and international tradability of oil products force the oil buyers to pay more for sufficient quantity of oil products. So, exchange rate has a significant impact on oil price. This argument is supported by different researchers (see Pindyck and Rotemberg 1990; Sadorsky 2000). More specific findings by Zhang et al. (2008) found a strong relationship between the USD and the international oil price for long-run, but it is limited for short-run.

Researchers agree that the behaviour of real oil price had contributed to the non-stationarity performance of exchange rate after the collapse of the Bretton Woods system. The existence of a co-integration relationship of the real exchange rate and real oil price in the post-Bretton Woods regime is one of the causes of the persistent shock and non-stationarity of theexchange rate (Amano and van Norden, 1998; Chaudhuri and Daniel, 1998).

Some of the empirical researchers argued that oil price volatility led to exchange rate volatility, but they found only weak relation during the times of economic turbulencei.e. financial crisis (Reboredo, 2012). But the findings of Reboredo and Rivera-Castro (2013) contradicted these results. They detect strong evidence for the influence of oil price turbulences on exchange rate during the crisis period, but failed to find such relation in the pre-subprime crisis period.

Oil price fluctuation has a different impact on currency when looked at from both short-term and long-term perspectives. For instance, oil price hike appreciates USD in short-run, but it depreciates in long-run (Krugman, 1980). Likewise, oil price shocks for short-term periods may have a long run impact on the exchange rate (Brahmasrene, Huang and Sissoko, 2014). Similarly, Throop (1993) found that real oil price productivity growth and the government budget deficit can affect almost 80% of exchange rate variation in the long term. This finding is important for Indian scenario where oil products have a linear connection with productivity growth and budget deficits.

Researchers found a strong co-integration relationship between exchange rate and real oil price in different economies (Amano and van Norden, 1998; Chaudhuri and Daniel, 1998). However, some argued that it may not be constant for long-term, but can vary across different

time intervals (Basher, Haug and Sadorsky, 2012; Lizardo and Mollick, 2010; Narayan, Narayan and Prasad, 2008).

As per the literature, the currencies of different countries undergo fluctuations during the episode of an oil price hike, based on their dependency on oil resources. For instance, the Fijian Dollar appreciated in relation to the USD (Narayan, Narayan and Prasad, 2008) during such an episode. Supporting this argument, Lizardo and Mollick (2010) argued that increase in real oil price depreciates (or appreciates) the USD relative to the exporting (or importing) countries' currencies. Further, it may help appreciate the currency of those countries, without any international trade on oil products. This substantiated the findings of MacDonald (1998) who argued that during the episodes of the price hike, the currency of countries with sufficient oil resources get appreciated relative to the currency of the country which depends on other economies for its oil needs (MacDonald, 1998).

An inconclusive debate on causality between oil price and exchange rate exists in the literature. For instance, Huang and Tseng (2010) identified the two-way causal relationship between oil price shock and exchange rate in the case of USA. A similar result of bidirectional causality was established by different studies (Ding and Vo, 2012; Tiwari, Dar and Bhanja, 2013). However, Uddin et al. (2013) found only unidirectional causality running from exchange rates to oil price. Some other group of researchers found that oil price fluctuation cause exchange rate volatility (Amano and van Norden, 1998; Bénassy-Quéré, Mignon and Penot, 2007; Brahmasrene et al., 2014; Coudert, Mignon and Penot, 2007). Contrary to that, Pradhan, Arvin, and Ghoshray (2015) found bidirectional causality between exchange rate and oil price in G20 countries.

Most of the developing economies are oil dependent. Researchers like Coleman, Cuestas and Mourelle (2011), found that oil price shocks are the major determinants of the real exchange rate in some African economies. Doğan, Ustaoğlu and Demez (2012) found similar trends inthe Turkish economy. In case of China, Huang and Guo (2007) argued that theoil price shock appreciates long-term real exchange rate of Renminbi.

Basher, Haug and Sadorsky (2012) found that oil price shock caused exchange rate movements in Emerging Market Economics (EMEs). Similarly, unfavorable movement of oil prices in the EMEs changes the exchange rate for a short-run period, while the positive

shock of oil price reduces the trade-weighted exchange rate. Studies of Turhan, Hacihasanoglu and Soytas (2013) found that theoil price hike and currency depreciation moves together. They argued that the oil price hike created positive sentiments among the EMEs as they expect faster growth than developed economies. Aziz (2009)found causality from oil price to exchange rate. But the findings of Shaari, Hussain and Abdullah (2012) from Malaysia contradicted this by arguing that the oil price fluctuation influences the exchange rate for long-term only. They also failed to find any causal relationship between these variables. In case of India, only a limited number of studies investigated the issue. For instance, Ghosh (2011) found a direct relationship between oil price shock (increase) and rupee depreciation. He also found that such price movement has a persistent impact on rupee volatility.

Despite the growing corpus of academic literature on the causal relationship between exchange rate and oil price, the situation in the Indian economy has received scant attention. The present study seeks to address this research gap by understanding the dynamics between these two variables at a time when both these variables show extreme fluctuation tendencies. The accelerated growth of oil consumption and the policy of the open economy with a flexible exchange regime also motivated us to find the causal relationship between these variables. The recent policy of market-linked oil pricing also has motivated us to investigate the link between exchange rate and oil price in Indian economy.

Apart from this, review of literature has also revealed the methodological shortcomings of the past studies, especially in the prevalent use of low-frequency data. This trend can be a strategy to overcome the stationarity and structural break issues of the variables when conventional econometric models are employed. To overcome this shortcoming and to explore the dynamics of these variables in an innovative manner, the present study has used high-frequency daily data. However, use of daily data causes stationarity issues. To address this challenge, this study has employed Toda and Yamamoto (1995) version of Granger non-causality test.

Data and Methodology

The present study tries to examine the relationship between the global price of Brent crude oil (proxy for international crude oil prices) and the nominal exchange rate of INR vis-à-vis USD. In order to get a

better insight, we utilize the daily time-series data from February 16th, 2015 to February 1st, 2018. This particular time period is chosen due to the oil price shock of June 2014, when the oil prices rose to 114$ per barrel in June 2014 and sharply fell down to 46$ per barrel in January 2015.The economists believe that both long-term and short-term factors contributed to this plunge, including an extraordinary renaissance in the US and Canada shale oil production (Alquist and Guénette, 2014), robust production by Saudi Arabia and other OPEC member nations (Holodny, 2016), investment in renewable energy sector (MacDonald, 2016), weak global demand for oil (Hamilton, 2015) and stronger USD relative to other currencies (Akram, 2009; Zhang et al., 2008). Besides this, the study employs nominal data because of the non-availability of the daily consumer price index. For understanding the daily exchange rate and oil price behaviour, it is not necessary to have knowledge of their real values (Narayan, Narayan and Smyth, 2008)**.** Both the variables were converted into a natural logarithmic form to deal with normality and heteroscedasticity issues. The data and variable definition are shown in table no. 1.

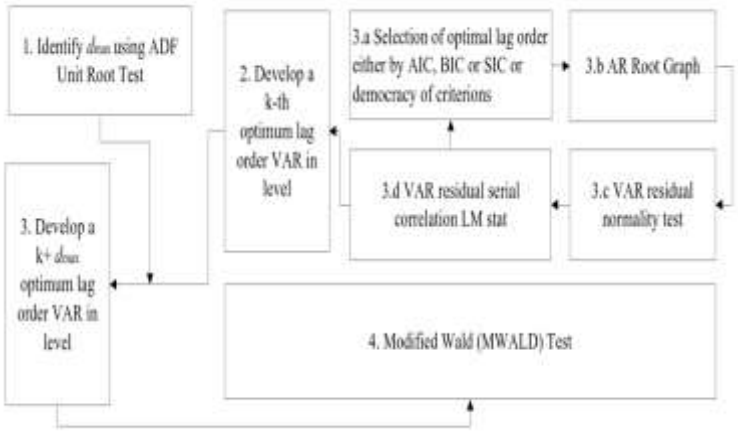
Table no. 1. Data and variable definitions

Variables	**Definitions**	**Source**
Lexc	Natural logarithm of Indian rupee to one U.S. dollar, not seasonally adjusted	Board of Governors of the Federal Reserve System (US) https://fred.stlouisfed.org/series/DEXINUS
Loil	Natural logarithm of Brent crude oil spot price in US dollar per barrel, not seasonally adjusted	U.S Energy Information Administration http://www.eia.doe.gov/dnav/pet/TblDefs/pet_pri_spt_tbldef2.asp

In this article, the authors applied innovative and modified version of Granger (1969) causality test as proposed by Toda and Yamamoto (1995)**.** This approach employs a modified Wald test (MWALD) as suggested by Dolado and Lütkepohl (1996), based on augmented VAR modelling, which allows flexibility and asymptotically to chi-square (χ^2) distribution regardless of the order of integration or

co-integration among the variables. Conversely, one cannot conduct the conventional Granger causality test if the order of integration is different.

Fig. no. 2. Framework of Toda and Yamamoto approach (1995)



Source: Shakya (2015)

Usually, two-step procedure is followed in Toda and Yamamoto (1995) approach. The first stepincludes the maximum order of integration (d_{max}) which one has to decide by checking the stationary characteristics of the series either through Augmented Dickey-Fuller (ADF) and Phillip and Perron (PP), or through Breakpoint unit root test followed by artificial augmented VAR model to assess the levels of the data, in turn to determine the maximum lag length (k) for the variable (p) using the usual information criteria.

Once this is done, a $(k+d_{max})^{th}$order of VAR is estimated and the coefficient of the last lagged d_{max} vectors are ignored (Pittis, 1999; Rambaldi and Doran, 1996; Zapata and Rambaldi, 1997)**.** Overall, this approach may be more suitable for our analysis and presents more accurate results about the causality for the nominal exchange rate of INR vis-à-vis USD and Brent crude oil prices.

The novelty of the Toda and Yamamoto approach over conventional Granger's (1969) causality test are:

a) First, this framework can be applied regardless of the condition that a time series is at *I(0), I(1), or I(2),* or is mutually cointegrated or non-cointegrated (Clarke and Mirza, 2006);

b) Secondly, it does not require the pre-testing of cointegration and thus reduces the potential bias for unit root properties (Rambaldi and Doran, 1996)**;**

c) Normality is not a problem as the whole procedure relies on asymptotic properties;

d) Finally, one can incorporate the structural breaks by using dummy variables such as exogenous regressors.

To undertake the Toda and Yamamoto version of the Granger non-causality test, for VAR ($k+d_{max}$), we estimate the following system equations:

$$y_t = a_0 + \sum_{i=1}^{k+d_{max}} \varphi_i y_{t-i} + \mu_t \quad \ldots\ldots\ldots\ldots\ldots\ldots \textit{(1)}$$

where,

$$y_t = \begin{bmatrix} lexc_t \\ loil_t \end{bmatrix}_{2X1},$$

$$a_0 = \begin{bmatrix} c_1 \\ c_2 \end{bmatrix}_{2X1}, \quad \varphi_i = \begin{bmatrix} \delta_{11,i} & \delta_{12,i} & \delta_{13,i} \\ \delta_{21,i} & \delta_{22,i} & \delta_{23,i} \end{bmatrix}_{2X3},$$

$$y_{t-i} = \begin{bmatrix} lexc_{t-i} \\ loil_{t-i} \end{bmatrix}_{2X1}, \quad u_t = \begin{bmatrix} e_{1t} \\ e_{2t} \end{bmatrix} 2X1 \ldots (2)$$

The coefficient matrix in equation (2) are specified as follows, where φ_i is 2X3 matrix of the regression coefficient, a_0 is the 2X1 matrix of the coefficient term, e_{ts} are the 2X1 white noise error term with zero mean and constant variance. Based on the results of equation (2), we can test the null hypothesis H_{01}. $\delta_{12,1} = \delta_{12,2} = \ldots = \delta_{12,k} = 0$, implies that *loil* does not Granger cause *lexc* and we can also test the causality running from *lexc* to *loil* with the following specifications H_{02}. $\delta_{21,1} = \delta_{21,2} = \ldots = \delta_{21,k} = 0$.

Econometric Modelling and Discussion

Before any analysis, one should know whether the Data Generating Process (DGP) of the series fits a regression model. Otherwise, non-stationary data may lead to a spurious result (Granger and Newbold, 1974)**.** A time-series is said to be stationary if its mean and variance remains constant over time (Hendry, 1995)**.** The main thrust to apply the unit-root test is to identify whether time-series are

affected by transitory or permanent shocks. Therefore, we first conducted the most commonly used unit-root test in the literature, i.e., the Augmented Dickey-Fuller (ADF) and Phillips and Perron (PP) (Dickey and Fuller, 1979; Phillips and Perron, 1988), to identify the statistical characteristics of the concerned variables on the level as well on first differencing. The results are reported in Table no. 2. The test statistics show that both the variables are not stationary at level. However, after first differencing, both variables become stationary.

It should be noted that both the above tests do not account for structural breaks, as both of them believe that current shocks only have a temporary effect and any long run movement in the series will not be affected by such shocks. But in a real situation, the random shock may have a permanent effect on the macroeconomic variables, henceforth; these fluctuations are not transitory (Nelson and Plosser, 1982). To overcome this problem, the authors substantially carried out the breakpoint unit-root test. Table no. 3 shows that the null hypotheses of a unit-root test for both the variables cannot be rejected on levels. But after transforming the data into the first difference, the null hypothesis can be rejected for both of them. Since January 14th 2016 shows a significant break, we incorporate January 14th, 2016 as a dummy variable in our model.

Admitting the fact that selecting the optimum lag length is an arduous task as sometimes overfitting the lag length unnecessarily increases the mean squared forecast error and underfitting the lag length often creates the autocorrelation problem in the VAR model (Lütkepohl, 1993)**.** Different information criteria such as the Akaike information criteria (AIC), Bayesian information criterion (BIC), Final prediction error (FPE) and Hannan-Quinn information criteria (HQ) statistics are often used for lag order selection.

Table no. 2. Unit Root Tests

	Augmented Dickey-Fuller (ADF)			**Phillip and Perron (PP)**		
Variables	Intercept	Intercept & Trend	None	Intercept	Intercept & Trend	None
Lexc	- 2.258	- 2.18	0.32	- 2.18	- 2.10	0.34
Δlexc	- 29.51**	- 29.59**	- 29.53**	- 29.56**	- 29.66**	- 29.57**
Loil	- 1.64	- 2.01	0.02	- 1.68	- 2.03	0.02
Δloil	- 27.53**	- 27.55**	- 27.54**	- 27.53**	- 27.55**	- 27.54**

Source: Author's calculation using Eviews software, version 8.1

Note: *** and * denotes the values are significant at 1%, and 5% significance level respectively. The optimum lags in ADF test are selected on Schwarz Information Criteria with a maximum lag length of 20, whereas the Parzen kernel with Newey-West Bandwidth is used for PP test.*

Table no. 3. Breakpoint Unit Root Test

	At Levels		At First Difference	
Variables	TBs	T-Statistics	TBs	T-Statistics
Lexc	23/2/2017	-3.144 [20]	17/8/2015	-30.098***[20]
Loil	13/6/2017	-2.453 [20]	14/1/2016	-28.332***[20]

Source: Author's calculation using Eviews software, version 8.1

Note:*** and ** denotes the values are significant at 1%, and 5% significance level, respectively. The maximum lag is set at 20. The break type is an innovational outlier and the breakpoint is selected by Dickey-Fuller min-t method, the maximum lag length is set at 20 based on Schwarz Information Criteria.*

There is no consensus regarding which information criteria performs better than others as they all depend on the time-frequency and number of observations. For instance, Ivanov and Kilian (2005) reported SIC criteria as most appropriate for quarterly data having less than 120 observations, whereas for larger sample sizes HQ criteria were found most suitable. However, Liew (2004)and Gutierrez, Souza and Guillén (2009) reported that AIC produces better and consistent results

than other information criteria as shown in Table no. 4. Therefore, we choose the lag 8 based on AIC criteria in our augmented VAR model. We then employed VAR residual serial correlation LM test and inverse root of AR characteristic polynomial and found that the VAR is well-specified; there is no autocorrelation problem at the optimal lag at 5% level (reported in Table no. 5), all the inverse roots of the AR characteristic polynomial fall inside the unit circle (reported in Figure no. 3.).

Table no. 4. VAR Lag Order Selection Criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	2148.246	NA	1.35e-05	-5.540686	-5.516647	-5.531437
1	5199.861	6071.690	5.11e-09*	-13.40513	-13.36758*	-13.39716*
2	5203.159	6.545473	5.12e-09	-13.41385	-13.34173	-13.38610
3	5204.715	3.078964	5.16e-09	-13.40753	-13.31138	-13.37054
4	5207.301	5.105572	5.17e-09	-13.40388	-13.28368	-13.35763
5	5208.397	2.157231	5.21e-09	-13.39637	-13.25214	-13.34088
6	5209.238	1.652471	5.26e-09	-13.38821	-13.21994	-13.32347
7	5210.826	3.110357	5.29e-09	-13.38198	-13.18967	-13.30799
8	5216.491	**11.06616***	5.27e-09	**-13.41566***	-13.16993	-13.30304

Source: Author's calculation using Eviews software, version 8.1

Note: ** indicates lag order selected by criteria, LR stands for sequentially modified LR test statistics, FPE stands for final prediction error, AIC stands for Akaike information criteria, SC stands for Schwarz information criteria, HQ stands for Hannan-Quinn information criteria*

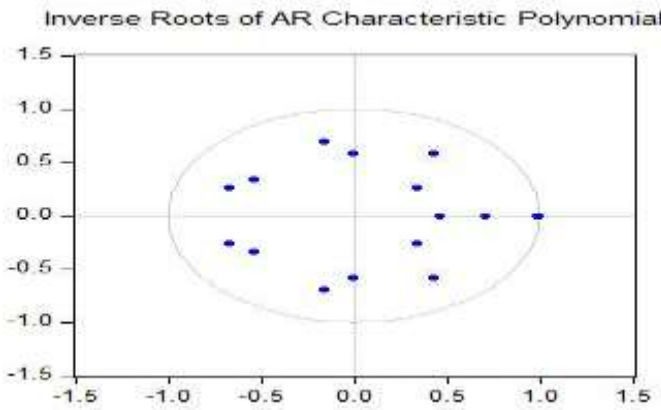
Table no. 5. VAR Residual Serial Correlation LM Test

Null hypothesis: No serial correlation at lag h

Lag	LRE* stat	Df	Prob.	Rao F-stat	Df	Prob.
1	5.857266	4	0.2101	1.466192	(4, 1506.0)	0.2101
2	2.307255	4	0.6794	0.576873	(4, 1506.0)	0.6794
3	2.227020	4	0.6941	0.556797	(4, 1506.0)	0.6941
4	7.044958	4	0.1335	1.764191	(4, 1506.0)	0.1335
5	1.948915	4	0.7452	0.487220	(4, 1506.0)	0.7452
6	3.344154	4	0.5020	0.836411	(4, 1506.0)	0.5020
7	6.697804	4	0.2122	4.194877	(4, 1506.0)	0.2122
8	5.305882	4	0.1710	2.080822	(4, 1506.0)	0.1710

Source: Author's calculation using Eviews software, version 8.1

Fig. no. 3. Inverse Root of AR Characteristic Polynomial



Source: Author's calculation using Eviews software, version 8.1

Toda and Yamamoto Version of Granger Non-Causality Test

Finally, the Granger non-causality test is performed to assess the causal relationship between concerned variable. We witnessed the

maximum order of integration ($d_{max} = 1$) and maximum lag length ($k=8$). Therefore, ($k+d_{max} = 9$) order of augmented VAR is estimated. Table no. 6 presented the TY procedure results.

Table no. 6. Null Hypothesis of Non-Causality; χ^2 Statistics

Null Hypothesis	Chi-square (χ^2)	Df	Prob.
loil does not Granger cause lexc	22.361	8	.004***
lexc does not Granger cause loil	6.805	8	0.557

Source: Author's calculation using Eviews software, version 8.1
Note: ****,** indicate statistical significance at the 1% and 5% level of significance.*

Results reported in Table no. 6 reveals one-way causality running from crude oil prices to the nominal exchange rate (INR/USD) and not vice-versa. Our results are in line with the findings of other researchers (Amano and van Norden, 1998; Bénassy-Quéré et al., 2007; Brahmasrene et al., 2014; Coudert et al., 2007).

One of the main reasons for the one-way causality from oil price to exchange rate is because of the monopolistic determination of oil price and its pricing based in USD. So the oil price fluctuation influences the USD appreciation (or depreciation) and its counter impact is reflected on Rupee exchange rate. Even though India is the third largest importer of oil, it can't influence the oil price because the payment is made in USD, not in INR and the price is determined in the international market. Moreover, oil is one of the monopolistic products in the world market, so it is not easy for a country to influence its pricing.

As a high energy intensive developing economy, India can't cut short its oil demand beyond a particular level. So, oil price hike increases the current account deficit of the country. It has a negative impact on the rupee. Similarly, high oil price influences the general price level in the economy, which further depreciates the rupee exchange rate. In short, oil price fluctuation influences the demand for USD than the quantity of oil, so there is one-way causality from oil price to exchange rate (due to its pricing in USD), not vice versa.

Conclusion

This study has analysed the causallinkage between exchange rate and oil price fluctuations during the recent episodes of oil price volatility. The results of the study show that oil price volatility Granger causes the exchange rate volatility of rupee, not vice versa. It shows that fluctuations in the price of crude oil directly influence the Balance of Trade and broaden the current account deficit and deplete the foreign exchange reserve by transferring wealth from India to oil exporting nations. One major reason for this is the determination of the oil price in the USD. India should diversify its oil trading and enhance trading in local currencies. Similarly, adopting more policies in the line of the present 'oil against food products' with Middle Eastern countries with the rest of the world can also help to protect the economy from the hazards of a possible currency crisis. There should be a necessary action to diversify its energy sources by utilizing the available modes of renewable energy production, which can provide a multiplier effect on the economy.

An increase in the crude oil price causes depreciation of the rupee and it leads to an increase in the general price level, which further depreciates rupee. In order to reduce the impact of oil price on the general price level, there should be some mechanism to adjust the tax on petroleum products. This will reduce the pass-through effect of oil price fluctuation to the general price level. This can be achieved by generating a special fund for supplying subsidized petroleum products to the key sectors in the economy.

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Corporate Environmental Reporting and Financial Performance: Evidence from Quoted Nigerian Companies

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Abstract

This study investigates corporate environmental reporting and financial performance in Nigeria. Quantitative research design was adopted and secondary data were obtained from annual reports and accounts of some selected quoted companies on the Nigerian Stock Exchange. The data so obtained were analyzed using the ordinary least square estimation technique. Based on the analysis, we found that there is no significant relationship between environmental reporting, operating performance and firm size among the selected quoted companies in Nigeria. Also, corporate environmental reporting does not affect the financial leverage of quoted companies. On the basis of the findings, it was recommended among others that environmental reporting themes and evidence must be established to provide foundation for improving financial performance of quoted

companies. The study calls for standard-setting bodies to set up guiding principles or accounting standards in order to improve the financial and non-financial environmental reporting of quoted companies. Besides, quoted companies are encouraged to imbibe the culture of corporate environmental audit as this process will help them systematically assess how well their environmental management practices conforms to green production goals and help diffuse green production practices throughout the organization

Keywords: Corporate Environmental Reporting; Financial Performance; Firm Size; Financial Leverage; Operating Performance.

Introduction

In recent times, corporate environmental reporting issues have emerged as a fundamental aspect of debate among academic scholars, management, government and the general public. This is true because both corporations and individuals often ignore the social and environmental aspect of the organization. As noted by Dutta and Bose (2008), these environmental issues have manifested in the form of global warming, atmospheric, soil and water pollution caused by industrial activities, decline of forest areas and chemical wastes being dumped into oceans and rivers. In an attempt to remedy these environmental problems caused by organizations, governments of different nations have long setup regulatory, voluntary, incentive-based, informational and cooperative policy measures aimed at improving performance (Jasch, 2013; Li, 2011). This policy trend has in no doubt, heightened concerns about environmental accounting theory and practices worldwide in realizing the effects of waste product as a potential source of damage to the environment (Maunders and Burritt, 2001). Thus, many organizations all over the world are now interested in being green while investors place a high value on social and environmental responsibility (Boyd, 2009; United Nations Environmental Programme, 1995).

On the global scene, Australia, Bangladesh, China, Japan, Malaysia, Netherlands, New Zealand, Norway and Turkey are on the lead on environmental accounting practices, in order to enhance their eco-efficiency and performance (Banerjee, 2012). In line with this trend, the rapid increases in environmental costs have now caused organizations to begin to integrate social and environmental aspects into managerial decisions at all levels (Dorweiler and Yakhou, 2012; Fryxell and Vryza, 2011). Corporate environmental reporting is an accounting technique which focuses on reporting the cost of environmental liabilities and other significant environmental costs, by providing environmental-related financial and non-financial information to external stakeholders (Belal, 2011). One of the underlying philosophies is that environmental reporting drives improvement in financial performance and also assists organizations in visualizing an image as having a moral obligation to account for its stakeholders (Ahmad, Salah and Lutz, 2009).

The movement towards corporate environmental reporting has therefore become particularly apparent for developed and developing countries due to the pressing demands from stakeholders and other interested parties for information regarding corporate social environmental responsibility (Gray, Bebbington and Walters, 1993; Elkington, 1997; Guthrie, Suresh and Leanne, 2006). Though studies on corporate environmental reporting in developed countries is abundant (see Horngren and Foster, 1987; Collison, 1996; Frost and Wilmhurst, 1996; Guilding and Kirman 1998; Bewley and Li, 2000; Deegan, Rankin and Voght, 2000; DeVilliers, 2000; Antonites and DeVilliers, 2003). In developing countries like Nigeria, industrial activities of some organizations pose hazard to the environment without adequate treatment that meets the basic international standards (Abu-baker and Naser, 2000; Ite, 2004). To this end, this study aimed at extending the body of existing literature by conducting a performance evaluation of corporate environmental reporting in Nigeria.

Methodology and Purpose of the Study

The extent of corporate environmental reporting on the financial performance was analyzed using the quantitative research design by obtaining data from annual reports and accounts of the selected quoted companies in Nigeria. Data of operating performance, financial leverage and firm size were obtained from the annual reports and accounts of ten

quoted manufacturing companies during the period 2006-2016 so as to establish the influence of corporate environmental reporting on the level of performance among the selected companies. Thus, the population of the study encompassed all quoted manufacturing companies on the Nigerian Stock Exchange at 31st December, 2016.

In order to proxy corporate environmental reporting, we employed a dichotomous modus operandi known as the Kinder Lydenberg Domini (KLD) environmental performance rating system. A score of one (1) was given if an item was reported in the annual reports and accounts; otherwise zero (0). To find out the strength of the relationship between the operating performance, financial leverage, firm size and extent of corporate environmental reporting among the selected quoted companies, a simple regression model was adopted as shown below:

$$CER = f(ROTA) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (1)$$
$$CER = f(DER) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (2)$$
$$CER = f(FSIZE) \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

This can be written in an explicit form as:

$$CER_t = \beta_0 + \beta_1 ROTA_{it} + U_t \ldots\ldots\ldots\ldots\ldots\ldots (4)$$
$$CER_t = \beta_0 + \beta_1 DER_{it} + U_t \ldots\ldots\ldots\ldots\ldots\ldots (5)$$
$$CER_t = \beta_0 + \beta_1 FSIZE_{it} + Ut \ldots\ldots\ldots\ldots\ldots\ldots (6)$$

Operationalization of Variables:

CER = Corporate Environmental Reporting (measured by costs incurred for environmental pollution)

FSIZE = A measure of firm size (i.e. natural logarithm of turnover)

ROTA = Return on total assets (a proxy for financial performance)

DER = Debt-to-equity ratio (a measure of operating performance; defined as the logarithm of total debt divided by the total equity)

U = Disturbance term

t = Time dimension of the variables

β_0 = Constant or Intercept

$\beta_{1\text{-}3}$ = Coefficients of slope parameters

The expected signs of the coefficients (a priori expectations) are: β_1 & $\beta_3 > 0$, while $\beta_2 < 0$.

Theoretical Framework

The theoretical framework of this paper is premised on the Stakeholders Theory. The stakeholder theory is one of the most famous theories with the most influential debate that there are wider groups of stakeholders in an entity than merely shareholders and investors (Stemberg, 1997). Stakeholders are seen as any group or individual who can affect or be affected by the economic activities of an entity. The underlying philosophy of this theory is that the economic activities can affect or be affected by a number of groups within a society and how their actions affect entities (or how they may be affected by the actions taken by the organization).

Stemberg (1997) argues that the relationship between the firm and the various groups is defined by all sorts of contracts and it is simply not true that shareholders have the only legitimate interest in firms' activities. For instance, the relationship between a firm and its shareholders is not only legal, but also with its employees, suppliers and customers who also have legitimate interests in the entity's activities. Thus, all stakeholders and even the natural environment have legitimate rights on the entity's activities as they are also affected by the economic activities of the entity. A simple synopsis is that stakeholder theory rests upon an entity's duty to varied groups rather than just shareholders and equally the right of varied groups to take part in entity's decision making. Thus, the theory suggests that business entities should as a matter of fact take into account the interests of stakeholders beyond the narrowly defined interest of shareholders (Gray, 1997).

Conceptual Review on Environmental Reporting

Environmental reporting refers to the process of communicating the environmental effects of organizations' activities in terms of costs as they affect the environment in which they are domiciled to particular interest groups within society and to the society in general (Gray, 2007). According to Matar (2010), it is an approach to reporting an organization's activities which stresses the need for the identification of socially relevant behavior, determination of those to whom the organization is accountable for its social performance and development of appropriate measures and reporting techniques. Environmental reporting is commonly used in the context of business or corporate social responsibility, although organizations such as non-government

organizations (NGOs), charities and government agencies may engage in environmental reporting.

Environmental accounting emphasizes the notion of corporate accountability and it is often used as an umbrella term to describe a broad field of research and practice. Environmental reporting as noted by Elkington (1999) is directly connected with expressing the environmental impact of organizations. Environmental reporting further seeks to address the trade-off between economic pursuit and environmental related matters. In this way, environmental reporting tends to focus more on the pursuit of sustainability. The general objectives of environmental reporting as observed by Gray (1997) are to, first, determine and measure the net social contribution of the organization on a periodic basis. This does not necessarily include the elements of internal costs and specific benefits of the organization, but also entails the elements of cost and external social benefits that influence segments of the community.

Second, it evaluates the social performance of organizations by identifying whether the organization's strategies and objectives are consistent with the social priorities and the organization's ambition to ensure a reasonable percentage of profits. The relationship between the performance of organizations and social welfare lies at the core of environmental or social responsibility reporting. Environmental reporting focuses on the cost structure and environmental performance of an entity by describing the preparation, presentation and communication of information related to an organization’s interaction with the natural environment (Crowther, 2012).

Prior Studies

Quite a number of studies have been conducted on corporate environmental reporting in developed and developing countries of the world. However, some of these studies were majorly within the platform of developed economies. Within this context, we have specifically concentrated on some studies from both developed and developing countries so as to have a detailed picture of existing literatures. For instance, Gray (1997) employing the content analysis method, investigated the association between financial performance and the extent of corporate environmental disclosure. The study revealed that financial performance is not correlated with corporate environmental disclosure in the same period, but may be correlated to lag-profits.

In a similar study, Ingram and Frazier (2010) assessed the connection between the content of corporate environmental disclosure and financial performance. Using environmental disclosures in 20 pre-selected content categories along four dimensions (evidence, time, specificity and theme), the study found no association between environmental disclosure and firm performance. Freedman and Jaggi (2012) studied the relationship between environmental disclosures and the financial performance for firms in four highly polluting industries and found that there is no relationship between environmental disclosures and financial performance.

Wiseman (2013) studied the relationship between the annual report disclosures of 26 firms in 3 industries with their financial and environmental performances using the ISO 14031 environmental reporting guideline. The content analysis was utilized to gauge the extent of disclosures using 18-itemed and 2-categories to evaluate the quality and accuracy of environmental disclosures. The financial performance indicators employed comprised of earnings per share, price-earnings ratio and dividend yield. The regression statistical technique was used in the analysis of data and findings indicated that the voluntary environmental reports were incomplete, providing inadequate disclosure for most of the environmental performance indicators analyzed. In addition, the study revealed that no relationship exists between the contents of environmental disclosures and the financial performance of the firm.

Gamble, Hsu, Kite and Radtke (2015) investigated the quality of environmental reporting practices among 234 companies in twelve industries in the United States of America during the period 1986-1991 and found that there had been a significant increase in environmental reporting in annual reports in 1989. However, certain industries (e.g. petroleum refining, hazardous waste management and steel manufacturing) were judged to have provided the highest quality of disclosures in their annual reports while the period 1989-1991 produced a significant increase in environmental disclosures. To this end therefore, this study was carried out in an attempt to extend the existing body of literature in developing economies by exploring corporate environmental reporting and the financial performance of companies in Nigeria.

Results

The results of the study were presented in order of precedence. First, we reported the descriptive of the variables, second, the correlation matrix, goodness of fit test for each models and finally, the regression results.

Table no. 1. Descriptive statistics of Corporate Environmental Reporting (CER), Firm Size (FSIZE), Return on Assets (ROTA) and Debt-to-Equity Ratio (DER)

Variables	Mean	Std. Dev.	Min. Value	Max. Value
CER	33.1300	12.45954	11.2	41.3
FSIZE	6.2235	.89077	5.6	8.5
ROTA	.2617	.13201	0.12	0.52
DER	.3957	.19556	0.18	0.73

Source: Author's calculation via SPSS software, 22.0 version

Table no. 1 presents the descriptive statistics result for the dependent variable (Corporate Environmental Reporting: CER) and independent variables (Firm Size: FSIZE; Return on Assets: ROTA and Debt-to-Equity Ratio: DER). As observed, the mean for CER is positive with a high standard deviation which suggests that most of the companies in the sample may engage in environmental reporting. This implies, ensuring compliance with the provision of environmental disclosure. The minimum and maximum values are 11.2 and 41.3 respectively. In addition, the mean for FSIZE is positive 6.2235 with a low standard deviation of .89077 which implies that 89% in corporate environmental reporting by companies has been explained by firm size. The minimum and maximum value 5.6 and 8.5 respectively suggest that the lowest firm size is approximately 6.

