Business Administration and Business Economics

Determinants of Company Tax Revenue in Swaziland (1990-2015)

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Abstract: The study employed co-integration analysis to identify factors that influence company tax revenue collections in Swaziland and further uses ARIMA and VAR to find a forecasting technique that will produce the least forecasting variance for CIT revenue. The results reveal that GDP, Share of Agriculture in GDP and Tax Rate have a positive and statistically significant relationship with company tax revenue while inflation and openness showed a negative and statistically significant relationship. These findings are mostly consistent with theoretical expectations and other studies that were done by other researchers. Combined forecasting was found to produce the least variance for one year ahead forecast of company tax revenue.

Keywords: Corporate Tax; GDP; CPI; Agriculture Share; Tax Rates; ARIMA; VAR; Forecasting

JEL Classification: H2

1. Introduction

The ability to predict future revenue is the central problem of fiscal planning (Clausing, 2007). While the expenditure plans of governments may be known with certainty, the revenues to support the expenditure are usually limited and are not easily known at the time of fiscal budgeting (Tanzi, 1987). This often leads to under or over stated fiscal targets and at times borrowing by governments to finance deficits. When revenues are over estimated governments enter into commitments which do not have matching finances, thus requiring governments to borrow or find alternative financing mechanisms, unplanned deficits, cash flow challenges and cuts in services occur. In a case where tax revenues are under estimated, the public is deprived of essential services/investments that the government did not provide as a

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result of forecast revenue shortfall. Both these eventualities can be avoided through better revenue estimates that do not deviate significantly from actual outturns.

The finance needs of governments, grow from year to year with growing populations. On the other hand, the revenue streams available to governments to finance these demands are narrowing. More so, trade liberalisation has negatively affected trade tax revenues (Agbeyegbe et. al, 2004; Kassim, 2016). Governments have to mobilize internal sources of revenue which in themselves are also under pressure due to tax competition and compliance issues. This therefore means governments have to establish a stronger hand on domestic revenue which can be achieved through a good knowledge of the economic fundamentals that drive these domestic revenues. The knowledge and understanding of these revenue influencing dynamics enables governments to design more relevant and responsive tax policies that help to raise more domestic revenue and bridge the finance gap while maintaining economic growth (Wawire, 2006).

The domestic sources of revenue in Swaziland shows that the largest contributor to domestic revenue is Income taxes which account for about 60% of state domestic revenue (SRA Annual Report, 2015). Within income taxes, taxes on companies are the second largest contributor accounting for 40% of total income taxes. These are below the regional averages (ATAF, 2016), thus giving room to increase company tax revenue and match the regional ratios. This therefore, requires an understanding of the factors that influence the performance of this form of tax. The limited availability of the literature on the determinants of corporate tax revenues in Swaziland makes this difficult task even more challenging. While a few studies have attempted to determine the factors driving total tax revenue, literature focusing on specific taxes like company income taxes (CIT) is scanty. Where this literature is available it has been mainly on Value Added Taxes (VAT) for developing countries as Income taxes have generally received less attention as these countries have tended to focus on trade taxes at the neglect of direct taxes.

Evidence of lack of knowledge of factors that determine CIT in Swaziland is the poor estimation ability of the government and its agents as shown by poor budget and actual performance. The methods are based on basic economic reasoning that, based on tax elasticities where GDP is the major independent variable. This supposition that has not been proven for the Swazi economy. These macro based models often suffer from uncertainty about the macro economic projections (Buettner & Kauder, 2010). The GDP of Swaziland has generally shown a positive growth over the period under study yet company tax revenue has at times shown declines in the same period and further the movements in both these variables often shows considerable diversion rendering forecasts produced this way inaccurate. Figure 1 shows revenue growth and company income tax (CIT) revenue since 1991 revealing the diversion in growth rates for these variables.

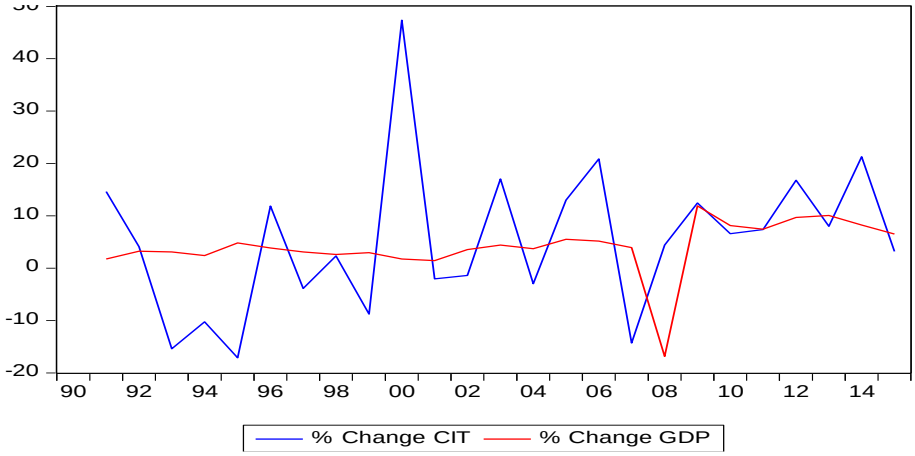

Figure 1. Real Company Income Tax Revenue and GDP Growth since 1991

Source: Ministry of Finance and CSO

Problem Statement: While studies have been undertaken on the determinants of tax revenue, a few have focused on corporate tax revenues. Where they have been undertaken, the consideration of the Swaziland case is limited and this study is amongst the first few to attempt. IMF indicated in 2007 that paying tax in Swaziland was optional. The government introduced the Swaziland Revenue Authority which became operational in 2011 to improve revenue collections both in terms of cost efficiencies and revenue increase. One of the measures of revenue collection is improvement in the tax to GDP ratio. In the case of Swaziland, improvements are observed in collection of tax revenues, but the tax to GDP ratio is still relatively low compared to neighbouring countries and countries of similar size. Increasing government budget deficits and volatility of revenues from the country's largest source (Southern Africa Customs Union Receipts) in recent years has added fiscal pressure for government (Swaziland Revenue Authority annual report, 2014). Domestic markets have not been able to absorb fully the domestic debt requirements of government leaving the government with little options given the stringent and expensive conditions on international borrowing. The government needs to mobilize more revenue to cut down on the existing deficits. Further budget deficits have been understated due to over forecasting of domestic revenues (Swaziland Revenue Authority annual report, 2015).

The major problem the study seeks to establish is the economic drivers of corporate tax revenue in Swaziland and thus contribute to the limited empirical literature in this area for Swaziland. Associated with this main problem is the investigation of the most appropriate approach for estimating corporate tax revenue and reduction of forecast errors for the country's fiscal budget.

Study objectives: The main objective of the study is to determine the factors that influence company tax revenue in Swaziland. The specific objectives are:

1. To determine the statistically significant economic factors that influence income corporate tax revenue in Swaziland;
2. To assess the effectiveness of the structural equation in forecasting one year ahead corporate tax revenue compared to other alternative methods like the average growth, VAR and ARIMA models;
3. To assess if the combined one year ahead forecasts for corporate tax revenue from the structural equation, average growth, VAR and ARIMA perform better than forecasts produced by the individual models.

2. Literature Survey

Literature remains mixed on the determinants of tax revenues with regional and country studies. Development in the economy increases the demand for public goods and in turn government expenditure while also increasing the taxable capacity of the economy to meet these demands (Tanzi, 1987; Musgrave, 1969; Chelliahy, 1971). A properly designed fiscal policy is an integral part of a developing economy for economic (Gounder et. al, 2007).

Zee (2016) asserts that in generating the tax revenues that are required to create fiscal balance, revenue policy should be designed to raise enough revenue to grow in line with government finance needs. In designing this revenue and tax measures, a tax should generate a positive income effect large enough to more than compensate for excess burden created by the tax and while also covering administrative costs in order for the tax to result in a net increase in tax revenue.

Gupta (2007) undertook a study of the principal determinants of tax revenues in developing countries and established that per capita GDP, trade openness, political stability and share of Agriculture in GDP are important in the determination of tax revenue. Using Feasible Generalized Least Squares (FGLS) in a study of the European Union, Nandi et. al (2014) confirm GDP, trade openness, government deficit, number of enterprises, foreign direct investment (FDI) and corruption as important determinants of tax revenue.

Mahdavi (2008) employed panel data analysis for 43 countries covering the period 1973-2002 and the findings showed that aid had a negative effect on tax revenue, non-tax revenue had also negative effect while agriculture sector share had positive but insignificant coefficient on tax revenue. Trade sector share had a positive relationship and a proxy variable for economically active females had a negative but statistically insignificant effect. Old-age portion of population variable showed a negative relationship with income tax and sales tax revenue. Extent of urbanization

and literacy rate both showed positive effect. Population density, monetization and inflation rate remained negatively correlated. The findings also find a statistically significant negative correlation with the level of taxes. Net effect of political rights and civil liberties was significant.

Contrary to the results observed on the negative relationship with the share of agriculture and tax revenue, Ahmad and Mohammad (2010) found an insignificant effect when examining the determinants of tax buoyancy of 25 developing countries using cross section data for the year 1998 to 2008 and pooled least square method. The agriculture sector showed an insignificant effect while the services sector showed a positive and significant effect instead. Monetization and budget deficit showed positive influence while an increase in grants showed a negative impact on tax revenue performance.

Other economic factors as observed in regional studies consider tax rates as a determinant of tax revenue. Corporate tax revenues have a nonlinear relationship with tax rates which can be in part explained by the Laffer curve. Countries that have managed to advance in economic integration tend to have steeper curves suggesting that their revenue maximising tax rates are lower than less integrated countries (Clausing, 2007). Inflation was found to positively affect tax revenue by (Mahdavi, 2008) while Tanzi (1992) found a negative relationship between tax revenue and inflation rate.

A survey of country studies that have attempted to find the determinants in developing countries reveals that GDP, inflation, international trade are important factors in determining tax revenue levels. Wawire (2006) found a positive relationship between revenue and GDP in Kenya. While a similar study (Karogoz, 2013) in Turkey showed that tax revenues were affected by the share of the industry and agriculture sectors, GDP, foreign debt and monetization of the economy. Ayenew (2016) investigated the determinants of tax revenue for Ethiopia and the results reveal a positive relationship between GDP, FDI and foreign aid while government deficit and trade openness showed a negative relationship.

A time series based approach by Teera (2002) estimated a model to study the tax system and structure in Uganda. The study covered data of the period 1970 to 2000 to investigate the factors affecting tax revenue in the country. The results showed that agriculture ratio, population density and tax evasion affect all type of taxes. GDP per capita showed a surprising negative sign. Tax evasion and openness showed the significant negative impact. Foreign Aid showed a positive sign since aid in Uganda always supported imports especially raw material thus the positive relationship.

Bilquees (2004) employed the Divisia Index approach to estimate the buoyancy and elasticity of the tax revenue system in Pakistan. The estimates of buoyancy produced by the study suggested that tax rate changes did not lead to substantial revenue

increases. There was a large elasticity coefficient for sales tax in relation to the GDP base.

Lutfunnahar, (2007) found international trade, money supply, foreign debt and population growth to be significant determinants of tax efforts revenue performance in Bangladesh The study was based on panel data analysis in which Bangladesh was part of 10 other countries in a 15-year study period. The trend in government revenue forecasters is that the more developed countries in the field tend revenue forecasting to use of econometric models to forecast. The variables used in these models are predicted levels of economic activity corresponding to the base of the tax being forecasted. Examples of variables used for forecasting used in these econometric models of this form are GDP income.

A survey of literature does not prove a prescriptive conclusion on which methods should be used when preparing revenue forecasts. Certain decision makers favour a combination of judgement and simple econometric equations, against time series and complex econometric models. The reason for this line of thought is that knowledge of special events when incorporated into the revenue forecasting process assist revenue forecasters to produce more reliable forecasts Grizzle and Klay (1994). Bretschneider *et al.* (1989) compared the forecasting accuracy of different forecasting methods. Based on the finding of their studies these authors favour a combination of judgement and simple econometric equations, against time series and complex econometric models. Grizzle and Klay (1994) also show evidence for support of combining judgement and simple methods against more complicated or automated techniques. Armstrong (2001) recommends to combine forecasts from at least five methods to come up with strong forecasts.

On a different line of thought, Lawrence *et al.* (1998) suggests that simple regression methods are more suited to forecasting tax revenue because of their transparency. In other studies, (Nazmi & Leuthold, 1988), time series based forecasting was found to be viable for tax revenue forecasting. Litterman and Supel (1983) and Fullerton (1989) suggest that a combination of different forecasting techniques produces the best forecast for revenue receipts than using a single forecasting method.

Willman *et al*. (2000), Pike and Savage (1998) and Sentance *et al.* (1998) present the fiscal side of structural macroeconomic models. Macroeconomic models as iteration tools for preparing the budgetary forecasts allow for estimating the effects of fiscal policy on economic activity. Moreover, they guarantee the consistency between the macroeconomic and budget projections. However, it is often the case that such models are too aggregated to produce sufficiently detailed government revenue and expenditure projections, which are necessary for a thorough assessment of public finances, Willman *et al.* (2000).

Some international organisations have chosen to follow an iterative process to overcome the shortcomings related to the use of large scale macroeconomic models

in the context of the forecast exercise. This has been done by linking the independent macroeconomic models and sufficiently detailed satellite fiscal models together so that a high degree of consistency is achieved in the final forecasts (Hendry & Clements, 2001) while allowing at the same time for the high level of disaggregation of revenue and expenditure needed for budgetary forecasting and fiscal policy assessment.

Literature has attempted to analyse the potential bias the political and institutional process might have on revenue and spending forecasts (Ehrhart, 2009; Auerbach, 1995; Feenberg et al., 1988; Plesko, 1988; Bretschneider et al., 1989). The main conclusions from these authors are that: there is evidence of the existence of systematic political and institutional bias in revenue forecasting. Forecast quality tends to deteriorate with the length of the forecasting horizon and forecasts from independent, competing agencies tend to increase forecast accuracy.

Botrić and Vizek (2012) taking on a disaggregated approach estimated different models for several revenue sources. They used, trend models, random walk, ARIMA, regression and error correction models. The analysis suggests that econometric methods produce forecasts that are in general more accurate than official forecasts prepared using expert judgment.

In studies that included VAR, forecast values from VAR models were seen to be more realistic and closely reflect the prevailing economic situations (Olatayo & Taiwo, 2013). Donegan (2015) comparing different forecasting methods used multivariate time series methods capable of incorporating exogenous variables on aggregated VAT and Income Tax revenues. The study used ARIMA with external variable (ARMAX) and VAR. The findings conclude that VAR performs better than ARIMA for both tax types but VAR model does not outperform existing models for forecasting VAT and PAYE. Literature on studies that compared structural equations, ARIMA and VAR simultaneously was difficult to find and this study adds to that literature.

3. Research Methodological Framework

Developing from the reviewed literature, this section describes data sources and the techniques used in the study. Secondary time series data was sourced from the Ministry of Finance, the Central Bank of Swaziland and Central Statistics Office. Focus of the study was a time series analysis covering the period 1990 to 2015 concentrating on company income tax in Swaziland. The research proceeded in two parts as it aims to answer the study questions. The study employed the Engle-Granger (1987) two step method to estimate a structural equation that would identify the determinants of Company Income Tax (CIT) revenue. The regression covered the period 1990 to 2014. The advantage of the Engle Granger two step method is that

it is able model non-stationary series without differencing thus losing important economic information and also it helps to separate long run and short run and adjustments to the long run (Engle & Granger, 1987). The main drawback of the Engle Granger two step method is that it does not isolate the cointegrating relationships and thus does not reveal the number of cointegrating relationships. Since the aim of the study is less focused on identifying the individual cointegrating relationships, this limitation of the Engle Granger two step method does not affect the results. A Vector Error Correction Model (VECM) is able to estimate both long run and short run relationships but the Engle Granger two step method is favoured in this case due that the data series is not long enough to fully utilize a VECM.

Cointegration is a necessary condition for the existence of a long run equilibrium economic relationship between two or more variables which are non-stationary. The Engle Granger two step method requires the first step to be the estimation of a long run equation containing all variables under study whether stationary or not. The method then follows with a test of stationarity on the residual of this long run equation. If the residuals are found to be stationary then it is said that there is cointegration and there exist a short run equation and an Error Correction Mechanism (ECM) according to Brooks (2008). Second step of the Engle Granger two step method is to estimate this short run equation which was estimated in the study.

The forecasting technique estimated an average growth forecast, a VAR and ARIMA model for CIT. The VAR model included all the variables considered in the long run equation. These models were tested for statistical properties and then used to do a one step ahead forecast. A one year ahead (2015) forecast was made for CIT using all the models estimated in the study (average growth, ARIMA, VAR, Short run model and Long run model). These one year ahead forecasts were then compared against actual collections in 2015 along with the official revenue estimates for 2015 to find the estimation procedure with the least forecast-actual variance.

The last part of the study estimated a combined one year ahead forecast. This combined forecast is a forecast developed through weighting the forecasts from the average growth based forecast with the VAR, ARIMA, Long Run model and Short run model forecasts. This weighting is based on the Theil coefficient as suggested by Enders (2010).

The main variable under study were corporate tax revenue as explained by real Gross Domestic Product (GDP), Inflation, (proxy being CPI), Openness, Tax Rates and Share of Agriculture in GDP, Foreign Direct Investment (FDI) and Public Debt. The analysis began with descriptive statistics on the main variables. All regressions and models were estimated using the Eviews 7 package. Stationarity tests of the variables were undertaken to determine the order of integration. These stationary tests are

necessary because regression on non-stationary time series leads to spurious regressions (Gujarati, 2006).

A regression was run on the variables with the dependent variable being CIT revenue with the already mentioned regressors. Diagnostics test on the estimated equation were undertaken to test for misspecification, heteroscedasticity, autocorrelation and normality of residuals which are crucial for the classical linear regression model that was used. A test confirming cointegration was done using the Engle-Granger two step procedure and an Error Correction Model (ECM) was estimated.

The second stage of the analysis estimated an ARIMA model for CIT revenue using the box Jenkins method. The appropriate number of lags and ARMA order were identified using the auto correlation functions and selection criterions. A VAR was estimated using the variables used in the structural equation. The selection of the lag length through AIC and a test for causality using the Granger causation test preceded the estimation of the VAR.

Based on the E-Views output, Theil coefficients were extracted after forecasting using each individual model. To validate the superiority of the different methods, a comparison was done for actuals against forecasts by doing a one year out of sample forecast for CIT revenue comparing the different estimation approaches. A final analysis was to perform a combination forecasting as undertaken by Grizzle and Klay (1994) where forecasts from different methods are combined and compared with their relative efficiency to the forecasts of individual methods. The study used Engle-Granger two step method which estimates both the Long run and Short run equation. The estimation procedure for these equations is discussed in turn together with the estimation of the VAR, ARIMA and average growth forecast.