The mean for ROTA is positive .2617 with a low standard deviation of .13201 which implies that 13% in environmental reporting by companies has been explained by ROTA. The low value of the mean suggests that environmental reporting has not affected ROTA of the sampled companies under investigation. The minimum and maximum values 0.12 and 0.52 respectively suggest that the lowest ROTA is approximately 0.12. Furthermore, the mean for DER is positive .3957 with a low standard deviation of .19556 which implies that 19% in environmental reporting by firm has been explained by DER. The low

value of the mean suggests that environmental reporting has not affected DER of the sampled companies under investigation. The minimum and maximum value 0.18 and 0.73 respectively, suggest that the lowest DER is approximately 0.18.

Table no. 2. Correlation Matrix for all the variables

Variables	CER	FSIZE	ROTA	DER
CER	1.000	.351	-.267	-.400
FSIZE	.351	1.000	-.267	-.400
ROTA	.228	.160	1.000	.126
DER	.126	.160	.228	1.000

Source: Author's calculation via SPSS software, 22.0 version

The highest correlation as disclosed in the table is between FSIZE and DER with a value of .400. This confirms that there is no multicollinearity among the variables.

Table no. 3. Goodness of Fit Tests for FSIZE, ROTA and DER

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
[1]**FSIZE**	.351[a]	.123	.014	12.37443
[2]**ROTA**	.267[a]	.071	-.045	12.73491
[3]**DER**	.400[a]	.160	.055	12.11208

Source: Author's calculation via SPSS software, 22.0 version

a. Predictors: (Constant), FSIZE, ROTA & DER

As shown above, the value of adjusted R^2 is .014 for FSIZE, indicating that FSIZE is explaining 14% variation on CER, while the unexplained variation is 86%. In the case of ROTA, the value of adjusted R^2 is -.045; indicating that ROTA is explaining 45% variation on CER, while the unexplained variation is 55%. Also, the value of adjusted R^2 is .055 for DER; indicating that DER is explaining 55% variation on CER, while the unexplained variation is 45%. Thus, we can understand that the model of the study is not providing a good fit to the data.

Table no. 4. Regression result for Corporate Environmental Reporting (CER) and Firm Size (FSIZE)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	2.573	29.083	.088	.932
FSIZE	4.910	4.631	1.060	.320
F-statistic	1.124	Durbin-Watson stat		1.420

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (FSIZE) reveals the existence of positive relationship between corporate environmental reporting and firm size (FSIZE) as depicted by the slope coefficient of 4.910. FSIZE appears to exert a positive effect on corporate environmental reporting which is not also statistically significant at 5% level. Furthermore, the F-stat (1.124) when compared with f-tabulated (3.09) implies that there is no significant relationship between corporate environmental reporting and the operating performance among Nigerian companies. The D.W statistics of 1.420 suggest the absence of first order serial correlation in the model.

Table no. 5. Regression result for Corporate Environmental Reporting (CER) and Return on Total Assets (ROTA)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	39.729	9.329	4.259	.003
ROTA	-25.217	32.156	-.784	.456
F-statistic	.615	Durbin-Watson stat		1.692

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (ROTA) reveals the existence of negative relationship between corporate environmental reporting and return on asset (ROTA) as depicted by the slope coefficient of -25.217. ROTA appears to exert a negative effect on environmental reporting which is not also statistically

significant at 5% level. Furthermore, the F-stat (0.615) when compared with f-tabulated (3.09) implies that corporate environmental reporting does not affect financial leverage of Nigerian companies. The D.W statistics of 1.692 suggest the absence of first order serial correlation in the model.

Table no. 6. Regression results for Corporate Environmental Reporting (CER) and Debt to Equity Ratio (DER)

Sample: 2006 – 2016				
Observations: 110				
White cross-section standard errors & covariance (d.f. corrected)				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	43.214	9.023	4.790	.001
DE	-25.485	20.645	-1.234	.252
F-statistic	1.524	Durbin-Watson stat		1.955

Source: Author's calculation via SPSS software, 22.0 version

The evaluation of the slope coefficients of the explanatory variable (DER) reveals the existence of negative relationship between corporate environmental reporting and Debt-to-Equity Ratio (DER) as depicted by the slope coefficient of -25.485. DER appears to exert a negative effect on environmental reporting which is not also statistically significant at 5% level. Furthermore, the F-stat (1.524) when compared with f-tabulated (3.09) implies that there is no significant relationship between corporate environmental reporting and debt to equity ratio among Nigerian companies. The D.W statistics of 1.955 suggest the absence of first order serial correlation in the model.

Discussion

Empirical research on the relationship between corporate environmental reporting and financial performance indicates an avalanche of varied and heterogeneous results. However, this study examined corporate environmental reporting and the financial performance of companies in Nigeria. Data of operating performance, financial leverage and firm size were obtained from the annual reports and accounts of ten quoted manufacturing companies in Nigeria during the period 2006-2016, so as to establish the influence of corporate environmental reporting on the level of performance among the selected companies. To find out the strength of the relationship between the

operating performance (ROTA), financial leverage (DER), firm size (FSIZE) and extent of corporate environmental reporting among the selected quoted companies, a simple regression model was employed.

The findings revealed that although the level of corporate environmental reporting among Nigerian companies is relatively low; however, it is observed that the corporate environmental reporting pattern appeared to be inconsistent and unregulated for the content-category theme of disclosure among firms. Based on the quantitative analysis, we found a positive relationship between FSIZE and the extent of corporate environmental reporting, while a negative relationship exists between ROTA, DER and corporate environmental reporting.

Conclusion

This study contributes to knowledge by showing the relationship between corporate environmental reporting and financial performance: with evidence from quoted Nigerian companies. Findings of the study revealed that corporate environmental reporting is positively correlated with firm size, with a negative relationship with return on asset and debt to equity ratio. Based on the findings of this study, it was recommended among others that environmental reporting themes and evidence must be established to provide foundation for improving financial performance of quoted companies.

Furthermore, the study calls for standard-setting bodies to set up guiding principles or accounting standards in order to improve the financial and non-financial environmental reporting of quoted companies in Nigeria. Besides, quoted companies are encourage to imbibe the culture of corporate environmental audit as this process will help them systematically assess how well their environmental management practices conforms to green production goals and help diffuse green production practices throughout the organization.

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Ex-ante Study about Disclosure of Non-financial Information by Romanian Companies from Agriculture and Manufacture of Food Products

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Abstract

In Romania, starting with the financial statements of the year 2017, companies with more than 500 employees are required to report the non-financial information in line with the requirements of the 2014/95/EU Directive transposed into Romanian legislation. The purpose of this paper is to evaluate the degree of disclosure of this information by the Romanian companies in the field of agriculture and manufacture of food products before applying these regulations. The analysis reveals that the level of information disclosure is low, influenced by a number of factors: the type of ownership, the membership of a group and the trading of shares on the capital market. The evaluation of reporting practices is useful to track how companies in the future will apply to non-financial reporting requirements.

Keywords: non-financial reporting; disclosure; sustainability; Directive 2014/95/EU.

Introduction

The introduction of mandatory non-financial statement by companies with more than 500 employees according to the requirements of the Directive 2014/95/EU affects companies from all fields.

In this paper we analyze the Romanian companies implied in Agriculture and Manufacturing of food products, because these are areas that have an important impact on all the stakeholders of these companies through the products they provide, but especially by the way they choose to respect the environment and through the need to adopt sustainable practices to provide people with food. The non-financial information that companies will publish is based on corporate social responsibility (CSR), respective environmental, social and governance disclosure.

The purpose of the present paper is to show whether the analyzed companies were prepared to carry out these reports before they were required to report, or voluntarily provided information on social responsibility.

The paper contribution rely on examining the stage in which non-financial reporting companies are a source for future research; for managers the study sustain the internal analysis and the establishing of future CSR practices.

The article is structured as follows: Literature review, Research methodology, Result and discussion, Conclusions.

Literature Review

Companies in agriculture and food industry need to be careful regarding CSR policies, not only because of the impact of these policies on the products they sell, but also as a response to the possible food crises that can occur and can influence sales (Assiouras et al., 2013). On the other hand, Chen and Yang (2017) notes that the CSR effects in these industries lead to a reduction in profit, which is also affected by the regulation of prices and product quality.

Hartmann (2011) believes that small and medium enterprises (SMEs) in the European food sector must engage in a more active

strategy on CSR face to large companies that have already applied, thus defending the need for SMEs to publish sustainability reports.

In their study, Nagyvova et al. (2016) interviewed representatives of 100 SMEs and large companies from the Slovakian food industry in 2015 and found that CSR's predominant activities were reducing pollution and using environmentally friendly raw materials. Blažková and Dvouletý (2017) analyzed the determinants of the profitability of Czech food industry companies in the context of market concentration and found that an increase of market concentration leads to increased sector profitability.

Deák and Karali (2014) have analyzed the impact of environmental news on the stock price of food industry companies and the results obtained showed that internal factors have a greater impact than the company's external factors on the stock price.

Kassem et al. (2017) proposed a "set of key performance indicators on the four dimensions (economy, environment, social and governance)" to assess the sustainability of agricultural companies and have developed a website where sustainability reports can be uploaded.

Hoepner and Yu (2010) found that the link between CSR and financial performance differs from one business sector to another, so the results of the studies can't be generalized.

Another topic that has been studied by researchers was the reason why food industry companies are involved in CSR activities. Garst et al. (2017) has identified instrumental and rational motives and their correlation with innovative practices and Zhang et al. (2018) found that reasons are given by internal factors: ensuring safety, improve food quality, maintaining the integrity of business and external factors: consumer demand, regulatory pressures, ensuring the supply chain.

Considering that Central and Eastern European countries are facing common problems in the field of sustainable development of agriculture, comparative studies have been carried out to highlight the strengths and weaknesses of each country (Moudrý et al., 2018).

All study topics on this subject addressed by the researchers are communicated to the stakeholders through the reports they publish, which contain financial and non-financial information. Thus, Dumitru et al. (2017) conducted a comparative study on the reporting stage of companies in Romania and Poland before applying Directive no. 2014/95/EU and found that the strengths of Romanian companies

consists by the fact there are faced prior regulation, while the Polish companies had a higher voluntary reporting.

Concerning the reporting of non-financial information, Ogrean (2017) considers that the introduction of the mandatory disclosure could also leads the other Romanian companies to a voluntary reporting, in order to be more competitive.

Research Methodology

In order to demonstrate the objective of the paper, we conducted a qualitative analysis of financial and non-financial information, to identify the stage of non-financial reporting of companies.

In Romania, agriculture is less developed because it is working on small area of land; the labor force is aging and has a low productivity (Aceleanu, 2016). This is one of the reasons why there are not many large companies in this field.

The analyzed sample contains 36 companies that exceeded the minimum number of employees at the end of 2016. Data was collected from the companies' website and official data published by the Romanian Ministry of Public Finance. The companies are divided into two sectors: Agriculture and Production of food products sectors, which are divided into two subsectors: plants (vegetal) and animal, being located on the Romanian territory in all the eight development regions.

The considered financial indicators were grouped into two categories: Accounting indicators - number of employees, turnover, profit or loss and Key performance indicators (KPI) – profit margin and employee's turnover ratio.

In agriculture we must take into account the particularities of the sector in choice to use some performance and efficiency indicators (Pantea and Cuc, 2009). Performance is not synonymous with efficiency, because it includes a wider sphere, depending on the objectives pursued by the company and the ability to reach them (Imbrescu and Hategan, 2011). Also, another aspect to be taken into account is the valuation of biological assets (Mates et al., 2015).

The non-financial indicators are mentioned in the EU Directive and implemented in the national legislation and were structured into four categories: general information, environment, social and other information.

The studied period was 2015-2016, because it is the reference period for establishing the non-financial reporting obligation of year 2017.

Results and discussion

For the beginning, the companies included in our sample were classified by sectors to see which ones are predominant.

Table no. 1. Classification of companies by sector

Sector	Total	From which	
		Plant/ vegetal subsector	Animal subsector
Agriculture	7	3	4
Manufacture of food products	29	12	17
Total	**36**	**15**	**21**

Source: authors own projection

From table no. 1 results that most companies activated in the manufacture of food product sector (80%), with preponderance in the animal subsector (59%).

Another factor needed to be analyzed is the distribution of companies on the development regions of Romania.

In table no. 2 we can see that the studied companies operate in all regions of the country, contributing to the economic indicators of each region (Hategan et al., 2017).Most companies are located in the SM region (25%) due to the plain area relief and the economic specificity of the region, with tradition in agriculture, followed by the BI region (19%) due to the fact that it is the capital of Romania, where the most companies in the field of food production have registered there headquarters and could easily ensure the product distribution throughout the country. Also foreign-owned companies are predominant in these two regions, where the investors are making profitable investments. The number of companies in a region is also correlated with the number of employees in agriculture, and the existence of labor force dependence in this sector has been the subject of studies on the disparities of unemployment in Romania (Cismas et al., 2011).

Table no. 2. Regional distribution of companies

Regions	No. of companies	From which				
		Listed	State owned	Foreign capital	Multi-nationals	Registered loss
Bucharest -Ilfov (BI)	7			6	3	1
Center (C)	6					
North – East (NE)	3				1	
North –West (NW)	2					1
South – East (SE)	5	1	1			1
South – Muntenia (SM)	9			4		
South-West (SW)	2					
West (W)	2			2		1
Total	**36**	**1**	**1**	**12**	**4**	**4**

Source: authors own projection

Agricultural companies were not attractive in Romania in order to be listed on the stock exchange, so there is only one company listed on the secondary market from the SE region, having as activity the poultry rising. Also, the state is not the majority owner in the agricultural companies. In our sample there was only one public company from the SE region, having as activity: growing of other non-perennial crops.

Four of the analyzed manufacture of food product sector companies registered losses in the past two years.

The analyzed financial indicators were divided into two categories: indicators from company accounting and financial ratios calculated on the basis of accounting data.

The analysis of the data presented in Table no. 3 shows that the number of employees is on average 906, from a minimum of 506 employees of a company in the Central region having as activity the manufacture of ice cream, to a maximum of 2825 employees of a companies in the NW region having as activity, meat production.

Table no. 3. Financial indicators in period 2015-2016

Indicators	**Mean**	**St dev**	**Min**	**Max**
Accounting indicators				
Number of employees	906	497	506	2825
Turnover (sales)	349076329	217406505	25720377	960125675
Profit or loss	8474945	52944296	-387370918	89344806
Key Performance Indicators				
Profit margin (Profit/ Turnover) for all companies	3.01%	16.93%	-125.91%	25.30%
Profit margin (Profit/ Turnover) for companies with profit	6.01%	5.68%	0.08%	25.30%
Employees turnover ratio (Turnover/No employees)	420518	293983	37221	1541132

Source: authors own projection

The turnover is in the range of RON 25.720.377 obtained by the only state-owned company included in the sample from the SE region, to a maximum of RON 960.125.675 obtained by a company having as activity the growing of cereals (except rice), leguminous crops and oil seeds from the SM region.

Out of the 36 companies analyzed, four achieved loss, the biggest loss was registered by a company in the NW region with activities in manufacture of other food products, and the highest profit of RON 89,344,806 obtained by a company from *West region* with activity: Raising of swine/pigs.

If we analyze the performance indicators, the situation changes from the absolute sums of the financial result, so the biggest profit margin ratio of 25.30% was achieved by a company which manufactures ice cream, from the SW region (the same company that has the smallest number of employees), so this area is the most profitable for the sample and the analyzed period. For profit-earning companies, the lowest profitability rate was 0.08% achieved by a company from SM region, having as activity bread, fresh pastry goods and cakes manufacture.

Employees turnover ratio was at the minimum level of RON 37.221/employee in a state-owned company, which shows a reduced state administration performance, and the highest rate of RON

1.541.132/employee was held by a company with the highest turnover in the SM region.

Analyzing the evolution of the financial indicators in period 2015-2016, we found that half of the companies improved marginal profit in 2016 compared to 2015, which shows that there are good business conditions in the two analyzed sectors.

Table no. 4. Non-financial indicators

Non-financial indicators	Yes	No	Yes, at parent companies
General information			
Website of companies	31	1	4
Information about Quality standard	22	10	4
Business model	9	23	4
Environment			
Impact on the environment	19	13	4
Use of renewable energy	3	29	4
Greenhouse gas emissions	4	28	4
Air pollution	7	26	3
Water use	5	28	3
Social			
Gender equality	8	26	2
Working conditions	29	4	3
Social dialogue	19	14	3
Health and safety at work	16	17	3
Implication in local communities	17	16	3
Other information			
Human rights	2	33	1
Discrimination in the workplace	3	32	1
Diversity information	7	28	1

Source: authors own projection

Non-financial CSR indicators were designed to complete the company's image with the financial indicators presented (table no. 4), information being taken from the companies' websites, writing “Yes” if they were presented, “No” if we did not find or could have linked them

to other sources, such as financial newspapers, and "Yes, at parent companies", if this information is found only on the website of parents companies. Thus, it is noticed that only one analyzed company did not identify its own website, and four companies publish CSR information on the website of the groups they belong to.

One of the most important information on product quality is the quality standards leading to increased stakeholder confidence in the company, so over two-thirds of the companies have chosen to inform users about the quality standards they have implemented.

Description of the business model of a company is an indicator that contributes to the understanding of its activity, so only one third of the companies have posted such detailed information.

Regarding environmental indicators, two-thirds of the companies are interested in the impact of their activity on nature and communicate their concerns about reducing environmentally damaging activities. Their number drops below a third in terms of information on renewable energy, gas emissions, air pollution and water use.

In terms of social indicators, most companies are aware of the importance of working conditions for employees. Also two-thirds of the companies state that social dialogue and workplace security are their priority objectives.

More than half of the companies surveyed said they were involved in community activities in the form of direct sponsorship or funding of strategic programs in the fields of health, education, sport and environmental protection.

The publication of other information such as human rights, discrimination at workplace and diversity information was not in the companies' attention, having just isolated information on the companies' websites.

From the 36 analyzed companies, two were selected for a study conducted in 2017 by The Azores Company, specialized in CSR services: Smithfield Farms and Transavia. The results of the study showed that these companies were prepared in terms of CSR reporting.

Smithfield Farms is a company with foreign capital from the West region of Romania, with a high level of profit and a profit rate higher than the average of the sector (12.2% in 2016). Transavia is a company from the Center Region, with Romanian capital and a profit rate of 12% in the last two years.

The non-financial information provided by the companies does not contain values (amounts) spent or invested in CSR actions, that's why we could not analyze their share in the turnover, which is considered an important indicator in evaluating CSR activities (Hategan and Curea-Pitorac, 2017).

In the analyzed companies, CSR activities are closely related to financial indicators, as companies that are aware of the importance of CSR are those that had indicators above the industry average. But this situation is not a rule, and companies that have losses, regardless of their activity were involved in CSR activities (Hategan et al., 2018).

Conclusions

Non-financial reporting is an important factor for the companies that have realized that sustainable long-term value can be created only if they are involved in CSR activities.

Our study shows that most of the companies in the sample are those from the manufactured food products sector and almost half of the companies are located in two regions: South-Muntenia (SM) and Bucharest-Ilfov (BI). 90% of the surveyed companies obtained profit, the highest profit rate being obtained by an ice cream manufacturing company, in the Romanian SW region.

Regarding the non-financial indicators it is noted that a small number of companies are aware of the importance of CSR strategies, the published information does not show that they had the objective of voluntarily presenting the sustainability information, but will have to comply with the legal requirements. The highest level of voluntary CSR reporting was given to companies from manufacturing food products (animal subsector) with a good financial situation.

The results of the study are in line with other research in food industry (Blažková and Dvouletý, 2017). We believe that the paper contributes to the understanding of how important disclosure of non-financial information is, when examining the status of the non-financial reporting companies. Managers can use the information to identify their company's situation by performing internal analyzes and establishing future practices on social responsibility.

The paper has limitations due to a small sample of companies and the fact that no information was voluntarily published by the companies analyzed. Therefore, in a future research we propose an ex-post study on the degree of compliance of the companies after the

publication of the 2017 reports, expanding the number of companies sampled to the manufacture of beverages and tobacco, wholesale and retail sale of food, beverages and tobacco sector, and to generalize the results. Also, it is opportune to make a comparison with similar companies from other countries.

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Electricity Affordability and Household Welfare in Nigeria

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Abstract
This study examines the affordability of electricity in terms of access to electricity and the cost of electricity vis-à-vis the welfare of households in Nigeria. The study is motivated by the inability of the National grid to provide adequate electricity supply to every households in the country and by the fact that majority of the Nigerian population in both the rural and urban areas depend solely on generators to power their homes in a quest to make up for the National energy inadequacy. To this end, the study enquires into the factors that can enhance households' potentials for generating electricity from solar and inverters, instead of generators, in order to reduce emissions and increase their real incomes. Empirical results confirm that households' captive power generation capacity revolves around the usage of generators while they are less informed about the use of solar panels and inverters. Also, we confirm that

households' income earning potentials determine the choice they make between generator, solar and inverters. We hereby conclude that electricity affordability has a strong correlation with households' welfare in Nigeria.

Keywords: Affordability; Access; Electricity; Welfare; Household; Nigeria.

Introduction

It is over a decade now that the Electric Power Sector Reforms Bill was signed into an Act. The law, amongst other objectives, is to ensure a system of electricity generation, transmission, distribution and marketing that is efficient, safe, affordable and cost effective throughout the industry. The effectiveness of the reforms in transforming the sector has remained rather elusive. For instance, the quantity of electricity generated in Nigeria is still very meager while the quality of the service delivery is very poor. Despite the private sector's participation in the business of power sector, the general consensus of the people is that power supply has not significantly improved. A substantial supply gap for electricity generation exists in Nigeria. According to the Federal Ministry of Power, Works and Housing, the current electricity generation in Nigeria is around 7000MW, whereas, the projected electricity demand was put at 31,240MW and 88,282MW for 2015 and 2020 respectively (ECN, 2014; Isola, Mesagan and Alimi, 2017). This shows the huge gap between demand and supply of electricity in Nigeria. For the purposes of comparison, South Africa generates 40,000MW for a population of 50million people; Brazil generates 100,000MW for a population of 192 million people; USA generates 700,000MW for a population of 308 million, while in Nigeria with a population of over 150 million people, electricity generation has been oscillating within the range of 1,700MW and 4,700MW since the inception of the power sector reforms in Nigeria, until recently. This argument has been discussed extensively elsewhere (see Isola, 2011, 2016). While, the population of the country is currently estimated at about 180 million, only about 40% of the population is currently connected to the national grid (Aliyu *et al.*, 2015).

Besides, the issue of having a workable electricity tariffs in Nigeria is still problematic. As part of the restructuring effort of the power sector, the Electric Power Sector Act 2005, a Multi-Year Tariffs Order (MYTO), was adopted to estimate end-user tariff in Nigeria. To date, MYTO has been reviewed several times since inception in 2008. Nevertheless, the issue of adopting a workable tariff structure in Nigeria is still obscure as consumers are dissatisfied with the exorbitant bills and poor service delivery. The recent amendment of the MYTO (2015) representing a 45 per cent hike in electricity tariff has generated heated controversy between the government and stakeholders. The government on its part argued that the old tariff was not sustainable as it would not attract the required investment in the sector. To register their grievances, the stakeholders, including members of the organized labor engaged in mass rallies across the country and issued a two-week ultimatum to government to revisit the decision. In a bid to circumvent the problem of unreliable power supply, households have invested in in-house captive power generation to supplement power supply from the national grid by using different energy sources.

Few of those alternatives revolve around the use generators, inverters, solar panels, and the likes. However, majority of households in Nigeria depend on generators due to its easy accessibility and cost, without minding the environmental threats it poses (Akande and Owoyemi, 2008; Oseni, 2012). To this end, instead of diversifying energy supply mix nationally as several studies have suggested, this study aims at encouraging households to diversify their private source of energy, given several considerations like income, environmental costs, health implications, noise pollution, and so on. In making their decisions, households will consider the potential costs of various energy sources in terms of cash and health implications.

Energy access is very crucial to the development of a nation and it also has the potential to improve the welfare of its citizenry. As noted in Louw *et al.* (2008), access to appropriate, affordable and clean energy provides important stimulus for development. Moreover, Winkler *et al.* (2011) submitted that energy affordability depends largely on the extent to which energy products are consumed. It can also provide the needed impetus for driving the productivity of key sectors in the country (Isola and Mesagan, 2016). In Nigeria, for instance, access to stable electricity is highly problematic since the country generates over 70% (Aliyu *et al.*, 2013) of its energy from non-renewable sources, which is highly

carbon intensive. Its source of supply is also not consistent owing to the incessant vandalization of gas pipelines in the oil producing areas most especially. Hence, the myriads of challenges facing the non-renewable energy sector make the supply of electricity in the country epileptic. Therefore, there is the need to increase the proportion of renewable energy in the Nigerian energy supply mix to improve electricity generation and boost electricity supply.

Similarly, there is the need for individual households to participate actively in electricity generation as they currently do to make up for the supply deficiency usually associated with power generation from national grid. Hence, this study determines the affordability of renewable electricity in the country with a view to increase households' access to electricity, reduce carbon emissions produced by generators and improve welfare. Hence, we inquire from residents how accessible are electricity alternatives to them? What information is available to them regarding the affordability of alternative energy (like inverters and solar panels)? What factors can attract them to shift attention from the usage of generators to the usage of inverters and solar? Which basic indicator of welfare is more important to them? It is against this background that this study examines electricity affordability and household welfare in Nigeria.

Literature Review

In the literature, several expositions have been provided on the electricity affordability, electricity crisis, household size, energy technologies, and their environmental implications. For instance, Bailis *et al.* (2005) examined the impact of green-house-gas (GHG) emissions generated from energy consumed by households on mortality in Africa. In the study, a database of current and future energy use of households in the continent up to 2050 was developed. It identified the use of charcoal for fuel as the main cause of GHG emissions. It suggested that GHG emissions can be lowered by about 36% by shifting to sustainable use of biomass, as well as, transiting to petroleum-based fuels. However, they identified high costs of fuel processing and affordability of fuel by individual households as the major obstacles to GHG reductions in Africa. Louw *et al.* (2008) beamed searchlight on what determines demand for electricity in Africa by households that are newly electrified. The study was able to assess those factors that affect households' electricity consumption decision in South Africa between

2001 and 2002. It was observed that iron ownership, income, credit obtained, and wood usage, were the major drivers of households' electricity demand. Winkler *et al.* (2011) focused on the electricity affordability and access in developing economies using a case study of Brazil, Bangladesh and South Africa. In terms of electricity affordability, the study examined the burden of energy expenditure on households' income. It was confirmed that both institutional and legal frameworks play significant roles in promoting electricity access. Also, on the average, households in South Africa spent more (4.7%) on electricity consumption than in Brazil (3.4%) and in Bangladesh (8%).

Moreover, Lahimer *et al.* (2013) studied the decentralized energy technologies of household size that are available to rural dwellers. Decentralized energy technologies that received attention in the study include Pico hydro, wind, diesel generator, battery, photovoltaic solar system for homes, and pedal generator. In the study, Pico hydro was selected as the preferred source of generating electricity by majority of the rural households. The next source is wind, solar and then, diesel generator. The preference was based on availability, feasibility, rural development, residues disposal, characteristics of use by consumers, and government policies governing usage. It was recommended that rural households' electricity access will increase if payment schedule of costs is extended and taxes or interest rates are jettisoned. Mohammed *et al.* (2013) assessed the potential of renewable energy in electric power generation in Nigeria. In the study, basically, the potential of hydro, biomass, wind, and solar were reviewed. It was reported that renewable energy is the best option in the quest to ensure sustainable energy supply in the country as it is environmentally friendly. It suggested that hydro power alone is potentially suited to address the energy crisis and put the country on the path of sustainable development. It opined that diversifying into renewable energy may be beyond the reach of rural dwellers due to cost but suggested that the use of biogas generated from bio-wastes can provide cheaper alternatives.

Aliyu *et al.* (2013) focused on electricity crisis in Nigeria in terms of power generation expansion potential and its environmental consequences. In the study, overdependence of the country on fossil fuel sources of electricity was identified as the major factor of electricity crisis. Hence, to solve the problem and achieve energy security, diversified energy sources were recommended. However, for desperate effort to address energy poverty in the country, expansion of readily

available conventional energy with little environmental impact is advocated. Shaaban and Petinrin (2014) researched into the potentials of renewable energy in filling the energy gaps in the rural areas in Nigeria. In the study, various renewable energy sources were dissected and their potentials for electricity generation were analyzed. Also, the study outlined the various government policies to develop renewable energy sources in the country and found that they are mere green paper policies. It therefore, advocated for the reengineering of renewable energy technologies to alleviate rural electricity crisis and boost energy resources generally in the country. Recently, Akorede *et al.* (2017) presented a review of renewable energy sources in Nigeria by examining the present energy status in the country. It also provided a discussion of the government's various energy policies, analyzing the projected energy targets in the country up to 2030. Although, the study identified that the current level of electricity consumption is low, and the country is well positioned in diversifying its energy mix for sustainable development.

Analyzing the reviewed studies, we conclude that researchers have dealt more on the efforts done by the national governments in mitigating the energy supply gap in several countries and regions. However, Louw *et al.* (2008) focused on determinants of households' energy demand; Winkler *et al.* (2011) looked at energy affordability and energy access, while Bailis *et al.* (2005) focused on environmental impact of household energy consumed. Mohammed *et al.* (2013), Shaaban and Petinrin (2014), Akorede *et al.* (2017) examined the generating potential of renewable energy, while Aliyu *et al.* (2013) only beamed searchlight on electricity crisis in Nigeria. Hence, while these studies have been able to recommend a policy approach for solving energy crisis to the government, little have been offered in terms of household efforts at mitigating the electricity supply gap. This study aims to fill this gap. In addition, the study attempts to extend the frontiers of knowledge by accessing the challenges and prospects of households in their private electricity generation efforts to encourage their participation in sustainable generation of electricity.

Research Methodology

The survey research design, as well as the cross-sectional analysis was adopted for this study. There where chosen taking into account the raised research questions and the stated hypotheses. The

approach is employed to ascertain the relationship between electricity affordability and household welfare in Lagos state, Nigeria. The residents of Lagos metropolis constitute the population of this study. The state was selected since it is the second most populated state and the commercial capital of Nigeria. A sample of 150 people is drawn from residents residing around Surulere, Iwaya and Onike areas of Lagos. The sample covers both, Surulere Local Government and the Lagos Mainland Local Government. These areas are selected basically because it is just a pilot study and for the cost minimizing. Surulere, Onike and Iwayaand also afford us the opportunity to harvest opinions of typical highbrow and lowbrow residential areas of Lagos pertaining to energy affordability and its effect on human welfare. Random sampling technique was employed in selecting the sampled respondents. A structured questionnaire showing the socio-demographic information of the respondents as well as key questions which border on electricity affordability and households' welfare were administered. Also, we employ both, qualitative and quantitative methods of analysis. The statistical analyses suitable for the stated objectives are employed to arrive at the findings of the study.

In addition, we conducted the validity test of our instruments using the Pearson Product Moment Correlation (PPMC) techniques. The values of our validity test were 0.872 and 0.931 for demographic factors and questions in section two respectively, which are larger than its critical value at 5 per cent. The reliability test using the Cronbach's-alpha values were 0.935 and 0.964 for demographic data and questions in the second section correspondingly. It implies that the instruments are valid because the values are greater than the benchmark value of 0.78. Graphs and tables are used to present the opinion of respondents. The Relative Importance Index (RII) was also used to identify and rank alternative electricity sources Lagos residents are familiar with, the one that is cost effective, environmentally friendly in terms of pollution and space and factors that can make households shift from the use of generators to inverters and solar. The equation of RII is presented as:

$$RII = \frac{\sum W}{AN}$$

The value of RII ranges between 0 and 1 (i.e. $0 \leq RII \leq 1$). Where; W = the weights given to each factor by respondents ranging

from 1 to 5; A = is the weight for height i.e. 5; and N = is the total number of respondents.

Result and Discussion

The results from the data collected from the questionnaires administered to respondents are presented in this section. We first present the demographic characteristics of respondents reported in Figures 1-4. The demographic classification by gender showed that 76% are males, while 26% are females. The occupation of the respondents revealed that 59% are civil servants, while the remaining 41% are business owners. The family size of the respondents indicates that 27%, 44%, 19% and 10% have a family size ranging within the values of 1-3, 4-6, 7-10, 11 and above respectively. The age distribution of the respondents shows that 12%, 25%, 32%, 17% and 14% correspondingly are within the age bracket of 18-25 years, 26-35 years, 36-45 years, 46-55 years, 56 years and above.

The income level of each respondent reveals that 17%, 35%, 31%, 13% and 4% earn annual income less than ₦500,000, ₦500,000 - ₦1Million, ₦1.1 - ₦5Million, ₦5.1 - ₦10Million and ₦11Million and above respectively. This implies that majority of the respondents are male, within the working age group and engages in paid jobs. They have a relatively large family size within 4 -10 and earn income less than ₦5million annually.

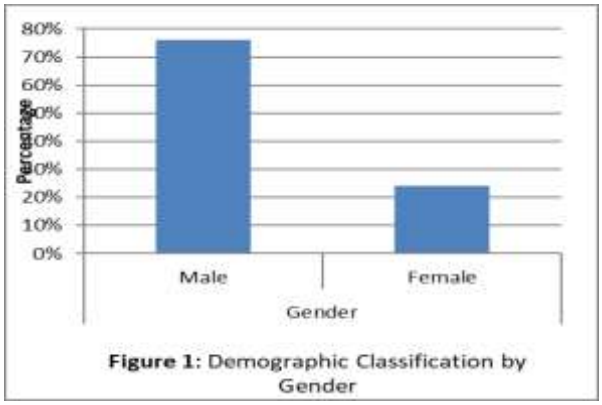


Figure 1: Demographic Classification by Gender

Source: Authors' Computation from Field survey (2018)

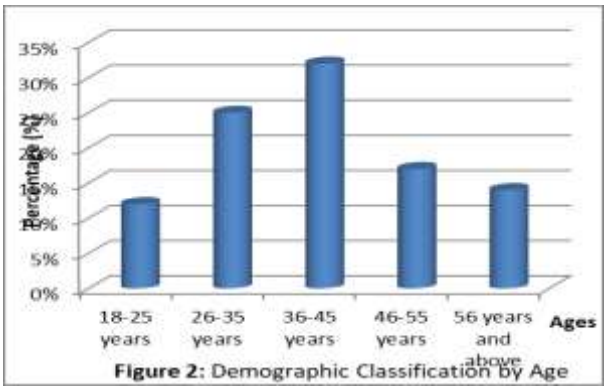


Figure 2: Demographic Classification by Age

Source: Authors' Computation from Field survey (2018)

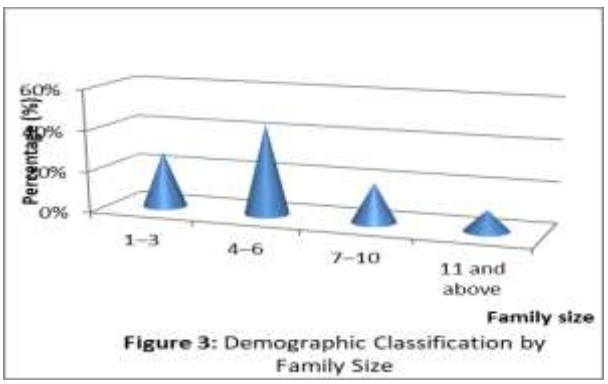


Figure 3: Demographic Classification by Family Size

Source: Authors' Computation from Field survey (2018)

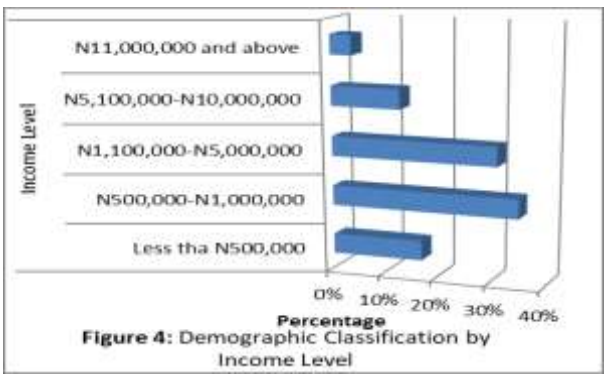
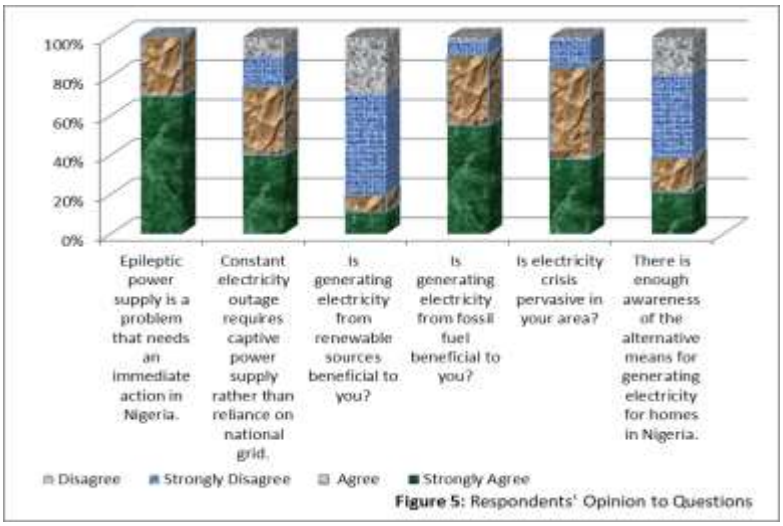


Figure 4: Demographic Classification by Income Level

Source: Authors' Computation from Field survey (2018)

Figure no. 5 reports respondents' perception on questions relating to energy affordability among Lagos residents. The figure suggests that all the respondents view epileptic power supply as a

problem that requires urgent attention in Nigeria. About 75% of respondents agreed that constant electricity outage requires captive power supply rather than reliance on national grid, while only about 20% of respondents agreed that generating electricity from renewable sources is beneficial to them. This implies that the awareness about generating electricity from alternative sources is still very low in Nigeria. Moreover, about 91% of the respondents agreed that electricity generated from fossil fuels is more beneficial to them, while about 85% of respondents confirmed that electricity crisis is pervasive in their areas. However, 40% of respondents confirmed that there is enough awareness of the alternative means for generating electricity for homes in Nigeria, while a sizeable number disagreed.



Source: Authors' computation (2018)

Table no. 1 reports various alternative electricity sources for homes in Lagos state. From the table, generator was ranked as the best alternative source of electricity for homes with a Relative Importance Index of 0.987. The second key alternative source was inverter (RII = 0.742) which still depend on the conventional source to be use by home. Other alternative sources according to ranking are solar energy (RII = 0.492), wind mills (RII = 0.412) and tidal waves (RII = 0.376).

Table no. 1. Alternative sources of electricity for homes in Lagos state

Energy Source	Relative Importance Index	Ranking
Inverter	0.742	2
Solar energy	0.492	3
Tidal waves	0.376	5
Wind mills	0.412	4
Generator	0.987	1

Source: Authors' computation (2018).

Table no. 2 presents the ranking of all alternative sources of electricity for homes that respondent consider being more cost effective. In Table no. 2, respondents opine that generator is the most cost effective as it was ranked first with a RII of 0.743. This is followed by inverter (RII = 0.701), solar energy (0.654), wind mills (RII = 0.476) and tidal waves (RII = 0.391), in that order.

Table no. 2. Cost effectiveness of alternative sources of electricity for homes in Lagos state

Energy Source	Relative Importance Index	Ranking
Inverter	0.701	2
Solar energy	0.654	3
Tidal waves	0.391	5
Wind mills	0.476	4
Generator	0.743	1

Source: Authors' computation (2018)

The environmental friendliness of alternative source of electricity for homes and human welfare were reported in Table no. 3 which identified solar energy as the best environmentally friendly electricity source with a relative importance index of 0.871. This is followed by inverter (RII = 0.821), wind mill (RII = 0.591), tidal waves (RII = 0.427) and generator (RII = 0.312).

Table no. 3. Environmental friendliness of alternative source of electricity for homes

Energy Source	Relative Importance Index	Ranking
Inverter	0.821	2
Solar energy	0.871	1
Tidal waves	0.427	4
Wind mills	0.591	3
Generator	0.312	5

Source: Authors' computation (2018)

Table no. 4 presents the result of factors that can make Lagos residents shift from the use of generator, to inverter or solar. The most important factor is less air pollutant with a RII of 0.913. The second factor is less noise production with a RII of 0.881. This is followed by easy operation after installation (RII = 0.778), the maintenance cost (RII = 0.497) and procurement cost (RII = 0.451), in that order.

Table no. 4. Factors that makes consumer shift from Generator use to Inverter/Solar

Energy Source	Relative Importance Index	Ranking
Less noise pollutant	0.881	2
Less air pollutant	0.913	1
Easy to operate	0.778	3
Maintenance cost	0.497	4
Procurement cost	0.451	5

Source: Authors' computation (2018)

Summary and Conclusion

This study investigates the nexus between electricity affordability and household welfare in Nigeria, using Lagos state as a case study. This is a pilot study that involves the administering of one hundred and fifty questionnaires to residents in Surulere, Onike and Iwaya areas of Lagos State, covering two Local governments (i.e. Surulere and Lagos Mainland). In the results presented according to the respondents' responses, there is an epileptic supply of electricity in their areas. Residents also opined that there is less awareness about

generating electricity from non-renewable sources. It was also confirmed that generator is still the best alternative source that households use for generating electricity because of its easy access and cost. Alternative sources like inverters and solar are still at infant stage of getting recognition among households in the Lagos metropolis. This is because many respondents opined that both inverters and solar are very expensive to install and requires high level of expertise for its maintenance, unlike generators. However, despite the perceived huge cost and maintenance difficulties, households opine that both solar and inverters are more environmentally friendly compared to the usage of generators. This is because they generate lesser noise and emissions of carbon. Going by the result of this scientific enquiry and for the fact that households' income determines the affordability of electricity, which in-turn has environmental implications on households, we hereby conclude that electricity affordability has a strong correlation with households' welfare in Nigeria. To this end, it becomes very important for every household in the country to diversify its captive energy supply into the use of inverters and solar, rather than using generators to supplement energy supply from the national grid.

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Business Process Reengineering and Organisational Performance in Nigeria Deposit Money Bank

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Abstract
This study examined the effect of business process reengineering (BPR) on organizational performance in Nigerian Deposit Money Bank. The study adopted ex-post facto research design and purposive sampling technique to select three out of the twenty two deposit money banks in Nigeria. The study used secondary data collected from the financial statements and annual reports of various issues of the sampled banks. However, the data were computed using a profitability ratio, specifically return on assets (ROA). The data collected were analyzed using both, t-test and regression statistics. The results revealed that there is a significant difference in the pre-BPR and post-BPR profitability performance of banks. In the same vein, result from

testing of the second hypothesis showed that BPR implementation has a significant impact on the operational performance of banks in Nigeria. Based on the findings of the study, it was concluded that implementation of BPR in the banking industry is very critical to the achievement of desired performance in the area of profitability and operational efficiency. It is therefore recommended to top management to understand that BPR process is better accomplished when it is accompanied by the integration of information technology resources.

Keywords: Business Process Reengineering; Profitability; Organization Performance; Resource-Based View Theory; Dynamic Capabilities Theory.

Introduction

Business process re-engineering has been traced to the late 1980s when it received tremendous attention in both, academic and management literature, and it is now a popular change approach throughout the world. Specifically, it was suggested from the ideas of Hammer and Champy (1993); Davenport (1993), that BPR should concentrate on processes rather than structures (functions) as the primary focus on the management of business activity. Organizational performance has become a watchword in modern business; as a result, there are inevitable pressures for business process re-engineering. The rampant and rapid expansion of competition across markets and geographic brought important questions such as “How should work be redesigned”? “Who does it”? “How is it get done”? These questions initiated business process re-engineering into the overall strategy for sustained competitive advantage, reduction of costs, differentiated products and effective price management, with greater impact and perfect execution.

Sidikat and Ayanda (2008) opined that business process is simply a set of activities that transformed a set of inputs into a set of outputs for another person using people and equipments. Hence, business process entailed a set of logically related tasks performed to achieve a defined business output or outcome. Hammer and Champy (1993) argued that business process is the fundamental reconsideration and radical redesign of organizational process, in order to achieve drastic improvement of current performance in cost, service and speed, which enjoys a fair measure of consensus.

Business process re-engineering is a strong approach to finding new ways of conducting an organization's business. It is a critical means to aid business, examine its old methods and processes towards gaining competitive advantage. BPR can be regarded as a strategic means of starting business in a new way, by applying fresh methods, processes and procedures in performing certain tasks more effectively and efficiently. In essence, these innovative design and implementation change may involve changing organization structure, infrastructure, performance measure, reward system, values for customers and behaviors.

The re-engineering efforts especially in the banking industry are now on improving organizational performance. This is because patterns of competitive advantage and customers' satisfaction in the banking industry have changed dramatically over the years. However, high-technology banking through information technology is changing the relationships patterns between customers and financial institutions such that sustained growth requires more than mere uncalculated risk-taking. Therefore, as customers increasingly demand for around the clock banking services from the industry, banks that must be relevant and remain competitive should be ready to offer wired (electronic) services that exceed their customers' expectations. Moreover, as businesses are increasingly becoming globalized and bank customers also spread their client horizons, banks must reposition themselves to meet and exceed customer demands for fast fund movement across the globe. Thus, banks must endeavor to respond to these challenges by re-engineering their operations and organization settings.

Therefore, this study is necessitated to bridge the gap among earlier studies by assessing the impact of business process re-engineering (BPR) on organizational performance, with special focus on profitability as performance proxy, being a unifying indicator between

this particular study and the existing ones, with reference to deposit money banks in Nigeria. The study also examines the difference between pre-BPR and post-BPR profitability performance of banks in Nigeria, in order to ascertain the extent of business process re-engineering impact on operational performance.

Theoretical Framework

Resource-Based view Theory

The Resource Based View (RBV) was propounded by Penrose in 1959. The theory argued that the competitiveness of a firm is achieved through deliverance of superior value to customers (Musya, 2013). The businesses must strategically identify and utilize resources of a firm in order to sustain competitive advantage (Collier, 2013). The RBV theory argued that firms have three categories of resources; these are physical capital, human capital and organizational capital (Mutuvi, 2013). The other critical component of the RBV theory is the concept of capability. A capability is a capacity for a set of resources to perform a stretch task of an activity. Each organization is a collection of unique resources and capabilities that provides the basis for its strategy and the primary source of its returns (Kavoo, 2013). In the context of the BPR processes within the banking industry, the firms must reorganize the physical capital, human capital and organizational capital with a view of optimally utilizing their resources to achieve the organizational and operational performance objectives. Resource-based view is the underlying theory in this study which explains the relationship between organizational resources and sustaining a competitive advantage for superior organizational performance relative to competitors (Fahy, 2000).

Dynamic Capabilities Theory

The dynamic capabilities theory is based on the notion that the business world is characterized by a hyper competition (Bartai, 2014). For the firms to gain and sustain the competitive advantage, they must strive to continually rearrange their internal resources and capabilities, that is, dynamic capabilities (Ndanu, 2014). In this context, the dynamic capabilities are defined as a firm's strategy to constantly integrate, reconfigure, renew and recreate internal and external resources in response to dynamic and rapidly shifting market environments in order to attain and sustain competitive advantage (Kulundu, 2014). The BPR

process enables the firms to create dynamic capabilities through the reorganization of the available resources to ensure optimum performance.

Literature review

Business Process Reengineering (BPR)

Business process is a set of activities that transform a set of complex business activities or old inputs into friendly and easy to use interrelated set of activities through information technology, to produce outputs for another person or process using people and equipment. Business Process Reengineering (BPR) is concerned with the fundamental rethinking and radical redesign of a business process to obtain dramatic and sustained improvements in quality, cost, service, lead time, flexibility and innovation (Acharya, 2015). It is further stressed that BPR focuses overall process starting from product conceptual stage to final product design. It provides the opportunity to reengineer the process or minimize radically the number of activities it will take to carry out a process using advanced Information Technology (IT).

Acharya (2015) declared that BPR is a transformation as opposed to 'change' that alters the basic rhythm and character of the organization. Stoica, Chawat and Shin (2004) stressed that BPR is the evaluation and amendment of strategy, process, technology, organization and culture.

Also, in the service industry like banking sector, business activities have undergone dramatic changes in recent times, both local and global. The banking environment is provided with the resources, opportunities for its existence and equally imposed determinants on a bank to what it can or cannot do. However, if a bank must survive, grow and remain prosperous, it must adapt itself to the demands of the changing environment (Acharya, 2015). Therefore, all of these changes have necessitated the banking sector to begin to rethink new, better and more effective ways of doing business for a prosperous existence, hence the need for BPR to improve organizational performance through information technology. This can help to revolutionize the relationship between customers and financial institutions, as well respond to the challenges like globalised business, spread clientele, repositioning to meet and exceed customer needs for fast funds movement across the globe.

BPR is a continuous process of screening and re-engineering to bring about excellence in the service delivery to stakeholders (Acharya, 2015). Nadeem and Ahmad (2016) contended that business process reengineering (BPR) is important and organizations today are using this approach to improve their performances to become more efficient and effective. BPR is better because it focuses on goals, objectives and targets, which are not only understandable but also easy to attain to reduce the cost, improve the customer satisfaction, loyalty and performance of the organizations.

Business process reengineering is also a management discipline for analyzing and redesigning current business processes and their components in terms of efficiency, effectiveness and added value to the objectives of the business (Herzog, Polajnar and Tonchia, 2007). In essence, BPR seeks to split away from the old and current processes to come up with an improved procedure and channel of activities in new fashion that enable use of IT with support of people in organization. In this regard, every organization that is aiming to implement reengineering must be careful and not take anything for granted; determine what a company needs and how effectively it can be done. In addition, BPR implementation must come with dramatic improvement, and thus guarantee greater performance in the long run.

There are many possible benefits from reengineering that translate into improved organizational performance. Some of these benefits include, gaining competitive advantage over other firms in the same industry; aligning human resources, processes and technology with strategic goals and objectives of organization; and the integration of business processes that work efficiently. Organization performance comprises the actual output or results of an organization as measured against its inputs. Organizational performance measures allow companies to focus attention on areas that need improvement by assessing how well work is done in terms of cost, quality and time. Organizational performance metrics have multiple dimensional scales for its measurement (Ringim, Razalli and Hasnan, 2012). For example, some financial performance indicators employed in previous studies are, profitability, success rate of new service or product introduction, after tax return on investment, sales growth and after tax return on assets; whereas example of non-financial performance indicators includes: customer satisfaction, customer focus, market research and customer relationship management, quality and process improvement.

In this study, organizational performance is referred to as the level of bank performance in terms of financial performance indicators (profitability) only, but not non-financial indicators as different from both financial and non-financial performance indicators used by Ringim, Razalli and Hasnan (2012) in their work titled 'moderating effect of information technology (IT) capability on the relationship between business process reengineering factors and organizational performance of Malaysian banks'. However, Gomes, Yasin and Lisboa (2004) revealed that emphasis on the performance measurement adopted by any organization is dependent on the objective of such an organization at a particular situation. Hence, in whatever situation or perception of management in defining organizational performance, it means a continued success and achievement of an organization.

Magutu, Nyamwange and Kaptoge (2010) studied the relationship between business process reengineering and competitive advantage of Wrigley Company. The research was conducted by collecting primary data from the employees of the company through online questionnaires, and it was found in the study that the Wrigley Company gained competitive advantage by implementing BPR.

Ringin, Razalli and Hasnan (2011) examined the critical success factors for business process management of small and medium banks in Nigeria. However, the study focused on a large scale survey of five critical success factors of BPM implementation, such as IT investment, volume of financial activities, personnel commitment, strong capital base and effective reward system. Findings from the study showed that IT investment, personal commitment and volume of financial activities have significant relationship with overall organizational performance, in terms of cost reduction, customer service management and operational efficiency performance; while effective reward system is not.

Nisar, Ahmad and Ahmad (2014) further explored the factors that contribute to success of business process reengineering and its impact on organizational performance of Pakistani banks. In their methodology, open-ended interview was used to gather necessary information on those factors that contribute to successful BPR implementation in the banking industry. Results from the study revealed that business process reengineering has strong positive and significant association with organizational performance.

Nadeem and Ahmad (2016) improved on the study that has been conducted on BPR in the Pakistan banking industry. In the study, pilot

test was used and closed-ended questionnaires were also used on a five-point rating scale. However, descriptive and inferential statistics were used to analyze the data collected from the questionnaires. Innovation, information technology use and change management were all used as the constructs to measure the existence and impact of BPR on organizational performance. The findings from the study revealed that the dimensions of BPR are reliable and valid. The outcomes of BPR implementation are significant and its execution was found in various operational processes in the banks of Pakistan.

Sungau, Ndunguru and Kimeme (2013) assessed the influence of BPR on service quality of service industry in Tanzania. The study adopted a cross-sectional survey design and Z-score for its data analysis. In all, ninety five service organizations in Tanzania were selected as sample. Renovation, networking, service quality and delivering speed were used as valid constructs. It was discovered that BPR positively affects delivering speed which in turn affects service quality. In other words, findings showed that BPR has significant positive effect on both service quality and delivering speed of service industry in Tanzania.

Archarya (2015) examined the role and impact of BPR in Andhra Commercial banks. Questionnaire was used as a means through which data are gathered. However, frequency and percentage analysis, and t-test paired sample statistic were used for analyzing the data collected through the questionnaire administered to the customers and employees of the bank. Unlike other studies conducted on BPR in Pakistan banks, the findings of the study revealed that the customers and employees favored implementation of BPR, since it reduces the process time in business operations and strengthen the bank.

In Nigeria, Ringim, Osman, Hasnan and Razalli (2013) explored the implementation of BPR in Nigerian banks. The study objectives are to determine the current status of an operational process reengineered in the Nigerian banks, and the most organizational objective of BPR implementation in Nigerian banks. Questionnaire survey was used to collect data from sampled banks. Operating cost containment, improvement of customer service and increase revenue are relevant constructs used. It was found that Nigerian banks have reengineered most of the operational processes like branch operations, customer services, cash tellering services, cheque clearing, domestic fund transfer, loan processing, credit administration and appraisal. It was

therefore gathered through the study that enhancement of profit is the most objective of BPR implementation.

In addition, Sidikat and Ayanda (2008) examined the impact assessment of business process reengineering on organizational performance. Findings from the study revealed that reengineering is a useful weapon for any organization seeking improvement in their current organizational performance. This finding is not different from that of Agbadudu (2010) which found a significant positive relationship between corporate performance and BPR.

Critical success factors for BPR implementation

Different researchers have defined different critical success factors for successful BPR implementation, and based on a comprehensive review of the literature, the following critical success factors for successful BPR implementation are discussed:

i.**Collaborative Working Environment:** Jamali, Abbaszadeh, Ebrahimi and Maleki (2011) declared that collaborative working environment is one of the most widely cited factors in the literature to have a successful BPR implementation. They further argued that employees work together and have friendly interactions in organizations, as a main feature of any dynamic environment. Hesson, Al-Ameed, and Samaka (2007) stated that collaborative climate reduces resistance to change and simplifies BPR implementation.

ii.**Top Management Commitment and Support:** Al-Mashari, Irani and Zairi (2001) argued that top management plays the most important role in the organization and determines the strategic direction of the organization. In other words, the belief is that the degree of top management support in BPR implementation is very crucial. As a result, top management is expected to have adequate knowledge about BPR implementation and make important decisions in its implementation process. Top management should motivate employees and have a friendly interaction with BPR team. Therefore, the role of top management in creation of an organization climate that empowers employees is highly important.

iii.**Information Technology (IT) Infrastructure:** Jamali, Abbaszadeh, Ebrahimi and Maleki (2011) stated that appropriate IT infrastructure is critically needed to achieve the expected results in BPR implementation. In most cases, BPR projects starts from IT department, because IT plays a critical and central role in BPR projects. Thus, IT

does not only speed up the process to be carried out in BPR projects, but also integrate processes and reduces errors, hence improves productivity.

iv.**Training:** Terziovski, Fitzpatrick and O'Neill (2003) argued that training plays a crucial role in BPR implementation; and for the fact that BPR changes the organizational processes, employees should have adequate skills to do the new tasks. As a result, a proper training program should be organized for the concerned employees to enable them have an in-depth understanding of their new tasks.

v.**Less Bureaucratic Structure:** A flexible organizational structure enables BPR to encourage creativity and innovativeness in the organization (Jamali, Abbaszadeh, Ebrahimi and Maleki, 2011). It thus means that having a less bureaucratic and more participative structure is essential for successful BPR implementation. This is in support of what McAdam (2003) said that organizations should apply a more participative structure to avoid failure of BPR implementation.

vi.**Culture:** In the literature, culture has been recognized as a critical success factors for BPR implementation. Coordination, employees' involvement and friendly interactions are recognized as the standard feature of an innovative organizational culture. Hence, effective utilization of employees' ideas enables organizations to achieve their expected results. In other words, a strong appropriate culture makes positive changes, avoids stress and reduces resistance to change.

vii.**Adequate Financial Resources:** Adequate financial resource is critical to successful implementation of BPR. Therefore, budget allocation to BPR is a long-term investment for achieving favorable results. Since BPR implementation is a costly process, organizations must have adequate financial resources for implementing changes and altering with unpredictable situations.

Methodology and Purpose of the study

This research study employed an ex-post facto research design. The population of the study is twenty one deposit money banks in Nigeria, out of which three were purposively selected as sample. The selected banks are big international banks, controlling more than 40% of banking sector in Nigeria. They are First Bank Nigeria Plc, United Bank for Africa Plc and Access Bank Nigeria Plc. Data used for this study were extracted from the banks' summary of financial statement of accounts and audited annual reports of the sampled banks.

The study covered data from the period 1991-1995 and 2011-2015 for pre and post BPR respectively. T-test and Regression analysis were used to analyze the data, and to test the first and second hypotheses. Furthermore, to be able to test the impact of BPR on the performance of selected banks using data from audited financial statements, the profitability ratio representing performance indicator of sampled banks before and after BPR implementation was adopted, as seen in the work of Aregbeyen (2011) and Rose and Hudgins (2005). Therefore, this study clearly highlighted the pre and post BPR implementation periods for the ratio as proxy for banks' performance, following five years before period 1991-1995 and five years after period 2011-2015.

Model Specification is the mathematical representation of the relationship between independent variable (Business Process Re-engineering) and dependent variable (Organizational Performance). The mathematical equation below therefore shows the linearity between dependent and independent variables as thus:

if, $Y = f(X)$ ……i

and $Y = O_p = P_t$

then, $X = B_{PR}$,

where, Y represents Organizational Performance (O_p)

X represents Business Process Re-engineering (B_{PR})

P_t = Profitability, organizational performance proxy

If $Y = a + bX$ ……... ii

such that, $Y = a + bX + e$

then, $O_p = a_0 + b(B_{PR}) + e$

$P_t = a_0 + bB_{PR} + e$ ...……..…….... iii

Where, a_0 = the slope or intercept of the dependent variable, organization performance (O_p).

b = coefficients of independent variable, business process re-engineering (B_{PR}).

P_t = proxy of dependent variable, organization performance (O_p).

e = Error term.

A Priori Expectation: First, based on the formulated hypothesis, it is expected that there would be a significant difference between pre-BPR and post-BPR profitability performance of banks in Nigeria. In other words, the researcher expected that the mean scores of the sampled banks' profitability performance for pre and post-BPR implementation periods

would be significantly different from each other. Hence, the mean score of the sampled banks' post-BPR profitability performance is expected to be higher than the mean score of the pre-BPR period. Also, the researcher expected that the calculated value (i.e. empirical value) for hypothesis testing of the impact of BPR on operational performance of banks would be greater than the tabulated value (i.e. critical value) at 5% level of significance (i.e. $p<0.05$). Therefore, using the data of pre and post-BPR profitability of sampled banks for the test of the formulated hypothesis, it is expected that BPR implementation would have a significant impact on operational performance of banks in Nigeria.

Results

Table no. 1.1. Computed figures of performance indicators for three sampled money deposit banks in Nigeria - Pre BPR Implementation

Banks	**Performance Proxy**	**1991**	**1992**	**Pre-BPR 1993**	**1994**	**1995**	**2011**	**2012**
FBN Ltd.	ROTA	0.00	0.02	0.02	0.02	0.01	0.01	0.03
UBA Plc.	ROTA	0.01	0.02	0.03	0.01	0.02	0.00	0.02
ACCESS Bank Plc.	ROTA	0.02	0.01	0.02	0.01	0.01	0.02	0.02

Source: Financial Statements of Accounts of Sampled Banks of various issues (1991-1995 and 2011-2015)

Table no. 1.2. Computed figures of performance indicators for three sampled money deposit banks in Nigeria - Post-BPR Implementation

Banks	**Performance Proxy**	**Post-BPR 2013**	**2014**	**2015**
FBN Ltd.	**ROTA**	0.02	0.02	0.01
UBA Plc.	**ROTA**	0.01	0.02	0.02
ACCESS Bank Plc.	**ROTA**	0.02	0.02	0.03

Source: Financial Statements of Accounts of Sampled Banks of various issues (1991-1995 and 2011-2015)

Hypotheses testing

Ho_1: There is no significant difference in the pre-BPR and post-BPR profitability performance of banks in Nigeria.

Table no. 2. T-Test Paired Sample Statistics of the Sampled Banks' Profitability Ratio before and after BPR Implementation.

Pair	**Pre-BPR$_1$ (MEAN)**	**Post-BPR$_2$ (MEAN)**	**Mean Diff$_{1-2}$**	**Std. D**	**Std. Error**	**t-cal**	**t-tab (5%)**
Profitability Ratio	0.046	0.058	-0.012	0.011	0.005	-2.449	2.015

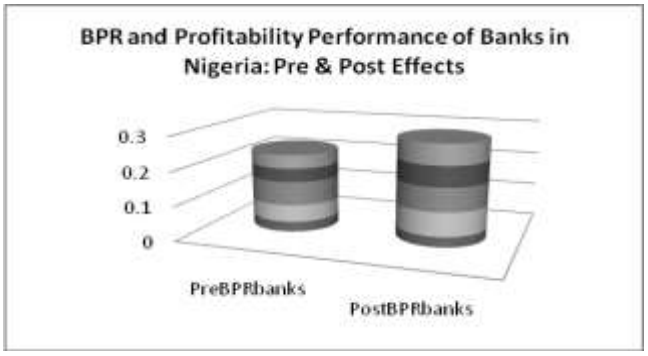
Source: Researcher's Computation, 2017 (SPSS, 20)

Results interpretation

Table no. 2 reveals that the mean scores of the profitability performance ratio (ROTA) of the sampled banks before and after BPR implementation are significantly different from each other. It thus means that the implementation of BPR significantly influence the profitability performance of banks. This result is evidenced by a significant difference in the mean score (0.058) of post-BPR profitability of banks greater than the mean score (0.046) of pre-BPR profitability of banks with standard deviation of 0.012 at 0.05 level of significance. Hence, the calculated value is given as -2.449 and the tabulated value as 2.015. Thus, there is a significant difference between pre-BPR and post-BPR profitability performance of banks.

The implication of this result is that, the implementation of BPR in the banking sector has brought about relatively little changes in organizational performance which is due to management ability to use its assets or resources more efficiently to generate desired profit. This is also supported by the resource based view theory upon which this study is hinged that BPR implementation enhances organizational resources by equipping the organization with effective processes, structures and system that are necessary for the achievement of organizational performance. As a result, a null hypothesis is rejected, while the alternate hypothesis is accepted. In other words, the profitability position of banks in Nigeria after BPR implementation significantly improved and shifted from former and thus is now better off.

Fig. no. 1. Graphical representation showing the influence of BPR implementation on the profitability performance of banks in Nigeria



Hypothesis Two:

Ho_2: Business process re-engineering has no significant impact on organizational performance of banks in Nigeria.

Table no. 3. Result of the Regression Statistics showing the impact of BPR Implementation on organizational performance of banks in Nigeria

Variable	Coefficient	Std. Error	t-Statistics
C		.021	.251
BPR Implementation	.762	.345	2.041
R	0.762[a]		
R-squared	.581		
Adjusted R-squared	.442		
S.E. of regression	.01133		
F-statistic	4.165		
Durbin-Watson stat.	2.580		

Source: Authors' computation (2018)

Results interpretation

Table no. 3 shows the regression of the impact of BPR on the organizational performance of sampled banks in Nigeria. The result shows that BPR implementation has a significant impact on the organizational performance of banks in Nigeria. This result is evidenced by the calculated value (2.04) greater than the tabulated value (1.96) at $p<0.05$. It can be said that since performance indicator is proxy by profitability, and the post-BPR profitability of banks is higher than the

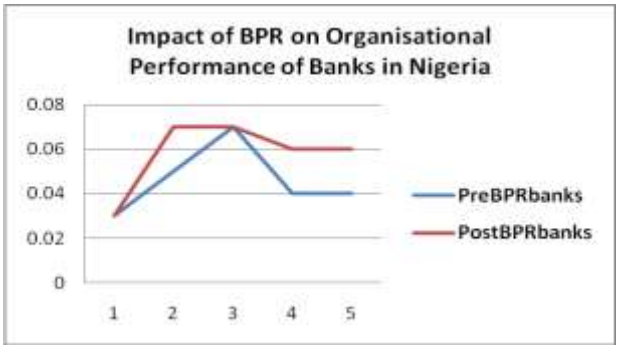
pre-BPR profitability, therefore BPR has actually contributed to organizational performance. The implication of this finding is that the profitability of banks in Nigeria is statistically impacted by the implementation of BPR. The adjusted R-square (R^2) value of 0.442 shows that 44.2% of changes in the dependent variable is explained by the independent variable. That is, 44.2% increase in the profitability performance of banks is due to BPR implementation in the banking industry. This percentage change in the profitability performance of banks actually shows the extent to which BPR implementation has impacted on the performance of banks in Nigeria. The Durbin-Watson (DW) regression analysis of 2.580 shows the presence of autocorrelation. Based on this outcome, we do not accept null hypothesis that business process re-engineering has no significant impact on the profitability performance of banks in Nigeria.

$$O_p = a_0 + b\,(B_{PR}) + e$$

$$P_t = a_0 + bB_{PR} + e$$

$$\therefore \quad P_t = 0.251 + 0.762B_{PR} + e$$

Fig. no. 2. Graphical representation of the impact of BPR implementation on the operational performance of banks in Nigeria



Discussion

In recent times, studies on the relationship between public expenditure and economic growth are taking the attention of most researchers. Huge expenditure is under-taken by most governments in attempt to improve economic growth and developments of their economies. This study reveals that there is no long run relationship between public expenditure, economic growth, FDI, total savings and

trade openness in Nigeria. This finding confirms the finding of Aregbeyen (2006) and Babatunde (2007). The Granger causality shows that there is no causal relationship between public expenditure and economic growth in Nigeria. This implies that, increase in government aggregate capital or recurrent expenditures does not translate into growth in Nigeria. In other words, public expenditure and economic growth in Nigeria are both independent of each another. This finding is also consistent with the finding of Babatunde (2007), but inconsistent with the finding of Aregbeyen (2006), where causality was found to run from public expenditure to national income.