To estimate the determinants of tax revenue we employed the Engle Granger two step method which uses linear regression and Ordinary Least Squares (OLS) for the period 1990 to 2014 to estimate a long run relationship. The strength of OLS in this analysis is simplicity and ease of analysis and interpretation of the coefficients of the regression. Similar studies on the determinants of tax revenue in other studies also employ OLS in their research thus making it a more relevant tool in the current study. Further when expressed in logarithm form these coefficients become elasticities or rates of change (Wawire, 2006; Clausing, 2007). The specific model that we estimated follows those that were used by Ayenew (2016) (Karogoz, 2013) and Wawire (2006). The specific model used in the study is presented as:

$$LCIT = \beta_0 + \beta_1 * LGDP + \beta_2 * LINFL + \beta_3 * LFDI + \beta_4 * LAGR + \beta_5 * LDBT + \beta_6 * LRATE + \beta_8 * LOP + e \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad (1)$$

Where:

LCIT- Log of company income tax revenue

LGDP- Log Gross Domestic Product

LINFL- Log Consumer Price Index (CPI)

LFDI- Log Foreign direct investment

LAGR- Share of Agriculture in GDP

LDBT- Log Government Debt as a % of GDP

LRATE- Log Nominal Tax rate on companies

LOP- Log Measure of Openness: (Imports +Exports)/GDP

The data was transformed into natural logarithms, consistent with Tsaurai (2018a; b; c). Following stationarity tests on the residuals, the short run equation was estimated by regressing the independent variables in their 1st differences together with the lagged residuals from the long run equation for the period 1990 to 2014 with 1st difference of LCIT. The model was as follows;

$$D(LCIT) = \beta_0 + \beta_1 * D(LGDP) + \beta_2 * D(LINFL) + \beta_3 * D(LFDI) + \beta_4 * D(LAGR) + \beta_5 * D(LDBT) + \beta_6 * D(LRATE) + \beta_8 * D(LOP) + Residuals(-1) + e \quad \ldots\ldots (2)$$

Where:

DLCIT- Differenced Log of company income tax revenue

DLGDP- Differenced Log Gross Domestic Product

DLINFL- Differenced Log Consumer Price Index (CPI)

DLFDI- Differenced Log Foreign direct investment

DLAGR- Differenced Share of Agriculture in GDP

DLDBT- Differenced Log Government Debt as a % of GDP

DLRATE- Differenced Log Nominal Tax rate on companies

DLOP- Differenced Log Measure of Openness: (Imports +Exports)/GDP

Residuals (-1) - Is the Lagged residuals from the long run equation (equation (1))

The Autoregressive Integrated Moving Average (ARIMA) model is a univariate linear statistical model. ARIMA models do not require any additional information other than the time series for analysis. Instead it uses only historical data in producing future predictions (Brooks, 2008). It is the generalised form of the ARMA model. These ARIMA models are capable of dealing with non-stationarity in a time series; the "integrated" part of the model can effectively transform the data in a time series to stationary by way of differencing. In addition to the integrated term, ARIMA models also have an autoregressive and moving average component. Thus, revenue

data can be forecasted using ARIMA models because they are capable of dealing with nonstationary data that contain trend and seasonality (Brooks, 2008; Gujarati, 2006). The Box Jenkins (Box & Jenkins, 1976) method was used where the model is specified as

$$y_t = c + B_1 y_{t-1} + B_2 y_{t-2} + \cdots + B_p y_{t-p} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (3)$$

Where, y_t is a single variable (univariate), e_t is a random error term, and *B* are the ARIMA terms or coefficients being estimated.

Gujarati (2006) says that the ARIMA Box Jenkins method involves four steps: (i) Identification, where the appropriate number of lags is determined using a correlogram based on auto correlation and partial correlation functions including stationarity tests on the variable of interest. (ii) Estimation of the ARIMA based in the identified number of lags (iii) The third step is to do diagnostic checks to assess if the model fits the data well, if the model is inadequate, the process begins from estimation of another model until the "best" model is found. (iv) the last step in Box Jenkins method is to produce forecasts.

The number of lags or ARMA terms were determined by using the autocorrelation functions through the Box Jenkins method. CIT was differenced to achieve stationarity and the ARIMA model was estimated for the period 1990 to 2014. Diagnostics on the ARIMA model were done to assess its statistical properties for forecasting purposes and the tests done are serial correlation, heteroscedasticity, and normality and AR roots for ARMA to be invertible.

A Vector Autoregressive (VAR) model is an econometric multivariate model, capable of describing the linear interdependencies among multiple time series. Often real world complex events are affected by more than one variable (Brooks, 2008). VAR modelling utilizes multiple variables in producing a forecast. This form of modelling is a flexible, easy to use and successful method of explaining multiple time series. VAR is based on Granger causation where X is said to "Granger-cause" Y if and only if the forecast of Y is improved by using the past values of X together with the past values of Y, than by not doing so (Granger 1969). Granger causality distinguishes between unidirectional and bi-directional causality. If neither of them causes the other, then the two-time series are statistically independent. If each of the variables causes the other, then a mutual feedback is said to exist between the variables.

All of the variables in a VAR model are treated symmetrically. The p-lag vector autoregressive model, VAR (p) has the form:

$$y_t = c + B_1 y_{t-1} + B_2 y_{t-2} + \cdots + B_p y_{t-p} + e_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots (4)$$

Where, y_t is a vector of variables, e_t is a random error term and *B* are the coefficients being estimated. The VAR was estimated for the period 1990 to 2014 using the

variables of the long run equation The VAR lag length was determined by the AIC criterion and diagnostic tests were performed on the VAR to assess its properties for forecasting purposes and these are Granger Causality and inverse roots of the characteristic equation.

Average growth (also known as constant growth forecasting) is a way of forecasting revenue that computes the arithmetic average of CIT growth and thereafter assumes that the computed arithmetic average will persist into the forecasting period (Makananisa, 2015). It does not relate to economic performance but the simple arithmetic average. The analysis can be extended by using moving averages instead of the arithmetic average. Forecasts are developed using the following estimation:

$CIT_{t+1} = CIT_t + (1 + g)$……………………………………………………(5)

Where:

g- Is the average growth in tax revenue over the period where actual collections are available shown as;

$$g = \frac{\sum_1^n \frac{\widehat{y_t} - \widehat{y_{t-1}}}{y_{t-1}}}{n}$$

Where;

y_t – CIT actual collections in the current period

y_{t-1} – CIT actual collections in the previous period

n – Is the total number of year for which data is available

Forecasts were produced using the models described above for the year 2015, which is a one year ahead revenue forecast as all the model were estimated for up to the year 2014. These forecasts were then compared against each other for forecasting accuracy based on the actual collections for 2015. Where the variance of a forecast from the actual collection is expressed in percentages to assess deviation. The one step ahead forecast is more relevant in comparing the forecasts since in fiscal forecasting the one year ahead forecast accuracy is important in avoiding budget deficits as the forecasts beyond one step ahead continue to be amended in the medium term expenditure framework (MTEF) yet an accurate one year ahead forecast affects the fiscal budget directly.

As indicated in the reviewed literature, combined forecasts from different models sometimes perform better than forecasts produced from individual models. The study used inverse of the Theil coefficient weighted forecasts to come up with a combined forecast for 2015 as suggested by Enders (2010). The advantage of the Theil coefficient compared to other measures like root mean squared error (MSE) and mean absolute percentage error MAPE) in forecast comparison and weighting is

that it is independent of the transformation of variables (differencing, logs and other transformations) since it is proportion based (Woschnagg, 2004). In this way Theil coefficient can be used to compare models developed from different transformations.

This method combines and weighs forecasts the inverse of Theil coefficient to weight different forecasts. The weighting is done such that a model with a small value of the coefficient receives more weight in the weighting of forecasts. This is because a model with a small value of Theil coefficient has more forecasting accuracy compared to a model with a larger coefficient. The weighting can be presented as follows:

$$W_{f=\sum_1^m T_{iw}*F_i}$$

Where;

m –Number of models being whose forecasts are being combined

F_i- Forecast output from the i^{th} model

T_{iw}-Inverse of Theil coefficient based weight given by

$$T_{iw} = \frac{w_i}{\sum_1^m w_i}$$

w_i- is the value of the inverse of the Theil coefficient weight given by;

$$w_i = \sum_1^m \frac{1}{\sum_1^m \frac{I_i}{\sum I_i}}$$

Where;

I_i- is the Theil coefficient computed from the forecasts of the i^{th} model

The Theil coefficient as presented by Theil (1966) can be expressed as follows;

$$I = \frac{\sqrt{\sum_1^n \frac{u_t^2}{n}}}{\sqrt{\sum_1^n \frac{y_t^2}{n}} + \sqrt{\sum_1^n \frac{\hat{y}_t^2}{n}}}$$

Where;

I – is the Theil coefficient

u_t^2- is the square of the residuals from the regression

y_t^2- is the square of the actual observation of the variable being forecasted

$\hat{y}_t^2$- is the square of the forecasts produced based on the regression results

n- is the number of forecasted data points.

4. Data Analysis Presentation and Interpretation of Results

In line with the methodology used in the study, this section discusses the empirical findings of the study. The section provides descriptive statistics on the data, provides estimates from the models based on the methodology while providing statistical interpretations to the results.

4.1. Descriptive Statistics

Table 1. Descriptive Statistics of Variables

Variable	CIT	GDP	CPI	Agriculture/GDP	PUBLIC DEBT/GDP	FDI	TAXRATES	OPENNESS
Mean	575.30	27242.94	64.21	0.11	0.16	546.03	0.32	1.30
Median	488.44	25460.82	58.66	0.10	0.15	583.43	0.30	1.34
Maximum	1225.54	46943.00	114.22	0.13	0.22	1505.68	0.38	1.65
Minimum	304.22	17766.65	28.01	0.07	0.11	-403.72	0.28	0.97
Std. Dev.	257.7642	7932.901	23.83707	0.016019	0.027704	440.489	0.03815	0.19451
Skewness	1.21394	0.995315	0.548377	-0.124011	0.585753	-0.17693	0.93746	-0.254961
Kurtosis	3.63713	3.234007	2.467612	2.44644	2.719682	3.087752	2.057408	2.237821
Jarque-Bera	6.8256	4.3521	1.6102	0.3986	1.5719	0.1440	4.7708	0.9110
Probability	0.0329	0.1135	0.4471	0.8193	0.4557	0.9305	0.0921	0.6341
Sum	14957.73	708316.4	1669.43	2.76	4.07	14196.76	8.3	33.67
Sum Sq. Dev.	1661060	1.57E+09	14205.15	0.006415	0.019188	4850764	0.036385	0.94585
Observations	26	26	26	26	26	26	26	26

4.2. Stationarity Tests

The Augmented Dickey Fuller test was used to test for stationarity of the variables. All the variables except FDI became stationary after first differencing. FDI was the only variable which was found to be stationary at levels. The results of the stationarity tests are shown in Table 3.

Table 2. Stationarity Tests

Variable	ADF Statistic	Probability	Decision	Order of Integration
LCIT	-5.232***	0	Stationary	I(1)
LGDP	-4.872***	0.001	Stationary	I(1)
LCPI	-9.579***	0	Stationary	I(1)
LFDI	-5.025***	0.008	Stationary	I(0)
LAGR	-5.503***	0	Stationary	I(1)
LDBT	-5.293***	0	Stationary	I(1)
LTRATE	-5.023***	0.001	Stationary	I(1)
LOP	-4.321***	0.003	Stationary	I(1)

****significant at 1%*

4.3. Long run Models Results

The first step of the Engle-Granger two step method is to estimate a long run equation to determine a long run relationship between the variables under study. A regression of the variables was done using E-Views for the period 1990 to 2014 and the results are shown in the Table 4 where LCIT is the dependent variable. The results show that GDP, CPI, Share of Agriculture in GDP, Public debt, tax rate and openness have a statistically significant relationship with company income tax. The adjusted R-squared is 0.92 reflecting that the model is a good fit and 92% of the variation in CIT is explained by the independent variables. The F statistic of 40.03 with a p-value of 0.00 is statistically significant showing the overall significance of the model.

Table 3. Results of Long Run Equation

Variable	Coefficient	Standard Error	T-Statistic	Probability
C	-8.749	2.336	-3.746***	0.002
LGDP	2.010	0.302	6.655***	0.000
LCPI	-0.314	0.160	-1.965*	0.066
LFDI	0.012	0.019	0.643	0.529
LAGR	0.952	0.211	4.517***	0.000
LDBT	0.380	0.164	2.314*	0.034
LTRATE	1.037	0.512	2.028**	0.059
LOP	-1.033	0.306	-3.373***	0.004
R-squared	0.943	Mean dependent var		6.238
Adjusted R-squared	0.919	S.D. dependent var		0.373
S.E. of regression	0.106	Akaike info criterion		-1.398
Sum squared resid	0.191	Schwarz criterion		-1.008
Log likelihood	25.475	Hannan-Quinn criter.		-1.290
F-statistic	40.031	Durbin-Watson stat		2.072
Prob(F-statistic)	0.000			

**significant at 5%, ** significant at 10% and ***significant at 10%*

Diagnostics on the long-run model show that the model is statistically sound as reflected by the absence of serial correlation as confirmed by the LM test, absence of homoscedasticity as reflected by the insignificant Breusch-Pagan-Godfrey test. The residuals were also found to be Normal-distributed in line with the assumptions of the classical normal linear regression. A Ramsey-RESET specification test on the model identified no misspecification. A Wald test on the coefficients with a restriction that each of the coefficients is zero showed that all the coefficients passed this restriction test (except for FDI) and therefore are useful in explaining CIT. This means the results of the model can be used for inference purposes. However, before the inference could be done a test for cointegration has to be undertaken to assess if the regression is not spurious given that some of the regressed variables were non-stationary. This was done through a test on the residuals of the long run relationship with the results shown in Table 4.

Table 4. Diagnostic Test for Results for Long Run Equation

Assumption	Test Procedure	Null Hypothesis	Observed Test Statistic	Probability	Decision
Normality	Jarque-Bera Normality Test	Errors Are Normaly Distributed	$JB = 0.082$	0.960	Errors are Normaly Distributed
Homoskedasticity	Heteroskedasticity Test: Breusch-Pagan-Godfrey	Constant Variance of the error term	$nR^2 = 6.946$	0.435	Errors Homoskedastic
No Serial Correlation	Breusch-Godfrey Serial Correlation LM Test	No Second order Serial Correlation	$nR^2(2) = 3.566$	0.168	There is no second order serial correlation
Specification	Ramsey RESET Test	No Mispecification	$L = 2.210$	0.137	Model is correctly specified

The residuals were tested for stationarity using the Augmented Dickey Fuller test and the result (Table 5) showed that residuals are stationary at 5% level of significance and thus we can conclude that there is cointegration in line with the Engle-Granger two step method.

Table 5. Stationarity Test for Long run equation residuals

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-4.913589	0.0006
Test critical values:	1% level	-3.737853	
	5% level	-2.991878	
	10% level	-2.635542	

Following the diagnostic test, the results of the long run model in Table 3 can then be discussed. The implication of the results is that GDP has a positive and statistically significant relationship with CIT revenue and when GDP increases by 1%, CIT revenue is expected to grow by 2% holding other factors constant. CPI has a negative and statistically significant relationship with CIT revenue, when inflation increases by 1% CIT revenue is expected to decline by about 0.3% holding other factors constant. The share of Agriculture in GDP has a positive and statistically significant relationship with income tax revenue, with an increase of 0.95% in CIT revenue with 1% every increase in the share of Agriculture in GDP holding other factors constant. This means that increase in agriculture output has a potential to increase revenue collection. Public debt has a positive and statistically significant relationship with CIT revenue, a 1% increase in the ratio of public debt to GDP ratio increases revenue by 0.38% holding other factors constant. The tax rate has a positive and statistically significant relationship with CIT revenue meaning that when the tax rate increases 1%, revenue increases by 1% holding other factors constant. Openness has a statistically significant and negative relationship with CIT revenue, there is a 1% decline in CIT revenue with every 1% increase in openness of the economy holding other factors constant. FDI has a positive relationship with CIT but the relationship is not statistically significant which means changes in the level of FDI do not affect CIT revenue.

Since co-integration was found in the long-run equation, the study continued to estimate an Error Correction Model (ECM). In this model all the variables enter the model in stationary form which means non-stationary variable are differenced to make them stationary before the regression is done. The results of this regression are shown in Table 6.

Table 6. Results of Short Run Equation

Variable	Coefficient	Standard Error	T-Statistic	Probability
C	-0.495	0.238	-2.080**	0.055
D(LGDP)	1.572	0.405	3.880*	0.002
D(LCPI)	-0.103	0.114	-0.903	0.381
DLFDI	0.039	0.018	2.108**	0.052
D(LAGR)	0.457	0.199	2.292*	0.037
D(LDBT)	0.037	0.156	0.238	0.815
D(LTRATE)	0.004	0.481	0.008	0.994
D(LOP)	-0.169	0.334	-0.507	0.619
Residuals (-1)	-1.103	0.240	-4.591***	0.000
R-squared	0.741	Mean dependent var		0.045
Adjusted R-squared	0.604	S.D. dependent var		0.134
S.E. of regression	0.084	Akaike info criterion		-1.827
Sum squared resid	0.107	Schwarz criterion		-1.385
Log likelihood	30.926	Hannan-Quinn criter.		-1.710
F-statistic	5.376	Durbin-Watson stat		2.049
Prob(F-statistic)	0.003			

**significant at 5%, ** significant at 10% and ***significant at 10%*

Similar to the long-run equation, before inferences of results can be considered the model has to go through diagnostic tests. Table 7 shows that the model passed through statistical tests. Residuals are normally distributed as shown by the Jaque-Bera test results. Homoscedasticity was checked using the Breusch-Pagan-Godfrey test which was also insignificant under the null hypothesis of homoscedasticity. The LM test also confirmed no serial correlation while the Ramsey RESET test confirmed no specification errors. Overall the model is found to be statistically sound and therefore conclusions can be drawn and inferences made.

Table 7. Diagnostics for Short Run Equation

Assumption	Test Procedure	Null Hypothesis	Observed Test Statistic	Probability	Decision
Normality	Jarque-Bera Normality Test	Errors Are Normaly Distributed	$JB = 0.666$	0.717	Errors are Normaly Distributed
Homoskedasticity	Heteroskedasticity Test: Breusch-Pagan-Godfrey	Constant Variance of the error term	$nR^2 = 2.200$	0.699	Errors Homoskedastic
No Serial Correlation	Breusch-Godfrey Serial Correlation LM Test	No Second order Serial Correlation	$nR^2(2) = 2.056$	0.358	There is no second order serial correlation
Specification	Ramsey RESET Test	No Mispecification	$L = 0.820$	0.365	Model is correctly specified

As shown by Table 6, in the short run GDP, Agriculture and FDI are found to have a statistically significant influence on CIT revenue. GDP has a statistically significant and positive relationship with CIT revenue, indicating that a 1% growth in the growth of CIT increases growth in CIT 1.57% holding other factors constant. Unlike in the long run where FDI had no statistically significant impact, in the short run an increase in FDI by 1% increases the growth of CIT by 0.039% holding other factors constant as reflected by the positive and statistically significant coefficient DLFDI. Agriculture share in GDP has a positive and statistically significant relationship with CIT in the short run, a 1% increase in the growth in the share of agriculture in GDP increases the growth in CIT revenue by 0.4%. Tax rate, Openness, Public debt and CPI were found to have no statistically significant relationship with CIT revenue in the short run meaning that a change in their magnitudes does not have effect on CIT revenue in the short run.

In the ECM an important coefficient is the coefficient of the lagged residuals of -1.103 which is the error correction term. This coefficient shows the speed of adjustment to equilibrium to the long-run and links the short-run and long-run. The coefficient is expected to be between 0 and -1 if there is error correction mechanism otherwise the model could be over shooting (between -1 and -2) or lack an error correction to the long run (if the coefficient is positive). The coefficient of -1.103 in the results of the short run model shows that about 100% of the shock on CIT in the current period is restored in the next period with a slight potential for an overshooting equilibrium.

The VAR is mostly based on Granger Causation where lagged values of a variable Granger-cause another variable. It is therefore necessary to do a Granger causation test before proceeding with estimating a VAR. the results of this test for the study are shown in Table 8 where Granger causation with 3 lags found that Openness, FDI, Agriculture and Public debt do not Granger cause CIT and therefore can be treated as exogenous in the VAR model.

Table 8. Granger Causality Test

Null Hypothesis:	**F-Statistic**	**Prob.**
LAGR does not Granger Cause LCIT	0.76377	0.5308
LCIT does not Granger Cause LAGR	2.99880	0.0616
LCPI does not Granger Cause LCIT	6.38930	0.0047
LCIT does not Granger Cause LCPI	5.31513	0.0098
LDBT does not Granger Cause LCIT	2.12824	0.1368
LCIT does not Granger Cause LDBT	4.92542	0.0131
LFDI does not Granger Cause LCIT	0.53844	0.6731
LCIT does not Granger Cause LFDI	1.09178	0.4219
LGDP does not Granger Cause LCIT	4.51425	0.0178
LCIT does not Granger Cause LGDP	1.32930	0.2997
LOP does not Granger Cause LCIT	0.79342	0.5152
LCIT does not Granger Cause LOP	2.72123	0.0789
LTRATE does not Granger Cause LCIT	7.05575	0.0031
LCIT does not Granger Cause LTRATE	1.02515	0.4077

The lag length selection for the VAR was chosen based on the AIC criterion given the number of available observations. As shown in Table 9, most criterions selected three lags as the appropriate order of the VAR.