These findings could be attributed to leakages and mismanagement of public resources in the country over the years which took away significant proportion of the funds made available to spur growth and development in critical real sectors of the economy particularly agriculture, power, transport and road infrastructure. These real sectors contribute immensely to economic growth and development of many developed nations. Several reports from the global watch dog on corruption, the Transparency International, has indicated that Nigeria continue to feature prominently in the world corruption index. For instance, according to the agency's 1998 Corruption Index Report, as being reported by Sam (2008), Nigeria is the 5^{th} most corrupt country in the World. In 2001, the country fell from the 5^{th} position to being the most corrupt country in the World (with first position). Over the years, he further reported, from 2002 through to 2012 the country ranked as the 35^{th} (out of 174) most corrupt nations in the World.

First, findings revealed that BPR significantly influenced the profitability performance of banks. Hence, there is a significant difference between pre-BPR and post-BPR profitability performance of banks. This finding confirmed the findings of Acharya (2015) that financial performance factor such as profitability showed significant difference between the pre and post BPR periods. The finding of Aregbenyen (2011) is also not different from this study's that the re-engineering project significantly improved the profitability performance of the bank. Also, Ringim, Osman, Hasnan and Razalli (2013) in their own findings declared that Nigerian banks have re-engineered their branch operations and services, and that enhancement of profit is the most visible objective of BPR implementation.

Furthermore, it is revealed that BPR implementation has a significant impact on the profitability performance of banks in Nigeria.

This finding supported the findings of Nisar, Ahmad and Ahmad (2014) that business process reengineering has a positive and significant association with organizational performance. In addition, this finding is found to be in line with the result of Nadeem and Ahmad (2016) in relation to BPR effectiveness in various operational processes of Banks in Pakistan.

Conclusion and Recommendations

Based on the above summary of findings, it is concluded that implementation of BPR in the banking industry is very critical to the achievement of desired performance in the area of profitability. It is no doubt that BPR is highly successful but Nigerian banks need to further strengthen their operational processes for a long time survival in their profitability. This can be achieved by ensuring a continuous process of reengineering to deliver excellent services to bank stakeholders. Therefore, the implementation of business process reengineering must be inclusive of all relevant stakeholders, to guarantee continuous organizational success, smooth operational existence and leadership in process driven environment. Top management must understand that BPR process is better accomplished when it is accompanied by the integration of information technology resources so as to achieve desired result in the organizational operational performance. Besides, banks that have not been fully reengineered should endeavor to do so by redesigning their organizational processes, and include innovative and flexible IT skills to enhance value creation, faster solution delivery, and improvement of quality products and services, all for the benefits of stakeholders

Suggestion for further studies

The future research should try to look into other sectors like manufacturing, and telecommunications industry in order to assess the existence of BPR and how it's affecting their operational performance, probably with different scope, methodology and focus on such parameters as cost minimization and operational efficiency.

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Considerations Related to the Evolution of the Main Indicators of Human Development in Romania

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Abstract
The paper aims at carrying out an analysis of the human development in Romania in the 2008-2015 periods. In the first part of our research, we presented a few theoretical notions related to education, investments in human capital and human development, and subsequently, in the second part we carried out an analysis of the indicators concerning the schooling in Romania in the analysed period. The most important indicators of human capital are the school enrolment ratio, the average number of schooling years, the literacy rate, and also the ratios of the active population graduating from various types of schooling. Out of these indicators, the schooling years represent the most frequently used variable in determining the human capital stock.
Keywords: human development; school enrolment indicators; human capital; investment in human capital; education.

Introduction

At global level, in the conditions of the contemporary pace of the change, the role and importance of the intellectual component of work is growing significantly, and consequently, in the measurement and assessment of human resources, it is necessary to take into account the skills, level of training and qualification, but also the experience. In the labour market, people come with their own talent, ability, innovative spirit and entrepreneurship, with the capacity to take over and process information and knowledge in such a way as to give them special commercial value (Crețu, 2010). Consequently, human capital is the source of wealth both for individuals and for organizations.

The most important investments in human capital are education and professional training. The level of high school and university education has a significant contribution to the increase of a person's income, even after covering direct and indirect education costs, and even after the adjustments made according to a better familial situation and according to the increased capacities of the people with a high level of education (Becker, 1997).

Literature Review

Education has a very important role in the development of knowledge, skills and attitudes that are determining for economic growth and vitality.

Companies that have employees with a higher intellectual capital will earn significant incomes for a long period of time. Nevertheless, we can notice the competition between large companies in order to attract in their own team employees with a high level of qualification and education, in such a way as to be able to meet the future requirements and demands of the economy and the society (Crețu, 2010).

Almost always, the earnings of people with a high level of education are much higher than the average ones, even if the advantages are usually higher, in less developed countries.

The financial advantages obtained from having a university level of education grew sharply during the 1980s, reaching their highest level of these fifty years. Moreover, the benefits in the form of gains of the high school graduates compared to those who abandon this form of education have also grown. In such a way, the discussion concerning the overeducated Americans ended, and was replaced by the renewed concern whether the United States provide an appropriate, qualitative

and quantitative education, but also other forms of vocational training as well (Staicu, 2013).

Fears are stimulated by the tough economic competition exercised by certain modern European countries, Japan, Korea and other Asian countries, as well as by the slow growth rate of the productivity in the United States of America in the last fifteen years and the poor results obtained by the American high school students at international Mathematics tests (Becker, 1997).

The share of the graduates from high schools who are admitted at universities decreased in the mid-1970s, when the advantages of a university education decreased, and it increased again in the 1980s, when the benefits regarded a big increase. This resulted in an unexpected boom of the faculty enrolments, in the past years, despite the low number of people with an age appropriate for university studies. Investments in human capital tend to respond rationally to advantages and costs, which is clearly indicated by the changes in women's education. In the United States of America, before the 1960s, graduates from high school were mostly women, rather than men, but, at the same time, women attended university to a lesser extent than men. Women studied mathematics, sciences, economy and legal sciences, and after graduation, they oriented themselves towards the teaching career, domestic economy, foreign languages and literatures. Due to the fact that relatively few married women kept working as employees, they chose an education that was useful to them in the household production. But all these took a drastic change. "The enormous increase in the participation of married women is the most important labour force change during the past twenty-five years. Many women now take little time off from their jobs even to have children. As a result, the value to women of market skills has increased enormously, and they are shunning traditional "women's fields" to enter accounting, law, medicine, engineering and other subjects that pay well" (Becker, 1997).

Identical trends in women's education can also be noticed in Great Britain, France, Scandinavia, Taiwan, Japan, Mexico, and also in other countries with significant increases in women's participation to the labour force, despite of the fact that women's attitudes are very different compared to those currently prevailing in Europe and in the United States of America (hdr.undp.org/sites, 2017).

In recent decades, the work opportunities and professions for women have gradually improved, as they started to move up in business. But the trend accelerated sharply after the late 1970s.

Rapid improvements have also taken place in relation to the economic position of black women, and they now earn just about as much as white women.

The analysis of human capital assumes that schooling increases incomes and productivity, especially by providing the knowledge, skills and a manner of analysing problems. An example in this case refers to the earnings of university graduates that exceed those of high school graduates, not because university education contributes to the productivity increase, but due to the fact that an increasing number of students with creative spirit attend a higher education institute (Staicu, 2013).

Research Methodology

The indicator **schooling years** is the most widespread assessing method in the specialised literature for human capital stock and refers to the average number of school years for persons aged between 25 and 64. However, the experience and other forms of learning can have implications on the human capital increase, although they cannot be included in this indicator.

However, the use of this indicator does not take into account considerations related to the quality of the education provided in these countries. The following assumption should be introduced so that the average number of school years could present the differences between countries in relation to human capital: "an education year has the same quality in all the countries", which is unlikely. Consequently, if we also take into account the quality of the educational process, it is considered that developed countries benefit from more years of education than the ones presented in international comparisons (Staicu, 2013).

Another limitation related to this approach is given by the fact that the average number of school years assumes that one year of education will add a constant quantity of capital, regardless whether a primary or a university education year is analysed. Nevertheless, an important advantage in support of the use of this indicator in international comparisons consists in the fact that the approximation of the human capital stock of a country is made in a unique value, thus facilitating the distinction made between the differences among the countries.

Until now, there is no theoretical consistency in relation to the degree of relevance for the economic growth rate of the absolute or relative change concerning the human capital stock. According to certain studies, "an additional formal education year leads to an increase in the gross domestic product by one percentage in the same way, even if we start from a 4-year or 12-year base" (Staicu, 2013). In other words, a 10% increase of the education years (human capital) has a similar effect on the GDP growth regardless of the education year taken as reference.

The share of graduates from a faculty in the total active population is another indicator which aims to study the distribution of the population aged between 25 and 64, depending on the last level of education attended. This indicator can be viewed as an aggregate tool of the average of the graduation levels of the persons included in the population fit for work. Important information related to the future level of the average number of school years is provided by the size and evolution of this indicator in various countries. An example in this case is related to the fact that an increasing number of young people entering the labour market have attended higher levels of education compared to those who reached the retirement age, and therefore, the human capital of the active population will certainly grow.

At the level of 2005, approximately 40% of the Spanish people aged between 25-34 years acquired an academic degree, but in the 55-64-year age group, only 10% are graduates from a higher education institution. Consequently, in the future an increase in the average number of school years will be noticed, and this increase will generate significant implications in relation to the economic growth pace of the Spanish economy. Such an evolution can also be seen in Korea. In Germany, the situation reveals that the share of graduates from a faculty is approximately the same for all age groups. The increase in the school dropout among young people from 8.1% to 8.9% in 2003 is an effect on the human capital stock in this country, and therefore Germany will not benefit from important increases in the human capital stock in the next period, in the absence of migration (Staicu, 2013).

The completion and certification of a higher level of education recognizes the fact that certain knowledge and skills were obtained at a given moment, and it is unlikely for people to have the same human capital stock after tenths of years spent in the economic activity. The experiences accumulated throughout their life will lead to the increase in the stock obtained in the graduation period, on the one hand, and will

be diminished as a result of the fact that the knowledge was not used, on the other hand.

The enrolment rate is an indicator which provides important information concerning the evolution of the human capital stock existing in an economy, because it determines the share of the school-age population involved in the secondary education, and also in the higher education. Nevertheless, the enrolment rate does not provide information on the human capital stock existing at the level of the population fit to work, but allows for making certain forecasts.

The countries that have a large number of school years need a high enrolment rate in order to maintain their human capital stock. In the countries with a low number of school years, the existence of a modest enrolment rate is sufficient in order to have a substantial increase in the human capital stock.

From the multiple studies carried out by the World Bank or by the Organisation for Economic Cooperation and Development, it can be noticed that countries such as Spain, Portugal or Greece recorded high enrolment rates in the 2000s, indicating a powerful positive evolution of the number of school years in the future, despite the fact that there is a danger of over investing in human capital. The enrolment rate in Germany, Switzerland or Japan is not high enough to allow an essential increase in the human capital stock in the following period. The enrolment rate concerning secondary and higher education for developing countries supply efficient information concerning the dynamics in the educational sector.

Lifelong learning is a fundamental process to increase human capital stock and quality. The educational process is not a process completed upon the graduation from a higher education level. People can complete their human capital stock by acquiring experience, professional training, and also certain seminars, thus replacing certain depreciated knowledge with new one.

There are a few general conclusions resulted after the identification and analysis of the main methods of determining human capital. A first conclusion refers to the various tools used for determining the stock of knowledge, with a specified value that has, nevertheless, certain limitations as well. A second conclusion is related to the fact that the average number of school years remains the best approximation of the human capital of a country. A third conclusion identifies the need to build certain statistical data that will allow for combining the qualitative aspects of human capital with its quantitative aspects.

The need for a remarkable increase in the investments in human capital, either in the form of the expansion of the number of school years, or in the general or specific professional training is important to ensure the economic growth and the prosperity of a society. People invest in their own human capital all their life, and also in the social structures where they work, including here the family or their workplace.

Educational capital, which is part of human capital, is presented under two different forms: the skills acquired as a result of people participation to formal educational systems, knowledge certified by diplomas, on the one hand, and all the other knowledge and skills acquired throughout the entire life, either through own efforts, or by attending courses organized in various fields, on the other hand.

Being a fundamental factor in the promotion of economic development, educational capital should be viewed as an investment. Consequently, if education is a fundamental factor in the promotion of economic development, then economic modernization can mean new opportunities and stimulations for acquiring additional human capital. "Education, professional training, and moreover, in general, learning, continue to have an important role in the economic and social context" (adrvest.ro, 2015).

The quality of education influences not only personal development, but also the position in the society and the future employment opportunities of each person. The quality of education is closely related to the quality of the learning processes, and also to the educational infrastructure.

Table no. 1. Population educational level in Romania in the 2008 – 2015 period

	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015
School population, out of which:	4324992	4401070	4228067	3988996	3887891	3796404	3735552
Preschool education	652855	666123	673736	673641	581144	568659	578177
Primary and secondary education	1752335	1719676	1691441	1629406	1744192	1743254	1732305
High school education	784361	837728	866543	888768	831810	776616	727072
Vocational education	189254	115445	54538	12382	19734	26493	50788
Post-high school education	55089	62575	69967	79466	92854	102677	105557
Tertiary education	891098	999523	871842	705333	618157	578705	541653

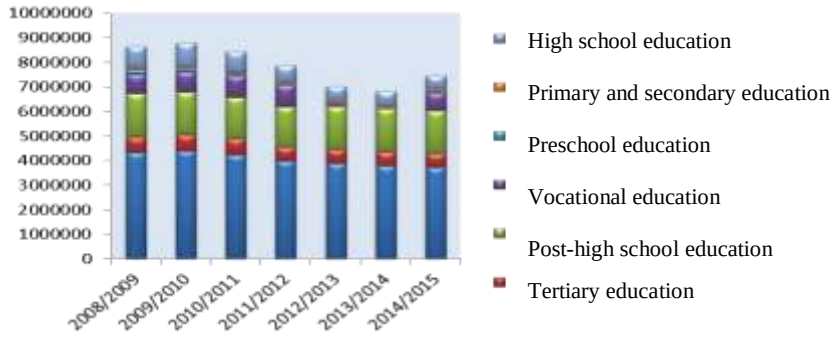
Source: 2014 Romanian Statistical Yearbook, p. 291 – 292
2015 Romanian Statistical Yearbook, p. 296 – 297.

As seen in table no. 1, in Romania, the population educational level can be structured as follows: preschool education, primary and secondary education, high school education, vocational education, post-high school education and tertiary education.

As seen in fig. no. 1, the most comprehensive population category in the analysed period is the primary and secondary education which recorded decreases in the academic year 2008/2009, having only 1,752,335 peoples and reaching, in the academic year 2011/2012, 1,629,406 peoples. The next academic year recorded a slight increase, and in the following period it decreased again. Thus, in the academic year 2014/2014, the school population was around 1,732,305 peoples.

In relation to the tertiary education, we can see a decrease in the number of students in recent years. Thus, in the analysed period the number of students decreased from 891,098 in the academic year 2008/2009, reaching the number of 541,653 students in the academic year 2014/2015.

Fig. no. 1. Population educational level in Romania in the 2008 – 2015 period



Source: Prepared by the author based on the data from Table no. 1.

The decrease in the number of students in the past years has multiple causes. Many young people do not wish to attend a faculty because the labour market does not offer jobs after graduation. Most companies look for people with experience and therefore a newly graduates can hardly find a job, and they are most often employed in another field. Another cause is the high share of high school graduates who fail their baccalaureate examinations and consequently cannot register for admission to a university.

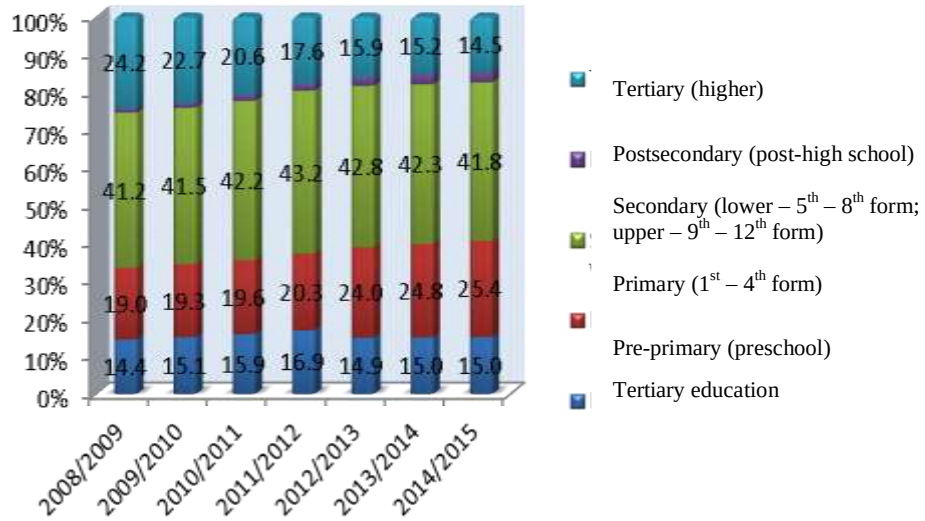
In Table no. 2 is analysed the dynamic of the population educational level in Romania in the 2008 – 2015 period. The school population has the following structure: primary (preschool), primary (1^{st}- 4^{th} form), secondary (lower 5^{th} – 8^{th} form; upper 9^{th} – 12^{th} form), postsecondary (post-high school) and tertiary (higher).

Table no. 2. Fluctuation of the population educational level in Romania in the 2008 – 2015 period

	2008/ 2009	2009/ 2010	2010/ 2011	2011/ 2012	2012/ 2013	2013/ 2014	2014/ 2015
Preschool	14.4	15.1	15.9	16.9	14.9	15.0	15.0
Primary (1^{st} -4^{th} form)	19.0	19.3	19.6	20.3	24.0	24.8	25.4
Secondary (lower, higher)	41.2	41.5	42.2	43.2	42.8	42.3	41.8
Post-secondary (post-high school)	1.2	1.4	1.7	2.0	2.4	2.7	2.8
Tertiary (higher)	24.2	22.7	20.6	17.6	15.9	15.2	14.5
Total	100	100	100	100	100	100	100

Source: 2014 Romanian Statistical Yearbook, p. 295
2015 Romanian Statistical Yearbook, p. 300.

Fig. no. 2. Fluctuation of the population educational level in Romania in the 2008 – 2015 period



Source: Prepared by the author based on the data in Table no. 2.

As seen in fig. no. 2. in the analysed period, the secondary level has the highest share in the total. However, this level follows an oscillating trend, with increasing as well as decreasing periods, having,

in the academic year 2008/2009 a school population of 41.2%, the highest school population of 43.2% being recorded in the academic year 2011/2012. In the academic year 2014/2015 the school population had a rate of 41.8%.

Nevertheless, the post-university (post-high school level) throughout the entire analysed period follows an uptrend, having in the academic year 2008/2009 a share of 1.2%, and in the academic year 2014/2015 a share of 2.8%.

The theoretical approach of the investment in education (a person's completion of various education levels) can be viewed as an investment act because it generates costs and also advantages that are distributed on a long period of time. The tuition fees, the school books, the materials, the transport costs to the educational institution are direct costs. Thus, following the decision to invest in education, opportunity cost is generated, which are identified especially in the form of incomes that could be earned by a person under the assumption that he/she did not attend school.

Benefits are presented as being the advantageous elements of increasing the person's current and especially future welfare. The learning process can generate a multitude of consumption advantages. Net incomes earned by a person after graduation from the higher educational levels tend to increase with the chance of finding an enjoyable job accompanied by a small disutility of the work to be carried out.

The rate of return on the investment in education is an indicator which would be perfect for both flows of incomes earned with or without completing the respective level of education to be determined for the same person, but this is not possible due to the fact that in practice, a person cannot be in both situations at the same time. Before making the decision to invest, the respective person cannot know the flow of incomes earned following the investment, because it is influenced by multiple factors. This size is assessed by means of statistical data related to the incomes of groups of people that are homogenous in terms of skills, age, education, the country and region where they live. The analysis carried out in relation to the profile of the incomes corresponding to the active period of the persons indicates that the level of income according to the age factor is growing up around age 45, while it will slightly decrease until the retirement age. Given that the forecasted incomes are the result of combining the knowledge acquired

following the schooling period, and also following the professional training, this model can allow the inclusion of professional training as a factor that influence the income.

An analysis can be carried out both at the level of the individual and of the company, with the difference that in the case of the individual, it represents different levels of income, while in the case of the company it can be seen as a productivity level.

Conclusions

The most important indicators of human capital are the school enrolment ratio, the average number of schooling years, the literacy rate, and also the ratios of the active population graduating from various types of schooling. Out of these indicators, the schooling years represent the most frequently used variable in determining the human capital stock.

If the demographic system intersects the educational system, the result will be a population segment with own characteristics, called school population, and its revolution will show the structure of the population according to the training level, a structure with a multitude of social and economic implications.

As a result of the diversity of schools that characterise the national educational systems, the following education levels can be recommended:

- Education that takes place before the first level, including kindergartens;
- First level of education, that means primary or elementary school;
- Second level of education, secondary or medium school (including secondary schools, high schools, vocational, technical schools, which takes place after at least four previous school years);
- Third level of education or higher/university education;
- Special education (for people with deficiencies).

Education, viewed as an economic growth factor, presented in the form of human capital, led to the emergence of the notion of education stock, through its similitude with the capital stock, defined as the sum of the study years of the entire population.

In the case of the formal educational system in Romania, in recent years, the demographic evolutions led to a decrease in the school population in almost all educational levels.

Another cause of the decrease in the school population is given by the pass rates at the baccalaureate examinations which had very low levels lately as a result of the increase in the severity of their rules, a consequence that had significant effects on the number of students enrolled in the university degree programmes.

Education is an essential objective in the development policies of a country. If a country pays higher importance to education, then it will make economic and technological progress for a long period of time. The quality of education is important for its promotion, and it should not be assessed exclusively from the perspective of the quantity indicators, but also from the perspective of its efficiency indicators. The access to education leads to the acquisition of knowledge, but the quality of education leads to obtaining the skills required for the active participation to the economic and social life.

Education and schooling can be viewed as deliberate investments contributing to the labour training which leads to the enhancement of the individual labour productivity, and also to that of the productivity of organizations, thus encouraging economic growth.

Education is a fundamental factor in the development of the society, contributing, on the one hand, to the fostering progress, stimulating intellectual curiosity, the capacity to adapt, creativity and innovation, and on the other hand, it provides useful and skilled labour force for all the economic sectors of a country, and at the same time it is one of the most powerful elements an individual has in order to shape his or her own future.

Human development is a process of amplifying people's possibilities to choose, because people make a multitude of choices in the economic, social and politic field every day.

However, if people are in the centre of the development policies, these efforts should be adapted to the expansion of the possibilities to choose. From the human development point of view, people's possibilities to choose are comprised in three main fields: lifespan, level of education, and access to useful economic resources for a decent life.

Human development is a process, as well as an ultimate result.

In conclusion, human capital can be viewed as a driver of development, both at individual and social level. Human capital and economic resources are part of the same development area, their levels being largely interdependent.

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Impacts of Macroeconomic Indicators on Economic Growth in Southeast Asia: A Panel Data Analysis

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Abstract
The article explores influences of macroeconomic indicators on economic growth in six developing countries in Southeast Asia for the past two decades (1997-2016) by employing a panel dataset. In both fixed-effect and random effect models, we found that export value and value added of manufacturing have positive influences on economic growth, while import value presents a negative and significant impact on economic growth in Southeast Asia. Our results also demonstrated that during the period of 1997-2016, economic growth of Indonesia was slower than that of its counterparts. However, in the same period, economic growth of Vietnam was faster than that of other countries in the region. For the fixed-effect model, we found that the unemployment rate presents a positive relationship with economic growth in Southeast Asia. Finally, fiscal and monetary policies are recommended to achieve targets in economic growth and sustainable development in Southeast Asia.

Keywords: Indicator; Economic Growth; Panel Data; Southeast Asia.

Introduction

Economic growth is one of the most important targets for countries to achieve the strategy in sustainable economic development (Nguyen and Nguyen, 2017). However, a high growth of economy can lead to negative impacts on the society such as natural resources degradation and widening gaps between the rich and the poor (Tinh, 2012). Moreover, the rise in poverty and the decline in the progress of health and education of a country are results of inconsistent growth of gross domestic product (GDP) (Aziz and Azmi, 2017).

The Association of Southeast Asian Nations (ASEAN) has played an important role in the global economy in recent years. However, this organization has to deal with challenges in the economic integration such as the social and economic gaps between members (OECD, 2013). By 2016, total population, the total value of GDP, and GDP per capita of the ASEAN members accounted for 635 million people, US$2,559,463 million, and US$4,034, respectively (ASEAN, 2017). However, countries in Southeast Asia have to face recent issues, consisting of economic uncertainties associated with financial globalization, rapid urbanization, high levels of informal employment, and highly unequal gender division of labors (Cook and Pincus, 2014). Indeed, this region has been identified as one of the most vulnerable regions of the world due to effects of climate change and millions of people are still living in extreme poverty and they must work in climate-sensitive sectors (ADB, 2015).

There are various previous studies on factors affecting economic growth in Southeast Asia in recent years (Iwami, 2001; Anwar and Gupta, 2006; Aung et al., 2017; Mah, 2017; Rahman et al., 2017). However, none of these employs the fixed effect (FE) and random effect (RE) models to estimate influences of macroeconomic indicators on economic growth in Southeast Asia for the past two decades (1997-2016). This period is chosen to study since it covers occurrence of the Asian financial crisis in 1997 and the global financial crisis in 2007-2009. The FE and RE models are used to overcome limitations of the ordinary least square (OLS) model in terms of the linear functional relationship, data distribution, resilience to outliers, and independence

of observations. Therefore, it is necessary to carry out this research to narrow down the gaps of existing studies and more importantly, based on findings, affordable policies are recommended to the governments of Southeast Asian countries to facilitate economic growth.

The rest of this paper is organized as follows. Section 2 presents literature review. Methods are presented in section 3. Section 4 presents results and discussion. Finally, conclusion and policy implications are summarized in section 5.

Literature Review

Concepts of economic growth

According to Robinson (1972), economic growth can be defined as increases in aggregate product, either total or per capita, without reference to changes in the structure of the economy or in the social and cultural value system. Economic growth is a long-run concept, which is subjected to barriers such as excessive rise of population, limited resources, inadequate infrastructure, and inefficient utilization of resources. Economic growth can be obtained by using efficient resources as well as increasing the production capacity of a country (Haller, 2012). Economic growth is the continuous improvement in the capacity to meet the demand for goods and services, which are results of increasing production scale and improving productivity (BIS and DFID, 2011).

Empirical studies in factors affecting economic growth

There are a number of studies in factors affecting economic growth. Sendeniz-Yuncu et al. (2018) examined the relationship between stock index futures markets development and economic growth by employing time-series methods for 32 developed and developing countries. They found that there is a correlation between stock index future markets development and economic growth in middle-income countries with relatively low real per capita GDP and there is a contrast outcome for the countries with high real per capita GDP. Likewise, Suliman et al. (2018) tested the association between foreign direct investment (FDI) and economic growth in the Economic and Social Commission for Western Asia (ESCWA) countries from 1980-2011, by using the Generalized-Method of Moments (GMM). They argued that broad based and sustainable economic growth can be achieved by increasing the share of FDI inwards. A study by Ghartey (2018)

investigated the role of financial development and economic growth in Barbados, Jamaica, and Trinidad and Tobago by applying the stepwise Granger causality method. His results addressed that economic growth has been a piston to facilitate real financial development in the short-run in all three countries. In the long-run, factor loadings present a similar outcome in Jamaica and mixed results for Barbados and Trinidad and Tobago.

Further, Anyanwu (2014) assessed determinants affecting economic growth in Africa for the past three decades (1980-2010). He concluded that domestic investment, net official development assistance (ODA) inflows, education, government effectiveness, urban population, and metal prices positively and significantly influence economic growth of Africa, and unlike China, openness does not positively and significantly affect Africa's growth. A study by Kharusi and Ada (2018) examined the relationship between government external borrowing and economic growth in Oman for the period 1990-2015. Results showed that there is a negative correlation between external debt and economic growth and gross fixed capital positively impacts on growth performance of this country. Similarly, Akram (2017) estimated effects of public debt on economic growth in Sri Lanka for the period 1975-2014 by employing the Autoregressive Distributed lag Model (ARDL) technique. His results stated that public debt positively affects economic growth, but debt servicing presents a negative influence on GDP per capita and investment. Abugamea (2017) assessed effects of education on economic growth in Palestine over the period 1990-2014 by using the ordinary least square (OLS) model. Results demonstrated that education contributes about 11 percent to economic growth of this country. However, secondary school enrollments negative affect economic growth because of the weakness of Palestinian economic sectors and a lower productivity of labor.

There are various studies in factors affecting economic growth in Southeast Asia in recent years. Suryahadi (2012) examined the relationship between poverty reduction and economic growth in Indonesia before and after the Asian financial crisis. He found that growth of the service sector had the largest contribution to poverty reduction in both, rural and urban areas, while the impact of economic growth on poverty reduction did not change between two periods. Likewise, Rahman (2017) estimated impacts of macroeconomic indicators on economic growth in Malaysia for the past four decades

(1976-2016) by using a time-series dataset. Results stated that oil prices, foreign direct investment, and export are significant to affect economic growth, while there is no indication of causality between inflation on any of the variables. A study by Aung et al. (2017) analyzed the relationship between economic growth and environmental pollution in Myanmar over the period 1970-2014. They concluded that there is a positive correlation between carbon dioxide (CO_2) emissions and GDP in this country. However, trade and financial openness have inverse relationship with CO_2 emissions and this implies that trade liberalization and financial openness may improve the environment quality in Myanmar in the long run. Likewise, Anwar and Gupta (2006) studied the relationship between financial restructuring and economic growth in Thailand for the period of 1998-2003. They found that exports positively impact economic growth and improvements in communication technology enhance finance rather than trade liberalization. Finally, Yang et al. (2015) investigated effects of exports, multinational corporations (MNCs), and the share of state-owned enterprise (SOE) production on economic growth in Vietnam for the past decade (1996-2006). They concluded that exports and the presence of MNCs are positive determinants boosting economic growth. Provinces, where own a higher ratio of SOE production, have higher economic growth.

Methods

Data and Sources

A panel dataset for effects of determinants on economic growth in Southeast Asia is gathered from the database released by the World Bank (WB) and the Food and Agriculture Organization of the United Nations (FAO). Due to limitations in human and financial resources, six developing countries in Southeast Asia, including Indonesia, Malaysia, Myanmar, the Philippines, Thailand, and Vietnam, are chosen for the study. A panel dataset is collected for the past two decades (1997-2016). Thus, a total of 120 observations are entered for data analysis. The panel data is used for this research because of the following advantages: (1) it benefits in terms of obtaining a large sample, giving more degree of freedom, more information, and less multicollinearity among variables; and (2) it may overcome constraints related to control individual or time heterogeneity faced by the cross-sectional data (Baltagi, 2005; Hsiao, 2014).

Data Analysis

In this study, the fixed effect (FE) model and random effect (RE) model are employed to estimate impacts of determinants on economic growth in Southeast Asia. Panel estimation techniques are used to overcome limitations of the OLS model. If we omit variables and these variables are correlated with other explanatory variables in the model, then the FE model presents advantages. Further, this model assists to control for differences in time-invariant and unobservable characteristics which can affect economic growth. If we have no omitted variables and these variables are uncorrelated with the explanatory variables in the model, then the RE model is useful. In this model, the individual-specific effect is a random variable which is uncorrelated with explanatory variables (Schmidheiny, 2016).

The equation for the FE and RE models can be specified as follows:

$$Y_{it} = \alpha_i + \beta A_{it} + \lambda E_{it} + \varphi F_{it} + \rho X_{it} + \mu G_{it} + \gamma P_{it} + \zeta R_{it} + \varpi D_{it} + \delta_t + \varepsilon_{it} \quad \text{………………………………………………}(1)$$

$$(i = 1,\ldots, N;\ t = 1,\ldots, T_i) \quad \text{…………………………….}(2)$$

where:

Y_{it} denotes GDP

α_i is the fixed effect

β, λ, φ, ρ, μ, γ, ζ, and ϖ are parameters to be estimated

E_{it} represents the export value

P_{it} represents import value

F_{it} represents foreign direct investment

U_{it} represents the unemployment rate

L_{it} is the inflation rate

A_{it} represents the value added of agricultural, forestry, and fishery sector

M_{it} is the value added of manufacturing sector

D_{it} denotes dummy variables

δ_t presents the trend rate of change over time t

ε_{it} denotes the error term.

Table no. 1. Description of Covariates in the FE and RE Models

Variable Definitions	Label	Unit	Expected Signs
Dependent variable: GDP	Y	US$	
Covariates:			
Export value	E	US$	+
Import value	P	US$	-
FDI	F	US$	+
Unemployment rate	U	%	+/-
Inflation rate	L	%	+/-
Value added of agriculture, forestry, and fishery	A	million US$	+
Value added of manufacturing	M	million US$	+
Indonesia dummy (1=Indonesia and 0=Otherwise)	D_1		+/-
Vietnam dummy (1=Vietnam and 0=Otherwise)	D_2		+/-

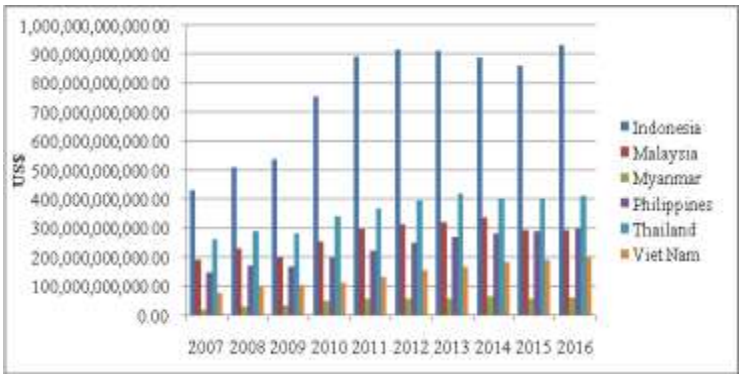
Note: *US$ means United States Dollar*

Results and Discussion

Economic growth in Southeast Asia: An overview

In Southeast Asia, Indonesia is predicted to be the fastest growing economy with an average annual growth rate by 6 percent over the period of 2014-2018, followed by the Philippines with 5.8 percent. Economic growth of two countries is the result of rising domestic demand, strong infrastructure spending, and reforms in economic structure. In the same period, real GDP of Malaysia and Thailand is projected to increase by 5.1 percent and 4.9 percent annually, respectively. Both countries should improve productivity to overcome the middle-income trap. The growth of Singapore is predicted to rise by 3.3 percent per annum and this reflects a sustainable development of the economy by increasing productivity and innovation. Real GDP growth of Lao PDR is predicted to increase by 7.7 percent, followed by Cambodia and Myanmar with 7 percent for each. Economic growth of Vietnam is projected to rise by a smaller rate compared to their counterparts due to slower external demand from advanced economies and weak macroeconomic management policies (OECD, 2013).