Table 9. Lag Length Selection

Lag	LogL	LR	FPE	AIC	SC	HQ
0	94.55037	NA	1.38E-08	-6.77731	-5.785449	-6.543654
1	152.1073	68.02182	3.75E-10	-10.5552	-8.769866	-10.13464
2	184.8015	26.74978*	1.36E-10	-12.0729	-9.494033	-11.46537
3	217.386	14.81113	1.14e-10*	-13.58054*	-10.20823*	-12.78613*

VAR estimation in the study was mainly to estimate a model for forecasting purposes. The invertibility condition is crucial for forecasting when using VAR. All inverse roots of the characteristic equation should fall within the unit circle or else the VAR is considered unstable and not suitable for forecasting and for inferences Lütkepohl (1991). Figure 4 shows inverse of AR roots characteristic equation which shows that the estimated VAR is stable and stationary.

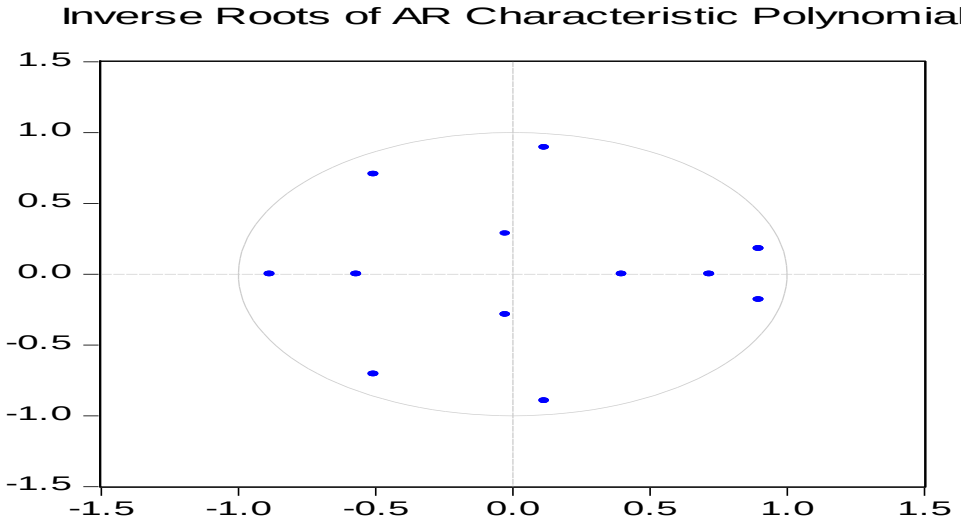

Figure 2. AR Roots for VAR Model

A VAR model was estimated in Eviews where the endogenous variables were CIT, GDP, CPI and Tax rate. Openness, FDI, Agriculture and Public debt were treated as exogenous in the model. The results are shown in Table 10 next.

Table 10. VAR Output for CIT

	Coefficient	Standard errors	t-statistics
LCIT(-1)	0.122008	0.42392	0.28781
LCIT(-2)	0.096510	0.43736	0.22066
LCIT(-3)	0.154910	0.57889	0.2676
LGDP(-1)	0.173251	1.08453	0.15975
LGDP(-2)	0.287805	1.43268	0.20089
LGDP(-3)	-0.004413	0.80687	-0.00547
LTRATE(-1)	-0.153157	1.58204	-0.09681
LTRATE(-2)	0.863696	0.84259	1.02504
LTRATE(-3)	-1.210991	0.89367	-1.35508
LCPI(-1)	-0.29261	0.70552	-0.41474
LCPI(-2)	0.271686	0.57135	0.47552
LCPI(-3)	0.236017	0.25710	0.91799
C	-1.879839	9.07209	-0.20721
LAGR	-0.00409	0.56309	-0.00726
	0.004218	0.05435	0.07760
LDBT	0.050720	0.41536	0.12211
LOP	-0.652156	0.77074	-0.84615
R-squared			0.972977
Adj. R-squared			0.886503
Sum sq. resids			0.088073
S.E. equation			0.132720
F-statistic			11.25172
Log likelihood			29.51031
Akaike AIC			-1.137301
Schwarz SC			-0.294223
Mean dependent			6.255964
S.D. dependent			0.393953

An important aspect of VAR is policy analysis which is achieved through the impulse response functions and variance decomposition. As shown by Table 11 most of the variation in CIT is mainly due to shocks Tax rate and GDP movements, most of the impact of tax rates on revenue are visible starting from the 3rd year increasing with the number of years.

Table 11. Variance Decomposition for CIT

Period	LCIT	LGDP	LTRATE	LCPI
1	100%	0%	0%	0%
2	98%	1%	1%	0%
3	81%	1%	17%	0%
4	68%	2%	29%	0%
5	66%	2%	31%	0%
6	66%	2%	31%	0%
7	65%	3%	31%	1%
8	65%	3%	32%	0%
9	64%	3%	32%	0%
10	63%	3%	34%	0%

To determine the order required for ARIMA modelling, the correlogram of differenced CIT was observed and showed a decaying PAC cutting of at lag 2 and ACF also cutting of at lag 2. The actual ARIMA model found to be fitting for CIT was an ARIMA (1, 1, 2) which has one AR term and two MA terms with a differenced CIT series. This model was estimated and diagnosis done on the model.

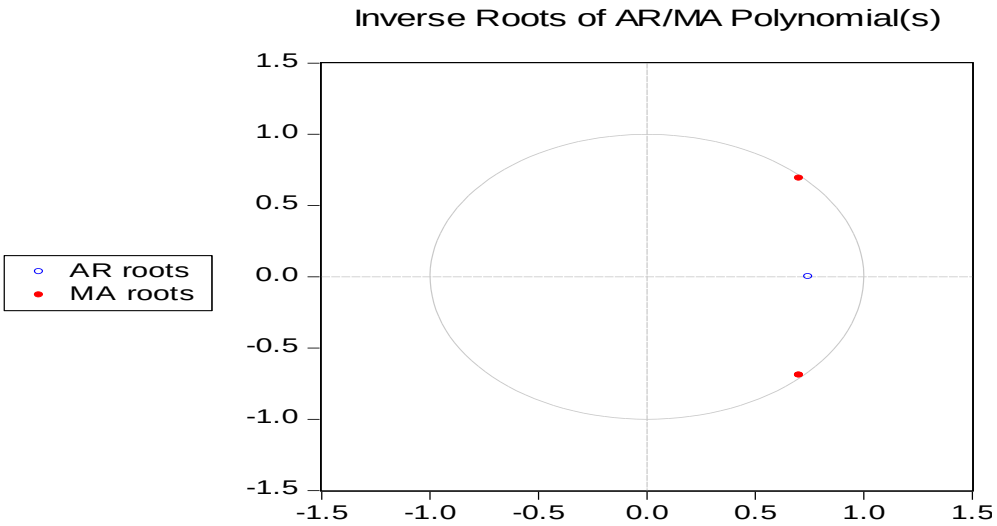

Figure 3. AR Roots for ARIMA Model

Similar to VAR, all inverse roots should fall within the unit circle for ARIMA to be suitable for forecasting. Figure 6 shows that all roots fall within the unit circle for the selected ARIMA model and it can be used for forecasting. The model estimated through ARIMA (Box Jenkins approach) is shown in Table 12.

Table 12. ARIMA Diagnostics

Assumption	Test Procedure	Null Hypothesis	Observed Test Statistic	Probability	Decision
Normality	Jarque-Bera Normality Test	Errors Are Normaly Distributed	JB =0.1440	0.931	Errors are Normaly Distributed
Homoskedasticity	Heteroskedasticity Test: White	No Serial Correlation	nR^2 =16.494	0.284	Errors Homoskedastic
No Serial Correlation	Breusch-Godfrey Serial Correlation LM Test	No Second order Serial Correlation	$nR^2(2)$ =1.697	0.428	There is no second order serial correlation

Diagnostic testing is the last step before forecasting in the Box Jenkins method, therefore the model had to go through some diagnostic test before it could be used for forecasting. The results of these tests are shown in Table 11 revealing that model is free from serial correlation and heteroscedasticity with normally distributed error terms. The model can therefore be used for forecasting.

Table 13. ARIMA Output

Variable	Coefficient	Standard Error	T-Statistic	Probability
C	0.114	0.060	1.885**	0.075
AR(1)	0.747	0.119	6.276*	0.000
MA(1)	-1.409	0.053	-26.599*	0.000
MA(2)	0.974	0.019	50.296*	0.000
R-squared	0.545	Mean dependent var		0.041
Adjusted R-squared	0.473	S.D. dependent var		0.136
S.E. of regression	0.098	Akaike info criterion		-1.643
Sum squared resid	0.184	Schwarz criterion		-1.445
Log likelihood	22.891	Hannan-Quinn criter.		-1.593
F-statistic	7.580	Durbin-Watson stat		1.987
Prob(F-statistic)	0.002			
Inverted AR Roots	0.75			
Inverted MA Roots	.70+.69i	.70-.69i		

**significant at 5% and ** significant at 10%*

One of the objectives of the study was to compare one step ahead forecasts from the different models estimated in the study. Using the estimated models from the long run equation, short run equation, ARIMA and VAR together with an average growth based forecast, a one year ahead (2015) forecast was produced from each model. The models (both long run and short run) used for forecasting are the models containing only the statistically significant variables. This is because they had a higher value of adjusted R-squared compared to the models which include the statistically insignificant variables. There are shown in Table 13 and Table 14 respectively.

Table 14. Reduced Long Run Equation

Variable	Coefficient	Standard Error	T-Statistic	Probability
C	-9.209	2.183	-4.218*	0.001
LGDP	2.093	0.280	7.474*	0.000
LCPI	-0.345	0.148	-2.321*	0.032
LAGR	0.960	0.184	5.223*	0.000
LDBT	0.440	0.145	3.034*	0.007
LTRATE	1.014	0.483	2.101*	0.049
LOP	-1.043	0.297	-3.519*	0.002
R-squared	0.951	Mean dependent var		6.272
Adjusted R-squared	0.935	S.D. dependent var		0.403
S.E. of regression	0.103	Akaike info criterion		-1.489
Sum squared resid	0.201	Schwarz criterion		-1.150
Log likelihood	26.351	Hannan-Quinn criter.		-1.391
F-statistic	61.054	Durbin-Watson stat		2.205
Prob(F-statistic)	0.000			

**significant at 5%*

The 2015 forecasts from the models were compared against the actual revenue collected in 2015 and the results are shown in Table 15 where the structural equations

(long run and short run models) were seen to have the least forecasting variance on a one step ahead forecasts with a deviation of 1% from actual collections. The average growth model had the largest variance among all the forecasting techniques at 9.1% followed by ARIMA and VAR at 9.1% and 5.2% respectively. Overall the forecast with the largest variance was the official forecast at 28.5% reflecting that the current estimation methods are weaker than all the models estimated in this study for one year ahead forecasts.

Table 15. Reduced Short Run Equation

Variable	Coefficient	Standard Error	T-Statistic	Probability
C	-0.549	0.158	-3.476	0.003
D(LGDP)	1.589	0.365	4.350	0.000
LFDI	0.043	0.012	3.474	0.003
D(LAGR)	0.440	0.168	2.611	0.017
RESIDUALS(-1)	-1.069	0.216	-4.955	0.000
R-squared	0.724	Mean dependent var		0.045
Adjusted R-squared	0.666	S.D. dependent var		0.134
S.E. of regression	0.077	Akaike info criterion		-2.096
Sum squared resid	0.114	Schwarz criterion		-1.851
Log likelihood	30.158	Hannan-Quinn criter.		-2.031
F-statistic	12.481	Durbin-Watson stat		1.888
Prob(F-statistic)	0.000			

**significant at 5%*

The results of the individual models (VAR, ARIMA, Average growth and Structural equations) were combined using a weighting method as described earlier which is based on the inverse of the Theil coefficient.

Table 16. Forecast Comparison

Forecasting Method	Forecast Variance	Theil Coefficient Based Weight
Average Growth	13.1%	4%
Long-run Equation	-1.1%	36%
Short-Run Equation	1.2%	31%
VAR	5.2%	14%
ARIMA (1,1,2)	-9.1%	15%
Official Forecast	28.5%	
Theil Coefficient Weighted Forecast	-0.2%	

As shown in Table 15, the results reveal a variance of -0.2% for the combined forecast which is a smaller variance compared to all the models showing that the combined forecast is able to minimize the variance from individual models which could have been larger if any of the models were used in isolation. The structural models had the second least variance at 1% followed by VAR at 5.2%.

5. Summary of the Study

The study identified economic factors that affect Company Income Tax revenue in the short run and long run and also compared the accuracy of Average growth, ARIMA and VAR in CIT forecasting compared to the structural equation concluding with a combined forecast from Average growth, ARIMA, VAR and the Structural equation accessing the accuracy of the combined forecast against actual collections and the other individual models. In the long run, GDP, Share of Agriculture in GDP, Public debt and Tax rates were found to have a positive relationship with CIT revenue. Openness and Inflation were found to have a negative relationship with CIT revenue in the long run. FDI was found to have no statistically significant relationship with CIT in the long run. In the ECM (short run model), GDP, FDI and Agriculture share in GDP were found to have a positive and statistically significant relationship with CIT. An error correction mechanism linking the short run and long run was found to be statistically significant showing that there is a restoration of equilibrium in the short run to the long run.

The positive relationship between GDP and CIT confirms findings from other authors that an increase in income increases taxable capacity and increases revenue collections (Gupta, 2007; Wawire, 1999; Ayye, 2014; Lotz & Morss, 1967). CPI has an inverse relationship with CIT revenue, when inflation increases CIT revenue is expected to decline, this is in line with results obtained by Mahdavi (2008) while Tanzi (1992). The results imply that an increase in inflation decreases taxable income and this is possible through increasing input cost (raw materials and labour) relative to revenue or income being generated. The share of Agriculture in GDP has a positive relationship with income tax revenue, this means that increase in agriculture output has a potential to increase revenue collection. The result is in contrast with other authors (Ahmad & Stern, 1991; Leuhold, 1991; Stotsky & WoldeMariam, 1997; Alm et al., 2004; Ahsan & Wu, 2005) mainly because a large component of agriculture output contained in the GDP estimates is from commercial farms and the sugar industry which are taxable thus the positive relationship with CIT revenue.

The positive relationship with Public debt is in contracts with expectation from other authors as public debt is expected to result in payment default by government and thus default by taxpayers Tanzi (1992). The probable reasons why CIT revenue does not decline with public debt in the case of Swaziland is because most of the public debt has been composed of external debt thus not affecting payment to local suppliers and instead the foreign borrowing was used for purchasing domestic goods and services and thus increasing profits of companies. However, the share of domestic debt in public debt has increased in recent years from 12% in 2009 to 39% in 2015 as shown by Figure 2. This observation might change the relationship in the medium term. Further contributing to this positive relationship is that while government may have more debt the major contributors to CIT revenue are not dependent on

government but on international development in commodity trade. It is because of this reason that Public debt and revenue increases exist simultaneously.

The tax rate has a positive relationship with CIT revenue meaning that when the tax rate increases revenue increases, an expected relationship while contradicting results from OECD. This means that CIT revenue can be increased by increasing tax rates which is scope for tax policy makers. Openness has a negative relationship with CIT revenue which means that the more open the economy becomes, the less revenue will be collected a similar result obtained by Lotz and Morss (1967) and different from the result by Alm et al. (2004), Mahdavi (2008). From a tax policy perspective, it implies that this implies that a consideration should be made on how to protect this revenue stream against base erosion through cross border transactions. FDI is found to have a positive but statistically insignificant relationship with CIT revenue. The meaning of this result is that increases in FDI have no significant impact on CIT revenue. This arises in the Swaziland cases because most of the FDI related companies have tax concessions that make their contribution to CIT revenue limited. This results are in contrast with the findings of Teera (2002) where a statistically significant relationship was identified. The structural equation (long run and short run equation) performs better than VAR, ARIMA, Average growth forecast and Official forecast in performing a one step ahead CIT revenue forecast providing the least variance. VAR is superior to ARIMA in forecasting CIT revenue for one year ahead similar to Donegan (2015), while the average growth forecast has the second largest forecasting variance after the official forecast. The combined forecast improved forecasting by producing the least variance a finding similar to Litterman and Supel (1983) and Fullerton (1989).

The findings of the study reveal that by increasing incomes (GDP), increasing Agriculture output from taxable taxpayers and increasing tax rates while maintaining low inflation rates can increase CIT revenue. The policy recommendation would therefore to create policies that boost output performance while striving for low inflation rates. An additional recommendation for policy would be to improve tax legislation to deal with cross border transaction and transfer pricing so as to minimize losses resulting from tax base erosion by cross border transactions. In terms of FDI, further research can be undertaken to determine the reasons for the non-significant relationship between FDI and CIT revenue which is contrary to findings other studies. On the fiscal forecasting side, it is recommended that a variant of forecasting techniques be considered and compared when coming up with fiscal forecasts and these can be combined as the study has shown that combined forecasts have the least forecasting variance. The research and its findings can be extended to other tax types to find the factors that drive them and also improve their forecasting accuracy.

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Information and Communication Technology (ICT) Led Tourism Growth Nexus in Transitional Markets

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Abstract: The study investigated the impact of ICT on tourism growth in emerging markets using five panel data analysis methods (fixed effects, random effects, pooled OLS, FMOLS, dynamic GMM) with data ranging from 1996 to 2016. Majority of the theoretical and empirical literature shows that ICT has got a positive influence on tourism growth and development both in the long and short run. Although several empirical researchers have explored the subject matter, to the best of the authors' knowledge, no study so far had investigated the impact of ICT on tourism in emerging markets as a bloc of countries. Overwhelmingly majority of the panel data analysis methods (fixed effects, random effects, FMOLS and dynamic GMM) shows that ICT had a significant positive influence on tourism growth and development in line with most theoretical predictions. The study therefore urges emerging markets to develop and implement ICT policies that ensures that tourism growth and development is enhanced. Future studies should investigate the macroeconomic variables that must be available in the emerging markets in order to enhance ICT's positive influence on tourism growth and development.

Keywords: ICT; Tourism; Emerging Markets; Panel Data

JEL Classification: O3; P2

1. Introduction

The tourism industry is known world-wide to be one of the economic sectors which not only employs a lot of people but whose revenue receipts plays a significant role in economic growth of many countries (Abdulhamid et al., 2016). The positive role that tourism plays in the economy is no longer a contestable issue among academics, policymakers and economists. The theoretical propositions by Croes and Vanegas (2008), Yamakawa (2007), Kumar et al. (2015), Mathieson and Wall (1982) explain the importance of tourism sector in the economy. Empirical studies which supports the tourism led growth nexus include Kibara et al (2012), Narayan et al (2013), Chou

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(2013), Ridderstaat et al. (2014), Belloumi (2010), Tugcu (2014), Mishra et al. (2011), Cortes-Jimenez et al. (2011), among others.

The importance of tourism on economic growth means that a thorough understanding of the determinants of tourism is critical in order to be able to implement tourism policies which ultimately enhance economic growth. Despite the existence of consensus in literature on the importance of tourism on economic growth, empirical studies that have so far investigated the determinants of tourism growth are quite scant. More recent studies which found out that ICT is paramount for tourism growth were done by Assaf and Josiassen (2012), Fatimah and Pujiarto (2019), Rodriguez and Rodriguez (2018), Ilic and Nikolic (2018), Sastry and Suhil (2018), Bekteshi and Bekteshi (2017) and Wahab (2017).The finding resonates with Abdulhamid et al (2016) whose study argued that tourism is an information intensive sector.These few studies shied away from exploring the same subject matter for transitional countries as a bloc of countries which according to Cavusgil et al (2013) was the most popular international capital flow recipient during the last two decades. This study is the first of its kind to investigate the role that ICT played in enhancing tourism growth in transitional economies in a such a comprehensive manner to the best of the authors' knowledge.

What is emerging in the recent literature is that policy makers need to factor in the role of ICT in e-tourism as it is becoming one of the cheapest and most efficient way of reaching out to the global potential customers. Majority of studies so far that investigated the role of ICT on tourism growth focused on single country studies. Few which focused on a bloc of countries were done by Zaidan (2017), Berne et al. (2015), Abdulhamid et al. (2016) and Elena and Andrea (2013). They mostly used descriptive statistics and cross sectional data analysis. The current study deviates from these similar prior studies in the following ways: (1) it uses panel data analysis methods, which takes into account both time series and cross sectional data characteristics, (2) uses a dynamic GMM approach, an approach which takes cognisance of the fact that tourists are attracted to most common international tourist destinations the world over, (3) the dynamic GMM approach addresses the endogeneity problem and (4) strictly uses transitional economies a s a unit of analysis. The study will help transitional economies to develop ICT policies that stimulate tourism growth and development. Section 2 discusses the theoretical literature on the impact of ICT on tourism, Section 3 reviews the empirical literature on the influence of ICT on tourism whilst Section 4 explains how other factors apart from ICT affect tourism. Section 5 is the pre-estimation diagnostics, Section 6 is the research methodology and the summary of study is Section 7.

2. ICT and Tourism- Theoretical literature

The ICT-led tourism growth theoretical perspective has so far been supported by a number of authors (Jonathan & Tarigan, 2016; Bekteshi & Bekteshi, 2017; Benson & Standing, 2008; Standing et al., 2014; Wahab, 2017; Buhalis, 2003; Kevin & Stiroh, 2003; Buhalis & Zoge, 2007).

Jonathan and Tarigan (2016) argued that ICT promotes tourism in the following ways: (1) facilitates innovative technology based marketing (e-marketing, (2) help the tourism firms to deliver services in a cost effective way and (3) enables customers to easily access the crucial information. ICT makes it possible for tourism firms to interact with their customers thereby ensuring that they are able to satisfy their always changing expectations (Bekteshi & Bekteshi, 2017, p. 139). Following Benson and Standing (2008), ICT expanded the choice and information for the tourism industry customers. ICT development ensured that customers received their tickets through the internet and also led to the growth in the number of travel and tourism intermediaries (Standing et al., 2014, p. 82).

Wahab (2017) noted that ICT facilitates the application of E-Tourism, which involves the application of flight tracking system, dynamic packaging, computer reservation system, global distribution system, extensive mark-up language, customer relationship management, audio tours, biometric passport, virtual tour and space tourism. Buhalis (2003) also noted that ICT improves the globalization of the tourism industry by availing effective and efficient tools that helps tourism firms to distribute their services world-wide. ICT was also said to be important because of its ability to efficiently provide timely information to the tourism customers at a very low cost (Kevin & Stiroh, 2003). The same author also argued that ICT enables tourism firms to have access to a wide range of international markets. Buhalis and Zoge (2007) explained that ICT rationalize the operating costs and helps in the development of differentiated marketing strategies in the tourism industry.

3. ICT and Tourism Growth -Empirical Literature

Table 1 shows a summary of empirical research on ICT and tourism growth and development.

Table 1. Summary of Empirical Work on Infrastructure Development and Economic Growth

Author	Focal unit of analysis	Methodology	Research findings
Fatimah and Pujiarto (2019)	Indonesia	Case study approach	The study revealed that the pines tourism villages benefited a lot from ICT development, human capacity building and community empowerment programmes.
Ali et al (2013)	Maldives	Qualitative data analysis	E-commerce was found to have had a positive influence on the tourism sector of the Maldives.
Rodriguez and Rodriguez (2018)	Colombia	Descriptive statistics	The influence that ICT brought to the tourism sector of Colombia was found to be phenomenal.
Bethapudi (2013)	India	Descriptive statistics	ICT was found to have played a significant positive role in the growth and development of the Indian tourism industry.
Ilic and Nikolic (2018)	Serbia	Travel and tourism competitive index analysis	The modern technology development had a major positive influence on Serbia's tourism sector. In particular, the improvement in technology development enhanced Serbia's tourism sector competitiveness.
Sastry and Suhil (2018)	India	Descriptive analysis	Technology was found to have had increased the flexibility, efficiency and added a lot of positive value to India's tourism sector.
Jadhav and Mundhe (2011)	World wide	Literature review approach	The conclusion made was that information technology accelerate tourism growth and development in the modern day era.
Mupfiga (2015)	Zimbabwe	Descriptive statistical analysis	ICT is paramount to tourism growth in Zimbabwe because it enables the tourists (1) to cut costs by allowing them to be their own travel agent and (2) to have a personalized travel package.
Chang et al (2015)	Tanzania	Structural Equation Modelling and Confirmatory Factor Analysis	E-commerce was found to have contributed positively towards the growth of the tourism industry in Tanzania. Specifically, e-commerce enhanced the competitive position, overall business performance, customer service delivery and customer base of Tanzania's tourism sector.
Zaidan (2017)	United Arab Emirates (UAE)	Descriptive statistical analysis	The tourism sector in UAE was found to have used ICT for the following reasons, namely, boosting its international reputation, communicating with customers, attracting and retaining customers, accessing international markets and building and solidifying their competitive positions. Overally, the study noted that ICT's usage led to the accelerated growth of the tourism sector in UAE.
Berne et al (2015)	European countries	Descriptive statistical analysis	ICT led to value addition, improved product quality and facilitated the adoption of best practices in the tourism industry in Europe.
Firoiu and Croitoru (2015)	Romania	Descriptive statistics	ICT helped to spearhead the growth of the tourism sector of Romania through facilitating online marketing strategies (which are cheaper) and promoting and selling the hotels' services.
Elena and Andrea (2013)	Twenty nine European countries	Probit regression analysis	The study noted that the use of diverse ICT programs had a little impact on the productivity and competition in the tourism industry. However, ICT allowed the tourism related firms to expand

			their market share and enhanced their ability to introduce new processes.
Vukadinovic et al (2016)	World wide	Literature review approach	Overall business performance, productivity and efficiency were increased by the ICT usage in the tourism sector of
Tichaawa et al (2017)	South Africa	Descriptive statistics	ICT was found to have had the following benefits to the tourism sector in East London, South Africa. These are, (1) improved the firms' image, (2) enhanced service quality, (3) speeded up the rate of service delivery, (4) boosted the firms' market share and (5) pushed up the customer satisfaction levels.
Hossein (2013)	Iran	Autoregressive Distributive Lag (ARDL)	ICT was found to have enhanced the positive role played by the tourism sector in ensuring economic growth in Iran. The finding applies in the long run.
Wahab (2017)	World wide	Literature review approach	Information technology made travelling safer, bridged the gap between the customer and the tourism firm and also enabled timeous access to the rightful information at any given time.
Abdulhamid et al (2016)	Developing countries	Correlation analysis	ICT usage in developing countries improved the operational productivity and customer satisfaction in the hotels. Moreover, ICT was found to have had a significant positive influence on the growth and development of the tourism industry in developing countries.
Mihajlovic (2012)	Croatia	Descriptive statistics	ICT was found to have revolutionalised the manner in which travel agents operate hence enhancing the growth of the tourism industry in Croatia.
Jonathan and Tarigan (2016)	Indonesia	Multiple regression analysis	ICT was found to have led to the upward growth of Indonesia's tourism sector by 40%.
Bekteshi and Bekteshi (2017)	Albania	Descriptive statistics	The study observed that ICT expanded and improved the quality of services provided by tourism firms in Albania. Moreover, the performance of tourism linked firms improved to ICT programmes implementation.
Standing et al (2014)	World wide	Literature review approach	The ICT-led tourism and growth hypothesis was supported.

Source: Author compilation

There is consensus in both theoretical and empirical literature on the impact of ICT on the growth and development of the tourism industry. Whilst other global regions have been fairly covered in the research, the story of the influence of ICT on tourism industry in emerging markets has so far not been told. The role that human capital development plays in enhancing ICT's impact on tourism industry is also still unclear not only in the emerging markets but world-wide.

4. A Discussion of How other Factors Influence Tourism Growth and Development

Table 2. Theory Intuition and a Priori Expectation

Variable	Proxy used	Theory intuition	Expected sign
Lag of tourism ($TOURISM_{i,t-1}$)	International tourism receipts (% of GDP)	Tourists are attracted to most common international tourists destinations	+
Human capital development (HCAP)	Human capital development index	Following Esu (2012:284), human capital development positively contributes towards tourism growth and development through the following: (1) improve the quality of services provided to the customers, (2) reduce cost of doing business, (3) improve self-esteem of the workers thereby guaranteeing higher hotel guests' satisfaction and (4) increase the tourism firms' ability to satisfactorily meet the target market needs. Adeola (2016) noted that implementation of human capital development strategies was necessary to enhance the growth of the hospitality industry in Nigeria. On the other hand, Metilelu (2016) argued that human capital development does not necessarily improve the growth and development of the tourism particularly if the education and skills acquired are not related to the tourism industry.	+/-
Financial development (FIN)	Stock market capitalization (% of GDP)	Tsaurai (2018a) argued that higher levels of financial development in the tourist receiving country is beneficial because it facilitates easy access of financial products by the tourists whilst they are enjoying their holiday time. The tourists are also able to trade in financial markets while on holiday (Tsaurai, 2018, p. 101). A study by Katircioglu et al (2018) observed that financial sector development and tourism had a reinforcing influence on each other and also that financial development had a significant positive effect on tourism in the long run in Turkey. On the other hand, financial development was found to have had a significant negative influence on tourism in the short run in Turkey (Katircioglu et al., 2018, p. 533).	+/-
Foreign direct investment (FDI)	Foreign direct investment net inflows (% of GDP)	Samimi et al (2013) argued that FDI plays a very critical role in tourism sector development through availing international capital for building tourism linked infrastructure such as highways, international airports and modern technologies. Tourism related FDI and tourism were found to have a feedback effect in developing countries in the long run (Samimi et al., 2013). In the short run, the same study found that the two variables had no influence on each other. Some of the	+/-

		tourism linked FDI infrastructural development projects severely damage the environment and the ecosystem, which under normal circumstances should also be helping towards attracting tourists into the country (Samimi et al., 2013, p. 62).	
Infrastructure development (INFR)	Fixed telephone subscriptions (per 100 people)	According to Adebayo (2014), infrastructure development is a catalyst for tourism development because it increases the efficiency of production and distribution of the tourism services to the customers even those who are based in the remotest areas. Developed transport infrastructure enable customers to consume the tourism services (Jovanovic & Ilic, 2016). The authors are of the view that infrastructure such fixed telephones deter tourists' visit because of their lack of convenience, rigidity and failure to cater for the modern needs of the tourists related to internet and social media services.	+
Economic growth (GROWTH)	GDP per capita	A strong economy attracts more investments into the tourism industry (Assaf & Josiassen, 2012, p. 390). Naude and Saayman (2005) observed that economic growth provided stable macroeconomic environment which attracts not only international tourists but enables the government (through increased tax revenue base) to have enough money to support in the tourism industry.	+
Trade openness (OPEN)	Total of exports and imports (% of GDP)	According to Turner and Witt (2001) and Kozak and Rimmington (1998), trade openness increases tourism growth and development through the following channels: (1) fostering international travel and access to the tourism industry and (2) increases competition hence enabling the tourists to enjoy lower prices of goods and services. Empirical studies (Surugiu, 2011; Habibi et al., 2009; Wong & Tang. 2010) noted that higher levels of trade openness enhanced the number of international tourist arrivals.	+

Source: Author compilation

5. Pre-Estimation Diagnostics

This section consists of trend analysis, descriptive statistics and correlation analysis. Table 3 shows tourism growth and ICT trends in emerging markets during the period ranging from 1996 to 2016.

Table 3. ICT and Tourism Growth Trends for Emerging Markets (1996-2016)

	Tourism (international tourism receipts as a ratio of GDP)	ICT (individuals using internet (% of population)
Asia		
Republic of Korea	1.34	63.53
Philippines	2.38	16.72
Malaysia	6.80	42.91
India	0.87	7.02
Indonesia	2.00	7.49
Thailand	8.16	16.88
Hong Kong	8.98	53.88
Singapore	5.60	55.78
China	1.00	20.10
Africa		
South Africa	2.90	18.35
Latin America		
Peru	1.80	21.37
Mexico	1.39	22.54
Colombia	1.35	22.75
Brazil	0.32	26.97
Argentina	1.28	49.23
Europe		
Poland	2.94	38.58
Greece	5.78	31.91
Turkey	3.65	24.83
Russia	1.24	27.81
Portugal	5.64	37.62
Czech Republic	4.35	43.31
Overall mean	**3.32**	**30.93**

Source: Author compilation

From Table 3, four Asian countries (Malaysia, Thailand, Hong Kong, Singapore) had their tourism receipts higher that the overall mean of 3.32% whilst tourism receipts for the remaining Asian countries such as Republic of Korea, Philippines, India, Indonesia and China were lower than the overall mean. Malaysia, India, Thailand, Hong Kong, and Singapore were the outliers because their mean tourism receipts deviated by a wider margin from the overall mean of 3.32%. South Africa's mean tourism receipt of 2.90% is closer to the overall mean of 3.32%.

The mean tourism receipts for Peru, Mexico, Colombia, Brazil and Argentina (Latin American countries) were 1.80%, 1.39%, 1.35%, 0.32% and 1.28% respectively. All the Latin American countries' mean tourism receipts did not deviate much from the

overall mean of 3.32%. The mean tourism receipts for four European countries [Greece (5.78%), Turkey (3.65%), Portugal (5.64%), Czech Republic (4.35%)] is higher than the overall mean of 3.32% whilst mean tourism receipts for the remaining European countries (Poland, Russia) were lower than the overall mean of 3.32%.Greece, Russia and Portugal are the outliers because their mean tourism receipts deviated from the overall mean tourism receipts of 3.32% by a wider margin.

With regards to ICT, Asian countries such as Republic of Korea, Malaysia, Hong Kong and Singapore had their mean ICT growth above the overall mean ICT growth of 30.93% of the population. Only two Asian countries (Philippines and Thailand) had their mean ICT growth which was closer to the overall mean ICT growth of 30.93% of the population. All the other Asian countries (Republic of Korea, Malaysia, India, Indonesia, Hong Kong, Singapore, China) are outliers because their mean ICT growth are far away from the overall mean ICT growth of 30.93% of the population. Even South Africa whose mean ICT growth over a period ranging from 1996 to 2016 is also an outlier because of the same reason alluded earlier on.

The only Latin American country whose mean ICT growth during the period under study was above the overall mean is Argentina (49.23% of the population). Argentina is also an outlier because of the huge difference between its mean ICT growth and the overall mean ICT growth. On the other hand, the mean ICT growth of only two European countries [Turkey (24.83% of the population), Russia (27.81% of the population)] studied was found to be lower than the overall mean ICT growth of 30.93% of the population. Among European countries studied, Czech Republic is the only outlier.

Table 4 shows the correlation analysis results, where tourism growth is the dependent variable whilst the independent variables includes ICT, human capital development, financial development, foreign direct investment, infrastructural development, economic growth and trade openness.

Table 4. Correlation analysis

	TOURISM	ICT	HCAP	FIN	FDI	INFR	GROWTH	OPEN
TOURISM	1.00							
ICT	0.24***	1.00						
HCAP	0.38***	0.50***	1.00					
FIN	0.57***	0.31***	0.24***	1.00				
FDI	0.53***	0.33***	0.38***	0.81***	1.00			
INFR	0.40***	0.45***	0.78***	0.41***	0.45***	1.00		
GROWTH	0.48***	0.67***	0.69***	0.51***	0.65***	0.75***	1.00	
OPEN	0.67***	0.38***	0.46***	0.72***	0.80***	0.48***	0.71***	1.00

Source: E-Views results

Consistent with theoretical literature (see Section 2 and 3 and Table 2), all the independent variables (ICT, HCAP, FIN, FDI, INFR, GROWTH, OPEN) were

individually and separately correlated with the dependent variable (TOURISM) in a significant positive manner. The maximum correlation size is 0.81 (between FDI and financial development), evidence that there is no problem of multicollinearity, consistent with Stead (1996).

The results from Table 5 shows two undesirable characteristics of the data being used. Firstly, the standard deviation for financial development and economic growth data is too high, evidence that there exist extreme or abnormal values in these variables. The data for all the variables are not normally distributed because the probability of the Jarque-Bera criterion is zero, consistent with Tsaurai (2018b).

Table 5. Descriptive statistics

	TOURISM	ICT	HCAP	FIN	FDI	INFR	GROWTH	OPEN
Mean	3.32	30.93	0.78	92.12	4.34	23.66	10 355	95.05
Median	2.25	25.00	0.78	40.12	2.56	19.71	6 640	59.33
Maximum	15.81	92.84	0.94	1 254	58.52	62.09	56 284	455.28
Minimum	0.09	0.01	0.48	5.33	0.03	1.49	408.24	15.64
Standard. deviation	2.75	26.48	0.09	169.23	6.65	16.52	10 438	95.83
Skewness	1.46	0.51	-0.36	4.71	3.98	0.74	1.88	2.27
Kurtosis	5.50	1.99	2.75	27.35	22.05	2.50	7.07	7.33
Jarque-Bera	271.61	37.62	11.54	12 527	7 831	44.75	563.44	724.91
Probability	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observations	441	441	441	441	441	441	441	441

Source: E-Views results

If these two problems are not addressed, they lead to spurious results outcome (Aye & Edoja, 2017). The current study resolved these problems by converting all the data into natural logarithms before using it for further empirical tests, consistent with Aye and Edoja (2017, p. 10).

6. Research Methodology

6.1. Data

Annual data ranging from 1996 to 2016 was used in this study. The data was extracted from internationally reputable databases such as World Development Indicators, International Financial Statistics, United Nations Development Programme Various reports on human capital development index and Africa Development Indicators. The list of transitional economies which forms part of this study are given in Table 3.

6.2. Econometric Model Specifications

$$TOURISM_{i,t} = \beta_0 + \beta_1 ICT_{i,t} + \beta_2 HCAP_{i,t} + \beta_3 FIN + \beta_4 FDI_{i,t} + \beta_5 INFR_{i,t} + \beta_6 GROWTH_{i,t} + \beta_7 OPEN_{i,t} + \mu + \varepsilon \quad [1]$$

$$TOURISM_{i,t} = \beta_0 + \beta_1 TOURISM_{i,t-1} + \beta_2 ICT_{i,t} + \beta_3 HCAP_{i,t} + \beta_4 FIN + \beta_5 FDI_{i,t} + \beta_6 INFR_{i,t} + \beta_7 GROWTH_{i,t} + \beta_8 OPEN_{i,t} + \mu + \varepsilon \quad [2]$$

Equation 1 was estimated using fixed effects, random effects, pooled OLS and the FMOLS approaches whilst equation 2 was estimated using the Arellano and Bond's (1991) dynamic GMM method (see Table 8 for results).

Table 6. Panel Stationarity Tests

Level					
	Variable	LLC	IPS	ADF	PP
Individual intercept and trend	LTOURISM	-1.21 (0.11)	0.37(0.65)	39.01(0.60)	35.69(0.74)
Individual intercept and trend	LICT	-11.25***(0.00)	-8.08***(0.00)	153.72***(0.00)	426.79***(0.01)
Individual intercept and trend	LHCAP	-9.15***(0.00)	-5.30***(0.00)	96.60***(0.00)	149.24***(0.01)
Individual intercept and trend	LFIN	-3.98***(0.00)	-3.14***(0.00)	79.12***(0.00)	403.75***(0.01)
Individual intercept and trend	LFDI	-7.17***(0.00)	-5.75***(0.00)	110.95***(0.00)	172.87***(0.01)
Individual intercept and trend	LINFR	-2.31**(0.00)	0.74 (0.77)	54.37*(0.09)	80.43***(0.00)
Individual intercept and trend	LGROWTH	-0.65 (0.26)	-0.56 (0.29)	49.88 (0.19)	29.87 (0.92)
Individual intercept and trend	LOPEN	-3.24*** (0.00)	-1.71** (0.04)	80.86*** (0.00)	60.29** (0.03)
First difference					
	Variable	LLC	IPS	ADF	PP
Individual intercept and trend	LTOURISM	-7.37***(0.00)	-6.98***(0.00)	125.33***(0.00)	205.17***(0.00)
Individual intercept and trend	LICT	-6.18***(0.00)	-5.49***(0.00)	103***(0.00)	156.73***(0.00)
Individual intercept and trend	LHCAP	-14.81***(0.00)	-13.23***(0.00)	219.31***(0.00)	449.52***(0.01)

Individual intercept and trend	LFIN	-11.57***(0.00)	-12.68***(0.00)	210.95***(0.00)	384.54***(0.01)
Individual intercept and trend	LFDI	-10.89***(0.00)	-11.53***(0.00)	192.47***(0.00)	326.80***(0.01)
Individual intercept and trend	LINFR	-3.71***(0.00)	-2.50***(0.00)	69.35***(0.00)	115.28***(0.00)
Individual intercept and trend	LGROWTH	-8.55***(0.00)	-4.42***(0.00)	96.51***(0.00)	114.798***(0.00)
Individual intercept and trend	LOPEN	-9.92*** (0.00)	-7.46*** (0.00)	130.32*** (0.00)	259.69*** (0.00)

Source: Author's Compilation from E-Views

Note: LLC, IPS, ADF and PP stands for Levin, Lin and Chu (2002); Im, Pesaran and Shin (2003); ADF Fisher Chi Square and PP Fisher Chi Square tests respectively. *, ** and *** denote 1%, 5% and 10% levels of significance, respectively.