Fig. no. 1. GDP Values of Selected Countries in Southeast Asia

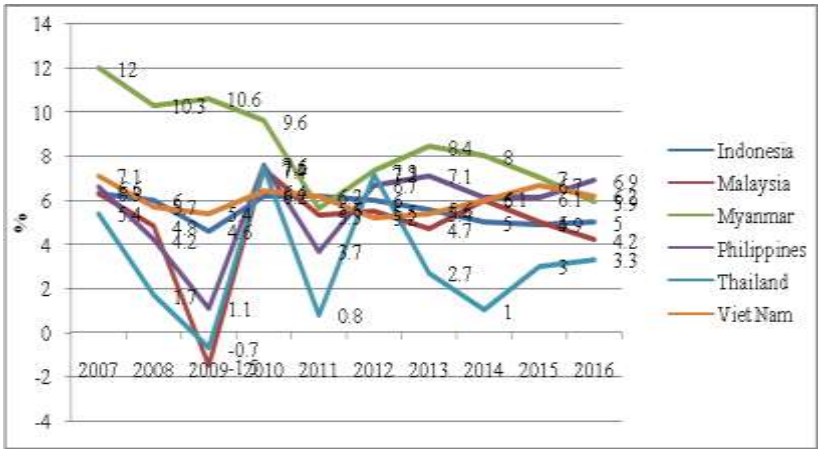


Source: World Bank, 2018

GDP of six countries tended to increase over a past decade (2007-2016), in which the strongest value of GDP belongs to Indonesia, followed by Thailand, the Philippines, Malaysia, Vietnam and Myanmar. For example, by 2016, GDP of Indonesia reached more than US$932 billion, followed by Thailand (US$411 billion), the Philippines (US$304 billion), Malaysia (US$296 billion), Vietnam (US$205 billion) and Myanmar (US$63 billion) (Fig. no. 1).

For a decade (2007-2016), annual growth rates of GDP in Southeast Asian countries strongly fluctuated, especially in Malaysia, Thailand, and the Philippines. For instance, starting at 6.3 percent in 2007, GDP growth rate of Malaysia significantly fell to minus 1.5 percent in 2009. In the same period, annual GDP growth of Thailand rapidly dropped by more than 6 percent from 5.4 percent in 2007 to minus 0.7 percent in the next two years. Annual GDP growth of Myanmar decreased by more than a doubled from 12 percent in 2007 to below 6 percent in 2016. Over the period of 2009-2011, annual GDP growth of countries tended to decline because of negative effects from the global financial crisis (Fig. no. 2).

Fig. no. 2. Annual GDP growth of selected countries in Southeast Asia



Source: World Bank, 2018

Influences of determinants on economic growth in Southeast Asia

The average value of GDP of six countries accounts for US$202 billion. The average values of export, import, and FDI account for US$86.8 billion, US$82.1 billion, and US$5.1 billion, respectively. The average unemployment and inflation rates account for 2.8 percent and 7.3 percent, respectively. The average value added of agriculture, forestry, and fishery account for US$26.2 billion, while the value of manufacturing reached more than US$48 billion (Table no. 2).

Table no. 2. Characteristics of determinants affecting economic growth in Southeast Asia

Variable	Mean	SD	Min	Max
GDP	2.02e+11	2.08e+11	0	9.32e+11
Export value	8.68e+10	7.13e+10	8.74e+08	2.34e+11
Import value	8.21e+10	6.61e+10	1.91e+09	2.50e+11
FDI	5.15e+09	5.43e+09	-4.55e+09	2.51e+10
Unemployment rate	2.87	1.75	0.5	8.1
Inflation rate	7.35	10.22	-1.7	58.4
Value added of agriculture, forestry, and fishery	26295.72	26654.85	3499.21	125410
Value added of manufacturing	48187.44	47508.18	415.13	196891.9
Indonesia dummy (1=Indonesia and 0=Otherwise)	0.16	0.37	0	1
Vietnam dummy (1=Vietnam and 0=Otherwise)	0.16	0.37	0	1

Source: Author's calculation using STATA software, version 14.2
Note: *SD denotes standard deviation*

Results in regression for impacts of macroeconomic determinants on economic growth in Southeast Asia by the FE model are presented in Table no. 3. F-value and P-value account for 21.88 and 0.000, respectively imply the fitness of the model. Overall R-squared is equal to 0.68, which suggests that 68 percent of variation in economic growth can be explained by independent variables in the model. U_i presents unobserved heterogeneity. Correlation (u_i, Xb) is equal to -0.22 implies that unobserved heterogeneity has a negative relationship with explanatory variables in the model. Sigma_u is equal to 0.46 and this reflects that the estimate of standard deviation between variables is equal to 0.46. Sigma_e is equal to 1.04 and this implies that the estimate of standard deviation within variables is equal to 1.04. Rho is equal to 0.16 and this suggests that variation of variance due to the error term accounts for 16 percent (Table no. 3).

Table no. 3. Regression of the FE Model

Variable	Coef.	Std. Err.	t	P-value
LogExport value	6.63***	1.08	6.10	0.000
LogImport value	-9.24***	1.16	-7.95	0.000
LogFDI	0.02	0.06	0.31	0.756
LogUnemployment rate	0.89*	0.49	1.81	0.074
LogInflation rate	0.06	0.37	0.17	0.863
LogValue added of agriculture, forestry, and fishery	1.73	2.02	0.86	0.393
LogValue added of manufacturing	3.91	0.87	4.47	0.000
Indonesia dummy (1=Indonesia and 0=Otherwise)	-2.74***	0.99	-2.75	0.007
Vietnam dummy (1=Vietnam and 0=Otherwise)	1.66***	0.34	4.88	0.000
Constant	13.67**	6.57	2.08	0.041
Number of observations	120			
Number of groups	20			
F(9, 91)	21.88			
Prob > F	0.000			
Correlation (u_i, X_b)	-0.222			
R-squared:				
Within	0.683			
Between	0.709			
Overall	0.680			
Sigma_u	0.46			
Sigma_e	1.04			
Rho	0.16			

Source: Author's calculation using STATA software, version 14.2
Notes: *Significant at 1%(***), 5%(**), and 10%(*), respectively*

Export value, import value, unemployment, value added of manufacturing, Indonesia dummy, and Vietnam dummy variables are statistically significant, while FDI, inflation, and value added of agriculture, forestry, and fishery are not significant. Export value, unemployment and value added of manufacturing have positive impacts on economic growth. By contrast, import value negatively affects economic growth. If export value increases by a US$, then economic growth rises by 6.6 US$, ceteris paribus. If unemployment rate grows by one percent, then economic growth increases by 0.8 US$, ceteris paribus. If value added of manufacturing increases by a million US$, then economic growth rises by US$3.9 million, ceteris paribus. If import value increase by a US$, then economic growth decreases by 9.2 US$, ceteris paribus. Economic growth of Indonesia is lower than that

of its counterparts by 2.7, ceteris paribus. In contrast, economic growth of Vietnam is higher than that of other countries by 1.6, ceteris paribus. From 2014 onward, economic growth of Indonesia tended to slow compared to this of its counterparts. For example, by 2016, economic growth of Indonesia accounted for only 5 percent annually, while the growth of the Philippines, Vietnam, and Myanmar accounted for 6.9 percent, 6.2 percent, and 5.9 percent, respectively. On the other hand, inflation rate in Indonesia is higher than that of other countries. For instance, by 2016, inflation rate of Indonesia reached 3.5 percent, while the rate of Malaysia, the Philippines, and Thailand accounts for 2.1 percent, 1.8 percent, and 0.2 percent, respectively. In both the short-run and long-run, inflation rate has a negative and significant impact on the Indonesian economy (Yuliadi and Rose, 2017) (Table no. 3).

Results suggest that economic growth in Southeast Asia over the period of 1997-2016 heavily depends on the growth of exports and the manufacturing sector. A positive relationship between unemployment and economic growth in this region implies that the velocity of population growth is higher than that of economic growth. For example, during a decade (2007-2016), the annual average growth of population in Malaysia accounted for 9 percent, while the annual average economic growth of this country rose by 7 percent. In the same period, population of Myanmar grew by 14 percent, while the GDP rose by 5 percent. Population of Vietnam grew by 14 percent, while the GDP increased by 10 percent. Indeed, results also reflect that the economy of Southeast Asian countries has been transformed from labor-intensive sectors such as agriculture, textile and garment, and handicraft into manufacturing sectors which tend to use automatic technologies, rather than human. High unemployment economies often have low inflation rates. For instance, by 2016, inflation rate of Malaysia, the Philippines, and Thailand accounted for 2.1 percent, 1.8 percent, and 0.2 percent, respectively and these imply a little volatility in goods and service prices in the economy of these countries (Table no. 3).

Table no. 4. Regression of the RE Model

Variable	Coef.	Std. Err.	z	P-value
LogExport value	6.44***	0.97	6.63	0.000
LogImport value	-8.76***	1.01	-8.59	0.000
LogFDI	0.01	0.06	0.26	0.796
LogUnemployment rate	0.67	0.47	1.42	0.155
LogInflation rate	-0.22	0.28	-0.78	0.438
LogValue added of agriculture, forestry, and fishery	0.51	0.80	0.64	0.520
LogValue added of manufacturing	3.89***	0.74	5.19	0.000
Indonesia dummy (1=Indonesia and 0=Otherwise)	-1.92***	0.56	-3.39	0.001
Viet Nam dummy (1=Vietnam and 0=Otherwise)	1.68***	0.33	5.09	0.000
Constant	15.99***	4.27	3.74	0.000
Number of observations	120			
Number of groups	20			
Wald chi2(9)	250.20			
Prob > chi2	0.000			
Correlation (u_i, X)	0 (assumed)			
R-squared:				
Within	0.679			
Between	0.762			
Overall	0.694			
Sigma_u	0			
Sigma_e	1.04			
Rho	0 (fraction of variance due to u_i)			

Source: Author's calculation using STATA software, version 14.2
Note: *Significant at 1%(***)*

Wald chi2 and P-value account for 250.2 and 0.000, respectively imply the fitness of the model. Overall R-squared is equal to 0.694, which suggests that 69.4 percent of variation in economic growth can be interpreted by independent variables in the model. U_i presents unobserved heterogeneity. Correlation (u_i, X) is assumed to equal to zero and this implies that there is no relationship between unobserved heterogeneity and explanatory variables in the model. Sigma u is equal to zero and this reflects that the estimate of standard deviation between variables is equal to zero. Sigma_e is equal to 1.04 and this implies that the estimate of standard deviation within variables is equal to 1.04. Rho is equal to zero and this suggests that there is no variation of variance due to the error term (Table no. 4).

Export value, import value, value added of manufacturing, Indonesia dummy, and Vietnam dummy variables are statistically significant, while the rest of the variables are not significant. Export value and value added of manufacturing have positive relationship with economic growth. However, import value negatively influences on economic growth. If export value increases by a US$, then economic growth rises by 6.4 US$, ceteris paribus. If unemployment rate grows by one percent, then economic growth increases by 0.8 US$, ceteris paribus. If value added of manufacturing increases by a million US$, then economic growth rises by US$3.8 million, ceteris paribus. If import value increase by a US$, then economic growth declines by 8.7 US$, ceteris paribus. Economic growth of Indonesia is lower than that of its counterparts by 1.9, ceteris paribus. In contrast, economic growth of Vietnam is higher than that of other countries by 1.6, ceteris paribus (Table no. 4).

Discussion

In both models, we found that export value and value added of manufacturing have positive influences on economic growth, while import value presents a negative and significant impact on economic growth in Southeast Asia. Our results also addressed that over the past two decades (1997-2016), economic growth of Indonesia was slower than that of its counterparts. However, in the same period, economic growth of Vietnam was faster than that of other countries in the region. For the FE model, we found that the unemployment rate presents a positive relationship with economic growth in Southeast Asia. Results also stated that FDI, inflation, and value added of agriculture, forestry, and fishery are not statistically significant.

Our findings in impacts of exports on economic growth are consistent with conclusions of Yuliadi and Rose (2017), Rahman (2017), and Yang et al. (2015). In addition, results in the relationship between inflation and economic growth are homogeneous to the argument of Rahman (2017). However, we found that FDI is not statistically significant, while Yuliadi and Rose (2017) and Rahman (2017) argued that FDI had a positive impact on economic growth in Indonesia and Malaysia. Differences in outcomes can be explained by differences in selection of research sites and methodologies. In terms of research sites, their studies are carried out in the national level (Indonesia and Malaysia), while our research focuses on six countries in

Southeast Asia. For methodologies, we employ the FE and RE models, while Yuliadi and Rose (2017) used the error correction model, and Rahman (2017) employed unit root, stationary, and co-integration tests to estimate effects of determinants on economic growth.

Conclusion and Policy implications

The article seeks impacts of macroeconomic indicators on economic growth in six developing countries in Southeast Asia for the past two decades (1997-2016) by employing a panel dataset. In both models, we found that export value and value added of manufacturing have positive influences on economic growth, while import value presents a negative and significant impact on economic growth in Southeast Asia. Our results also demonstrated that during the period of 1997-2016, economic growth of Indonesia was slower than that of its counterparts. However, in the same period, economic growth of Vietnam was faster than that of other countries in the region. For the FE model, we found that the unemployment rate presents a positive relationship with economic growth in Southeast Asia. Results also stated that FDI, inflation, and value added of agriculture, forestry and fishery are not statistically significant.

Southeast Asian countries are not exceptional cases in effects of the Asian financial crisis in 1997 and the global financial crisis in 2007-2009. Therefore, the fiscal policy and monetary policy should be considered to achieve targets in economic growth and sustainable development in Southeast Asian countries. For example, exports and the manufacturing sector should be facilitated because these are drivers to enhance economic growth. However, imports should be either reduced or substituted by domestic goods and services to ensure economic growth. Budget balances and low public debt are key components to ensure effectiveness of the fiscal policy. During the Asian financial crisis, the fiscal policy of Indonesia and the Philippines presented weaknesses and as a consequence, these countries have to face sovereign debt problems and restructured their debt. Thailand and Malaysia also presented signs of weaknesses. Government spending of Malaysia was positive before the Asian financial crisis, but it has turned to negative value since then (Tang et al., 2010). Clearly, we can recognize the importance of exchange rate flexibility and credible policy frameworks after the Asian and global financial crisis. Emerging

economies face obstacles due to their underdeveloped financial systems and vulnerability to volatile international capital flows (Morgan, 2013).

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The Influence of E-tax System on Tax administration and Tax revenue generation: Insights from Lagos State Internal Revenue Service

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Abstract
The e-tax system offers electronic registration, filing and payment, as well as education and information to taxpayers. This study examines the influence of an electronic system of taxation on tax administration efficiency and tax revenue generation in Lagos state, Nigeria. Survey research design was adopted using a structured five point Likert-scaled questionnaire to obtain data. A response rate of 73.33% was achieved as 110 copies of the questionnaire were duly returned out of the 150 copies that were administered. Data gathered were analyzed using descriptive statistics, while hypotheses were tested using the Multivariate Analysis of Variance (MANOVA) with the aid of SPSS. Major findings of the study revealed that respondents do not differ that e-tax system

has enhanced revenue generating potentials of Lagos State and as well, or has positive impact on the efficiency of tax administration. As a conclusion of the study we recommend the relevant tax authority to formulate and implement policies that would promote the sustainability of positive effects of the e-tax system and to train tax officials on how to harness the benefits of administering taxes electronically.
Keywords: E-tax system; Tax expert; Tax administration; ICT; Nigeria.

Introduction

The current economic situation in Nigeria has necessitated the need for government to embark on aggressive revenue drive that will enable the discharge of numerous duties to the citizen. With the intended shift to non-oil sources of income, taxation remains an unswerving tool for government to achieve this objective (KPMG, 2017). Taxation is seen as a compulsory contribution levied by the government on personal income and business profits or added to the cost of some goods, services and transactions (Majura, 2013). According to Holban (2007), taxation is expected to play three significant roles: generation of sufficient funds for financing public services and social transfers; provision of incentives for more employment and efficient use of natural resources; reallocation of income. As so much is expected from taxation, Nigeria, like other economies of the world follows the path of continuous tax reform to cope with the global economic realities.

Tax reform refers to general overhaul of the tax system to make it more progressive, simplified, accountable and understandable (Somorin, 2014). Tax experts and administrators have advocated for technology-driven tax system to expand the country's tax base, achieve economic diversification away from the oil revenue, and enhance the delivery of public services and fiscal propriety (Harrisson and Nahashon, 2015; Yekeen, 2017). In Nigeria, government has introduced the unique Taxpayer's Identification Number (TIN) (effective February,

2008); automated tax system that facilitates tracking of tax positions of taxpayers; e-payment system(e-tax) and enforcement scheme (involving special purpose tax officers in collaboration with other security agencies to ensure strict compliance in payment of taxes). All these measures (Section 8(q) of FIRS Establishment Act, 2007) have led to an improvement in tax administration in the country (Asuquo, 2016).

Technology influences the way we work, play and interacts with others and has transformed and impacted the macro environment (Eric and Richard, 2008; Abiola, 2014). Thus, an electronic system of taxation is the application of information and communication technology (ICT) to filing tax returns and remitting taxes based on assessment as prescribed by the relevant tax authority. It is not surprising that e-tax system has permeated both, developed and emerging economies, such as Australia, United Kingdom, France, India, China, Singapore, Turkey, Malaysia, Uganda, Rwanda and Nigeria (Ramayah, Ramoo and Amlus, 2008; Muita, 2011).

Among the greatest problems facing tax administration in Nigeria are tax evasion, non-tax compliance and collusion of tax officials with tax payers to circumvent tax payment (Adegbie and Fakile, 2011; Odia, 2014). However, with e-tax system, revenue collection efficiency is guaranteed, tax compliance would be enhanced, and incidence of tax evasion and avoidance would be greatly reduced (Otieno, et al., 2013; Efunboade, 2014; Harrison and Nahashon, 2015; Oseni, 2015).

As a result, it becomes necessary to assesses how the implementation of the electronic system of taxation has contributed to the restoration of tax compliance culture and hence its effect on tax administration and revenue. Specifically, this study surveys the differences in opinions of tax experts with respect to the effect of e-tax on tax administration and tax revenue in Lagos state.

Methodology and Purpose of the study

The aim of the study is to examine the influence of electronic taxation on tax filing and tax compliance in Nigeria. In order to achieve this aim, tax experts' opinion were sought on: how e-tax affects the effectiveness and efficiency of tax administration and their observed changes in Lagos State revenue due to introduction of e-tax in Lagos State. Survey design was adopted in conducting this research. This method is usually adopted when the researcher does not intend to control any of the samples used for the study (Asika, 2006).

Specifically, questionnaire was used in gathering the data used for the purpose of analysis. The study took advantage of the cluster of Lagos State Internal Revenue Service staff into three facets of tax accountants, tax consultants and tax auditors. Hence copies of the questionnaire were distributed to respondents in each expertise area and were all given equal opportunities to complete and return. Of all distributed, only 110 were returned and usable for the purpose of the analysis.

The questionnaire design was tailored towards gathering responses on how tax revenue and effectiveness of tax administration have reacted to the adoption of electronic taxation in Lagos State, Nigeria. Hence, questionnaire items were developed on a 5-point Likert scale measured by 5 = strongly agree and 1 = strongly disagree, so as to measure the importance of each of the factors on the basis of respondents' profiles. The analysis takes two strands namely, descriptive and inferential analyses. Summary of the distribution of respondents' profiles was done using frequencies and percentages. Further, group mean was computed for each of the dependent variables (effectiveness of tax administration and Tax revenue due to e-tax) to identify the variable that is most affected by the impact of e-tax.

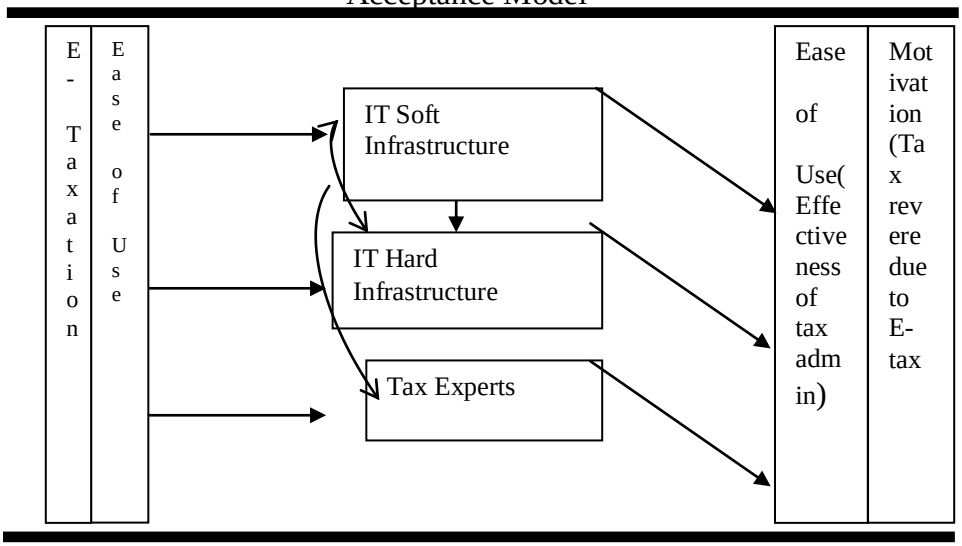
To make a reliable statistical inference by testing the stated hypotheses, a parametric analysis is required. For this purpose, significant effect of e-tax on the dependent variables is examined on the basis of respondents' tax expertise (tax accountants, tax consultants and tax auditors). Hence, three cohorts of tax experts were considered against two dependent variables. In such research situations, Multivariate Analysis of Variance (MANOVA) becomes handy as the appropriate data analysis tool. MANOVA is designed to look at several dependent variables (outcomes) simultaneously and so is a multivariate test (Field, 2005). More so, MANOVA, by including all dependent variables in the same analysis, takes account of the relationship between outcome variables and has the power to detect whether groups differ along a combination of dimensions (Field, 2005).

Theoretical Framework

With its first appearance in a doctoral thesis in 1985, Davis' Technology Acceptance Model (TAM) has sprawled over several findings investigating the adoption of Information Technology (IT) in all facets of human endeavor. TAM posits that the intention to adopt IT is determined by two beliefs – *perceived usefulness* (possible benefits from adoption) and

perceived ease of use (Effectiveness and efficiency of administration) (Venkatesh and Bala, 2008) thus incorporating management and outcome of the adoption of IT. The model is therefore developed to explain that IT use is a response that can be explained or predicted by user motivation which in turn is directly influenced by an external stimulus consisting of the actual system features and capabilities (Chuttur, 2009). TAM is adopted in this work to explain the effect of the application of IT soft and hard infrastructure to the tax system termed e-taxation on user's objective (the administration efficiency and effectiveness, as well as the tax revenue). *Perceived ease of use* is conceptualized to explain the need to identify the infrastructure both hard and soft wares, as well as personnel needed to bring about the motivation (revenue) expected by the user. The TAM depicts that the adoption of IT can only be achieved by the acquisition of the necessary IT infrastructure and the availability of IT expertise for easy utilization of the acquired infrastructure. The twinning of these elements is expected to bring about effectiveness and efficiency of tax administration which, as modeled by TAM is expected to affect the perceived motivation (tax revenue) behind the adoption of IT. The framework presented in fig. no. 1 explains how the theory predicts the relationship among the variables.

Fig. no. 1. *Theoretical Framework*: Adaptation of the Technology Acceptance Model



Source: Venkatesh and Bala (2008)

Literature Review

The quest for improved delivery of public services by the government and encouraging taxpayers to better fulfill their tax obligation by the tax authority has been the concern of Nigerian government (Nelson, 2002). To meet these challenges for example, tax authorities are turning to e-government led solutions like electronic tax filing (e-filing) (Amitabh *et al*., 2008). According to Teltscher (2002), these technological modernisms are having a weighty influence on the administration of fiscal systems and the way in which taxation is administered. The information and telecommunication sector has proven to be the major driver facilitating internet economy in Nigeria (Abiola, 2014). Of recent, the use of technology to improve the effectiveness of tax administration, expand taxpayer services and enhance tax compliance has come to attract increasing attention in developed and developing countries (Dowe, 2008; Olaoye and Kehinde, 2015). E-tax, according to Amitabh et al. (2008), would assist revenue authority in timely completion and processing tax returns and issuance of refunds; also, in taking key administrative decisions in tax administration and compliance functions, serving as a source of most comprehensive, authentic and current financial, business and economic data for policy formulation inside the government.

The Federal Inland Revenue Service (FIRS) embarked on an Integrated Tax Administration System (ITAS) project in 2013. ITAS is technology-driven aimed at enhancing tax administration and simplifying the tax compliance process in Nigeria. Although the FIRS were working towards full implementation of the platform before the end of 2015, the system was already being used by a few taxpayers registered with the Large Tax Offices (LTOs) in Lagos and Abuja. Ezomike (2016) stated that the ITAS has the potential to revolutionize tax practice in Nigeria by improving interaction between the FIRS and taxpayers. Through ITAS, taxpayers were able to file their tax returns electronically, pay their taxes online, get instant credit for withholding taxes deducted on their income, generate tax clearance certificates and chat with their FIRS local tax office through the "Message Centre".

E-tax is a concept that enables taxpayers file their tax returns and make tax payments electronically. In other words, tax administrators and taxpayers communicate online and compliance is enhanced through an online platform created by this system. Electronic taxation hinges on two important concepts: electronic filing (e-filing)

and electronic payment (e-payment) system (Andarias, 2006; Denise, 2008). Generally, under an e-filing and e-payment system returns are filed and payments are made via the internet and the tax administrator sends an electronic confirmation acknowledging receipt of the return and/or payment. In the case of e-payments, the taxpayers also receive a debit confirmation from their financial institution.

Since the advancement of ICT, the operation of tax system has been seriously challenged (Muita, 2011) and one of the ways tax authorities had improved interactions with taxpayers is through e-tax system (Wasao, 2014). E-tax system increases the quality and quantity of information available to tax officers, enabling them to complete transactions faster and more accurately. The primary objective of any tax administration anywhere in the world is to maximize revenue collections by improving tax compliance. Before the emergence of electronic taxation, tax administrators have been hindered in the effective and efficient discharge of their primary assignments. As argued by Adegbie and Fakile (2011), tax evasion and tax avoidance have contributed significantly to limiting revenue accruable to the federal government of Nigeria. Tax administration can better be placed if: tax rules and procedures are simple; tax compliance costs are low; there is easy access to information by taxpayers, and there exists mutual trust between taxpayers and tax authority.

Computer technology must be combined with the political will to enforce tax collection if it is to yield greater revenue. In addition, taxpayer's identification number could be tied to other means of identification such as drivers' licenses or passport. Corrupt-free and efficient administrative machinery with personnel who are adequately trained, well-equipped and motivated would enable Nigeria to make appreciable progress in revenue diversification.

Tax compliance in its most simple form is usually viewed to mean the full payment of all taxes due (Braithwaite, 2009) which includes timely filling and reporting of required tax information, the correct self-assessment of taxes owed, and the timely payment of those taxes without enforcement action (Andreoni, Erard and Feinstein, 1998; Jones, 2009). From this definition results three dimensions of tax compliance: filing, reporting and payment compliance. A compliant taxpayer would submit the correct forms to the revenue authority; render accurate return and pay tax liability in a timely manner. A

taxpayer would be declared non-compliant if the three dimensions are not properly accomplished (Wasao, 2014).

Voluntary compliance is made possible by the trust and cooperation ensuing between tax authority and taxpayer and it is the willingness of the taxpayer to comply with tax authority's directives and regulations. This is aided by such factors as the efficiency and efficacy of government services, the perceived level of fraud and corruption in the government and whether government is serious in combating fraud and corruption (Fagbemi and Abogun, 2010; Wang, 2010). The presence of tax non-compliance results from: the growing dissatisfaction of the fairness of tax system (Chau and Leung, 2009); mistakes done by a taxpayer while filling his tax form or intentional omission (Fagbemi and Abogun, 2010); the increase of administrative cost of tax collection (Tanko, Okpara and Ajape, 2013).

Therefore, boosting tax compliance level has remained a source of concern to policy makers, tax administrators and society in general (Wasao, 2014). This is mainly because tax compliance affects revenue collection and the ability of the government to achieve its fiscal and social goals (Tan and Sawyer, 2003). In order to achieve higher voluntary compliance and bridge tax gap, researchers have advocated for tax education and review of tax laws to include stringent penalty for tax defaulters (Tanko *et al*., 2013) and introduction of electronic filing system (Khadijah, 2013).

Tanko *et al.* (2013) had observed an increasing level of tax compliance in Lagos State as more taxpayers now voluntarily go to the revenue offices to pay land use charge, market levy and infrastructural development levy. This claim is further buttressed in the speech of the Former Governor of Lagos state, Babatunde Raji Fashola in 2015 while addressing the 8thAnnual Lagos State Taxation Stakeholders' Conference at The Haven, Ikeja GRA. He reported an insignificant number of court cases on tax evasion matters (only about 600 cases, in a population of 21 million people with an estimated taxable base of about 8 million people) (Office of the Governor, Lagos state, press release, January 29, 2015).

The primary objective of a modern tax system is generation of revenue to help the government to finance ever-increasing public sector expenditure (Afuberoh and Okoye, 2014). According to Aguolu (2004), taxation constitutes the most important source of governmental revenues, from the point of view of certainty and consistency of

taxation. This implies that owing to the inherent power of government to impose taxes, the government is assured of its tax revenue no matter the circumstances. Olotu (2012) mentioned that taxation is already showing signs of transformation in many states of the federation of Nigeria. She pointed that states like Imo, Edo, Rivers and Lagos have seen their tax revenues tripled and quadrupled in recent times and this has enabled the implementation of numerous life and community transforming projects and to finance critical infrastructural projects.

Lagos State is one of the biggest contributors to the Gross Domestic Product (GDP) and seemed to have become less dependent on federal allocation through a formidable Internally Generated Revenue (IGR) ingenuity (Syndelle, 2009; Abiola and Asiweh, 2012). In the year 2013 alone, Lagos State was reported by the NBS to have its IGR higher than that of 19 other states combined. This same trend was reported in 2015 where Lagos State IGR accounted for 40% (N268bn) of the total tax collection of N683.6 billion by all 36 states of the federation (NBS, 2013; 2015; Oyedele, 2016). In the same vein, Oyedele (2016) stated that the Joint Tax Board (JTB) statistics showed that there are precisely 10,006,304 people registered for personal income tax purposes in Nigeria with about 46% (about 4.6 million) registered with the LIRS. Table no.1a and b further reveals a continual improvement in terms of widened tax bracket as well as tax revenue collection of Lagos State. These massive improvements can be traced back to 2004 when the e-tax system was implemented and the success story has also been variously attributed to the unswerving efforts of the Executive Chairman of the Lagos State Board of Internal Revenue, Mr. Babatunde Fowler, who served in that capacity from year 2005 through 2014. Today, Lagos is held up as a model in tax administration.

Table no. 1a. Tax revenue collection of Lagos State

Year	Taxpayers	Tax Revenue (N)	Taxpayers' Growth (%)	Tax Revenue Growth (%)
2011		156,916,323,083.00		0.00%
2012	3,133,888	172,435,519,871.00	0.00	9.89%
2013	4,174,847	200,604,569,017.00	33.22%	16.34%
2014	4,504,927	217,000,013,563.00	7.91%	8.17%
2015	4,591,559	228,809,449,329.00	1.92%	5.44%
2016	4,902,386	244,282,576,930.00	6.77%	6.76%

Source: LIRS Tax Statistics Reports (2016)

Table no. 1b. Lagos State internally generated revenue (IGR) profile

Year/ Variable	LIRS IGR (N)	Other IGR (N)	Total IGR (N)
2012	172,435,519,871.00	41,301,922,911.00	213,737,442,782.00
2013	200,604,569,017.00	40,692,440,913.00	241,297,009,930.00
2014	217,000,013,563.00	59,469,437,736.00	276,469,451,299.00
2015	228,809,449,329.00	39,415,333,105.00	268,224,782,434.00
2016	244,282,576,930.00	55,142,515,035.36	299,425,091,965.00

Source: LIRS Tax Statistics Reports (2016)

Results

Table no. 2 summarizes the profile of the respondents. It indicates that most of the respondents fall within the age range of 25-45 being the most active age range in both, public and private sector. The age range thus lends credence to the quality of data gathered as the sampling targets all staff of the LIRS. Meanwhile, the data gathering also enjoyed a good distribution of nearing retirement and very experienced staff of the service with the cumulative representation of 14.5% in this category. The gender distribution of respondents indicates a fairly equitable distribution of respondents. Meanwhile, the research does not intend to test how gender distribution affects the variable of interest. It merely accentuates the appropriateness of the sampling procedure. The analysis also depicts the distribution of respondents on the basis of tax expertise. Although, the distribution appears skewed, the

percentage response with respect to each cluster is utilized as a basis of identifying their effects on the outcome variables.

Both academic and professional qualifications presented are indicators of the level of knowledge and expertise of the respondents. Interestingly however, more than 80% of the respondents have one professional qualification or another, while some of them possess masters and doctorate degrees. Basically, majority of the respondents possess a bachelor's degree in tax-related field and have basic working knowledge as depicted by their experience.

The research questionnaire items were couched out of the different facets perceived for each of the variables. Constructs from such questionnaires are usually marred by multicolinearity problems, multiplicity of latent variables, among other data-related problems. Therefore, to minimize assumptions regarding the items couched on each of the variables, a factor analysis was conducted on the responses gathered. Identical variables were connected and equivocalness was reduced.

Table no. 2. Respondents' profile

Description Frequency	Percentage	
Age (years)		
25-35	58	52.7
35-45	36	32.7
45-55	14	12.7
55-65	2	1.8
Total	**110**	**100.0**
Gender		
Male	58	52.7
Female	52	47.3
Total	**110**	**100.0**
Tax Expertise		
Tax Accountant	26	23.6
Tax Consultant	66	60.0
Tax Auditor	18	16.4
Total	**110**	**100.0**
Academic Qualification		
OND	14	12.7
HND/B.Sc.	78	70.9
M.Sc./MBA	16	14.5
Ph.D.	2	1.8
Total	**110**	**100**
Professional Qualification		
ACA	6	5.5
ACCA	20	18.2
CITN	69	62.7
Others	15	13.6
Total	**110**	**100**

Source: Field Survey, 2017

As a result, two factors were extracted and they both account for 35.34% of the variance in the 110 observations. The communalities range from 18.6% and 56.4%. The two main themes of the research variables were extracted from the items grouped by the factor loadings. The first factor, which accounts for the highest percentage of variance (78.3%) is tagged "effectiveness and efficiency of tax administration

due to electronic taxation". Items consisted in the second factor recline towards reduction in tax evasion, as well as improved tax revenue amongst others. It is named "tax revenue due to electronic taxation" in this analysis. It accounts for 18.8% percent. The result of the factor analysis is shown in Table no. 3.

Table no. 3. Rotated Component Matrix[a]

	Component	
	1	2
The use of technological devices in Nigeria is reasonably high		
Information and communication technology has been able to influence tax filing and tax compliance in Nigeria		.560
Electronic taxation is the precursor to change in tax payers' morale in Nigeria		.550
The combination of information and communication technology and taxation has led to an increased level of tax compliance in Nigeria		.620
Filing taxes electronically is more efficient and effective than the manual methods of tax filing in all ramifications		.477
The fusion of information and communication technology into taxation has led to a significant blockage of existing tax loopholes		.401
Electronic taxation has reduced to the barest minimum the cases of tax evasion in Nigeria	.457	
Information and communication technology in taxation has helped bridged the gap between taxpayers and tax authorities in Nigeria		
There is a high level of tax awareness and tax education in Nigeria as a result of the introduction of electronic taxation	.463	
The adoption of electronic taxation has led to efficiency and effectiveness in the administration of taxes in Nigeria	.616	.429
Electronic taxation has helped enhanced proper perception of tax authorities by taxpayers in Nigeria	.506	.419
A substantial reduction in tax compliance cost incurred by tax administrations in Nigeria can only be made possible by the use of electronic taxation		

The use of electronic taxation has led to a rise in the level of trust that taxpayers have for tax authorities	.549	
Tax authorities can to a reasonable extent make proficient use of the computer and other electronic devices needed to administer taxes electronically	.440	
Tax revenue has significantly risen since the emergence of electronic taxation in Nigeria	.487	.516
An electronic system of taxation will lead to a higher contribution of tax to government's overall revenue in Nigeria		.429
Increase in tax revenue in Nigeria can only be enhanced by electronic taxation		.571
Tax revenue in Nigeria might have also increased at the same rate if the manual method of tax filing and tax collection was retained		-.519
The rate of increase in tax revenue is not significant enough to conclude that the advantages of electronic taxation overrides the old method of taxation		-.633
Electronic taxation has been able to curtail the incidences of multiple taxation in Nigeria	.650	
The problem of transfer pricing in taxation in Nigeria has been solved by the electronic system of taxation	.510	
There are measures put in place by the electronic system of taxation to guarantee the security of taxpayers' account against fraudulent practices	.498	
Despite the challenge of technology in Nigeria, the objectives of electronic taxation are being achieved	.673	
Taxation in Nigeria is more efficient and effective due to the emergence of an electronic system of taxation	.698	

Extraction Method: Principal Component Analysis.
Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 3 iterations.

Source: Data Analysis, 2017

To verify the adequacy of the two (2) components extracted from the structure of the entire 24 items, the Kaiser-Meyer-Olkin Measure was conducted. It verified that the sampling is of average quality for the analysis as the KMO = 0.770, a value above the

acceptable limit of 0.5 (Kaiser, 1974; Field, 1999). Bartlett's Test of Sphericity X^2 (276) = 898.619, *p <0.001,* indicated that correlations obtained between items were significantly appropriate for factor analysis (see Table no. 4). The factor loading of the rotated component matrix with an Orthogonal Varimax rotation with Kaiser Normalization of the 24 variables identified as the electronic tax variables are depicted in Table no. 4.

Table no. 4. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.770
Bartlett's Test of Sphericity	Approx. Chi-Square	898.619
	Df	276
	Sig.	.000

Source: Data Analysis, 2017

Before proceeding to the test of hypotheses, normality test was carried out on variables to ensure the appropriate choice of statistical tool. With Kolmogorov-Smirnov test of normality, it was discovered that all the variables follow the law of normality. The perception of effectiveness of tax administration indicates a test value 0.981, P>.05 and the perception of tax revenue due to electronic taxation shows a test value of .989, P>.05.

Multivariate Analysis of Variance requires the satisfaction of homogeneity of variances assumption. For all the three groups examined, there is equality of variance-covariance matrices as depicted by a non-significant statistical difference as the Box's test = F(110) =.573, *p=.752*. Hence the covariance matrices are sufficiently equal and the assumption is tenable for the conduct of MANOVA with the data. This is further buttressed by Leven's Test of error variances displayed on Table no. 7 separately for each of the dependent variables. For the variable "Effectiveness of Tax administration", Levene's Test *F(110) = .256, p=.774;* while for the variable "Tax revenue due to e-taxation" *F(110)=.064, p= .936.*

Table no. 5. Multivariate Tests[a]

Effect		Value	F	Hypothesis df	Error df	Sig.
Intercept	Pillai's Trace	.001	.061[b]	2.000	106.000	.941
	Wilks' Lambda	.999	.061[b]	2.000	106.000	.941
	Hotelling's Trace	.001	.061[b]	2.000	106.000	.941
	Roy's Largest Root	.001	.061[b]	2.000	106.000	.941
Occupation	Pillai's Trace	.023	.628	4.000	214.000	.643
	Wilks' Lambda	.977	.625[b]	4.000	212.000	.645
	Hotelling's Trace	.024	.623	4.000	210.000	.647
	Roy's Largest Root	.023	1.224[c]	2.000	107.000	.298

a. Design: Intercept + occupation
b. Exact statistic
c. The statistic is an upper bound on F that yields a lower bound on the significance level.

Source: Data Analysis, 2017

The multivariate analysis displayed in Table no. 5, tests the difference between groups across the two dependent variables thereby reporting the two hypotheses simultaneously. It depicts four test statistics (Pillai's Trace, Wilks's Lambda, Hotelling's Trace and Roy's Largest Root). For all, it shows a non-significant difference in the opinion of tax experts on the outcome that, though e-tax positively affects both variables, it has more effect on tax revenue than tax administration. Using Pillai's trace, $V=.023, F(4,214) = .628, p=.643;$ Using Wilks's statistic, $\Lambda=.977, F(4,212) = .625, p=.645;$ Using Hotelling's trace statistic, $T=.024, F(4,210) = .623, p=.647;$ and using Roy's largest root, $\Theta=.023, F(2,107) 1.224, p=.298.$

Discussion

In recent times, the need to underscore contribution of ICT to tax administration and tax revenue generation is gaining the attention of the researchers. Various government revenue agencies are adopting the use

of ICT to bring more people into the tax net in order to boost the revenue profile of their respective states. This study revealed, in the opinion of tax experts, that though e-tax positively affects both variables, it has more effect on tax revenue than tax administration. This finding, on one hand, corroborates the finding of Harrison and Nahashon (2015) but inconsistent, on the other hand, with the findings of Asuquo (2016); Olaoye and Kehinde (2017). Thus, empirical evidence on the nexus and explanatory power of e-tax with and/or on tax revenue generation and tax administration in Nigeria remained inconclusive. However, it is apparent from this study that the benefits of investing in and deploying of ICT by tax agencies would more than compensated the associated cost.

Conclusion

The result of this study is striking in two regards. First, it unveiled the impact e-taxation had on revenue generation of Lagos State. The impact was sustainable as the percentage revenue performance continue to increase till present (see Tables no.1a and 1b). Second, the result indicates that e-taxation has very little impact on tax administration. This outcome is especially important as it provided a basis for making recommendation to Lagos State government.

This study contributes to tax literature and offers valid judgment on the dilemma of tax administration and revenue in Lagos state. It, as far as the researchers have been able to verify, remains the only research output that statistically positioned e-tax in the technology acceptance model. This may explain the reason behind the continuous complaints about tax administration in Lagos State, despite the e-tax system.

As a result, this study submits that while e-taxation may have brought improved revenue to the state, it has not done much to ease tax administration as much as the taxpayers would expect in Lagos state. Given these findings, this study strongly suggests a reform of tax administration of Lagos State to improve effectiveness and articulate the numerous potentials of the very nascent, but expensive system of electronic taxation.

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Entrepreneurship for Persons with Disabilities in Bangladesh: An Analysis of the Schools of Entrepreneurial Thought Approach

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Abstract

This exploratory study attempts to provide a theoretical and empirically informed analysis on why and how a person with a disability becomes an entrepreneur. The paper describes the findings of a study designed to understand the experiences of persons with disabilities turning to be entrepreneurs. The schools of entrepreneurial thought approach have been used as the theoretical basis for the research, which has been used to analyze the findings. The study was conducted with a sample of 23 persons with disabilities in Bangladesh, identified through referral sampling technique. In depth interview (IDI) method was adopted to collect data from the respondents. Findings reveal that persons with disabilities turn to entrepreneurship when they are

supported by their social and cultural atmosphere (social/cultural school of thought), when they have funds available (financial/capital school of thought), when they go through economic hardship (displacement school of thought) or when they possess an entrepreneurial spirit (entrepreneurial trait school of thought) that drives them to seek entrepreneurial opportunities. Findings also show that social/cultural school of thought has the highest representation among the male and female respondents. Sector wise, majority of male and female respondents are involved in production-based businesses.

Keywords: Persons with Disabilities (PWD); Entrepreneurship; Disability; Schools of Entrepreneurial Thought; Bangladesh.

Introduction

During the industrial revolution in the 18th century, Irish-French economist Richard Cantillon introduced the term entrepreneurship to associate risk bearing activity and highlighted its role in the transformation of resources in an economy (Akpor-Robaro and Mamuzo, 2012; Casson, 2015). Since then, entrepreneurship has been gaining importance and represents the most critical source of economic growth in most countries (Kuratko et al., 2014). Entrepreneurship has been opening new paths of self-employment and it has been linked to economic growth and national prosperity (Dana, 1995). The impact of entrepreneurial activity is felt in all sectors and at all levels of society, especially as it relates to innovation, competitiveness, productivity, wealth generation, job creation and formation of new industry (Kuratko, 2016).

The literature on entrepreneurship and entrepreneurial theory is rich and varied and explores many aspects of why and how people make the decision of starting a business (Dana, 1995; Shane, 2002 as cited in

Liang and Dunn, 2007). Entrepreneurs have been categorized by traits, personalities, preferences and behaviors (Kihlstrom and Laffront, 1979; McClelland, 1961; Shaver and Scott, 1992). Researchers have examined personality traits (Brockhaus and Horwitz, 1986; McClelland, 1990; Miron and McClelland, 1979; Sexton and Bowman-Upton, 1990), culture (Gadgil, 1954; Jenkins, 1984; Shapero, 1975, 1984), and marginality (Brenner, 1987; Brenner and Toulouse, 1990; Geertz, 1963; Shapero and Sokol, 1982) and how they affect entrepreneurship.

Around the world, research on entrepreneurship has analyzed patterns and developed hypothesis, creating a diverse interdisciplinary literature that can be divided into several schools of thought (Dana, 1995). Developed by Kuratko (2016), the "Schools of Entrepreneurial Thought" approach divides entrepreneurship into specific activities which may be within a "micro" view or a "macro" view addressing the nature of entrepreneurship.

Persons with disabilities (PWD), throughout the history, have been stereotyped and neglected (Titumir and Hossain, 2005). This neglect bars them from engaging in regular economic, social, political and educational activities in their families, communities, and society. The nature of disability can vary in types, severity, time of onset and duration. Despite disability being a universal element in the human condition, it remains unrecognized as a problem for development. In Bangladesh, disability is viewed as a curse and a reason for embarrassment to the family (Japan International Cooperation Agency, 2002). The society at large, being guided by the social taboo and ignorance about persons with disabilities, seem to suffer from a scarcity of knowledge about them. Research shows that one in every ten people has a disability and four of every five disabled people live in developing countries (ILO, 2011; WHO and The World Bank, 2011). For Bangladesh, professionals working in disability rights and support follow the 10% working estimate of disability prevalence by WHO. However, there is no reliable, up to date nationwide statistics on disability prevalence in Bangladesh (SIDA, 2014). Data on PWD is scarce and the estimates are contradictory. For example, the Household Income and Expenditure Survey (HIES) by Bangladesh Bureau of Statistics (2010) stated the disability prevalence rate at 9.01%. On the contrary, the National Census of 2011 (Bangladesh Bureau of Statistics, 2015) data put overall disability prevalence rate in the country at only 1.41%.

The Government of Bangladesh is giving special attention to new enterprise set up as a means of opportunity for new entrants in the labor force. Yet very little is known about the persons with disabilities who have turned to entrepreneurship. PWD are in a minority position and are less likely to receive education, therefore are unlikely to find employment in the traditional workforce. They move away from mainstream education and thus away from conventional economic activities. They have little option, but to be without a job, income, education, or training opportunities that may have empowered them. In Bangladesh, facilities (supportive infrastructure, educational materials, and trained teachers) for PWD in schools are inadequate and almost nonexistent. Therefore, continuing a formal education becomes less likely and consequently, getting traditional employment becomes harder. In this regard, entrepreneurship offers PWD the most accessible way to earn income, to be independent and to make their voices recognized in the society. Through entrepreneurship, they can not only improve their economic situation, but can also support other PWD through employment generation.

Methodology and Purpose of the study

The purpose of this study is to understand why and how PWD turn to entrepreneurship and relate the schools of entrepreneurial thought with what the PWD had to say about their actual experiences with starting an entrepreneurial business. As the study is exploratory in nature, qualitative methods were used to capture the experiences of persons with disabilities in their own words. The study was carried out in two phases. At first, a field pilot study was conducted by the authors on 7 participants using a discussion guideline. The contents of the guideline were developed based on the schools of entrepreneurial thought developed by Kuratko (2016). The contents included demographic profile, nature of business, why and how the respondents chose entrepreneurship. To understand which of the schools of entrepreneurial thought are appropriate to understand the experiences of the PWD, all the schools of thought classified by Kuratko (2016), i.e., social/cultural, financial/capital, displacement, entrepreneurial trait, ecological, venture opportunity and strategic planning were included in the discussion guideline. An analytical framework was developed based on the findings of the pilot study; in-depth interviews (IDI) were carried out on 23 participants. The interview guide consisted of open-ended

questions to capture what the PWD had to say in their own words, about why and how they chose entrepreneurship and what their business means to them. Each interview was scanned for the keywords defining each school of thought, as described in Table no. 1. Each participant was then classified into the respective school of thought, based on the incidence of highest keywords in the respective testimony. Each interview spanned for about 80 minutes. All the interviews were audio recorded with permission of the respondents and were noted on hard copy to increase the reliability of the answers. Additionally, to better understand the experiences of PWD, case studies have also been presented. Names have been changed to maintain the confidentiality of the respondents.

Inclusion Criteria

The inclusion criteria include PWD who self-identified as having a disability that comprised visual, physical, hearing, speaking or communicating impairments.

Sampling Technique

Referral sampling technique was adopted to identify and gather data from the PWD where each respondent recruited another respondent from their acquaintances.

Sample Size

The study is based on 23 respondents, located in Dhaka, Savar, Manikganj and Tangail. The nature of business for these respondents include handicraft, rickshaw painting, rickshaw manufacturing, sewing, clothing, household decorative items, jewelry manufacturing, gems selling, poultry, dairy farming, vegetable/fruit shops and repair services. A total of 30 PWD were identified, however, only 23 agreed to participate in the study.

Theoretical Framework

The pilot study for this research found that the schools of entrepreneurial thought (Kuratko, 2016) are an approach relevant to the experience of each of the respondents. The schools of entrepreneurial thought present an approach to entrepreneurship that includes factors that are sometimes beyond the control of the entrepreneur and factors that are within the control of the entrepreneur; resulting in success or

failure of the venture. Because the entrepreneurial experiences of persons with disabilities are very different from that of their other counterparts, it was decided that the schools of entrepreneurial thought are the appropriate approach to explore entrepreneurship for the PWD. Table no.1 exhibits the analytical framework for the study.

Table no. 1. Framework summary

School of Thought	Key Defining Elements	Keywords
Social/Cultural	External forces that are either positive or negative in nature; social beliefs and values; the atmosphere of friends and family	Beliefs, Values, Social Atmosphere
Financial/Capital	Search for seed and growth capital; availability of funds	Capital, Availability
Displacement	Political, cultural, economic displacement resulting in self-employment	Government regulation and policies, Religion, Gender, Minority Experience, Job loss, Bad times
Entrepreneurial Trait	Personality characteristics such as achievement, creativity, determination and technical knowledge	Need to achieve, Independence, Creativity, Willpower

Source: Adopted from Kuratko (2016).

Social/Cultural School of Thought

The social/cultural school of thought deals with the external factors that affect a potential entrepreneur's motivation and ability to start a venture (Kuratko, 2016). These factors could be either positive or negative forces. The focus is on institutions, values, and customs and when combined, they form a socio-political environmental framework that strongly affects the creation of entrepreneurs (Edelman and Yli-Renko, 2010; Van de Ven, 1993; York and Venkataraman, 2010).

Studies by Gadgil (1954), Shapero (1984) concluded that culture is the explanatory factor for entrepreneurial activity that describes why some people pursue entrepreneurship and why others do not. Thomas and Mueller (2000) find that some cultures are more conducive to entrepreneurship than others. McClelland (1961) stated that social

atmosphere such as parental influences generate an entrepreneurial propensity within a society.

Financial/Capital School of Thought

This is based on the process of capital seeking; the search for seed and growth capital (Kuratko, 2016). This school of thought views entrepreneurial venture from a financial management standpoint. According to Erikson (2002), certain literature specifically devotes to this process, whereas some treat it as just a segment of the entrepreneurial process.

Displacement School of Thought

The displacement school of thought focuses on the negative side of group phenomena, in which someone feels out of place or is displaced from the group (Kuratko, 2016). This approach assumes that the group prevents a person from progressing or eliminates certain critical factors needed for that person to advance. Examples might be political, cultural or economic factors (Shelton, 2010). For example, ethnic background, religion, race and sex are some of the factors that figure in the minority experience. Therefore, the frustrated individual will move toward an entrepreneurial pursuit as the last resort to survive and to succeed. Holland and Shepherd (2013) mentioned that individuals fight adversity and tend to pursue a venture when they are prevented or displaced from doing other activities. Hagen (1962) stated that the marginal group has a sense of separateness from the rest of the host society, and to overcome the deprivation, they construct their own adaptive mechanism through entrepreneurship. Along similar lines, Young (1971) found that entrepreneurship happens when a group has a low status and has been denied to access the mainstream society. To further emphasize this, Aldrich et al. (1984) state that rejection by the majority of the society prevents access to social status, resulting in group members turning to entrepreneurship to fulfill personal ambitions. According to Ronstadt (1984), individuals will not pursue a venture unless they are prevented or displaced from doing other activities.

Entrepreneurial trait School of Thought

This school of thought is based on the study of successful people who tend to exhibit similar characteristics that would increase success opportunities for the emulators (Mitchell and Shepherd, 2010). For

example, achievement, creativity, determination and technical knowledge are four factors that usually are exhibited by successful entrepreneurs (Kuratko et al., 2015). Dana (1995) stated that certain individuals are pulled to entrepreneurship because they have a predisposition to their personality. McClelland (1961) found a positive correlation between entrepreneurial behavior and need for achievement. His research attributed individual entrepreneur's need for achievement as the variable influencing entrepreneurial activity.

Mueller and Thomas (2001) stated that personality traits motivate entrepreneurial behaviors of individuals. In other words, the personality plays a significant role in entrepreneurial activities. For example, need for achievement, innovativeness, propensity to risk-taking, tolerance to ambiguity and internal locus of control has been identified as traits that influence entrepreneurial behavior (Thomas and Mueller, 2000; Utsch and Rauch, 2000). This is further demonstrated in a study by Liñán and Chen (2009), who state that personality traits are the most relevant factors to explain entrepreneurial behavior and intention.

Literature Review

Stewart Jr and Roth (2001) define an entrepreneur as someone who is the founder, owner and manager of a business with the purpose of growth and societal well-being. Schumpeter (1934) regarded entrepreneurs as the driving force of economic development. The Schumpeterian theory says that the entrepreneur is a central figure in the economy. Cieślik (2017) says that an entrepreneur is a modern hero who manages to overcome hardship through remarkable commitment, coupled with individual persistence in the pursuit of the goals that they have set for themselves. McClelland (1961) defines an entrepreneur as an individual who earns a livelihood by exercising some control over the means of production and produces more than he can consume to sell or exchange for individual (or household) income.

The World Health Organization defines disability as an umbrella term, covering impairments, activity limitations, and participation restrictions (WHO, 2017). It is any continuing condition that restricts everyday activities. There are two concepts of disability; the medical model of disability and the social model of disability. In the medical model, disability is treated as a characteristic and the restrictions in activity are explained in terms of individuals' physical capabilities, with

impairments treated implicitly as a form of negative human capital (Halabisky, 2014). The social model of disability contrasts with this concept. Founded by Oliver (1990), this concept defines disability as a result of limitations imposed by social, cultural, economic and environmental barriers, rather than individual characteristics. The social model of disability distinguishes 'impairment' (i.e. a limitation of the mind and body) from 'disability' (i.e. social exclusion) (Shakespeare, 2006 as cited in Halabisky, 2014). According to Akinyemi (2016), disability is a difficulty or limitation in activity encountered by a person in executing an action or a task; a restriction in participation or involvement in life activities.

In Bangladesh, the Bangladesh Persons with Disability Welfare Act (2001) states that "disability means any person who, (a) is physically crippled either congenitally or as a result of disease or being a victim of accident, or due to improper or maltreatment or for any other reasons has become physically incapacitated or mentally imbalanced, and (b) as a result of such crippledness or mental impairedness, (i) has become incapacitated, either partially or fully; and (ii) is unable to lead a normal life." (pp. 2-3).

A review of the literature suggests that there are several reasons why a person with a disability chooses entrepreneurship. For example, to overcome the state of social marginality (Godley, 2005 as cited in Cooney, 2008), to enter the labor market (Blanck et al., 2000; Boylan and Burchardt, 2002; Hagner and Davis, 2002; Schur, 2003; Zamore, 2014), to establish confidence and to secure rehabilitation (Harper and Momm, 1989).

In a study by Boylan and Burchardt (2002), the authors found that people who have had a disability from a young age are likely to be disadvantaged within the education system, primarily due to lack of access to facilities. Therefore, they have minimal educational qualifications and thus finding employment in the labor market becomes difficult. Moreover, the authors state that for those who have become disabled over their working life have limited labor market choices due to their impairment or due to discrimination by employers. In such a scenario, entrepreneurship turns out to be the most suitable option for them. This is also supported by Mishra (2005), who states that discrimination in the labor market is primarily what drives persons with disabilities into entrepreneurship.

When PWD choose entrepreneurship as a career, it offers them a better adjustment between work-life balance and their impairment status in terms of work pacing, hours and location of work (Callahan et al., 2002; Doyel, 2002; Halabisky, 2014; Jones and Latreille, 2011; Meager and Higgins, 2011; Pagán, 2009). Apart from that, entrepreneurship provides the flexibility to PWD who require frequent medical attention, flexible hours, accessible workspace, and other needs (Cooney, 2008). In Bangladesh, a study by Dhar and Farzana (2017) found that social inclusion and acceptance, economic empowerment, breaking the social and family barrier and lack of job opportunity in the traditional workforce are the reasons that push PWD towards entrepreneurship.

Results and Discussion

As shown in Table no. 2 and Table no. 3, persons with disabilities observed under this study are heavily represented by the social/cultural school of thought (57%) and in the production sector (66%). Such heavy representation of the social/cultural school of thought is because the PWD receive a supportive atmosphere in starting their business from family and society, as the society mostly views them unable to carry out mainstream jobs, resulting in the belief that entrepreneurship is the best option for PWD for livelihood. In case of high representation in the production sector, it should be noted that the PWD observed in the study are engaged in light manufacturing work, such as handicraft making, rickshaw manufacturing, rickshaw painting, jewelry making etc. Such work requires limited set of skills and are the most convenient for PWD.

Table no. 2. Distribution of respondents

School of Thought	Male	Female	Total
Social/Cultural	8	5	13 (57%)
Financial/Capital	3	2	5 (22%)
Displacement	1	1	2 (8%)
Entrepreneurial	2	1	3 (13%)
Total	14 (61%)	9 (39%)	23 (100%)

Source: Authors computation

Table no. 3. Respondent profile

School of Thought	Production (e.g. manufacturing)	Service (e.g. beauty parlor, repair shop)	Wholesale/ Retail Trade (e.g. shop)	Total
Social/Cultural	11	2	0	13
Financial/Capital	4	0	1	5
Displacement	0	1	1	2
Entrepreneurial	0	1	2	3
Total	15 (66%)	4 (17%)	4 (17%)	23 (100%)

Source: Authors computation

On the other hand, the least representation is found for the displacement school of thought (8%). Here, the key defining words that identify the displacement school of thought were not widely found in the testimonies. In their testimonies, the PWD stated that they generally receive a positive and encouraging environment from the society. So, the chances of them being displaced by any sort of political or cultural issue did not apply. Only economic displacement was present for 2 respondents. This is because most participants did not face any job loss as they do not generally pursue any mainstream job or occupation. It should also be noted that the respondents in the study were either born with impairment or faced impairment due to accidents early in life. Facing impairment at an early life caused them to develop a negative perception of being rejected for jobs if applied. This perception results in PWD not pursuing conventional jobs in the first place. Moreover, as the status of our educational institutions is not disability friendly, PWD generally lack the necessary education to apply for most jobs in the market.

In gender wise context, Table no. 4 presents the findings in a cross-tabulation format. Production based businesses show highest representation for both male (44%) and female (22%) respondents. Wholesale/Retail trade shows the second highest representation for male respondents (13%) and Service shows the second highest representation for female respondents (13%). Male and female respondents have least representation in service (4%) and wholesale/retail (4%), respectively.

Table no. 4. Gender based Cross Tabulation

School of Thought	Production (e.g. manufacturing)		Service (e.g. beauty parlor, repair shop)		Wholesale/Retail Trade (e.g. shop)		Total
	Male	Female	Male	Female	Male	Female	
Social/Cultural	8	3	0	2	0	0	13
Financial/Capital	2	2	0	0	1	0	5
Displacement	0	0	1	0	0	1	2
Entrepreneurial	0	0	0	1	2	0	3
Total	10 (44%)	5 (22%)	1 (4%)	3 (13%)	3 (13%)	1 (4%)	23 (100%)

Source: Authors computation

Social/Cultural School of Thought

According to the PWD testimony gathered through interviews, PWD face a social perception that they cannot perform a job to the extent of an able-bodied person. Society perceives that it is not only difficult for PWD to find regular jobs, but also even if they do, they would not be able to survive the job pressure. This social perception affects how the PWD perceive themselves, making them believe that getting and surviving the challenges of mainstream jobs are too difficult to overcome. On the contrary, PWD get social encouragement to pursue business and become an entrepreneur, which they believe will enable them the freedom to adjust their work despite the impairment. The encouragement from society acts as the driving force behind PWD choosing entrepreneurship. In words of a respondent:

"I did not pursue a conventional job because I do not think I would get a regular job even if I tried. People kept telling me you would not be able to do the job because you are not physically fit; you would not be able to handle the pressure of regular jobs. Rather they encouraged me to start my business where I can adjust my work with my physical limitations. So, I learned beauty parlor work from an acquaintance who is also a person with a disability and once I felt I was skilled enough to venture out on my own, I started my parlor. I would say that my social atmosphere i.e., my family, friends, and community supported and applauded my choice of starting a business. Their belief in me has led me to run my parlor."

The study found that 13 PWD out of a total 23 PWD (57%) mentioned that their family, friends, and local opinion leaders motivated them to start their business. The decision to choose the nature of the business depended on their technical skills and knowledge of a craft. For example, the respondents started businesses such as handicraft making, rickshaw manufacturing, rickshaw painting, jewelry making, beauty parlor, repair shop etc. Out of the 13 respondents relating to the social/cultural school of thought, 11 respondents were involved in production and 2 respondents were involved in service. Once the PWD established their business, they also encouraged other PWD in their communities to pursue entrepreneurship by supporting them with required knowledge and skills. The authors also observed that the PWD relating to the social/cultural school of thought are opportunity seekers; that is, they sought out entrepreneurial opportunities themselves, instead of choosing entrepreneurship only when presented with the opportunity. Studies by Gaglio and Katz (2001), Hills and Shrader (1998) stated that opportunity seeking is closely associated with entrepreneurial action. The social/cultural school of thought states that the social and cultural atmosphere surrounding the person motivates them to pursue entrepreneurship. In the testimonies, PWD stated that their family and social environment encouraged them towards entrepreneurial activity. The influence of family and society prompted them to search for entrepreneurial opportunities and whenever they found an opportunity that is viable, they pursued their business. One respondent stated:

"I was a beggar. One day my neighbor who is also a person with a disability came to me and said: "Work with me and I will teach you how to paint rickshaw and make decorative items for it." His words and belief in me led me to leave begging and start working for him. His continuous support and motivation encouraged and enabled me to learn the skills. Later, I realized I could start a business of my own. Now, we work in a manufacturing venture as partners. We own an auto-rickshaw manufacturing workshop and we are making good profits. We have also generated employment opportunity for other PWD like me who had no work earlier."

Financial/Capital School of Thought

Capital is considered a critical factor of production and the availability of capital is one of the key concerns to start any business. In Bangladesh, the financial institutions are legally obligated to extend

credit to persons with disabilities for business purposes. Bangladesh Bank has specific circular (SMESPD Circular no. 03/2015) guiding financial institutions to extend credit to persons with disabilities.

As shown in Table no. 2, 5 participants out of 23 participants (21.73%) had started their business when seed capital and growth capital were made available to them. The sources of the funds ranged from different programs run by NGOs to individual contributions. Additionally, the authors observed that the PWD have a sense of expectation from the society, particularly, sponsorship from the affluent. On the other hand, it was observed that PWD are reluctant to search for capital, especially from formal financial institutions such as banks. Rather, PWD become interested in entrepreneurship when NGOs and other donors offer capital, instead of them actively searching for capital to start a business. The authors observed that PWD are reactive to opportunity; that is, PWD responded to entrepreneurship when NGOs and other donors approached them with entrepreneurial opportunities and funds. According to one testimony:

"I have a physical impairment that prevents me from traveling far. I cannot get on a bus and I am not educated either, so finding a suitable job was becoming hard. One day I came upon a person who offered me to be part of a project that offers capital to PWD like me to start business. The project was run by a local NGO and I signed up. Representatives from the NGO took all my information and asked questions about my skills and employment situation. I told them if I got some money, I could run a grocery shop in my area. Later, they loaned me 20000 Taka capitals to start my shop."

Displacement School of Thought

Findings from the study show that the displacement school of thought has the least representation in the sample, only 2 PWDs (8%). Although the displacement school of thought refers to political, cultural and economic displacement, the testimonies under the study related only to economic displacement. Kuratko (2016) refers to economic displacement as job loss or simply bad times that create the foundation for entrepreneurial pursuits. Similar accounts were found in the PWD testimonies, where they stated that economic hardship and bad times caused them to pursue entrepreneurial ventures. Furthermore, it must be considered that very often, disability prevents one from working full-time or requires taking breaks during working hours (Cieślik, 2017). In

such cases, PWD find more flexibility in running their own businesses than in employment. The authors also observed that the respondents relating to this school of thought responded to entrepreneurship as a reaction to their circumstance (economic hardship, bad times), rather than being proactive and seeking out entrepreneurship opportunities. The displacement school of thought states that people become entrepreneurs less by choice and more by circumstance. Similar evidence was found in PWD testimonies, where they stated that they chose to be entrepreneurs as a response to unfortunate situations as they had no other employment choice. For example:

"I was an electrical mechanic. One day while working I met with an accident that impaired my ability to walk properly. I fell into a very bad time and went through extreme economic hardship as I had no income. After some time, I started thinking of doing my own business and came up with the idea to start a repair service."

Entrepreneurial trait School of Thought

Findings show that 3 PWDs (13%) related to the entrepreneurial trait school of thought. These respondents possessed an entrepreneurial spirit that motivated them to pursue their business. They showed the need for achievement, willpower, determination, creativity and an innovative mind that makes them more of opportunity seekers who forge their own path rather than just reacting to life circumstances.