Table 7. Johansen Fisher Panel Co-integration test

Hypothesised No. of CE(s)	Fisher Statistic (from trace test)	Probability	Fisher Statistic (from max-eigen test)	Probability
None	29.11	0.9342	29.11	0.9342
At most 1	29.11	0.9342	29.11	0.9342
At most 2	22.18	0.9949	114.3	0.0000
At most 3	2.77	1.0000	352.8	0.0000
At most 4	0.00	1.0000	386.8	0.0000
At most 5	386.8	0.0000	386.8	0.0000
At most 6	278.4	0.0000	229.9	0.0000
At most 7	137.0	0.0000	137.0	0.0000

Source: Author's compilation from E-Views

Table 8. Panel data analysis results

	Fixed effects	Random effects	Pooled OLS	Fully modified OLS (FMOLS)	Dynamic GMM
$TOURISM_{i,t-1}$	-	-	-	-	0.9658***
ICT	0.0503***	0.0338***	-0.0588**	0.0569**	0.0126**
HCAP	-0.2848	-0.1225	-0.0309	-0.4903	0.2062
FIN	0.0249	0.0128	-0.1371***	0.0404	0.0076
FDI	0.0382**	0.0348**	-0.1550***	0.0696***	-0.0066
INFR	-0.2440***	-0.1858***	0.0208	-0.2713***	0.0187
GROWTH	-0.3357***	-0.2886***	0.0842	-0.3606***	0.0052
OPEN	0.5966***	0.6703***	1.1107***	0.6013***	0.0293
Number of countries	21	21	21	21	21
Number of observations	441	441	441	441	441
Adjusted R-squared	0.9392	0.5628	0.5847	0.9435	0.9719
F-statistic	252.54	39.43	89.49	-	J-static = 432
Prob (F-statistic)	0.00	0.00	0.00	-	Prob (J-statistic) =0.00

Source: Author's compilation from E-Views

***, ** and * denote 1%, 5% and 10% levels of significance, respectively.

Using the dynamic GMM approach, the lag of tourism was found to have a significant influence on tourism in emerging markets, consistent with an argument that tourists prefer to visit the most popular tourist destinations world-wide. Consistent with theory (Benson & Standing, 2008; Standing et al., 2014; Bekteshi & Bekteshi, 2017; Jonathan & Tarigan, 2016; Wahab, 2017; Buhalis, 2003), ICT was found to have had a significant positive influence on tourism growth under the fixed effects, random effects, FMOLS and the dynamic GMM. Contrary to the literature available, the pooled OLS approach noted that ICT had a significant negative effect on tourism growth in emerging markets. The possible reason could be that certain macroeconomic variables which enhances ICT's positive impact on tourism growth were not available in emerging markets, itself, a possible area for future research.

A non-significant negative relationship running from human capital development towards tourism growth was detected across all the five panel data analysis methods used. The finding resonates with Metilelu (2016) whose study argued that human capital development does not necessarily improve the growth and development of the tourism particularly if the education and skills acquired are not related to the tourism industry. Financial development had a non-significant positive influence on tourism growth under four panel estimation methods (fixed effects, random effects, FMOLS, dynamic GMM). The finding is in line with Tsaurai (2018a) whose study argued that higher levels of financial development enables tourists to easily have access to financial products whilst they are on holiday. Pooled OLS produced results which show that financial development had a significant negative impact on tourism in emerging markets, consistent with Katircioglu et al's (2018) finding that financial development had a significant negative influence on tourism in the short run in Turkey.

Under fixed effects, random effects and FMOLS, a significant positive relationship was observed running from FDI towards tourism growth in emerging markets, consistent with Samimi et al's (2013) argument that FDI boosts tourism through availing international capital for building tourism linked infrastructure such as highways, international airports and modern technologies. Pooled OLS produced results which shows that FDI had a significant negative influence on tourism whilst under dynamic GMM, a non-significant negative relationship running from FDI towards tourism was observed. The findings resonate with Samimi et al (2013, p. 62) whose study argued that some of the tourism linked FDI infrastructural development projects severely damage the environment and the ecosystem hence turning away some of the tourists.

Contrary to the literature available, both infrastructure development and economic growth separately and individually were found to have had a significant negative

impact on tourism under the fixed effects, random effects and the FMOLS. The results could be an indication that certain macroeconomic variables should be available in the tourist receiving country before infrastructure development and economic growth could have a positive influence on tourism growth and development. Supported by literature, pooled OLS and dynamic GMM show a non-significant positive relationship separately running from both economic growth and infrastructural development towards tourism growth (see Table 2). Trade openness was found to have had a significant positive impact on tourism growth under the fixed effects, random effects, pooled OLS and FMOLS, a finding which is consistent with Turner and Witt's (2001) argument that trade openness increases tourism growth and development through fostering international travel and access to the tourism industry. The dynamic GMM results show that tourism was positively but non-significantly affected by trade openness, a finding which also agrees with other prior empirical studies (Wong & Tang, 2010; Habibi et al., 2009).

7. Conclusion

The study investigated the impact of ICT on tourism growth in emerging markets using five panel data analysis methods (fixed effects, random effects, pooled OLS, FMOLS, dynamic GMM) with data ranging from 1996 to 2016. Majority of the theoretical and empirical literature shows that ICT has got a positive influence on tourism growth and development both in the long and short run. Although several empirical researchers have explored the subject matter, to the best of the authors' knowledge, no study so far had investigated the impact of ICT on tourism in emerging markets as a bloc of countries. Overwhelmingly majority of the panel data analysis methods (fixed effects, random effects, FMOLS and dynamic GMM) shows that ICT had a significant positive influence on tourism growth and development in line with most theoretical predictions. The study therefore urges emerging markets to develop and implement ICT policies that ensures that tourism growth and development is enhanced. Future studies should investigate the macroeconomic variables that must be available in the emerging markets in order to enhance ICT's positive influence on tourism growth and development.

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Does Consolidation HAVE Any Effecton the Operational Efficiency in Nigerian Insurance Firms?

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Abstract: The effect of consolidation on the operational efficiency in Nigerian insurance firms is being assessed in this study. The model of the study was underpinned by the regulatory and efficient market monitoring hypothesis. The secondary data were gotten from the financial statements of the insurance firms. This study covered the period of years between 2009 and 2016. The Pooled Least Square Method, Fixed Effect Model, Random Effect Model and Hausman Test were employed as the estimation techniques. The results of the Random Effect Model showed that capital base is positively significant, while total assets have negative and insignificant effect on operational efficiency. In addition, liquidity and total premium have positive and insignificant effect onoperational efficiency. Based on the findings of the study, it is suggested that Nigerian insurance firms should consider assets reconstruction. They should also ensure that the total premium received is optimally employed in income generating assets. In addition, the liquid assets, especially cash, should be invested where interests would be earned while the cash remains easily accessible. Overall, consolidation exerts a significant positive effect on the operational efficiency of Nigerian insurance firms because the capital base is the most important element of the consolidation exercise.

Keywords: consolidation; operational efficiency; composite insurance; recapitalization

JEL Classification: F23

1. Introduction

Consolidation has been the key policytool adopted in correcting paucities in the Nigerian financial sector (Somoye, 2008). Therefore, the aim of consolidation in the insurance sector was to increase its performance (Isimoya, 2014). The reason is that the asset of any nation is measured by the worth of its amassed wealth and the proportion at which its wealth increases through its savings and investments. Due to increasing wave of globalization and technological changes, the insurance industry in Nigeria has experienced remarkable changes. The importance of this industry in stimulating growth in the economy cannot be over emphasized, in that it serves as a facilitator to development through its structure (Emori, Nkamare & Nneji, 2014;

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Sanni & Alanni, 2013). Obviously, a stable and reliable financial systembrings about a strong and viable economy.

The insurance sector when organized, controlled and feasible according to Irukwu (2003) plays a deliberate role in the economy. According to Oba (2003), the condition of the insurance industry of a country is a replication of its economy. The insurance sector can be stated to be one of the key determinants for developing the wealth of a nation. This is because it performs a very significant role in the mobilization of investible resources of the economy (Oba, 2003). Irukwu (2003) further noted that the insurance sector contributes a lot to the growth and steadiness of the national economy making it an important service industry in the financial sector. The sector functions by performing its principal role of risk bearing and also the subordinate function of mobilizing funds for investment in the economy. Through these functions the insurance sector promotes a saving culture and facilitates the credit system.

The consolidation exercise in the insurance sector according to Obaremi (2006) was unavoidable, thereby, trailing hard on the heels of the banking sector's consolidation exercise. The reason being that, the banking sector's consolidation exercise made it more cost efficient (Furlong, 1994). The insurance sector before the recapitalization and consolidation exercise did not meet up with its role and had challenges. Thus, the sector helpless and could notattract businesses both locally and globally. In addition, prior to consolidation, the insurance sector was characterized by undercapitalization of its existing firms; shortage of human capital and specialized skills; low asset quality; prominence of unethical practices; poor business infrastructural facilities; absence of novelty in product development; insurance premium flight; and low underwriting capability of the firms (Chukwulozie, 2008). These kept the insurance firm sinefficient and unable to achieve their potentials.

Consolidation in the insurance sector results in larger capital base, assets, customers etc. These are supposed to have positive effects on performance. This is because consolidation in the financial sector created extraordinary change that ensuredversatile, strong and reliable institutions with improved liquidity and ability to assume risk.

The advent of consolidation in the Nigerian financial sector attracted much attention. Several researchers studied the effects of consolidation on financial sector performance, especially in the banking and insurance sectors. Several researchers investigated the effects of consolidation on economic growth and insurance sector development (Akinlo, 2013; Mojekwu, Agwuwgbo & Olowokudejo, 2011; Eze & Okoye, 2013; Oke, 2012; Awwal, 2011). Although scholars proposed that consolidation impacts positively on performance, the insurance sector is still redundant. This exposes a gap. There is need to know if consolidation improves the operational efficiency of Nigerian insurance firms. Also, it is necessary to investigate

the impact of consolidation on operational income in relation to operational cost. Hence this study is contributing to knowledge by taking another dimension to capture firm's output based on operational efficiency. This is different from earlier studies based on financial performance.

2. Literature Review

2.1. Conceptual Clarification

Insurance can be defined to be a social arrangement which makes available financial reimbursement for the effects of an adversity. This reimbursement is gotten from accrued contributions of all participants involved in the arrangement (Isimoya, 2007). According to Awwal (2011), insurance is a contract in which the insurer for a consideration or for a sum of money (known as the premium) agrees to reimburse the insured (beneficiary) an amount of money whenever the occurrence insured against occurs. Insurance firmsare like banks or the capital market in that they attend to the needs of business units and household units in the process of intermediation. Insurance firms gather premiums and firms' reserve funds by accepting claims (Oke, 2012).

An insurance agreement is a procedure whereby one party i.e. the insurer undertakes to pay another party (the policy holder) a specified sum of money in case of an adverse occurrence (Diacon & Carter, 1984).This is detailed in a contract called insurance policy. Insurance contracts which are also known as their products or services are classified as either life or non-life policies. According to Matis and Ilies (2014), life insurance is an agreement with an individual which is meant to aid in reducing the effects of troubles caused by natural disaster, accident, disease, etc. It entails reimbursementof the insured with a particular amount in association with the manifestation of definite events (death, disability, etc.). There are various life insurance policies (contracts) and these are termed variable life insurance, whole life insurance, universal life insurance, variable universal life policies and endowment insurance (Ibiwoye, Ideji & Oke, 2010; Nessim, 2010).

Life insurance policies assemble savings for long-term investment purposes, bringing about economic growth and development (Ibiwoye, Ideji & Oke, 2010). Life insurance products are one of the main sources of long-term finance which boosts the growth of capital markets (Catalan, Impavido & Musalem, 2000).The general (non-life) insurance is an agreement between the insurer (i.e. insurance firm) and the insured whereby the insurer accepts to compensate the assured against damages. The damages are such as resulted from the happening of stated events within a specific period. This insurance agreement comprises of the fire, marine and credit insurance, oil and gas, accident, contractor's all risks; bond and suretyship, etc. (Eze & Okoye, 2013).

The premium is the amount contributed by the insured for the insurance cover to be given in the policy (Awwal, 2011). This is mostly invested to produce more income for the insurance firm. A "claim" on the other hand is a request made by the insured or his beneficiary for compensation or indemnity following a loss in accordance with the terms of an insurance contract. According to Haise and Sumegi (2008), insurance firms by accepting claims pool premiums and firm reserve funds. Oke (2012) states that the insurance firms reimburse the one suffering a loss and also stabilizes the financial states of individuals and firms. This is made possible when the risk involved is transferred. Haise and Sumegi (2008) opined that the main role played by insurance firms to their clients is risk transfer. The insured hereby contributes a premium which secures him against precise uncertainty.

Literarily, consolidation is the process of making firms stronger, more effective and more certain. Consolidation as opined by Soludo (2005) is a combination or amalgamation in which all the firms involved are legally dissolved and a new firm formed. This is with the objective of enhancing performance. This was also supported by Bebeji (2013) who opined that consolidation is a policy which enhances performance. Prior to the recapitalization in the year 2003, the insurance sector was branded by factors (Chukwulozie, 2008) which restricted the insurance firms from achieving potential development. These factors include: Insurance premium flight, under-capitalization of standing insurance firms; low asset value; low yields on capital; shortage of suitable human capital and expert skill; deficiency in the confidence and trust of consumers on the uses/appropriateness of insurance services; presence of too many peripheral players; noteworthy corporate governance matters; existence of unscrupulous practices; low business infrastructural services in ICT; low awareness of the services of insurance firms; deficiency in improvement of product development; low GDP per capital figures and pitiable corporate governance configurations. Babalola (2008) observed that much growth was not witnessed in the insurance sector before the consolidation/recapitalization exercise.

The first major recapitalization exercise according to Fatula, (2007) was announced by the insurance Act 2003, Section 9, which raised the minimum capital requirements by 650%. The exercise concluded with 107 insurance firms which is inclusive of the re-insurance operatives in the market. This exercise was judged unsuccessful. According to Ibrahim and Abubakar, (2012), insurance firms were mandated to raise their capital from #20 million to #150 million, #70 million to #300 million and #150 million to #350 million for the life, non-life (general) and the re-insurance firms correspondingly. In September 2005, there was another recapitalization exercise which the minister of finance at that time declared a fresh minimum capital rule with a deadline of 28th February, 2007. The 2007 recapitalization instruction made necessary a minimum of #2 billion for the life insurance and the #3 billion for the non – life insurance firms. This new directive enforced many insurance firms to merge so as to meet up the requirements. After

lapse of time, 49 insurance firms and 2 re-insurance firms fulfilled the new requirement and were licensed by government.

2.2. Theoretical Underpinning: Regulatory and Market Monitoring Hypothesis

This hypothesis asserts that regulators inspire financial institutions to raise their capital to match with the quantity of risks they underwrite. This may be realized through a well-organized market monitoring, toward ssufficient capital base of a firm. (Calomiris & Kahn, 1991; Berger, 1995). Thus, the activities of regulators and supervisors are vital factors. These affect the interrelationship between capital adequacy risk management and financial institutions' competence. (Shrieves & Dahl, 1992; Jacques & Nigro, 1997; Aggarwal & Jacques, 1998; Editz, Michael & Perraudin, 1998).

Empirical Review

Muhlnickel and Weib (2015) analyzed a sample of 394 trans-national, domestic and cross-border mergers, by regression analysis. They found a positive strong relationship between consolidation and moderate systemic risk in the insurance sector. They also found strong experiential evidence which supports the hypotheses that: firm size, non-traditional financing undertakings and divergence across lines, add up to undermining the effects of insurance consolidation.

Eling and Luhnen (2010) provided a broad efficiency comparison of 6462 insurers from 36 countries, conducted from 2002-2006. Data envelopment with stochastic frontier analyses were applied to various countries, organizations, firms and firmsof varying sizes with respect tolife and non- life insurers. They observed stable technical and cost efficiency growth in the international markets with large differences among countries.

Marijuana, Sandra and Lime (2009) scrutinized the link between insurance sector development and GDP growth using the data of 10 transition European Union member countries covering the years 1992 to 2007. The variables used as proxy for the insurance sector were: life, non-life and total insurance. These were used along withother control variables like: education, openness, inflation, investment, bank credit and stock capitalization. The study revealed a significant and positive relationship between insurance sector development and GDP growth.

Greene and Segal (2004) examined the connection between cost inefficiency and profitability in the U.S. life insurance industry for the period of 1995-1998. The study found out that cost inefficiency in the life industry is considerable in relation to earnings. It also found that inefficiency has a negative connection with profitability measures such as the return on equity, while stock-owned firmsand policy-owned firmswere efficient and lucrative. Rai (1996) observed the cost efficiency of insurance firms situated in 11 countries for a period of 5 years (1988-1992). The results showed that cost efficiency vary according to their country, size

and specialization. The firms from Finland and France had the least cost efficiency while those in the U.K had the highest.

Eling and Hwang (2011) analyzed the efficiency of non-life insurance firms in BRIC countries, i.e. Brazil, Russia, India and China; for the period, 2000-2008. They used the multi-stage data envelopment analysis (DEA) approach which showed that the environment intensely impacts on the efficiency of non-life insurers functioning in the BRIC countries. Kubai (2011) examined if the cost efficiency of Kenya's insurance firms were influenced by market share, cost of debt and firm size in 36 insurance firms over the years 2005-2009. He made use of the stochastic econometric cost frontier approach with cost function estimation. The results revealed that cost efficiency is present in Kenya's insurance firms. The study also found out that market share, cost of debt and the size of an insurance firm affect cost efficiency.

Borges, Nektarios and Barros (2008) analyzed the efficiency of the Greek life insurance industry. The study the Mann-Whitneu Z Test with cross-efficiency and super-efficiency models. Their findings were that life and quoted life insurance firms as well as those involved in mergers and acquisition exhibit higher efficiency. Hwang (2007) examined cost efficiency in the China insurance industry. The stochastic frontier approach (SFA) was applied on 90% of the assets of the commercial insurance firms in China for a period of 1999-2004. The result shows that; in considering cost efficiency, the property insurance industry and state-owned firms are inferior to the life insurance industry, non-state owned firms and foreign insurance firms. For profit efficiency, the results shows that life insurance industry is more efficient than the property insurance industry.

Arena (2008) studied causal relationship between insurance market activity and economic growth by using 56 countries comprising the developed and developing ones covering the years 1976-2004. The generalized method of moment for dynamic models of panel data shows a significantly positive effect of the total, life and non-life insurance market movements on economic growth. Amer, Moustafa and Eldomiaty (2011) examined the connection between bank's relative competitive position and operating efficiency. This was done by scrutinizing the financial outline of the highly versus the lowly competitive banks. The results show that the operating efficiency of highly competitive banks is influenced positively and significantly by explanatory variables such as: asset quality, capital adequacy, credit risk and liquidity of the bank.