"I am the only daughter of my parents. My parents are poor and old and were not capable of supporting the family anymore. I realized I needed to be financially independent not just for myself, but also for my parents. I was skilled in cutting and sewing, so I started taking orders from neighbors. At first, the orders were few, but my willpower to succeed kept me going. Eventually, I saved enough funds to open my tailoring shop. Now I help other girls like me to do something on their own."

Here, the PWD carried the personality traits that are generally found within successful entrepreneurs, for example, need for achievement, independence, creativity and willpower. These traits influenced the PWD to be proactive and seek out opportunities for entrepreneurial ventures.

"I am a seller of gemstones. I visited Azmer Sharif once and met an expert of gemstones who taught me the skill. I realized I could use this new knowledge of mine by starting a gemstone business. After

coming home, I sought out the suppliers of gemstones and started sourcing them. My business was not too great at the beginning, but I knew I wanted independence. I need to achieve something in life and that willpower keeps me going."

As evidenced by the testimonies, it could be said that the respondents relating to the entrepreneurial trait school of thought are opportunity seekers. Instead of only reacting to the situation they are in, these people sought out ways and opportunities to improve their conditions through entrepreneurial activity.

Conclusion

The purpose of the study was to understand the experiences of entrepreneurship for persons with disabilities in Bangladesh and to relate the schools of entrepreneurial thought with what the individual PWD had to say. PWD experience with entrepreneurship related to four schools of entrepreneurial thought – social/cultural, financial/capital, displacement and entrepreneurial trait. The authors also observed that PWD relating to social/cultural school of thought and entrepreneurial trait school of thought entered entrepreneurship through active opportunity seeking. PWD relating to displacement school of thought chose entrepreneurship as a reaction to life circumstances (i.e. economic hardship, bad times) and PWD relating to financial/capital school of thought chose entrepreneurship as a reaction to the availability of opportunity (i.e. funds). Majority of the respondents (57%) relate their experience to that described in the social/cultural school of thought literature. The PWD identified under the social/cultural school of thought were mostly clustered in production-based businesses. In contrast, only 8% PWDs related to displacement school of thought.

Gender wise analysis show that majority of male and female respondent's related to social/cultural school of thought. In terms of sector, production (e.g. manufacturing) based businesses showed highest representation for male (44%) and female (22%) respondents. Least representation was seen in service for male respondents (4%) and in wholesale/retail (4%) for female respondents.

Findings from the study show that the majority PWD were primarily motivated by their surroundings to start business (social/cultural school of thought). Thus, offering a conducive environment to entrepreneurship can inspire PWD who are seeking entrepreneurial opportunities. A supportive environment could be

created in the form of exclusive trade associations and support centers for PWD that could offer a platform to share business ideas and offer guidance and support to raise seed capital from different entities. Aside that financial opportunity/availability of funds enables PWD to react and this reaction results in PWD choosing an entrepreneurial activity. Social Welfare Ministry of Bangladesh could take an active role in the form of establishing vocational training centers/facilities in every district in the first phase. In the second phase, training centers could be set up in every upazilla that would offer customized skills training for the PWD. The government could support funds for PWD by encouraging corporations to contribute and sponsor via corporate social responsibility (CSR) activities. This could be achieved by partnering up with the corporations in PWD assistance projects and offering tax benefits for sponsoring PWD start-ups.

Future research could be conducted on how corporations can create entrepreneurial opportunities for PWD through social contribution. Future research could also apply the framework developed here for different marginalized groups such as women entrepreneurs, senior citizen entrepreneurs, immigrant entrepreneurs and other demographics.

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Gender and Labour Force Participation in Nigeria

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Abstract

This paper examines existing data on the status of women and men in the area of work and labour force participation and underlines the disparities as a constituent of current life in Nigeria. Removing the obstacles and inequalities that women face regarding employment is a step towards realizing their potential in the economy and enhancing their contribution to economic and social development. Obtainable statistics have been reviewed for the ten year period between 2007 and 2016. Since the National Population Commission puts the number of women and men at about equal in the Nigerian population, therefore, one would normally have been perfectly safe to presuppose equivalent involvement in the labour force. However, National Bureau of Statistics (2017) in its Labour Force Participation Rate entirely opposes this hypothesis. For the ten year period reviewed in this paper, the average labour force participation rate (LFPR) was 64.3

percent for women and 74.2 percent for men. In 2016, the national labor force participation rate of women and men in the ages 15-64 years was 74.7 percent. The proportion of men was 82.6 percent while women accounted for 78.4 percent. Collectively, women do as much work as men if not more but the natures of work plus the circumstances under which they work and their access to prospect for development varies from men.
Keywords: Gender; Labour Force; Participation; Nigeria.

Introduction

The Beijing Platform for action which constitutes the superlative international guideline for advancing the position of women recognized several vital areas of apprehension that obliged women empowerment in order to attain complete parity of the sexes. The areas of worry comprise education, poverty, health, armed conflict, gender-based violence, economic and labour force participation, power and decision making inequity. These tactical apprehensions were connected with monitoring markers which emphasized the necessity for information on women and men. In addition, as a component of institutional system of women development, the platform particularly obliges governments to produce and broadcast sex-disaggregated data and information for planning and assessment. This paper presents and examines existing data on the status of women and men in the area of work and labour force participation. It also underlines the disparities in the status of women and men in labour force participation as a constituent of current life in Nigeria; it contrasts the statistics on women with that of men in the area of work and labour force participation. To bump up results on the disparities in the status of women and men, statistics from secondary and primary sources were categorized, collected, processed and evaluated. It is expected that policy makers and executors, development partners and civil societies will utilize the results of the research in developing a conducive social and economic atmosphere that will not only guarantee equal treatment of all women and men but extensively

perk up the status of women in Nigeria. Women represent approximately 50% of Nigerian's population and consequently half of the work force. Women collectively work as much as or even more than men, but the natures of work in addition to the circumstances under which women work plus their right of entry to prospects of development varies from men.

As opposed to men, women are frequently deprived right of entry to employment prospects and stipulations of work; besides, owing to family duties several women relinquish or limit employment. A stride in the direction of grasping women's potential in the country and improving their input to economic and social development is the elimination of impediments and discriminations that women countenance concerning employment. The Beijing Declaration establishes national commitment to the absolute rights of women and girls and their empowerment and identical involvement in all areas of life incorporating the economic sphere. The Beijing Platform for Action (BPA) recognizes women's position in the economy as a vital sphere of concern and points awareness to the necessity of encouraging and smoothing the progress of women's identical access to employment and resources over and above the synchronization of work and family duties for women and men. Besides, the Millennium Development Goals (MDGs) aim of achieving productive employment and decent work for everyone. While a little improvement has been made in the direction of these objectives, the benefits are irregular. This paper scrutinizes the drift over the last 10 years and depicts the present condition of women and men in the labour force, employment and unemployment.

Research Problem

The removal of obstacles and inequalities that women face with respect to employment is a step towards realizing women's potential in the economy and enhancing their contribution to economic and social development. Governments of countries like Nigeria that partook in the 1995 Beijing Declaration approved at the fourth World Conference on Women, expressed their responsibilities "to advance the objectives of equality, growth and peace for all women across the world for the benefit of humankind". This study evaluates whether the goals in the area of employment and labour force participation are being attained by examining statistical analysis on the status of women and men in work and labour force participation in Nigeria. It underscores the present

position of women and men and the transformations detected in due course. Obtainable statistics have been reviewed for the ten year period between 2007 and 2016.

The Labour Force

A country's labour force or the economically active population includes all individuals of any sex who provide, or are accessible to provide, the supply of labour for the production of goods and services, within an indicated time reference period. The System of National Accounts (SNA) delineates the production of goods and rendering of services to incorporate every production leaning to the market, several kinds of non-market productions (embracing production and developing of key products for personal utilization), personal construction and other manufacture of fixed assets for personal utilization. It eliminates voluntary and unpaid activities, like unpaid household activities and volunteer neighbourhood services. Two valuable determinants of the economically active population are the "typically active population", which is determined with regard to a long time frame like one year; and the "presently active population", which is determined with regard to a short time frame like a week or a day. The labour force which is also referred to as the presently active population constitutes the most commonly employed determinant of the economically active population. It includes every citizen beyond a specified minimum age who were either employed or unemployed within the particular indicated time. The data on economic attributes offered in this paper denote individuals 15-64 years of age. While the employed consist of all individuals over a particular age that either worked for compensation or income or added to a family trade with no reward all through the indicated period; the unemployed consist of all individuals over a particular age who were not employed within a particular period. Individuals not in the labour force refer to everyone not designated as either employed or unemployed within the indicated period, in addition to those beneath the age denoted for determining the financially active population. Individuals may be inactive arising from various rationales ranging from engagement in domestic responsibilities; attendance in educational institutions; retirement or old age to additional rationales like illness, disability, medical conditions etc.

Very old dissimilarities in the gender allocation of economic and monetary resources have situated women at a disadvantage compared to

men in their capacity to engage in, contribute to and profit from wider procedures of development. Profoundly established disparity perseveres due to unfair customs and practices, regardless of considerable development on numerous facets of women's economic empowerment in the course of, inter alia, enhancements in educational achievement and portion of paid work. Moreover, the tempo of transformation has been sluggish and irregular especially across regions in the country. Women are persistently missing from important decision-making round-tables determining the allotment of economic and financial resources and prospects, which additionally continues gender inequity. The present financial and economic predicament is already ominous to the progress made in the direction of the realization of globally established development goals, together with the Millennium Development Goals. The way in which a country reacts to the recession can have unbalanced effects on women and girls, possibly reversing gains made, particularly through cuts in public spending on health and education and augmented threat of cutbacks in allotments to gender egalitarianism and women's empowerment. The global community has made strong, inclusive dedications to gender egalitarianism and women's rights in access to and power over financial and monetary resources in United Nations Intergovernmental contexts. Human rights treaties, systems and mechanisms have also tackled the subjects of women's access to and control over resources. Governments however boast the principal accountability for executing these obligations.

Gender and Employment Policy in Nigeria

Yahaya and Akinyele (2012) observe that ever since Nigeria got her independence in 1960, succeeding governments have constantly followed an employment policy which seeks full employment. The prime aim of the policy is to motivate financial growth and development, elevate living standards, fulfil human resource obligations and conquer unemployment and underemployment. With regard to human resource management, the policy is intended to make it possible for citizens to make liberated employment choices. It also offers utmost chances for workers to employ their skills and endowments in a job for which they are suitable, notwithstanding gender, religion, ethnicity or social derivation. Robert (2014) affirms that, after almost six decades of Nigeria's independence as a nation-state, and various incidents with quota system and federal character, there is totally no uncertainty about

major achievements in the prospects that have become obtainable to women in terms of employment. Nevertheless, discrimination persists in addition to the glass ceiling that hinders women from having really equivalent chances in the Nigeria labour force. Gender inequity subsists even at the institutional level in the labour force and in economics. Furthermore women in Nigeria have practically no official authority in the national and state civil service. While, the federal government formed the Ministry of Women Affairs about two decades ago, there exists no reservation that the government moulds and restricts women's position in the civil services. Gender still constitutes a fundamental issue in comprehending the procedure for making appointments especially to senior public management posts. Although the government encourages and utilizes women organization a bit, Nigerian women are still making efforts to break the glass ceiling compelled on them in the civil service. Really educated women in Nigeria persistently countenance copious inconsistencies between what they require to service and what is achievable under existing administrative laws, religions, and customary social structures in the nation. Regardless of endeavours introduced at diverse levels, constitutional and otherwise, to deal with the marginalization and discrimination against women, the *stautus quo ente* still seems to be sustained to a large degree. Women have however made considerable progress politically, economically, educationally and socially over the past decades and the conventional impediments to development are persistently collapsing. Women are penetrating the labour force in unparalleled numbers but notwithstanding their rising presence and their joining previously male professions, they seldom work flanking men or execute identical tasks and roles.

Adepoju (2014) posits that the methodically poorer position of women in the labour force in Nigeria identify the obligation of treating gender as a power of its own shaky development concerns in the nation. While women represent about half of the Nigerian population, there are still a disproportionately low number of them in the labour force. Nigeria has a well-built patriarchal structure that sustains the sexual division of labour in the family and also openly limits women's ease of use of paid employment and circuitously stipulates the condition of employment for those who join the labour force. The men are inclined to occasionally exploit the patriarchal environment of link between men and women in the society added to supplementary cultural causes to

corroborate the supremacy of men and to make the women in the society to admit their situation of suppression as divine fate. Robert (2014) indicates that women in the paid labour force are distinguished by restricted and apprehensive employment prospects and discernible inferior remunerations, poor employment conditions, unsteady hours and detrimental employment agreements. Women are principally employed in low income occupations or enormously small level schemes that shove them into isolated employment and monotonous manual production.

The National Manpower Board Studies (2014) details that in the formal sector, women are typically employed as operatives, machinists in the manufacturing organisations, even as their equals in the service establishments are employed as nurses, cooks, secretaries, receptionists and other jobs considered as appropriate for women. The numbers of female engineers, pilots, lawyers and business managers are quite insignificant compared to the numbers of men involved in these jobs or professions. Additionally, Okojie (2014) avers that in the past, women were employed mostly in low paying jobs, were often paid less than others doing the same jobs and had very limited opportunities for training and advancement, but women are moving into the elite pipeline very slowly, for not all competent career minded women are interested in business. There are other career areas with better opportunities and less discrimination.

Ikpe (2013) notes that in various African countries, such as Nigeria, Ghana, etc. differential handling for women comprises reduced access to fundamental wellbeing, security and nutrition or health care resources, while in other countries, it is commonly linked to educational prospects. Ikpe adds that in many of these countries, women earn only three-fourths of what men earn, in addition, they have reduced access to land, credit and employment prospects. Nigerian women are still exposed to limiting access to education, employment, economic resources, abusive labour and trafficking. Also Ojoko (2012) observes that available data demonstrates that globally, women in business recurrently have restricted access to professional and managerial jobs. As women in diverse countries countenance a variety of tests, those in the same countries may as well incident characteristic impediments in joining the paid labour force. This implies that both inside and across nations, women are not the least bit a monolithic collection.

Besides Olomu (2014) suggests, that national cultures vary with respect to perceptions of women's real or possible contributions to the paid labour force. Cultural divergences could moreover explain the obstacles that women countenance in becoming supervisors. Besides cultural labels concerning women could occupy a significant position in forming the educational, legal and organizational prospects presented to women. It is improbable that women in diverse countries countenance identical ambitions, expectations or visions. Although the obtainable data exhibits that the position of women remains lower than that of men, it is in addition apparent that more women are progressively joining the paid labour force and persist in making improvements in progressing to top management spots. Subsisting literature on the state of workers in Nigerian organisations like Thomas (2013) and Oloko (2015) designate a prejudice against women in most organisations particularly regarding the level of tasks and the independence allocated to them. Ikpe (2013) affirms that the majority of employers choose to employ men more willingly than women particularly in jobs that necessitate either typical intelligence or those technical in nature, and when women are engaged, the degree of support they receive from associates is habitually low. While the notion of women in the labour force is really not novel to the Nigerian society, the highlight has entailed women's capability to handle household responsibilities. Customarily, women have been apt to be home keepers and mothers and where they worked, it was not anticipated that such employment would be outside the home. However, collective and cultural demands have accustomed females to assume behavioural moulds in line with the societal anticipations. The cultural system in Nigeria considers that while men must be dominant and forceful, women are supposed to demonstrate submissive and reliant features. Nevertheless the world is quickly transforming and an outstanding change is in the region of women emancipation, which entails the coming out of women from the isolation of their homes to business activities outside the home. Females are now required to deal with the consequences of role divergence particularly when they opt for male leaning professions and jobs where the ease of access and continuance is more difficult for women compared to men.

Results and Discussion

The population of Nigeria has been rising progressively at a typical rate of 3.3 percent per annum since the Population and Housing

Census (PHC) held in 2006. According to the National Population Commission (2017) in 2016, Nigeria's population was projected at 183 million people, consisting of 90,989,254 females and 92,387,474 males. The total number of older people, that is, those who have reached the age of 60 years increased slightly from 6,987,147 in 2007 to 6,987,232 in 2016. Within the period under review, the sex ratio was 102 men per 100 women.

Since the National Population Commission puts the number of women and men at about equal in the Nigerian population, therefore, one would normally have been perfectly safe to presuppose equivalent involvement in the labour force. However, National Bureau of Statistics (2017) in its Labour Force Participation Rate entirely opposes this hypothesis. For the ten year period reviewed in this paper, the average labour force participation rate (LFPR) was 64.3 percent for women and 74.2 percent for men. In 2016, the national labor force participation rate of women and men in the ages 15-64 years was 74.7 percent. The proportion of men was 82.6 percent while women accounted for 78.4 percent. Like in 2013, men comprised the mass of employment in Federal and State MDAs.

The labour force participation rate in Nigeria by state and sex is presented in Table no. 1. There seemed to be some degree of fairness upheld between women and men in few states and women dominated the labour force in a few states. The comparative denial of women in contrast to men differs across states and geopolitical zones in Nigeria, but this reality does not reduce the significance of offering women senior public management position in Nigeria. With a policy aimed at impartially reaching the citizenry with successful recommendation and action for sustainable management of the country's public supplies, the apprehension of women not being adequately represented especially in senior public management positions must be tackled. The Beijing Platform for Action emphasized among others, apprehensions pertaining to women's representation in the labour force especially in the civil service. However, inadequate information to the degree of access and developments has often created difficulties for tackling gender discrepancies in the Action's tactical regions of anxiety.

Table no. 1. Labour force participation rate by state and sex

STATE	% MALE	% FEMALE
ABIA	80	78
ADAMAWA	40	42
AKWA- IBOM	73	70
ANAMBRA	76	72
BAUCHI	48	47
BAYELSA	79	81
BENUE	80	85
BORNO	59	58
CROSS RIVER	72	68
DELTA	70	68
EBONYI	74	80
EDO	67	69
EKITI	80	83
ENUGU	80	81
GOMBE	44	43
IMO	67	70
JIGAWA	81	37
KADUNA	78	59
KANO	76	51
KATSINA	83	58
KEBBI	83	62
KOGI	67	70
KWARA	70	80
LAGOS	70	76
NASARAWA	70	50
NIGER	53	33
OGUN	74	78
ONDO	69	77
OSUN	71	70
OYO	78	76
PLATEAU	44	40
RIVERS	78	78
SOKOTO	88	35
TARABA	53	51
YOBE	82	81
ZAMFARA	78	72
FCT	45	48

Table no. 2 demonstrates that typically for the period 2007-2016, 72.3 percent of senior positions in State Civil Service were occupied by men, compared to 27.7 percent occupied by women. A parallel model was sustained at the junior level and across cadres. During the period under review, the fraction of men employed was almost always higher than the number of women. Regardless of the reality that the mass of women employed in Nigeria's civil service occupy junior positions most of them are hindered by the issues ranging from deficiency in reasonable childcare, soaring tempo of spousal desertion, a progressively higher cost of living and gender typecasting.

These situations disallow women in the labour force especially public services the vital proficiencies, education, training and resources to get more rewarding and secured employment. Education constitutes a firm foundation fundamental to human development.

Table no. 2. Civil servants by type, year and sex

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Junior Female	32306	33789	34107	34409	35100	37566	48436	48866	49436	49873
Junior Male	75345	76298	76934	77094	79323	77881	69530	87188	89353	90213
Senior Female	56753	58231	61634	62762	64434	72344	67738	74423	63877	64112
Senior Male	103645	107721	108236	108844	113577	157973	112302	147379	130122	131108

Education ensures the development of vital skills and proficiencies that improve quality of life, thus conveying extensive variety of gains to both, individuals and societies. Nevertheless, spending on the education of girls and women, especially, which logically supports the age-long acknowledgment of education as a basic right with extensive effects on human development and social advancement, sequentially, generates remarkably elevated social and economic profits. The significance of education for the development of women was emphasized in the Beijing Platform for Action, which once more recognizes it as one of the twelve decisive spots of unease and additionally established it as essential for gender equality and women empowerment. Studies like Isah (2005) and Fapohunda (2013) indicate that while women did sixty percent of the global work, they get one-tenth of its wages. Women possess below one percent of the land, have restricted access to education and economic resources and boast less than men in resolutions influencing their future. These studies indicate that women represent 50% of the global population, and have greatly been thrown in as regards societal development. Again, Mba (2011) affirms that women endure diverse types of discrimination, inequity, segregation and gender concerns. Moreover, they are not bestowed outstanding thoughtfulness in recruitment, selection, training and promotion implementation in the public service.

Also, delegate bureaucracy is not gender sensitive; instead excessive partiality is accorded to federal character in public service recruitment, training and promotion. While the Beijing Conference in China established that 30% of the elective positions in all countries

should be reserved for women, this has not been implemented in Nigeria. Okonkwo (2014) noted that a look at senior public servants, government appointments and elective positions indicates that women are significantly discriminated. Globally, the subject of gender thus becomes a vital scholarly and political subject against the background of both, actual and supposed prejudice experienced by women. As earlier noted, about half of Nigeria's population is women with right to vote and hold public offices. Yet, women are persistently inadequately represented at all government levels. At the national Assembly in 2015, 94.3 percent of seats were taken up by men as opposed to a mere 5.7 percent taken up by women. Worst still, women look as if they are invisible in the power equation at the state and local government levels. Women were similarly inadequately represented amid high-level government administrators boasting authority for decision making.

Table no. 3 indicates greater number of male employees in the labour force across all cadres and for every one of the ten years under evaluation 2007-2016. Amid the numbers of employees in state employment in 2016, women represents above 50% of the labour force. ILO (2014) reports that while on the whole growth rates in the African continent have risen from 1.9% in 2010 to 3.7% in 2013, economic growth is still below average, and growth patterns are dissimilar across the continent. Also, Physical Quality Life Index (PQLI) attainments have been delayed in the African continent. Nigeria and most African countries are in the low-status end of PQLI tables. In addition to low human and social development there is a gender-bias in access of crucial human resources to education, training and health. For instance, Adeleke (2013) indicates that female literacy for Nigeria lingered at 45.4% and involvement rates in 2014 for women employees was about 42.0%. Nevertheless, since employment in the formal sector is restricted women employees are poorly represented in public and para-state organisations. Moreover, with limited employment prospects in the formal labour market, women employees are found in agricultural and self-employment activities because these are the most general kinds of employment accessible to women. Glick and Sahn (2011) observe that analyzing the formal labour market is decisive for spotlighting on the state of women's work in Nigeria, given that it offers the framework for reinforcing the principal foundation of job growth in the country, which is anticipated to be the informal sector. Since the principal source of job creation is envisaged to be in the informal sector, there is a vital

requirement to scrutinize the peculiarities of women's position in the formal labour market.

Table no. 3. Staff in state employment by cadre, year and sex

	Technical Workers		Operatives		Clerical/ Secretarial		Executives		Admin/ Managerial		Directors		Commissioner	
	% M	% F	% M	% F	% M	% F	% M	% F	% M	% F	% M	% F	% M	% F
2007	73	27	65	35	51	49	45	43	48	47	56	34	78	36
2008	72	28	64	36	52	48	45	44	48	48	57	35	78	36
2009	74	26	64	36	54	46	46	48	50	48	57	37	79	37
2010	72	28	62	38	56	44	45	55	52	48	58	36	82	31
2011	72	28	63	37	55	45	47	52	58	52	62	38	80	33
2012	71	29	62	38	56	44	50	46	54	56	60	38	79	38
2013	71	29	61	39	55	45	46	50	53	54	71	39	78	39
2014	70	30	63	37	55	45	48	52	58	55	78	38	79	39
2015	72	28	62	38	54	46	49	54	58	56	78	38	80	40
2016	72	28	62	38	55	45	48	53	60	57	78	39	80	39

Table no. 4. Employment in federal MDA staff by grade level, year and sex

Grade	01-06		07-10		12-14		15-17		Special Grade	
Year	% M	% F	% M	% F	% M	% F	% M	% F	% M	% F
2007	72.6	27.4	65.7	34.4	66.7	33.2	72.6	27.4	64.8	35.2
2008	74.5	25.5	67.3	32.7	67.7	32.3	75.6	24.4	68.4	31.6
2009	71.3	28.7	63.7	36.3	67.4	32.6	71.4	28.6	74.6	25.4
2010	72.6	24.4	73.1	26.9	61.5	38.5	70.4	29.6	69.5	30.5
2011	75.5	24.5	68.5	31.5	69.2	30.8	75.4	24.6	66.3	33.7
2012	69.4	30.6	67.4	32.6	66.4	33.6	75.2	24.8	70.6	29.4
2013	71.5	28.5	65.3	34.7	65.6	34.4	74.0	26.0	62.7	37.3
2014	72.4	27.6	64.7	35.3	65.4	34.6	72.5	27.5	73.5	26.5
2015	78.8	21.2	75.3	24.7	63.6	36.4	72.1	27.9	71.5	28.5
2016	76.6	23.4	74.6	25.4	62.5	37.5	70.3	29.7	70.6	29.4

Table no. 4 displays the percentage distribution of federal MDA workers by grade level, year and sex from 2007 to 2016. The presented statistics designate that employment by both grade level and cadre is tilted in favour of men. The fraction of women on grade levels 01-17 in

addition to special grade varies between 21.2% and 38.5% in the ten year period reviewed. Specifically for grade level 15-17 the proportion was as low as 24.4% in 2008 and as high as 29.7% in 2016. To realize gender parity and women empowerment and for unbiased and sustainable fiscal growth and development, women's equivalent access to and power over monetary and pecuniary resources is significant. Gender parity in the distribution of economic and financial resources has affirmative multiplier outcomes for several important development targets, incorporating poverty reduction and children wellbeing. Micro level competencies outcomes through augmented household output, and macro competencies outcomes through affirmative synergies between pointers of gender parity and economic growth. Development motivations for improving women's access to economic and pecuniary resources comprise women's role as "safety net of last resort" in economic recessions.

Employment in Nigeria and its Repercussions for Women Employees

Labour market prospects are complexly attached to human capital bequests of workers, access to human capital being a gendered process. Cohen and House (2013) observe that gender discrimination, which is typically founded on "non-economic" principle of social and cultural values, has negative repercussions on advancing demographic effects of low female participation. Consequently, gender-biases in socio-economic procedures must be insistently distinguished: the overflow results of prejudiced behaviour harmfully imposes on women employees, and also has a lasting effect on economic development. Centring on the definite subject of human capital endowments, improved instruction is imperative for developing girls' access to education, because it constitutes a fundamental stride in the effort to remove the gender gap in economic prospects and income. For instance, in Northern Nigeria girls still make up just 32.0% of total primary school enrolments, and the gender gap in enrolments rises stridently at higher levels. When girls have restricted access to education, it is obvious that their economic prospects also become limited.

However perking up access to education does not automatically eliminate gender-based discrimination in the labour market. "Discriminatory socialisation" at diverse stages also affects the alternatives available to women and their access to educational and

vocational training. The alternatives available are determined by women's capability to fulfil domestic and social responsibilities whilst working and this robustly influences their resolution to go into the labour force. Consequently, human capital investment necessitates appreciation of the gendered aspects to educational and vocational training. Strategies aimed at eliminating the gender gap in the labour market must copiously identify the diverse stages at which discrimination against women occur, and progress towards executing suitable plans at diverse stages of human capital outlays. Definite concerns that need to be dealt with at every level include the reasons for fewer girls in primary schools; added reduction to the low rate at higher education levels and the continuation of occupational segregation in the labour market. These all constitute indispensable factors that feature in the value of women's work prospects and their security in the labour market. Evidently gender discrimination at the level of human capital investment is revealed in the labour market through occupational segregation. This outcome though not peculiar to Nigeria, is more severe here owing to the comparatively elevated altitudes of open unemployment and massive underemployment. In the public sector which is renowned for appropriate working conditions, fringe benefits, and salary levels for men and women workers, education is significant to employment. Consequently, in the public sector there is a propensity for equivalent representation of men and women employees in professional or managerial professions.

Olojede (2007) affirms that in Nigeria, the public sector employs 57.0% men and 43.0% women with a larger share of women in private sector employment. Oloko (2015) reports that women employees in wage employment are mostly in teaching, nursing and secretarial work, and while these professions are comparatively skilled tasks, pay increments and career mobility within it is restricted. Fapohunda (2012) adds that the segregation is even additionally severe in private sector unskilled and skilled service, where women workers are practically absent. Badmus, Isiaka Alani (2015) confirms that in Nigeria, women are predominant in agricultural, wholesale and retail trade sectors, where they are generally in the group of self-employed (36.4%) and unpaid family workers (46.2%). The high demonstration of women employees in restricted ranks of the public sector, but their practical nonexistence in the middle and low-level professions is compliant with gender-based occupational segregation trends in the country. Most of

the women with high education have access to safe and stable employment; those with little or no education are consigned to the informal sector. Education is hence vital in deciding what section of the labour market women employees are capable of getting access. Irrespective of differences in exact cultural and political dynamics, women employees in the country are placed at a disadvantage. The susceptible position of women employees is somewhat connected to poor economic growth and human development, although cultural and social values also underline economic uncertainties countenanced by women. The principal thing to be remembered is that economic growth is fundamentally reliant on the welfare of women. Developing the position of women is thus, not merely regarding social justice and human rights, but in addition has repercussions for economic growth. Following structural adjustment and cutback in public sector employment, how can incongruous movements in socio-economic procedures that affect the quality of women's work be resolved? While special spotlight on economic markers gets short-term results it is narrow-minded in the long run and these concerns evidently must be identified if the value of women's work will be shielded by policy-makers.

Conclusion

For the ten year period reviewed in this paper, the labour force participation rate (LFPR) was 64.3 percent for women and 74.2 percent for men. The position of women as illustrated in this paper has for long constituted a source of serious anxiety in many cultures and in various parts of the globe, being developed beyond the level of considerate apprehension to the period of violent feminism. Gender concerns have remained at the vanguard of international meetings. The campaign for the emancipation and total freedom of women all over the world has also drawn the attention of various researchers. The worldwide notice that women suppression has drawn led the United Nation Declaration of Human Rights 1948 to affirm obligation to the aspiration of equal rights for men and women. The United Nations General Assembly in implementing the global plan for her second development decades affirmed that one of its aspirations was to guarantee the complete assimilation of women in total development effort.

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Effect of Budget Deficit on Exchange Rate in Nigeria from 1980 to 2017: An Error Correction Model Approach

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Abstract

This study examines the effect of budget deficit on exchange rate in Nigeria using a time series data from 1980 to 2017. The study employs an Error Correction Model Approach (ECM) for evaluation. The stationarity test result shows that all the variables are stationary and integrated of order one at 5% level of significance. The Johansen hypothesized cointegration test result show that the trace likelihood ratio and the maximum Eigen value results point out that the null hypothesis of no cointegration among the variables is rejected in favor of the alternative hypothesis up to five cointegrating equations at 5% significant level respectively. The long run analysis of the effect of the budget deficit on the exchange rate performance reveal that the coefficient of the variables, DEFICIT_1, LOG (M2) and OPEN show positive signs. The coefficient of the variables INF, DEEP and LOG (CONSUM) indicate negative signs. The equilibrium

Error-Correction Model result has the expected negative sign and is statistically significant. The Pairwise Granger Causality test result shows that there is a unidirection of causality from EXCHR to DEFICIT_1. The study therefore recommends that the Federal Government should adopt policy that encourages foreign capital inflow in order to boost the country's productive base.

Keywords: Budget deficit; exchange rate; unit root; cointegration; ECM; Nigeria.

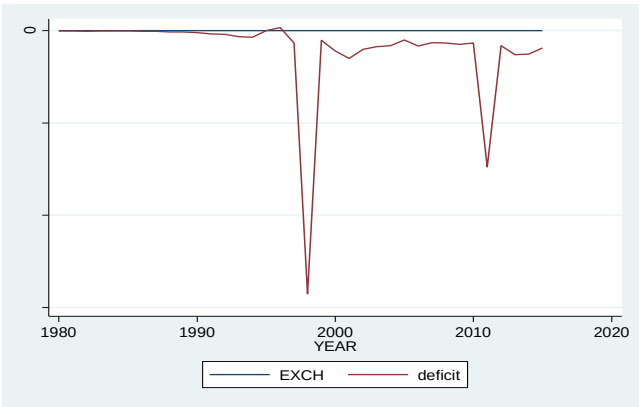
Introduction

In many countries large budget deficits are among the most serious problems of their economies (Apergis, 1998). Economic theory argues that large budget deficits tend to have harmful effects on many macroeconomic variables, such as domestic interest rates, investments, and trade deficits. In particular, massive budget deficits result in high interest rates as the government's demand for funds conflict with private financing requirements; eventually, high interest rates discourage private investment. The implication of high interest rates would be that residential construction, business investment in plant and equipment, and consumer spending on durable goods could be hard hit by the implementation of such a fiscal policy, especially, if monetary policy is non-accommodative (Apergis, 1998). Under the Ricardian equivalence view, deficit policy is a matter of indifference, since an increase in government debt leads to a future increase in taxes and thus it is not an addition to private sector wealth. This fact has no effect on consumption, interest rates and aggregate demand (Apergis, 1998). Studies on twin deficits have been conducted by many scholars. The twin deficit hypothesis according to Feldstein (1985) is a situation where large budget deficit leads to a current account deficit. As domestic interest rate rises comparing to the foreign interest, it pushes up the value of domestic currency as it leads to foreign portfolio capital inflow. This would automatically result to trade decline.