Odunga, Nyangweso and Nkobe (2013) examined the effect liquidity and capital adequacy have on the operating efficiency of commercial banks in Kenya. They pursued to inaugurate the effect of bank specific liquidity ratios and capital adequacy ratios on operating efficiency for the period of 2005-2011. The findings indicated that there is a positive and significant influence the previous year operational efficiency ratio, liquid assets to short-term liabilities ratio and total capital ratio have

on the bank operating efficiency. The fixed effect regression was employed to analyze the data. Ibrahim and Abubakar (2012) studied recapitalization and profitability of quoted insurance firms in Nigeria covering 2002-2009. The regression analysis showed that recapitalization had not significantly influenced the profitability of quoted insurance firms in Nigeria before and after there capitalization exercise. Oke (2012) did a study on insurance sector development and growth in Nigeria. The fixed effect model along with the cointegration analysis were employed covering the years 1985 and 2009. The results showed that there is a significantly positive effect insurance sector growth and development have on economic growth.

Eze and Okoye (2013) in their study examined the effect of insurance practice on the growth of the Nigerian economy from 1980-2011. Employing the unit root tests, Johansen co-integration test and error correction model, it was observed that the Nigerian economy is influenced significantly by insurance capital. Also, a causal relationship exists between insurance sector development and economic growth in Nigeria. Furthermore, the Nigerian economy is significantly affected by the practice of insurance. Similarly, Mojekwu, Agwuwgbo and Olowokudejo (2011) using a dynamic factor model, assessed the impact of insurance contributions on the growth of Nigerian economy covering 1981-2008 indicated a first-order auto regressive model between the volume of insurance contribution and economic growth in Nigeria. This implies positive correlation between economic growth and insurance contributions. Hence, a rise in insurance contribution leads to a rise in economic growth. Akinlo (2013) using the Vector Error Correction Model (VECM) and the co- integration test analyzed the data covering the period 1986-2010. The study showed that when the endogenous variable is the GDP, there exists a cointegration between inflation, premium, interest rate and GDP. Furthermore, the study revealed no existence of causality between premium and economic growth in the short run. On the other hand, causality exists between economic growth and premium, inflation and interest rate in the long run. He concluded that insurance positively impacts economic growth in Nigeria as they offer the required long-term fund for investment and clearing risks.

Awwal (2011) carried out a research onhow consolidation impacts insurance firms on economic growth and development. The economic technique method of analysis was used. The econometric model was based on Capital Asset Pricing Model. The time frame was from 1988-2008. The study found consolidation policy to have a positive impact on economic growth and development if all structural bottlenecks to implementation are removed. Usman (2009) researched into optimal production scale and precisely assessed the importance of entrepreneurial price on business performance in the Nigerian insurance industry. The Cobb-Douglas cost and profit functional models were used to explore the performance of casually selected insurance firms. The result revealed that labour price is important in this study even though it showed an inverse association with business performance. They used 30

firms which were classified into small, medium and large scale firms. The small scale firms have 100-150 million naira worth of assets, the medium scale has from 151-500 million naira worth of assets and the large scale have from 501 million naira worth of assets and above.

3. Research and Method

3.1. Data Sources and Description

Fifty-one (51) insurance firms emerged from the 2007 consolidation exercise in Nigeria: These are 49 insurance and 2 re-insurance firms. Out of the 49 insurance firms, 13 are composite. The focus of this study is on composite insurance firms; thus, 10 out of the 13 registered composite insurance firms were investigated for the period of 2009-2016. The choice of 2009 is based on our quest for the aftermath effect of the recapitalization exercise that led to mergers and absorptions of many insurance firms. It was recorded that Nigerian Insurance companies records significant growth after the 2007 consolidation exercise[1]. The data for this study were obtained from the financial statements of the selected 10composite insurance firms.

3.2. Model Specification

The study is underpinned by the Regulatory and Market Monitoring Hypothesis. The restricted profit function model of Usman (2009) was modified in this study.

The model was:

$$\ln pbt = \ln c + \theta_1 \ln l_p + \theta_2 \ln k_p + \theta_3 \ln e_p + \beta_1 \ln z + \beta_2 \ln m_2 + \beta_3 \ln cl + \ln \sum i$$

This model emanated from the production function:

$$W = f(S_1, S_2, \ldots\ldots S_n)$$

Where *W* is the output and *S* are the various inputs.

Therefore, to fit in this model into this study, operational efficiency was taking as the output while the various independent and control variables (capital base, total asset, total premium and liquidity) are taken as the inputs used to achieve the output.

Hence, the model reads:

[1] https://www.proshareng.com/news/Capital-Market/Insurance-industry-records-49.33Percent-growth/8966.

$$OE_{it} = \alpha + \beta_1 CB_{it} + \beta_1 \sum_{r=2}^{4} S_n$$

Here, $S_n$is the vector of the control variables included in the study to avoid bi-simultaneity bias.

The model in detail is:

$$OE_{it} = \alpha + \beta_1 CB_{it} + \beta_2 TA_{it} + \beta_3 TP_{it} + \beta_4 LP_{it} + \varepsilon_{it}$$

Where ε_{it} = error term, i = cross-sectional units, t = observed dated periods, α = overall constant of the model, OE = Operational Efficiency, CB = Capital Base, TA = Total Assets of the insurance firm, TP = Total Premium for Life and Non-life Insurance, LP = Liquidity Position.

$\beta_1 - \beta_4$ = Regression parameters which is the slope of each variable.

Estimation Technique

Panel data regression is used to examine the relationship between the dependent variable (Operational Efficiency) and the regressors. Precisely, pooled least square, fixed effect and the random effect techniques were used.

3.3. **Description of Variables**

Operational Efficiency: The operational efficiency ratio is the ratio of the operating income of the insurance firm to their operating expenses. The firm is termed to be efficient if there is a reduction in their operating expenses with respect to their operating income.

$$\text{Y = Operating Efficiency Ratio} = \frac{Operating\ income}{Operating\ expenses}$$

Capital Base: This study considers total equity as surrogates for the capital base. This comprises of issued share capital, share premium, retained earnings and reserves. The natural logarithm of this data was used to reduce the volume of the data and bring it to ratio form.

Total Asset: Total assets is used to measure the size of the insurance firm as used by Akotey Sackey, Amoah and Manso (2013). This comprises both the tangible and intangible assets. This data is naturally logged to bring it to ratio form.

Total Premium: For this study, total premium is measured by the premium income of both life and non-life insurance activities. According to Mehari and Aemiro (2013), premium measures the rate of market penetration. The data is naturally logged to bring it to ratio form.

Liquidity Position: The liquidity position for the insurance firms is measured by the liquidity ratio. For this study, the accounting measure of value is Current Assets divided Current Liabilities as used in Ahmed, Ahmed, and Ahmed (2010).

$$\text{Liquidity Ratio} = \frac{Current\ Assets}{Current\ Liabilities}$$

4. Estimation of the Model

This section of the paper starts with the preliminary analysis and then the main static regression analysis was conducted and discussed.

Table 1. Descriptive Statistics

	OE	TA	CB	TP	LP
Mean	0.057647	16.59875	15.82246	15.58840	1.636709
Median	0.092972	16.48280	15.66389	15.48292	1.707101
Maximum	1.115799	18.42651	16.95386	17.32030	3.892579
Minimum	-1.164445	15.62943	14.54286	13.52545	-0.085801
Std. Dev.	0.325991	0.655579	0.488491	0.904237	0.762826
Skewness	-1.106027	0.749026	-0.014518	-0.061638	0.247294
Kurtosis	8.123650	3.180410	2.582077	2.513682	3.639775
Jarque-Bera	85.64868	6.260950	0.482633	0.692181	1.798306
Probability	0.000000	0.043697	0.785593	0.707448	0.406914
Sum	3.804675	1095.517	1044.282	1028.835	108.0228
Sum Sq. Dev.	6.907569	27.93597	15.51055	53.14685	37.82371
Observations	66	66	66	66	66
Cross sections	10	10	10	10	10

Source: Author's Computation (2018)

Table 1 shows the descriptive statistics of the data series used in the current study. OE averaged 0.057and varies from a minimum of -1.164 to a maximum of 1.116. TA, CB, TP, and LP have a mean of 16.598, 15.822, 15.588, 1.636 and ranges from a minimum of 15.629, 14.542, 13.525 and 0.085 to a maximum of 18.426, 16.953, 17.320 and 3.892 respectively. It can be seen from the *p*-value of Jarque-Bera statistics that except OE and TA, all variables are normally distributed. The statistics for Kurtosis shows that OE is leptokurtic since its distribution is peaked relative to normal while TA, CB, TP, and LP are platykurtic suggesting that their distributions are flat relative to normal. The statistics for skewness shows that all OE, CB, and TP are negatively skewed while TA and LP are positively skewed.

4.2. Model Estimation Results

The result of the pooled, fixed and random OLS estimations are presented below.

Table 2. Pooled Regression Result Table

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.669	1.375	-1.940	0.056
TA	-0.117	0.160	-0.730	0.467
CB	0.218	0.122	1.788	0.078
TP	0.074	0.102	0.721	0.473
LP	0.037	0.057	0.644	0.521
R^2 =0.120; Adj R^2= 0.062, R=0.25; F-statistic = 2.090 (0.093); DW = 1.136				

Source: Authors' Computation (2018)

The relationship between the dependent variable (OE) and the independent variables (TA, CB, TP, and LP) in Table 2 can be expressed mathematically as:

OE = -2.669- 0.117 TA + 0.218 CB + 0.074 TP + 0.037 LP

The coefficient of a constant parameter of the composite insurance firms shows a negative figure of -2.669. This implies that if all the explanatory variables are held constant, a unit increase in all other variables other than TA, CB, TP, and LP will bring about 2.669 units decrease in OE. The slope of CB, TB, and LP has expected positive signs. Holding other factors constant, CB, TP, and LP are positively related to OE such that a unit rise in CB, TP and LP lead to 0.218, 0.074and 0.037 units rise in OE respectively. Conversely, TA has a negative relationship with OE. This implies that if all other factors are held constant, a unit increase in TA will bring about 0.117 decreases in OE. Considering the significance of the explanatory variables, it can be seen that probability of *t*-statistics are greater than 5% for all the regressors with the exception of C. These mean that TA, CB, TP, and LP are not statistically significant in explaining OE.

DW of 1.136 suggests a positive serial correlation. The prob *f*-statistic (0.093) is higher than the 5% significant level, hence the acceptance of the null hypothesis. The positive adjusted R^2 of 0.062 shows that model is not poorly fit but TA, CB, TP, and LP can only explain 6.3% of the changes in OE. The correlation coefficient 0.25 ($\sqrt{0.062}$) shows that there is an insignificant positive relationship between explanatory variables and OE. Presence of serial correlation, poor prob(F-statistic) low R and R^2 and the fact that pooled OLS assumes that the intercepts and slope coefficients are identical for all the ten composite insurance firms which may disrupt the true picture of the relationship between OE, TA, CB, TP and LP across the ten firms lead to fixed effect estimation.

Table 3. Fixed Effect Model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.247	2.669	-0.467	0.642
TA	-0.206	0.169	-1.217	0.229
CB	0.303	0.151	1.999	0.050
TP	-0.011	0.114	-0.103	0.918
LP	0.070	0.066	1.053	0.297
Fixed Effects (Cross)		R-squared	0.397	
AIIC—C	0.035	Adjusted R-squared	0.246	
CONT—C	0.115	F-statistic	2.634	
CORN—C	0.072	Prob(F-statistic)	0.006	
GOLD—C	-0.405	Durbin-Watson stat	1.639	
GRAT—C	-0.192			
LASA—C	0.026			
LEAD—C	0.141			
MUTU—C	0.189			
NIGE—C	0.197			
STAN—C	-0.431			

Source: Author's Computation (2018) using E-view Statistical Package, version 7.0

The relationship between the dependent variable and the independent variables in Table 3 can be expressed mathematically as:

OE = -1.247 - 0.206 TA + 0.303 CB- 0.011 TP + 0.070 LP

Differential intercept coefficient relates positively with OE for each firm except for GOLD, GRAT, and STAN. Hence, if all independent variables are held constant, a unit rise in all other factors other than TA, CB, TP, and LP will bring about 0.035, 0.115, 0.072, 0.026, 0.141, 0.189 and 0.197 units increase in OE of AIICO, CONTINENTAL, CORNERSTONE, LASACO, LEADWAY, MUTUAL, and NIGER respectively. The same will lead to 0.405, 0.192 and 0.431 unit reduction in OE of GOLDLINK, GREAT NIGERIA, and STANDARD respectively. The differential intercept may be due to a unique feature of each firm. With respect to slope coefficients which are assumed to be cross-sectional and time invariant, CB and LP have expected positive signs. Putting other factors aside, CB and LP have a positive impact on OE of the ten composite insurance firms such that a unit rise in CB and LP lead to 0.303 and 0.070 units rise in OE respectively. Conversely, TA and TP have a negative relationship with OE. This implies that if all other factors are held constant, a unit increase in TA and TP bring about 0.206 and 0.011 decreases in OE respectively.

The probability of t-statistics is greater than 5% for all the regressors with the exception of CB. These mean that TA, TP, and LP are not statistically significant in explaining OE of the ten composite insurance firms but CB has a significant impact on the OE of insurance firms. DW statistics of DW of 1.639 is a significant improvement over 1.136 in pooled OLS and an indication of the absence of serial

correlation among residuals. The *f*-statistic has also improved and the situation for the significance of the whole model is satisfied given lower than 5% prob (*f*-statistics). Adjusted R^2 of 0.246 shows that TA, CB, TP, and LP can explain 24.6% of the variations in OE of composite insurance firms. The correlation coefficient 0.496 (√0.246320) shows that there is an insignificant positive relationship between explanatory variables and OE.

Table 4. Random Effect

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.672	1.803	-1.482	0.144
TA	-0.153	0.160	-0.956	0.342
CB	0.291	0.133	2.180	0.033
TP	0.038	0.102	0.370	0.712
LP	0.034	0.057	0.610	0.543
Random Effects (Cross)				
AIIC—C	-0.045	R-squared	0.451	
CONT—C	0.087	Adjusted R^2	0.443	
CORN—C	0.083	S.E. of regression	0.278	
GOLD—C	-0.083	F-statistic	2.954(0.049)	
GRAT—C	-0.086	Mean dependent var	0.028	
LASA—C	0.076	S.D. dependent var	0.284	
LEAD—C	0.020	Sum squared resid	4.715	
MUTU—C	0.122			
NIGE—C	0.121			
STAN—C	-0.295	Durbin-Watson stat	1.429	

Source: Authors' Computation (2018)

The average intercept coefficient for all the insurance firms maintains aninsignificant negative relationship with OE. However the differential intercepts show varying types of relationship with OE as it shows positive relationships of 0.087, 0.083, 0.076, 0.020, 0.122 and 0.121 in CONTINENTAL, CORNERSTONE, LASACO, LEADWAY, MUTUAL, NIGER and negative relationship of 0.045, 0.083, 0.086 and 0.295 in AIICO, GOLDLINK, GREAT NIGERIA and STANDARD respectively. Hence holding average intercept, TA, CB, TP and LP constant; a unit rise in differential intercept tends to increase OE by 0.087, 0.083, 0.076, 0.020, 0.122, 0.121 in CONTINENTAL, CORNERSTONE, LASACO, LEADWAY, MUTUAL, NIGER and reduce it by 0.045, 0.083, 0.086 and 0.295 in AIICO, GOLDLINK, GREAT NIGERIA and STANDARD respectively. It can be seen that CB, TP, and LP relate positively with OE. Keeping all other factors constant, a unit increase in CB, TP, and LP brings about 0.291, 0.038 and 0.034 unit increase respectively in OE of insurance firms. Conversely, a unit change in TA brings about 0.153 units reduction in OE, all other things being equal. As it is in fixed effect result, the probability of t-statistics is greater than 5% for all the regressors except CB. These mean that TA, TP, and LP are not statistically significant in explaining OE.

Only CB has a *t*-statistic greater than 2(2.180) and *p*-value smaller than 0.05(0.0331), hence has a significant impact on the OE of insurance firms. It can be seen that DW statistics of 1.429193 shows the positive serial correlation among residuals. The prob *f*-statistic (0.049639) is lower than the 0.05 meaning that the model is a good fit. Adjusted R^2 of 0.44391 shows that TA, CB, TP, and LP can explain 44.4% of the variations in OE of composite insurance firms. It expedient to make a test that indirectly tests whether or not the appropriate estimation model is random effects/pooled OLS, OR fixed effect/first difference. The test is known as Hausman test. The outcome of the test is presented table 5.

Table 5. Hausman Test Table

Correlated Random Effects - Hausman Test Pool: Untitled Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		2.220084	4	0.6954
Cross-section random effects test comparisons:				
Variable	Fixed	Random	Var(Diff.)	Prob.
TA	-0.206582	-0.153055	0.003184	0.3428
CB	0.303627	0.291915	0.005150	0.8704
TP	-0.011881	0.038118	0.002619	0.3285
LP	0.070431	0.034975	0.001188	0.3036
Cross-section random effects test equation: Dependent Variable: OE Method: Panel Least Squares Sample: 2009 -2016 Included observations: 8 Cross-sections included: 10 Total pool (unbalanced) observations: 66				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1.247542	2.669895	-0.467263	0.6423
CB	0.303627	0.151879	1.999133	0.0508
TP	-0.011881	0.114895	-0.103410	0.9180
LP	0.070431	0.066853	1.053530	0.2970
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.397056		Mean dependent var	0.057647
Adjusted R-squared	0.246320		S.D. dependent var	0.325991
S.E. of regression	0.283008		Akaike info criterion	0.499152
Sum squared resid	4.164878		Schwarz criterion	0.963624
Log likelihood	-2.472007		Hannan-Quinn criteria	0.682687
F-statistic	2.634114		Durbin-Watson stat	1.639008
Prob(F-statistic)	0.006734			

Source: Authors' Computation (2018)

The null hypothesis of the Hausman test is that both estimators are consistent.

Thus, $corr(x_{it}c_i) = 0$.

The null hypothesis cannot be rejected on a 5% significance level, and therefore the study concludes that the unobserved characteristics and the explanatory variables are uncorrelated. In other words, the rule of thumb is to select random effect estimator when prob (chi-square statistics) is greater than 5% or not significant. It can be detected from Table 5 that *p*-value of Chi-Square Statistic is 0.6954. Therefore the study concludes that the random effects estimator is the most efficient to use in this case.

5. Discussion of Findings

The random effect estimation reveal that capital base has a significantly positive effect on operational efficiency. This implies that as the capital base of insurance firms increase due to consolidation exercise, the firms become more efficient by earning more in income relative to expenses. It further substantiates the fact that the role of capital in the realization of a firm cannot be overemphasized. This observation is consistent with the underpinned theory and *a priori* expectation. Furthermore, it is consistent with the findings of Eldomiaty, Fakri, Moustafa, and Amer, (2015) in Egypt and Odunga, Nwangweso, and Nkobe, (2013) in Kenya. The study reveals that total premium of Nigerian insurance firms have apositive but insignificant impact on operational efficiency. The positive sign is in consonance with the theory and *a priori* expectation. The insignificant contribution may not be unconnected to the fact that premium is inefficiently invested. This supports the findings of Mehariand Aemiro (2013) in Ethiopia and Chen and Wong (2004) in Asian. Similarly, the study finds that the Nigerian insurance firms' liquidity position has apositive but insignificant effect on firms' operational efficiency. Here, the *a priori* expectation holds in term of thesign. It is not surprising that high liquidity contributes insignificantly to operational efficiency in income. Idle cash earns nothing but ensures safety. The insignificance of liquidity is consistent with the submission of Mehari and Aemiro (2013) in Ethiopia. Conversely, the study discloses that total assets have a negative and statistically insignificant effect on the operational efficiency of Nigerian insurance firms. The negative sign disagrees with the *a priori* expectation and theory. The implication of this is that the firms' assets are not efficiently deployed in generating income relative to expenses incurred in the course of their business. This may be due to the fact that a significant proportion of the firms' assets are too liquid to earn areasonable return and the long-term investment have not been generating much. Overall, consolidation exerts asignificant positive impact on the operational efficiency of the insurance industry. This is true when the study considers the fact that capital base is the most important

element of the consolidation exercise and the same portend positive and statistically significant effect on the operational efficiency of composite insurance firms.

6. Recommendations

Based on this with other findings, the following recommendations are made:

Nigerian insurance firms' management must as a matter of urgency deploy the firms' assets efficiently in generating income relative to expenses incurred in the course of their business. The firms' management must also ensure that total premium received is optimally employed in income generating assets. Nigerian insurance firms should ensure that liquid assets, especially cash, are judiciously invested e.g. a bank deposit account where interest would be earned but the cash remains easily accessible. Nigerian insurance firms should periodically review their minimum capital base whereby capital is braced up relative to the volume of insurance businesses they undertake. Investors and shareholders should be favourably disposed to consolidation because it would lead to their benefits.

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Fostering Innovation and Entrepreneurship in Small and Medium Enterprises (SMEs)

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Abstract: Most of the SMEs in this decade have dealt with difficult market environment and the present financial crises around the world. This has weakened the position of SMEs. This research focuses on Innovation and Entrepreneurship in Small and Medium Enterprises (SMEs). The survey method was adopted. The quantitative research design was employed. The data was analyzed using manual and electronic based methods through the data preparation grid and statistical package for the social sciences, (SPSS). The study made use of statistical tools such as (ANOVA), correlation efficient and regression analysis in testing hypotheses where applicable. The findings from the two hypotheses revealed that product innovation and process innovation influenced SMEs performance significantly. This research revealed that innovation in SMEs is affected by financial resources deficiency, limited prospects for recruiting dedicated workers and innovation portfolios that are small in nature. Enterprises should create their own ideas in the model of innovation and then build, develop, distribute, and sustain these ideas. The study concluded that innovation model enhances SMEs on becoming strongly autonomous. The research recommended that process innovation should be driven by future environmental requirements and a desire to have a more sustainable pre-treatment process in the SMEs.

Keywords: Innovation; Product Innovation; Process Innovation; Firm Performance; SMEs.

JEL Classification: M10; M19

1. Introduction

The purpose of building regulatory, institutional and legal conditions favorable for innovative entrepreneurship is especially demanding for previously planned regional economies that had to build on a market economy setup in a new way (Al-Matari & Aliridi, 2014). Different sectors of enterprises are dynamic specifically for companies willing to drive innovation.It is the driving force of recent economic progress as they increasingly rely on commercialization of outcomes, and development processes (Hult et al, 2014; Camison & Lopez, 2010). Research and Development commercialization is considered as one of the most important elements in the process of innovation. It is important to the versatile relationship of products and service manufacturers, and institutional research. In recent years, the focus of

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economic research has been on innovation and it is a key factor for long-term economic development. The outcomes of innovation research have placed more emphasis on the association between underlying innovation research studies and the efforts of entrepreneurship, which aims at commercializing Research and Development (R&D) (Hatman, 2006; Bakar & Ahmad, 2010). Innovation has been considered as a prerequisite for competitive advantage for enterprises. Similarly, academics and other programmes of R&D suggest that commercialization is becoming the main sustainable and consistent driver of economic growth. According to the Arshad, Asif & Baloch (2012) stated that researchers and market experiment of innovation is probable bringing changes which primarily restructure markets and industries. In addition, experts from European Commission on economics argue that innovation is a strategic aspect of business and investment for creating the capacity to develop and improve products (Morone & Testa, 2008). Current research has focused on irreversible resource commitments for entering new markets, building competitive advantage by output in the value chain. Lan (2010) emphasized that a business cannot become successful if innovation is not included in its overall operations.

1.2. Statement of Research Problem

There is a requirement of SMEs to draw more attention on their networks for finding innovation resources that are missing in their operations, due to their small size, they can be faced with the limitations of the firm earlier than afterwards. Since the world today has become more complex, the life cycles of the products have become short and this behavior for networking has turned out to be even more imperative as compared to the past. Given these reflections, it is anticipated that all the practices of innovation are not completely utilized by large corporations, SMEs must use innovation and adaptto innovation in their operations (Wang, Ong & Lee, 2005). The impression was given by previous research regarding differences in industries for the trends and incidence of innovation. There is a difference of services compared with physical goods for inseparability, heterogeneity, intangibility and perishability. However, it is argued by other researchers that the characteristics are especially more appropriate to producers instead of service oriented organisations. This means that manufacturing firms are normally more inclined to operating in locations that are large geographically and their process of nature is made in such a way that demands high investments in both technologies and capital (Medina & Rufin, 2009).

Hypothesis One

$H0_1$: Product innovation is positively associated with firm performance.

Hypothesis Two

$H0_2$: Process innovation is positively associated with firm performance.

2.1. Review of Literature on the Concept of Innovation

According to the Oxford Dictionary of Economics, innovation is the economic application of a new idea. Product innovation involves a new or modified product; process innovation involves a new or modified way of making a product (Beaver, 2002). Hung (2007) also defines innovation as "The first commercial application or a new process or product, or Innovation is the successful exploitation of ideas". Hsueh et al, (2004) defines an innovation as "the implementation of a new or significantly improved product, service or process, a new marketing method, or a new organisational method in business practices, workplace organization or external relations. Fairlie & Robb (2007) stated that innovation is an instrument or tool which is used by the entrepreneurs for exploiting change as a prospect. Born (2000) argued that innovation can be perceived as a discipline that can be a practice as well as learned by the organisations. Darroch (2005) was never in favor of innovation theory as he recognized that there was sufficient knowledge for developing innovation as a practice and this practice was supported on the basis of when, where and which way it looks systematic for opportunities of innovation and which way judgment is made for chances of their success or threat of failure. From the perspective of Drucker, innovation that is made systematically consists of an organized and meaningful search for transformation and a systematic investigation of prospects; these modifications may offer social or economic innovation (Alergre, Lapiedra & Civa, 2006; Chong, Lan & Sim, 2011). In the 1980s, innovation took place in departments of R&D for large organisations and in different universities (Wang & Ahmed, 2004). Since people of this era wanted to become entrepreneurs and make innovations, they separated themselves from the corporate environment and made their own setup where they were able to launch any innovation (Hung, 2007; Henderson, 2006). More ideas related to innovation have been discussed which include the concept of disruptive innovation. The explanation of disruptive innovation is conducted on extended practice in order to recognize technical change that is radical in various innovation studies conducted by economists (Haneda, Motheb & Thic, 2014; Halila & Rundquist, 2011; Nichter & Goldmark, 2009).

2.1.1. Product Innovation

Product innovation can be defined as the creation of a new product from new materials (totally new product or the alteration of existing products to meet customer satisfaction (improved version of existing products (Hung, 2007; Prajago et al., 2007). It also refers to the introduction of new products or services in order to create new markets or customers, or satisfy current markets or customers (Wang & Ahmed, 2004). Morris, Kuratko and Corin (2008) contend that product innovation can be made by exploiting new ideas. However, Porter (1990) see a problem with introducing new product technology, other than all the uncertainties that need clarification, and planning that needs to be applied. With an inflexible product line

or a highly specific process solution, new process technology can possibly hinder product innovation. Product innovation and process innovation are considered to be interdependent (Hermann, Tomczak & Befurt, 2006). Hult et al, (2014) separates process innovation and product innovation, stating that industrial companies put resources into product innovation instead of process innovation, mainly because process innovation is communicated as a consequence of new developed products. It is requires that the technology manager needs to be educated on how to manage teams, data analytics, and development techniques. The competitive market nurtures firms to be responsive to changes in customer expectation and technology. This also requires being fast on identify opportunities and bringing products to the market. This development of the competitive market also means that fewer resources are being utilized to each development project which there by puts demand on efficient engineering, design, and development activities (Bogorgoza &Waal, 2010).

2.1.2. Process Innovation

There are different reasons for using process innovation; the most common one is rivalry with the competitive companies that produce similar of the same product (Arshad, Asif & Baloch, 2012). Process innovation can slow down competitors by giving the company advantages from the manufacturing context, such as cost efficiency, production speed, and quality consistency (Cano, Carrillat & Jarimillo, 2006). Gavrea, Ilie and Stegrean (2011) agree on the possibility to gain competitive benefits by implementing process innovations, further adding that the innovation is an important source of increased productivity. Having an increased level of process innovation can also enable the evolvement of the company's products, and from this create more innovation project in the form of product innovation (Dobbs & Hamilton, 2006). Alowaihan (2004) emphasized that technology managers have to deal with more technology innovation, mainly since the innovation in manufacturing companies has increase along with the overall concerns about sustainability

2.1.3. The Concept of Entrepreneurship

More than two centuries ago, J.B. Say, a French economist, said that it is an ability of an entrepreneur to transfer economic resources from lower productivity areas to higher productivity areas. However, he asked: who is this person, an entrepreneur? This view is also discussed by Kemp et al (2003) in the understanding of entrepreneur. Furthermore, he argues that an entrepreneurial business is not necessarily an innovative one. He further identified that entrepreneurs are the people who are able to observe change as standard. According to the Darroch (2005) Entrepreneurs make things happen. An example was presented by Hung (2007) that was related to the genius entrepreneurship in the starting days of McDonalds. It is a fact that Kroc4 did not invent anything and French fries, hamburgers and soda were offered many years before back. A simple question was asked by Kroc regarding the way in which customers describe value. When he got the answer, he developed,

standardized and branded these items. This is the reason that Peter Drucker considered this as the best example of entrepreneurship. Similarly, Drucker thought that the risk of being an innovator was that the reputation of the company could be ruined as there are not many entrepreneurs that are well aware of what they are doing. Since the example of McDonalds shows that becoming an entrepreneur does not occur automatically with a particular degree of risk, a systematic approach should be made for it and it should be well managed. Moreover, Drucker further added that there should also be a requirement which is based on meaningful information. This has been changed dramatically in different regions, as entrepreneurship is not only based on meaningful information. In various SMEs, the people wanting to implement change in the system are considered as troublemakers for the company and they usually end up starting their own enterprise. The structure of organisations, silos and layers slows down the creativity of the employee and they prevent employees enhancing the overall experience of the customers. In most of the cases, these structures are planned for the stubbornness of the employees and they are no longer left to follow -up with the change (Henderson, 2006; Otero, Lindman & Fernadez, 2009).

2.1.4. Types of Innovations Undertaken by SMEs

Process innovation can be introduced by SMEs to enhance the ability of production procedures or operations of the supply chain, for example, by reducing cost or increasing reliability. Innovations are developed by the SMEs for their individual use; for instance, internal engineering was utilized for the customization of a particular product. Product innovations can be introduced by SMEs for a new or present market and it can include new functions, improved performance, and additional features of existing products (Bagoroza & Waal, 2010). This type of innovation is normally considered as incremental in which technology could be new for the organization, but it is not new for the world. The radical innovation is a comparatively rare event and it will improve the performance of the product considerably or they can make categories of new products as well (Barbara, Sandy & Allan, 2000). Apart from all these advantages of lead-users, ideas taken from these users can be damaging for the company because lead-users are mostly above average customers; therefore, it is not possible for them to understand the need for an average product. Moreover, firms should take caution because most of the customers only share their experience and they are not going to suggest innovative ideas to which they give more value (Alowaihan, 2014). Another type of innovation is known as "Application Innovation" in which current technology is applied in the market for new users. The creation of value proposition is involved in the innovation model for business which is able to satisfy the needs of the current or new customer through function, problem solution, or building experience by leasing or sale of a product or service. It has been indicated in numerous studies that large firms mostly discharge innovation known as "disruptive", where current customers of the firm do not give

value to the firm or the new market is so small that firms do not take an interest in it (Langley, Pals & Orts, 2005). Henderson (2006) stated that it is the requirement of the business model innovation apart from targeting customers or new value proposition that the value chain should be articulated for producing new products or services and it can plan for maintaining and establishing competitive advantage in front of possible consumers. The various innovation types are imperative for different stages in life cycle of a product; for example, niche strategies can be vital for the firms which offer leading-edge technology to the customers who are early adaptors. (Mengistae, 2006; Nichter & Goldmark, 2009).

Barriers to Innovation

The Lack of Knowledge for Available Technologies

The barriers of knowledge for innovation relate to the lack of knowledge of available technologies, knowledge sources and markets and past research has confirmed the presence of considerable barriers to innovation related to knowledge of technologies and markets, accessing finance and the deficiency of skilled labor. Econometric analysis results revealed that firms that are not a division of a big business group or SMEs are more likely to experience barriers of knowledge (Kemp et al., 2003). The main cause of this barrier is that a large organization or allied grouping has an advantage of size and they can increase fixed costs related to activities of knowledge sourcing or measures management of internal knowledge for an outsized output. Therefore, SMEs have a drawback that they mostly do not have enough money to discover information about technologies and markets in a systematic way (Ozgulbas, Koyuncugil & Yilmaz, 2006).

Financial Barriers for the Firms

One more barrier that restrains the activity of innovation is considered as financial barriers towards innovation for the firms. Past studies have revealed that financial barriers have an advanced impact on innovation for young firms as well as SMEs (Mohdrosli & Syasuriana, 2013). The huge organisations or companies which are division of a business groups are less likely to experience these issues and because of their size it is not difficult to set up collateral funds inside the groups. Barriers related to finance are mainly vital for SMEs with narrative technologies and products (Espallardo & Ballester, 2009). It was shown in the past research that firms which are less concentrated are furthermore expected to experience financial barriers (Bayus, Erickson & Jacobson, 2003).

3. Methodology

The survey method was adopted. For the purpose of this research, the quantitative research design was employed. The study population refers to the entire number of employees in the six selected SMEs fast in Lagos state. The six (6) companies include, Adestar & Son Nigeria Ltd., M & M Enterprises Nigeria Ltd, Galead Investment Nig Ltd, Ebefem Nigeria Ltd, Soloking and Sons Nigeria Ltd and Fiogret Nigeria Ltd. Yamane formula was used to determine the sample size. This formula is concerned with applying a normal approximation with a confidence level of 95% and a limit tolerance level (error level) of 5%.

Table 3.1. Names of organizations and Population

Fast Food	**No. of Staff**
Adestar & Son Nigeria Ltd	25
M & M Enterprises Nigeria Ltd	19
Galead Investment Nig Ltd	27
Ebefem Nigeria Ltd	28
Soloking and Sons Nigeria Ltd	26
Fiogret Nigeria Ltd	22
Total	**147**

Source: Field Survey 2018

To this extent the sample size is determined by [$n = \frac{N}{1 + N_e^2}$]

Where: n= the sample size

N= population

e= the limit of tolerance

Therefore, $n = \frac{147}{1+ 147(0.5)^2}$

$= \frac{147}{1+ 147(0.0025)}$

$= \frac{147}{1+2.5}$

= 107 respondents

A sample size of one hundred and seven (107) employees out of the one hundred and forty seven (147) employee population of the selected SMEs Firms in Ogun State as calculated above. The simple random sampling technique was adopted. The face validity approach was adopted whereby four Professors from faculty of management

sciences, Kwara state University Nigeria examined the questionnaire, made relevant corrections which were implemented and was subsequently approved based on the belief that the instrument was appropriate. Towards this end, the test re-test reliability approach was adopted for the convenience of the researcher. Reliability was ensured by test re-test which yielded r = 0.69 and internal consistency was measured by Cronbach Alpha of 0.885. The detail of the reliability statistics table is shown below. The data was analyzed using manual and electronic based methods through the data preparation grid and statistical package for the social sciences, (SPSS). The study made use of statistical tools such as (ANOVA), correlation efficient and regression analysis in testing hypotheses where applicable.

4. Data Presentation

Table 4.1. Distribution of respondents and response rate

Respondents Occupation	**Questionnaire administered (sampled)**	**Percentage of total response (%)**
Top Level	22	22.4.
Middle Level	56	57.2
Level Lower	20	20.4
Total	98	100.0
Gender/Category	Questionnaire administered (sampled)	Percentage of total response (%)
Male	91	92.9
Female	7	7.1
No of Returned	98	91
No of Not Returned	9	9
Total no of Questionnaires	107	100

Source: Field Survey 2018

Table 4.2. The Descriptive Statistics of Innovation and Entrepreneurship in Small and Medium Enterprises (SMEs)

Responses	**Total (N)**	**Mean**
Product Innovation and the SMEs Performance.		
This culture of innovation is significant for SMEs	98	4.36
Product innovation is positively related with SMEs performance	98	3.88
Product innovation helps SMEs to identify opportunities and bring products to the market	98	3.79
Product innovation and process innovation are considered to be interdependent	98	3.89
With an inflexible product line or a highly specific process solution, new process technology can possibly hinder product innovation	98	3.67
Process Innovation and SMEs Performance.	**Total**	**Mean**
Innovation is a key on-going element in your organizational culture	98	3.89

There is an outcome for a company that continuously implements innovation in products/services?	98	3.99
Process innovation is communicated as a consequence of new developed products.	98	3.78
Process innovation enable the evolvement of the company's products and from this create more innovation project in the form of product innovation	98	3.84
The development of process innovation is deeply connected to external factors.	98	3.72
Process innovation is positively related with SMEs performance	98	3.85

Source: Field Survey 2018

Test of Hypothesis and Interpretation of Results

Test of Hypothesis One

Ho_1 : Product innovation is positively associated with SMEs performance.

Table 4.3. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.337[a]	.113	.104	.688

Source: Field Survey 2018

a. Predictors: (Constant), PRODUCT INNOVATION

Table 4.4. ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	5.813	1	5.813	12.274	.001[a]
	Residual	45.463	96	.474		
	Total	51.276	97			

Source: Field Survey 2018

a. Predictors: (Constant), PRODUCT INNOVATION

b. Dependent Variable: SMEs PERFORMANCE

The results from the model summary table above revealed that the extent to which the variance in which PRODUCT INNOVATION can be explained by SMEs PERFORMANCE is 11.3% (R square = .113). The ANOVA table shows the Fcal 9.880 at 0.002 significance level. PRODUCT INNOVATION significantly assists in enhancing SMEs PERFORMANCE.

Table 4.5. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.371	.158		15.039	.000
	PRODUCT INNOVATION	.211	.060	.337	3.503	.001

Source: Field Survey 2018

a. Dependent Variable: SMEs PERFORMANCE

The coefficient table above shows the simple model that expresses how PRODUCT INNOVATION could be adopted to enhance SMEs PERFORMANCE. The model is shown mathematically as follows;

Y = a+bx where **y** is product quality and **x** is productivity, **a** is a constant factor and b is the value of coefficient. From this table therefore, SMEs PERFORMANCE = 2.371 +0.211 PRODUCT INNOVATION. This means that for every 100% change in SMEs PERFORMANCE, PRODUCT INNOVATION contributed 21.1%.

Decision

The significance level below 0.01 implies a statistical confidence of above 99%. This implies PRODUCT INNOVATION significantly assists in enhancing SMEs PERFORMANCE. Thus, the decision would be to reject the null hypothesis (H_o1), and accept the alternative hypothesis (H_a1).

Test of Hypothesis Two

Ho_2: Process innovation is positively associated with SMEs performance.

Table 4.6. Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.716[a]	.513	.508	.710

Source: Field Survey 2018

a. Predictors: (Constant), PROCESS INNOVATION

Table 4.7. ANOVA[b]

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	50.950	1	50.950	100.980	.000[a]
	Residual	48.437	96	.505		
	Total	99.388	97			

Source: Field Survey 2018

a. Predictors: (Constant), PROCESS INNOVATION

b. Dependent Variable: SMEs PERFORMANCE

The results from the model summary table above revealed that the extent to which the variance in which PROCESS INNOVATION can be explained by SMEs PERFORMANCE is 51.3% (R square = .513). The ANOVA table shows the Fcal 9.880 at 0.002 significance level. PROCESS INNOVATIONsignificantly assists in enhancing SMEs PERFORMANCE

Table 4.8. Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	.695	.163		4.271	.000
	LOCATION	.626	.062	.716	10.049	.000

Source: Field Survey 2018

a. Dependent Variable: SMEs PERFORMANCE

The coefficient table above shows the simple model that expresses how PROCESS INNOVATION could be adopted to enhance SMEs PERFORMANCE. The model is shown mathematically as follows;

Y = a+bx where **y** is process quality and **x** is productivity, **a** is a constant factor and b is the value of coefficient. From this table therefore, SMEs PERFORMANCE = .695 +0.626 PROCESS INNOVATION .This means that for every 100% change in SMEs PERFORMANCE, PROCESS INNOVATION contributed 62.6%.

Decision

The significance level below 0.01 implies a statistical confidence of above 99%. This implies PROCESS INNOVATION significantly assists in enhancing SMEs PERFORMANCE. Thus, the decision would be to reject the null hypothesis (H_o1), and accept the alternative hypothesis (H_a1).