The Nigerian economy over the years has continued to witness a huge budget deficit from the 1980s. From 1980 to 1981, budget deficit

rose from ₦2 billion to ₦3.9 billion; and from 1986, it rose to ₦8.2 billion, while there was an observed fall in 1987, to ₦5.8 billion and stood at N101 billion in 2006. In 2007, the budget deficit was N609.2 billion. The global financial crises of 2008 resulted to sluggish economic growth as demand for crude oil declined, this resulted to a deficit of 0.56 trillion naira (about 2.2% of the GDP). Between 2009 and 2010, the budget deficit increased to 249 billion naira and ₦1.1 trillion respectively. The 2007 fiscal year recorded a deficit of N609.2 billon as against N580.30 billion in the previous budget. The international financial crisis of 2008 led to slowing growth across the world economy, resulting in lower demand for the nations crude oil, as a result the economy witnessed 0.56 trillion deficit (2.5% of GDP). The 2009 and 2010 fiscal years equally recorded deficits of 249 billion and ₦ 1.1 trillion respectively. In 2012 and 2013, the budget deficit was -2.85% and -2.33% of the GDP respectively. Figure no. 1 shows the interaction of budget deficit and exchange rate in Nigeria from 1980 to 2017.

Fig. no. 1. The trend of budget deficit and exchange rate (1980-2017)



Source: Authors' own computation from Stata 11 result

The figure shows that the economy continued to witness a rise in the budget deficit, hence in 2014 and 2015 the deficit was -2.13% and -3.47 of the GDP respectively. Equally, in 2016, the country recorded a deficit of -3.93% of the GDP, while the year 2017 the country recorded a deficit of -5.75% of the GDP. From the foregoing, the consequence of growing budget deficit on the exchange rate regime in Nigeria is enormous and calls for immediate serious attention by the Economists.

Statement of the Problem

Studies on the interaction between budget deficit and exchange rate by scholars have produced a clear cut direction hence there exist an ambiguity theoretically on the direction of relations between the variables. Gulcan and Bilman (2005) were of the view that deficit reduction leads to either stronger exchange rate or weak exchange rate. The effect on interest rate and exchange rate can occur directly or indirectly. A decrease in exchange rate is as a result of direct effect; this also leads to a reduction of the demand for loans. While when it increases, it shows an indirect effect of budget deficit (Gulcan and Bilman, 2005). The authors assert that deficit reduction leads to an interest rate decrease, noting that its real exchange rate effect is not explicit. Hence, understanding the determinant of this inconsistent behaviour in the long and short run of real and nominal exchange rate has become one of the major tasks of economists (Gulcan and Bilman, 2005). Deficit spending and its exchange rate effect have continued to generate theoretical arguments among scholars. Based on this assertion, this study therefore tends to answer the following questions: What therefore is the effect of budget deficit on exchange rate in Nigeria? Is there a long run relationship between budget deficit and exchange rate in Nigeria? What are the effects of other fiscal and monetary policy variables on exchange rate in Nigeria?

Objectives of the Study

The main objective of this study is to examine the budget deficit effect on exchange rate in Nigeria. The specific objectives are:

(1) To ascertain if there exist a long run relationship between budget deficit and exchange rate in Nigeria

(2) To ascertain the effects of other fiscal and monetary policy variables on exchange rate in Nigeria

Research Hypotheses

Based on the objectives outlined above, the following hypotheses therefore would guide this study:

H_0: There is no effect of budget deficit on exchange rate in Nigeria

H_0: There is no long run relationship between budget deficit and exchange rate in Nigeria

H_0: There is no effect of other fiscal and monetary policy variables on exchange rate in Nigeria

Scope of the Study

This study is limited to the Nigerian economy. It covers the period from 1980 to 2017. The variables that will be used to determine the relationship between Budget Deficit and Exchange rate in Nigeria are: Budget deficit, Trade openness, Current account Balance, Total gross Investment and Inflation.

Significance of the Study

The major thrust of this work is to find out if there is any impact of budget deficit on exchange rate in Nigeria. If, at the end of this research it is found out that it is true, it will be of immense value to the policy makers in Nigeria who will find it useful in their policy formulation. Financial market operators will also find it expedient in meeting up with some of the financial market challenges, local and foreign investors will also use the result of the work to solve some of the investment challenges. Students, producers and other stakeholders in the Nigerian economy will find it immensely useful to their fields. The variables of interest to be considered in this study will include exchange rate, budget deficit, broad money supply, financial deepening, trade openness, inflation and Government consumption expenditure.

Literature Review

Theoretical Literature

The literature review on the relationship between budget deficit and exchange rate centers on portfolio crowding out hypothesis. It states that when government incurs a huge budget deficit that is accompanied with debt, it directly affects asset prices thereby leading to a reduction in the level of aggregate demand in the economy (Friedman, 1978). In a closed economy according to Hoelscher(1986), this hypothesis implies a significant positive association between debt stock disturbances (budget deficits) and real interest rates. In their studies, Fleming (1962) and Mundell (1963) assert that an open economy operating under static exchange rate expectation accompanied with fixed asset prices, a fiscal policy measures financed through a huge debt obligation is crowded out completely in a flexible exchange rate regime system. However, Barro (1974) argued that, if it is assumed that taxpayers realize that current deficits must be paid by future taxes, they will increase their savings by an amount equal to the present value of future tax liabilities due to current deficits.

Budget Deficits and Inflation

The budget deficit has effect on inflation; this effect according to Meltzer (1989) could be traced to the 1980s inflation that occurred in countries like Bolivia, Argentina and Brazil as a result of money issued to pay public spending. However, the experience in most developed countries does not support the view that deficits must sooner or later increase money growth and produce inflation. According to Saleh (2003) "An example is Italy, which experienced a budget deficit of about 10% of Gross National Product (GNP) throughout the 1980s". Inflationary effect on the economy was reduced from about 20% to about 5% during the period under review. Other countries with similar experiences of low level inflation include United States of America and Japan. In Japan, the rate of inflation was almost zero, while the budget deficit climbed during the 1980s. During the same period the inflation rate in the United States reduced from 10% to about 4% even with an increase in the Government's huge fiscal deficit of the 1980s. The decline in the inflationary levels could be attributed to a decline in the money growth despite huge borrowing by the governments (Saleh, 2003).

Deficit Financing

According to Easterly and Schmids-Hebbel (1993), the consequences of deficits depend on how they are financed. They explained that financing approach adopted if used excessively might lead to a macroeconomic imbalance. The implications however, depend on country's economic conditions (Easterly and Schmids-Hebbel, 1993). The first approach to deficit financing which includes depletion of cash reserves leads to exchange rate appreciation in contrast to the level it would otherwise have had. The authors noted that depletion of foreign reserve to finance huge budget deficit has a limit; and hence leads to capital flight due to negative anticipation by the private sector thus leading to a balance of payment crises. Another approach to deficit financing will lead to households' reduction of excess cash holdings thus driving up the level of prices pending when the economy returns to an equilibrium level.

The Trends in Budget Deficit, Exchange Rate and Inflation in Nigeria

The Nigerian economy has witnessed a rise in the budget deficit. Olusoji and Oderinde (2011) noted that the ratio of fiscal deficit to gross domestic product (GDP) during the period 1971–1977 averaged 2.5%. This was not surprising as increased oil revenue during the period considerably narrowed the fiscal gap. The windfall from the country's oil earnings was used in promoting infrastructural development, ambitious and unproductive projects. At face value, it could be argued that in the 1970s government expenditures fuelled inflation. From 1978 to 1993, the ratio of fiscal deficit to GDP averaged 7.8%. This rate was less than the 9.2% recorded during the nine years of Nigeria's Structural Adjustment Programme (SAP) (1986–1994). During this period, the fiscal deficit/GDP ratio increased from 4.2% in 1984, to 15.6% in 1993, but in 1987 it stood at only 5.5%. The economy witnessed a double digit rate of inflation during the period of stabilization except for the years: 1982 when it reduced to 7.5%, 1985 (5.5%) and 1986 (5.4%). Therefore, it could be inferred that inflation did not abate during the period of stabilization and structural adjustment programme in the economy (Olusoji and Oderinde, 2011).

Empirical Literature

Epaphra (2017) examines the relationship between government budget deficit and macroeconomic variables in Tanzania from 1966 to 2015. Using a Vector Error Correction Model technique, the study finds a negative relationship between exchange rate and budget deficit

Olanipekun and Oladiran (2015) examine the relationship between public spending and manufacturing sector output from 1970 to 2013 in Nigeria. The study employs an ECM and cointegration techniques for evaluation. The study show that a one percent in public spending increases manufacturing sector output to eleven percent and a decrease of recurrent expenditure to 26.9%.

Shetta and Kamaly (2014) estimate crowding in and out of budget deficit on banks credit to the private sector in Egypt employing a Vector Auto Regression (VAR) model approach. The result of the impulse response function indicate that the effect of a government borrowing shock is with regard to the overall banking sector credit.

Eze and Ogiji (2013) evaluate the fiscal policy variables effect on the manufacturing sector growth in Nigeria using the error correction

model. The results indicate that government expenditure significantly affect manufacturing sector growth based on the magnitude and the level of significance of the coefficient p-value. The study finds a long-run relationship between fiscal policy and manufacturing sector growth in Nigeria.

Asgari (2012) investigates the impact of budget deficit reduction on exchange rate in Iran from 1978 to 2008 using an Auto Regressive Distributed Lag (ARDL) model. The result indicates a long run relationship between budget deficit and exchange rate.

Limitations of the Previous Studies

Studies conducted in this area in Nigeria had either focused on effects of twins' deficits, exchange rate depreciation on inflation, impact of price response to exchange rate changes, causal link between twin deficits and other macroeconomic variables, relationships between budget deficits, inflation and monetary growth, effects of exchange rate depreciation on inflation, government revenues and expenditures, and money supply (Oladipo, et al., 2012; Enoma, 2011; Omotor, 2008; Hakro, 2009; Tekin-Koru and Ozmen, 2003; Egwaikhide et al., 1994). This study is to investigate the effect of budget deficit on exchange rate in Nigeria using an error correction model approach. Therefore this study by contributing to the existing literature will extend the period using data from 1980 to 2017.

Research Methodology

Theoretical Framework and Methodology

There are three distinct schools of thought on the effect of budget deficit on private investment which include neoclassical school, Keynesian school and Ricardian equivalent. According to Bernhin (1989), the Neoclassical school were of the view that individuals plans their consumption over their entire life cycle; hence pushing taxes to the future generation, budget deficit would increase current consumption. The Keynesian school's view differs from the neoclassical school in two ways. Firstly, it allow the possibility that there are unemployed resources; and secondly, it presumes that there exists a large liquidity constrained individuals kin the economy thus it guarantees that aggregate consumption is very sensitive to changes in disposable income (Saleh, 2003). The Ricardian equivalence hypothesis developed by Barro (1989) were of the view that an increase in budget deficit as a

result of an increase in government expenditure must be paid for either now or later with the total present value of receipts fixed by the total present value of spending. Hence, a tax cut today should be matched with an increase in the future taxes thereby leaving interest rates and private investment unchanged.

Model Specification

Therefore, developing a model for the impact of budget deficit on exchange rate in Nigeria from 1980–2017 could be stated mathematically as follows:

$$EXCHR = F(DEFICIT\_1, M2, INF, OPEN, DEEP, CONSUM) \quad (1)$$

Where
EXCHR = Exchange rate
Deficit_1 = Budget deficit
M2 = Broad money supply
INF = Inflation
OPEN = Trade openness
DEEP = Financial deepening
CONSUM = Government Consumption expenditure

In order to estimate the equation empirically, equation (1) would be transformed into econometrics equation stated as follows:

$$EXCHR = \beta_0 + \beta_1 DEFICIT\_1 + \beta_2 M2 + \beta_3 INF + \beta_4 OPEN + \beta_5 DEEP + \beta_6 CONSUM + \mu_t \quad \ldots\ldots(2)$$

where
β_0 = the constant term
β's = the parameters to be estimated
μ = stochastic error

For statistical reason, we adopt a log-log regression model. The assumption states that the logarithm of the expected value of the response variable is a linear combination of the explanatory variables. We use logarithms because this transformation is the most commonly used variance stabilizing tool for variables that have wide range (Weisberg, 1980). The log-log model is therefore stated as follows:

$$\text{LOG(EXCHR)} = \beta_0 + \beta_1 \text{DEFICIT\_1} + \beta_2 LOG(M2) + \beta_3 \text{INF} + \beta_4 \text{OPEN} + \beta_5 \text{DEEP} + \beta_6 \text{LOG(CONSUM)} + \upsilon_t \quad \text{.....(3)}$$

where

β_o = constant term of the model.
β_1 = coefficient of DEFICIT_1
β_2 = coefficient of LOG(M2)
β_3 = coefficient of INF
β_4 = coefficient of OPEN
$\beta_{5=}$ coefficient of DEEP
$\beta_{6=}$ coefficient of LOG(CONSUM)
υ_t = stochastic error term

Evaluation Procedure

The evaluation procedures are to ensure whether or not the parameters estimated are statistically and theoretically acceptable and reliable. The unit root test, co-integration test and error correction mechanism will be conducted to ascertain the short and long run stationary or stability as well as correcting the maladjustment in the long run among the macroeconomic variables. The Ordinary Least Square (OLS) single equation is the estimation procedure adopted for this study. This model is chosen based on its Best Linear Unbiased Estimates (BLUE) properties.

Co-integration

Co-integration is an economic technique used in testing correlation between non-stationary time variables. Two series are co-integrate if they both move together along a trend at the same rate, co-integration then talks about the convergence of an econometric system to the existence of long run equilibrium relationship overtime. After long run equilibrium has been established between the variables, the error correction mechanism must be formed (Engle and Granger, 1987). The Error Correction Model (ECM) equation is therefore stated as follows:

$$\Delta LOG(EXCHR)_t = \alpha_0 + \sum_{i=1}^{n} \alpha_{1i} \Delta DEFICIT\_1_{t-1} + \sum_{i=0}^{n} \alpha_{2i} \Delta LOG(M2)_{1t-1} + \sum_{i=0}^{n} \alpha_{3i} \Delta INF_{2t-1} + \sum_{i=0}^{n} \alpha_{4i} \Delta OPEN_{3t-1} + \sum_{i=0}^{n} \alpha_{5i} \Delta DEEP_{4t-1} + \sum_{i=0}^{n} \alpha_{6i} \Delta \text{LOG(CONSUM)}_{5t-1} + \lambda \text{ECM(-1)} + \mu_t \quad \text{.(4)}$$

Granger Causality Test Procedure

In order to ascertain the significance of the second objective which is to determine the direction of causality, a granger causality test is carried out. The causality procedure employed in this study for testing statistical causality between variables is developed by Granger (1969). The procedure is therefore stated as follows:

$$E_t = \alpha_0 + \sum_{i=1}^{k_1} \alpha_i E_{t-1} + \sum_{i=1}^{k_2} \beta_i D_{t=1} + \sum_t \quad \text{……(5)}$$

$$D_t = \Upsilon_0 + \sum_{i=1}^{k_3} \Upsilon_i E_{t=1} + \sum_{i=1}^{k_4} \lambda_i D_{t=1} + \omega_t \quad \text{……..(6)}$$

where

E = an indicator of exchange rate

D = budget deficit

t = current value of exchange rate

t-1= lagged value of exchange rate

Source of Data

Data for this study are from secondary sources. The estimation period is from 1980-2017. The data used in this study are from the statistical bulletin of the Central Bank of Nigeria (CBN) (2015, 2016), CBN Annual Report and Statement of Account for various years.

Econometrics Software

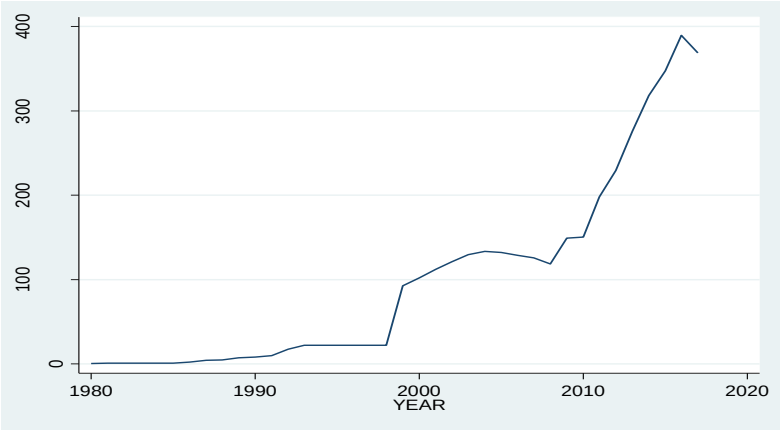
The Eviews9 and STATA11 econometrics packages were utilized in analyzing the data, while Excel will be used in imputing the data.

Data Presentation and Analysis

The trend of the exchange rate from 1980 to 2017

From the figure no. 2 below, the trend analysis of the exchange rate from (1980-2017) indicates that there was a stable exchange stability in the Nigerian economy between 1980, 1990 to 2000. From the year 2001, there has been an upward trend and continuous fluctuation of the exchange rate in the Nigerian economy.

Fig. no. 2. The trend of the exchange rate from 1980 to 2017



Source: Authors' own computation from the STATA 11 result

Descriptive Statistics

The Jarque-Bera (JB) test statistic was used to determine whether the variables (control variables) follow the normal probability distribution. The JB test of normality is a large-sample or asymptotic test that computes kurtosis and the skewness measures. We therefor examine the Sample mean, standard deviation, skewness and kurtosis, and the Jacque-Bera statistics as well as the p-values. The descriptive statistics of the variables used in this study are shown in the figure no. 3 below:

Fig. no. 3. Descriptive statistics

	EXCHR	DEFICIT_1	M2	INF	OPEN	DEEP	CONSUM
Mean	100.2872	534210.8	3958.914	19.87045	76.74921	10.76939	24091.60
Median	57.37225	198799.3	450.7130	14.50000	77.37500	8.171854	26079.29
Maximum	389.5263	1349130.	21607.68	72.80000	263.4800	20.77330	32743.80
Minimum	0.544500	-23504.6	14.46112	5.400000	27.80000	5.800000	11976.64
Std. Dev.	114.8553	539823.7	6256.973	16.27148	39.75196	5.376178	5847.843
Skewness	1.146611	0.161534	1.531699	1.672856	2.982974	1.002999	-0.716893
Kurtosis	3.325481	1.145822	3.996388	5.095231	14.69252	2.219202	2.526863
Jarque-Bera	8.494280	5.608719	16.43055	24.67432	272.8204	7.336648	3.609366
Probability	0.014305	0.060546	0.000270	0.000004	0.000000	0.025519	0.164527
Sum	3810.915	20300012	150438.7	755.0769	2916.470	409.2369	915480.8
Sum Sq. Dev.	488094.5	1.08E+13	1.45E+09	9796.159	58468.07	1069.422	1.27E+09
Observations	38	38	38	38	38	38	38

Source: Authors' own computation from the Eviews result

From the table above results, the descriptive statistics indicates that from 1980 to 2017, the seven variables under consideration show an averaged positive mean values. The standard deviation showed that the highest standard deviation of (539823.7) is recorded by the DEFICIT_1 while the least standard deviation of (5.376178) is recorded by DEEP. The skewness statistics from the table revealed that six of the variables are positively skewed while one variable is skewed negatively; the kurtosis coefficients show that four of the variables are leptokurtic, suggesting that the distributions are high relative to normal distribution, while two variables are mesokurtic, indicating not too flat topped and one other variable is platykurtic, indicating a flat topped. The probabilities of Jarque-Bera test of normality for the variables indicate that seven of the variables have values greater than 5% level of significance.

Correlation

In the correlation test, we test the variables to ascertain the degree of relationship that exist between the independent variables and the dependent variable. The relationships among the studied variables depicted in the model were tested using correlation matrix and the result presented below:

Fig. no. 4. The Correlation matrix

	EXCHR	DEFICIT_1	M2	INF	OPEN	DEEP	CONSUM
EXCHR	1.000000	0.750311	0.824776	-0.18641	0.684120	0.860700	0.344820
DEFICIT_1	0.750311	1.000000	0.604791	-0.28622	0.407044	0.641446	0.318738
M2	0.824776	0.604791	1.000000	-0.15213	0.478745	0.863602	0.285244
INF	-0.18641	-0.286224	-0.15213	1.000000	0.065850	-0.137979	-0.568469
OPEN	0.684120	0.407044	0.478745	0.065850	1.000000	0.529276	0.017265
DEEP	0.860700	0.641446	0.863602	-0.13798	0.529276	1.000000	0.266978
CONSUM	0.344820	0.318738	0.285244	-0.56847	0.017265	0.266978	1.000000

Source: Authors' own computation from the Eviews result

The correlation result shows that five of the variables have positive relationships with the EXCHR. The relationships are actually at 75%, 82%, 68%, 86% and 34% respectively. One of the variables under consideration, (INF) indicates a negative sign.

Unit Root/Stationarity test

The assumption is stated as follows: If the absolute value of the Augmented Dickey Fuller (ADF) test is greater than the critical value either at 1% ,5% or 10% level of significance at order zero, one or two, it shows that the variable under consideration is stationary otherwise it is not. The results of the Augmented Dickey Fuller (ADF) test obtained are as follow:

Table no. 1. The Unit root test

Variable	I(O)	Prob.	I(1)	Prob.
EXCHR	-0.014393	0.9512	-5.925264	0.0000
DEFICIT_1	1.573889	0.9992	-2.243766	0.1953
M2	1.573889	0.9992	-2.837410	0.0664
INF	2.168742	0.9999	-2.737215	0.0780
OPEN	-1.460446	0.5418	-6.629703	0.0000
DEEP	-0.873338	0.7852	-9.979574	0.0000
CONSUM	-2.620280	0.0983	-8.049354	0.0000

Source: Authors' own computation from the Eviews result

The stationarity tests result indicate that one of the variables under consideration, CONSUM is stationary at difference level while the other variables are non-stationary at level. However, after first differencing the variables became stationary; hence all the variables under consideration, are stationary and integrated of order one at 5% level of significance. A cointegration test is therefore conducted.

Cointegration test

To establish whether long-run relationship exists among the variables or not, cointegration tests are conducted by using the multivariate procedure developed by Johansen (1988) and Johansen and Juselius (1990). It allows for hypothesis testing regarding the elements of co-integrating vectors and loading matrix. The Johansen hypothesized cointegration was carried out to determine the number of cointegrating vectors.

Figure no. 5. The Cointegration test

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.937300	300.7209	125.6154	0.0000
At most 1 *	0.883483	203.7920	95.75366	0.0000
At most 2 *	0.776706	128.5518	69.81889	0.0000
At most 3 *	0.637955	76.07751	47.85613	0.0000
At most 4 *	0.521217	40.51795	29.79707	0.0020
At most 5	0.299279	14.74016	15.49471	0.0647
At most 6	0.063403	2.292577	3.841466	0.1300
Trace test indicates 5 cointegrating eqn(s) at the 0.05 level				
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)				
Hypothesized		Max-Eigen	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.937300	96.92890	46.23142	0.0000
At most 1 *	0.883483	75.24022	40.07757	0.0000
At most 2 *	0.776706	52.47430	33.87687	0.0001
At most 3 *	0.637955	35.55956	27.58434	0.0038
At most 4 *	0.521217	25.77779	21.13162	0.0103
At most 5	0.299279	12.44759	14.26460	0.0950
At most 6	0.063403	2.292577	3.841466	0.1300
Max-eigenvalue test indicates 5 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Authors' own computation from the Eviews result

The Johansen hypothesized cointegration offers two tests, the trace test and the Eigen value test, with a view to identify the number of cointegrating relationships. From the table above, the trace likelihood ratio and the maximum Eigen value results point out that the null hypothesis of no cointegration among the variables is rejected in favour of the alternative hypothesis up to five cointegrating equations at 5% significant level respectively. This implies that a unique long-run relationship exists among the variables and the coefficients of estimated regression can be taken as equilibrium values.

The Effect of Budget Deficit on Exchange Rate Growth

In order to ascertain the long run effect of the budget deficit on the exchange rate performance during the period under review, we conducted an Ordinary Least Square (OLS) multiple regression. It is

expected that the coefficients of the variables under consideration will exhibit various characteristics in sign and sizes that conforms to the a priori expectations of the economic theory.

Table no. 2. The Regression result

Dependent Variable: LOG (EXCHR)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	9.242734	5.188393	1.781425	0.0846
DEFICIT_1	9.010007	4.160007	2.165429	0.0382
LOG (M2)	0.604755	0.101236	5.973694	0.0000
INF	-0.000806	0.008680	-0.092842	0.9266
OPEN	0.011088	0.003436	3.226767	0.0030
DEEP	-0.027169	0.032930	-0.825056	0.4156
LOG (CONSUM)	-1.063686	0.508697	-2.091001	0.0448
R-squared	0.913745	Mean dependent var		3.342605
Adjusted R-squared	0.897051	S.D. dependent var		2.114910
S.E. of regression	0.678584	Akaike info criterion		2.227204
Sum squared resid	14.27475	Schwarz criterion		2.528865
Log likelihood	-35.31688	Hannan-Quinn criter.		2.334533
F-statistic	54.73341	Durbin-Watson stat		1.729002
Prob (F-statistic)	0.000000			

Source: Authors' own computation from the Eviews result

From the result above, the coefficient of the variables, DEFICIT, LOG (M2) and OPEN show positive signs, which imply that the variables contributed positively to the exchange rate growth during the period under review and the variables are statistically significant. It indicates that any unit change in the amount of budget deficit will lead to an increase in the current rate of exchange to the tune of 9.0%. The coefficient of LOG (M2) are positively signed and statistically significant at 5% critical level. Also, the coefficient of the variable OPEN indicates positive and significantly statistically. It implies that any unit change in the money supply and the degree of openness of the economy will lead to 60%, and 1% increases respectively in the current rate of exchange.

The coefficient of the variables INF, DEEP and LOG (CONSUM) indicate negative signs, thus indicating a negative relationship between the variables and exchange rate growth in Nigeria during the period under review. Thus unit change in the inflationary level will lead to a decrease in the current exchange rate growth; while a unit change in the government consumption expenditure will lead to -1% increases in the current exchange rate growth rate of the economy. Statistically, the F-statistic is 54.73341 and the probability of the null hypothesis for no significance in that regression is [0.000000]. The R^2 - (R-squared) which measures the overall goodness of fit of the entire regression shows the value is 0.913745 = 91%, while the adjusted R^2 of 0.897051 = 89% shows that the independent variables explain the dependent variable to the tune of 98%. Also, the Durbin Watson (DW) statistics DW = 1.729002 which is greater than the R^2 shows that the overall regression is statistically significance. Furthermore, the t-ratios for those regressors are also meaningful, and their probabilities are below $\alpha(0.05)$. Thus, the null hypothesis $\beta i = 0$ is rejected, and those regressors are significant even at a confidence level of 95%.

Error Correction Model (ECM)

The coefficients of the explanatory variables in the error correction model measure the short-run relationship. ECM corrects the deviations from the long run equilibrium by short-run adjustments. This shows us that changes in independent variables are a function of changes in explanatory variables and the lagged error term in cointegrated regression. The ECM result is therefore presented below:

Table no. 3. Error-correction estimates

Dependent Variable: LOG (EXCHR)				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.882278	4.503446	1.972329	0.0585
DEFICIT_1	2.710007	4.030007	0.673545	0.5061
LOG(M2)	0.717023	0.100355	7.144854	0.0000
INF	-0.007473	0.007521	-0.993604	0.3289
OPEN	0.008645	0.003004	2.877672	0.0076
DEEP	-0.042307	0.028148	-1.503022	0.1440
LOG(CONSUM)	-1.012931	0.445773	-2.272305	0.0309
D(ECM(-1))	-0.784058	0.240727	-3.257045	0.0029
R-squared	0.931803	Mean dependent var		3.557723
Adjusted R-squared	0.914753	S.D. dependent var		1.955435
S.E. of regression	0.570929	Akaike info criterion		1.910028
Sum squared resid	9.126892	Schwarz criterion		2.261921
Log likelihood	-26.38050	Hannan-Quinn criter.		2.032848
F-statistic	54.65322	Durbin-Watson stat		1.730389
Prob (F-statistic)	0.000000			

Source: Authors' own computation from the Eviews result

In the short run result, the coefficient of the lagged variable of the regressand which forms part of the independent variables on the dependent variable shows the following values DEFICIT (2.710007), LOG (M2) (0.717023) and OPEN (0.008645) which are positive. This implies that an increase in the budget deficit pushes the growth of the rate of exchange to the tune of 2.7% in the short term. The equilibrium error-correction coefficient ECM (−1) is -0.784058 which has the expected negative sign and statistically significant. The implication is that there is a long run causality running from independent variables to dependent variable. We can therefore state that 78 percent gap between long run equilibrium value and the actual value of the dependent variable (EXCHR) has been corrected. It can be also said that the speed of adjustment towards long run equilibrium is 78 percent annually.

Its t-ratio is -3.257045 and the probability of the null hypothesis being true for zero is [0.0029], which is significant even when $\alpha = 0.05$. Thus, it can also be concluded that the adjustment is quite meaningful in

the short-run error correction mechanism. Equally, the coefficient of multiple determinations (R^2) shows that the model has a good fit as the independent variables were found to jointly explain 91% of the movement in the dependent variable. However, the fitness of the model could be interpreted in the F-statistic which is significant at 54.65322 and explains the adequacy of overall variables incorporated in the model.

Granger Causality Test

The procedure used in this study for testing statistical causality between the variables is the Granger causality test. The tests determine the predictive content of one variable beyond that inherent in the explanatory variable itself.

From the pairwise Granger Causality test result, it shows that there is a uni-direction of causality from EXCHR to DEFICIT_1. This implies that the exchange rate granger causes the budget deficit in the economy during the period under review. There exist no direction of causality between M2 and EXCHR, INF and EXCHR and also CONSUM and EXCHR. From table no. 4 results a bi-directional causality between OPEN and EXCHR. The result equally indicates a uni-direction of causality from DEEP to EXCHR.

The results relating to the existence of Granger causal relationships between the variables are presented in the table below:

Table no. 4. The Pairwise Granger Causality Tests

Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.
DEFICIT_1 does not Granger Cause EXCHR	36	0.22961	0.7962
EXCHR does not Granger Cause DEFICIT_1		6.16695	0.0056
M2 does not Granger Cause EXCHR	36	1.90696	0.1656
EXCHR does not Granger Cause M2		0.03981	0.9610
INF does not Granger Cause EXCHR	36	0.48279	0.6216
EXCHR does not Granger Cause INF		0.40806	0.6685
OPEN does not Granger Cause EXCHR	36	4.62296	0.0175
EXCHR does not Granger Cause OPEN		4.91594	0.0140
DEEP does not Granger Cause EXCHR	36	3.89782	0.0309
EXCHR does not Granger Cause DEEP		1.67593	0.2036
CONSUM does not Granger Cause EXCHR	36	0.12058	0.8868
EXCHR does not Granger Cause CONSUM		2.21929	0.1257

Source: Authors' own computation from the Eviews result

Summary of Findings

The incidence of chronic budget deficits and continuous increase in the public debt coupled with the general economic decline resulted in the adoption of the SAP. As a result of the escalating government deficit, the economy had continues to witness general increases in the level of prices. It was noted that introduction of SAP led to a reduction of the fiscal deficits to the maximum of 3% of the GDP. However, the economy continues to witness persistent budget deficit which has affected productive activities. This study adopted an error correction model procedure to estimate the effect of budget deficit on exchange rate in Nigeria.

In conclusion, the trend analysis of the exchange rate from (1980-2017) indicates that there was an exchange stability in the

Nigerian economy between 1980, 1990 to 2000. Also, there has been an upward trend and continuous fluctuation of the exchange rate in the Nigerian economy during the period under consideration. The descriptive statistics of the variables under consideration show an averaged positive mean values. The standard deviation showed that the highest standard deviation of (539823.7) is recorded by the DEFICIT_1 while the least standard deviation of (5.376178) is recorded by DEEP. The skewness statistics from the table show that six of the variables are positively skewed while one variable is skewed negatively; the kurtosis coefficients show that four of the variables are leptokurtic, while two variables are mesokurtic, and one other variable is platykurtic. The probability of Jarque-Bera test of normality for the variables indicates that seven of the variables have values greater than 5% level of significance. The correlation result shows that five of the variables have positive relationships with the EXCHR, while one of the variables under consideration indicates a negative sign.

The stationarity tests result of the variables under consideration shows that one variable CONSUM is stationary at level difference while the other variables are non-stationary at level. At first difference, all the variables became stationary and integrated of order one at 5% level of significance. The Johansen hypothesized cointegration test result show that the trace likelihood ratio and the maximum Eigen value results point out that the null hypothesis of no cointegration among the variables is rejected in favor of the alternative hypothesis up to five cointegrating equations at 5% significant level respectively. The long run analysis of the effect of the budget deficit on the exchange rate performance reveal that the coefficient of the variables, DEFICIT_1, LOG (M2) and OPEN show positive signs, implying that the variables contributed positively to the exchange rate growth during the period under review and the variables are statistically significant. The coefficient of the variables INF, DEEP and LOG (CONSUM) indicate negative signs, thus indicating a negative relationship between the variables during the period under review. Statistically, the F-statistic result indicate that the entire regression are adequate while the R^2 - (R-squared) the adjusted R^2 results shows that the independent variables explain the dependent variable to the tune of 98%. Also the Durbin Watson (DW) statistics shows that the overall regression is statistically significance. Furthermore, the t-ratios for those regressors are also meaningful, and their probabilities are below α (0.05).

The coefficients of the explanatory variables in the error correction model result show that the coefficient of the regressand variables which includes DEFICIT_1, LOG (M2) and OPEN are positive. The equilibrium error-correction coefficient ECM (−1) is -0.784058 and has the expected negative sign and statistically significant. Its t-ratio and the probability of the null hypothesis is significant at $\alpha = 0.05$. The pairwise Granger Causality test result shows that there is a uni-direction of causality from EXCHR to DEFICIT_1. There exist no direction of causality between M2 and EXCHR, INF and EXCHR and also CONSUM and EXCHR. A bi-directional causality exists between OPEN and EXCHR. Equally is a uni-direction of causality from DEEP to EXCHR. Based on the findings of the study, the policy recommendations are as follows: the Federal Government should adopt policy that encourages foreign inflow in order to boost the country's productive base. This would shift the country from import to an export oriented economy. The Federal government should adopt measures aimed at increasing the already depleted foreign reserve as well as increase public saving to complement private saving in the economy.

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