Conclusion

In line with Hypothesis 1 and 2, product innovation and process innovation impacted firm performance positively and significantly with SMEs *PERFORMANCE = 2.371 +0.211 PRODUCT INNOVATION and* SMEs *PERFORMANCE = .695 +0.626 PROCESS INNOVATION* respectively. Such innovation contributed superior performance to those who were more innovative. The research proves that SMEs rely more on product and process innovation as compared to large firms where the amount of collaboration deals are divided by the number of employees, therefore

calculating the intensity for open innovation. The current evidence confirms that product innovation is more imperative for SMEs instead of large firms. It could be argued that the latest patterns of research in innovation management focus on product innovation, but it has been primarily studied in large companies that operate in technology oriented markets having large departments of R&D. The findings prove that process innovation has not received much attention in SMEs and present research conducted for SMEs is not comprehensive and they are not able to exhibit the creative usage of innovation which many innovative SMEs use and implement in their operations. The findings from the respondents reveals that SMEs that are mostly new in the market make more contribution to the system of innovation by launching new products for the consumers or adapting current products in a new manner according to the requirements of the consumers. The findings confirmed both hypotheses that product innovation and process innovation influenced SMEs performance significantly.It has been concluded in this work that innovation in SMEs is affected by financial resources deficiency, limited prospects for recruiting dedicated workers and innovation portfolios that are small in nature.

Recommendations

i. Process innovation should be driven by future environmental requirements and a desire to have a more sustainable pre-treatment process in the SMEs. The product innovation project must be supported through the creation of focus groups to strategically plan approach. Conducting workshops will assist SMEs to find new opportunities for innovation.

ii. There should be clarifying of objectives with the process innovation in SMEs. A clear linkage between suppliers and uncertainty reduction in the process innovation must be observed which reduced uncertainties in process times, for the current state and the future.

Suggestions for Further Studies

i. Future study could be carried out to examine new trends in services, and innovative approaches for rendering services by SMEs to their customers.

ii. A larger sample size comprising of several SMEs as case study can be used in order to generate wider findings and establish more reliable generalizations.

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Linkages between HRM Systems, Technology and Management Relations

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Abstract: The advent of modern technology has strongly influenced the world of work in the 21st century. Computer Software simplifies the management of daily work and plays an increasingly central role in managing the organisations. In fact, companies must have specific functions in which information technology plays a fundamental role to convert a regular Human Resources (HR) department into a core, powerful and dynamic electronic HR department to accomplish its role of strategic partner in planning and execution of organizational activities .Therefore, it is expected that the HR practices and the Employment relations (ER) undergo major changes. This study is meant to provide an overview of the fundamental transformation of HR practices in light of modern technology and their specific consequences for employment relations. This study uses data collected from one Public sector steel plant, two Private sector steel plants, one Business process organization, one Public sector information technology organization and one Private sector information technology organisation covering 928 respondents to assess the linkages between HRM systems, Technology and Employment relations. The findings on the literature point out that the use of technology is an eminent tool to be applied to obtain competitive advantage and is a key part in global business. This study finds that the use of Technology influences HR systems and Employment relations and vice-versa.

Keywords: Technology; HR systems; Employment Relations

JEL Classification: J30

Introduction

In today's competitive world, organizations which intend to succeed and like to be in the top rating list, have to undergo a drastic transformation to satisfy the level of tasks and reach competitive edge. They are expected to have specific functions in which technology plays a crucial role. Shani and Tesone (2010) writes that HR is shifting its focus from playing a mostly clerical administrative role to being active in the strategic planning and management with a view to add value to an organization's competitive advantage. This is the original intent when department

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shifts titles from personnel administration to human resource management (HRM). Fisher, Dowling, and Garnham (1999) state that today HR is expected to take part in the formulation and the implementation of long-term plans. In addition, HR should ensure that its practices are in line with the organization's overall business strategy, and shared employer and employee commitment to reach organizational goals (Shani & Tesone, 2010). The practice of designing organizations to support job structures has been questioned by Lawler (1994) which has guided organizational behaviour and HRM for decades, and is said, now there are signs that a competency-based approach is considered more effective. As stated by Lawler (1994), there is only one compelling reason to adopt a competency-based approach as competency creates competitive advantage, because it leads any organization to perform better.

When considering the impact of evolution of the global competitive environment, the alignment between a competency-based strategy and organizational performance may be recognized as being a significant factor that influences a company's survival and competitive edge (Garengo & Bernardi, 2007). Due to the fact that large complex organizations are facing increased global competition, the competency based approach and the knowledge and skill sets that individuals need to develop together forms a key success factor within an organization's strategic focus of economies. One major consequence of heightened global competition concerns is the role of individual employee in reaching job-based standards. The alternative to job-based organizational structure is to design systems in which the capabilities of the individuals are the primary focus which creates an environment that facilitates the acquisition of knowledge, capabilities and skill sets for competitive advantage (Lawler, 1994). This focus redesigns HRM into core Strategic HRM (SHRM).

Human Resource Management Systems and Human Resource Information Systems (HRIS) are moulded into a form of HR software that combines a number of systems and processes to ensure the easy management of human resources, business processes and data. Human Resources Software is used by businesses to combine a number of necessary HR functions, such as storing employee data, managing payrolls, recruitment processes, benefits' administration and keeping track of attendance records. On the whole, these ERP systems have their origin from software that integrates information from different applications into one universal database. The linkage of its financial and human resource modules through one database is the most important distinction to the individually and proprietarily developed procedures which makes this software application both rigid and flexible.

Human Resource Information Systems provide a means of acquiring, storing, analyzing and distributing information to various stakeholders. HRIS enables improvement in traditional processes and enhance strategic decision-making. The wave of technological advancement has revolutionized each and every space of life today, and HR in its entirety is not left untouched. Early systems are narrow in scope,

typically focused on a single task like improving the payroll process or tracking employees' work hours. Today's systems cover the full spectrum of tasks associated with Human Resources departments, including tracking and improving process efficiency, managing organizational hierarchy, and simplifying financial transactions of all types. In short, as the role of Human Resources departments expanded in complexity, HR technology systems are evolved to fit these needs.

The function of human resources (HR) departments is administrative and common to all organizations. Organizations may have formalized selection, evaluation, and payroll processes. Management of "human capital" progressed to an imperative and complex process. The HR function consists of tracking existing employee data which traditionally includes personal histories, skills, capabilities, accomplishments, and salary. To reduce the manual workload of these administrative activities, organizations begin to electronically automate many of these processes by introducing specialized human resource management systems. HR executives rely on internal or external IT professionals to develop and maintain an integrated strategic HRM Systems (HRMS). Before client–server architectures evolved in the late 1980s, many HR automation processes are relegated to mainframe computers that can handle large amounts of data transactions. In consequence of the high capital investment necessary to buy or program proprietary software, these internally developed HRMS are limited to organizations that possessed a large amount of capital. The advent of client-server, application service provider, and software as a service (SaaS) or human resource management systems enable higher administrative control of such systems. Currently, human resource management systems encompass the following concepts Retaining, Hiring, Out-sourcing, Administration, Managing Payroll, HR Planning, Recruiting/Learning management, Performance management, Employee self-service, Scheduling, Absence management, Analytics, Employee reassign module, Grievance- handling by following precedents and Retirement.

Technology

Boon (1991) argues that the only reason man, a physically small and ungainly species can successfully master the complex environment because he is smarter over his competitors and finds innovative ways to increase his intelligence. Same set of drive and skills is instilled into organizations, in complex business organizations too, constantly trying to expand their intelligence and power of their members' minds and to the tools and methodology the organizations use to extend the thinking process.

"Thinking" is then further defined by Boon (1991) as "a process of gathering information, distilling and relating it, and creatively viewing it to induce or deduce new ideas" and "technology that can assist companies in satisfying the organizational needs is considered Information Technology (IT), and is recognized as an enabler to the organizations" (Boon, 1991). In other words,when it comes to business functions

(for example, HRM) or business unit (for example, SBU), its "enabling technology" must demonstrate the "extended human intellect" to share work-load in computing, communicating, configuring, comparing, creating, commanding, coaching, and competing. Other researchers like Sleezer, Wentling and Cude (2002) defines IT as an umbrella term that "encompasses many forms of Hardware, Software, and Services used for collecting, storing, retrieving, and communicating information". Fraser (2004) survey of 894 global companies in 25 countries across four continents reports that 75 percent of the surveyed companies intended to increase their IT expenditure in 2001. Similarly, the worldwide survey of IT expenditures for 2001 and 2002 projected increases in IT spending of 10.1 per cent in 2001 and 6.1 per cent in 2002 (Cowley, 2001). Although some scholars believe based on recent economic development that such projections may have been overly optimistic, too many other researchers and industry experts, IT will continue to grow as Developing countries expand their economies (Sleezer, Wentling & Cude, 2002; Weil & Ross, 2004). Therefore, a review of the very fundamental aspects of the HRM is presented by the researcher to examine how HRM, on contrary, has affected and will continue to influence the use of IT in an e-HR environment.

IT adopted by HRM

The type of information technology adopted by HRM has been phrased, as it has evolved, differently over the years, for example: Human Resource Information System (HRIS), Human Resources Management System (HRMS), Human Resource Development and Information Technology System (HRDIS), and the most current and popular "electronic HR" (e-HR). The use of IT by HRM is growing especially critical to the business now-a-days when discontinuities (mergers, acquisitions, restructuring and downsizing) alter the industry landscape in a drastic way. HRM executives, the key figures in organizations responsible for fine-tuning a capable workforce, must have the right and real information to measure, manage, and predict as to how workforce should be allocated and reconfigured effectively. With the analyzed information produced by the IT, HR professionals, more than ever, are able to align their management goals and the goals of individual employees with corporate strategy to deliver strategic plans with quantifiable results, and, ultimately, be able to deal with changes proactively. With the help from the information technology, HRM professionals are also able to demonstrate the HRM's benefit to the bottom line by effectively managing knowledge, skills and abilities (KSAs) that create winning companies.

Employment Relations

Employment relations include relations between the aspects of industrial life such as collective bargaining, trade unionism, discipline and grievance handling, industrial disputes, employee participation in management and the interpretation of labour laws. The collective bargaining process is a key part of industrial relations.

Employment/Labour Management relations are the most complicated set of relations that any HR manager has to deal with. Efficient maintenance of employment relations helps the HR managers in developing a harmonious environment within the organization which, in turn, helps the organization in effectively achieving its goals and objectives. Well managed relations provide competitive advantage to the organization by negating the hassles arising out of union related issues and conflicts. With increasing competitiveness and mounting pressure of accomplishing the business strategy goals, it has become essential for an organization to acquire an effective and dependable labour relations support.

- **Legal/statutory compliances:** An organization may opt for the services of a HR Consultant in order to maintain the legal requirements in relation to the existing labour laws of the country. This is more important for a company having its business expanded to different lands, and the codes of law change accordingly. A proper statutory compliance prevents unnecessary legal hassles and associated financial burden. The practices and documents of the organization are thoroughly audited by the HR Consultant according to the current legal requirements. Also, new contracts and documents are drafted as per the legislative detailing. Proper procedures for labour terminations as per law also require efficient working on the part of HR Consultant.
- **Labour Relations Management:** Conflicts and deteriorating relations at workplace have an adverse impact on the overall productivity of the organization. Apart from increasing legal bills, such a situation adds to building up an environment of distrust among labour and hampers their motivation levels. A HR Consultant, in such a scenario, provides impetus to improve the everyday dealing between the labour and management. He works towards promoting an environment of collaboration, understanding and mutual trust among the labour and management by carrying out various training programmes, discussions, facilitation workshops and joint exercises between labour and management customized to the specific needs of the organization. Thus, HR Consultant assists in improving labour-employer relations.
- **Trade/Labour Union Dealing and Avoidance:** A HR Consultant assists in handling situations of strikes and lock-outs by working as a mediator between the labour and management, and contributing towards collective bargaining. Further, working pro-actively, HR Consultant can facilitate in avoidance of union role in the organization.

Labour audit and employee satisfaction surveys are crucial tools in assessing the vulnerability of the satisfaction levels of labour in the organization. A HR Consultant utilizes these tools to diagnose the chances of formation of trade union within the organization. It helps in understanding the position of the employer policies and

processes vis-à-vis the employee expectations. The gaps within the existing policies and employee expectations are then worked upon by the HR Consultant to improve the satisfaction levels of labour, thereby eliminating trade union role within the organization.

Grievance Management:

Grievance management by properly guided mediations is a welcome alternative to proceeding into arbitration immediately. This helps in achieving a resolution by mutual consent, thereby, avoiding untoward conflicts and costly litigation process. More so, resolving grievances by resorting to such methods as mediations by HR Consultant assists in keeping up with the reputation as a responsible and employee oriented organization. The HR Consultants work with an unbiased approach in opening up a clear and effective communication line between the concerned parties, along with putting in their valuable inputs where ever necessary to end up with an amicable and appropriate solution to the problem. Such an activity also facilitates in developing a positive employment relations environment within the organization. Further, a proactive feedback mechanism developed by the HR Consultant greatly helps in decreasing the rate of grievances among employees. Investing in productive employment relations is as significant as investing in any other effective business partnership. Hence, a well managed management and union relations system plays an instrumental role in dealing with the changing and challenging business propositions in current economic scenario.

The above organizational context is facilitated by constant intertwined interactions between the above stated variables and results in outcome factors such as job satisfaction, job commitment and organizational commitment.

Job Satisfaction

If the technological factors are well maintained by HRM specialist and higher level technology is used in work processes, the employment relations system acts positively helping both employer and employee. The scenario leads to job and life satisfaction of the employees. Employer is also safe in the competitive international business environment with employee and customer focus. It may be said that Job Satisfaction is an outcome factor and depends on Technology, HRM systems and Employment Relations.

The Job Satisfaction Level of the employee is measured by nature of job, variety in job, possibilities to new abilities and skills, chances available for up gradation of skills, recognition one gets for good work and suggestions, opportunities for fortification, promotion chances, responsibility and authority in job, pay one gets, security of his job, benefits other than pay, way of work evaluation, proper management policies and procedures, relations with superiors, peers and subordinates, proper work environment, facilities at work place, and retirement

benefits. The respondents are expected to answer as to whether they have Job Satisfaction irrespective of satisfactory work environment and as to how they rate their Job Satisfaction Level.

It is found that involving processes in decision making result in job-satisfaction (Morris & Bloom, 2002; Platonova, 2005; Kim, 2002; Pitt & Foreman, 1999; Jong et al, 2004). It is also evident that training is positively related with job-satisfaction and finally results in higher performance (Jones & Jones et al., 2004). It is also true that job-satisfaction and organizational commitment are positively related (Srivatsava, 2013) but another study confirms that these are not significantly related in both males and females (Gangai & Agarwal, 2015). It is also observed that employee's job satisfaction and organizational commitment significantly influence loyalty positively in manufacturing sector and is negative in case of service sector (Pandey & Khare, 2012). Hafiz Aziz (2015) has observed that employee's performance separately and jointly is positively related with affective, normative and continual commitment of the employees. The training and development, organizational justice, task orientation, and compensation are incentives and major factors which are affecting organizational commitment (Cheah & Chong, 2016).

Methodology

The study entitled "Linkages between Human Resource Management Systems, Technology and Employment Relations with special reference to Impact on Women" funded by ICSSR, New Delhi is carried out during 2015-2018. The organizations selected for the study are 1. One Public sector Steel Plant which is fully automated 2. Two Private sector Steel Plants with manually operated machine technology and with computer based operations in HRM, Finance and Marketing Functions 3. Business Processing Outsourcing unit with computer operations in all functions 4.Public Sector Information Technology (IT) Firm with high level computer systems and 5. Private Sector IT Firm with high level computer systems (names are not mentioned to maintain confidentiality). A sample of 928 respondents which constitutes 4.3 percent of the universe (21650) is selected by stratified random sampling basis. The data are collected from the respondents during 2016 - 2017 by administering questionnaire directly and on-line to measure their perception towards HRM systems, Technology, Employment relations, Job satisfaction, Job commitment and Organizational, commitment. The collected data are analysed with the help of SPSS and SASS statistical software. The data collected on HRM systems, Technology, Employment relations, Job satisfaction, Job and Organizational commitment are categorised into eight components Y1 to Y8 as following to find out their inter-relationships through multiple-regression.

Multiple Regression Analysis

Regression Analysis on Perception towards Firm and Peers (Y1)

When the component Y1 – Perception towards Firm and peers is regressed with other seven components, the results show that Y1 is influenced positively by Y2 - Perception towards Job and Life (t value: 12.725 at 1% Level), Y3 - Perception towards HRM systems (t value: 17.586 at 1% Level) and Y5 - Perception towards technology factors (t value: 1.982 at 5% Level). The R^2 value is 0.74. The Beta values are given in the table (Table 1).

Table 1. Regression Analysis on Y1 Component

Regression Summary for Dependent Variable: Y1 (all-data.sta) R= .86588174 R²= .74975119 Adjusted R²= .74784712 F (7,920) =393.76 p<0.0000 Std...Error of estimate: 12.484						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			-6.956	5.013	-1.388	0.166
Y2	0.332	0.026	0.228	0.018	12.725**	0.000
Y3	0.533	0.030	0.268	0.015	17.586**	0.000
Y4	0.033	0.020	0.020	0.012	1.687	0.092
Y5	0.061	0.031	0.084	0.042	1.982*	0.048
Y6	-0.047	0.030	-0.033	0.022	-1.552	0.121
Y7	0.033	0.028	0.045	0.037	1.202	0.230
Y8	-0.003	0.017	-0.007	0.036	-0.182	0.856

** Significant @ 1% Level, * Significant @ 5% Level

Regression analysis on Perception towards Job and Life (Y2)

When analysed as to how Y2 - Perception towards Job and Life is related with other seven components, R^2 value is 0.66. It is observed that Y2 - is affected positively by Y1 Perception towards firm and peers (12.725 at 1% Level), Y3 - Perception towards HRM systems (t value: 6.763 at 1% Level) and Y5 - Perception towards technology factors (t value: 6.664 at 1% Level) while Y6 - Perception towards Employment Relations (t value: -3.621 at 1% Level) negatively. Other components are found to have no influence on Y2. The Beta values are given in the table (Table no. 2)

Table 2. Regression analysis on Y2 Component

Regression Summary for Dependent Variable: Y2 (all-data.sta) R= .81294754 R²= .66088371 Adjusted R²= .65830347 F (7,920) =256.13 p<0.0000 Std...Error of estimate: 21.182						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			45.541	8.381	5.434**	0.000
Y1	0.450	0.035	0.656	0.052	12.725**	0.000
Y3	0.269	0.040	0.198	0.029	6.763**	0.000
Y4	0.033	0.023	0.029	0.020	1.419	0.156
Y5	0.233	0.035	0.470	0.071	6.664**	0.000
Y6	-0.128	0.035	-0.132	0.036	-3.621**	0.000
Y7	-0.001	0.032	-0.002	0.063	-0.037	0.970
Y8	-0.005	0.020	-0.016	0.061	-0.262	0.794

** Significant @ 1% Level, * Significant @ 5% Level

Regression analysis on Perception towards HRM Systems (Y3)

The Component Y3 - Perception towards HRM systems is regressed with other seven components, R^2 value is 0.77. It is clear that this is related positively to Y1 - Perception towards Firm and peers (t value: 17.586 at 1% Level), Y2 - Perception towards Job and Life (t value: 6.763 at 1% Level), Y4 - Perception towards their role and stress (t value: 7.136 at 1% Level), Y5 - Perception towards Technology Factors (t value: 6.485 at 1 % Level), Y6 - Perception towards Employment relations (t value: 6.053 at 1% Level) but negatively to Y7 - Perception towards outcome factors (t value: - 2.393 at 5% Level) . The Beta values are given in the table (Table no. 3).

Table 3. Regression Analysis on Y3 Component

Regression Summary for Dependent Variable: Y3 (all-data.sta) R= .88241386 R²= .77865421 Adjusted R²= .77697006 F (7,920) =462.34 p<0.0000 Std.Error of estimate: 23.338						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			-40.227	9.287	-4.331**	0.000
Y1	0.472	0.027	0.938	0.053	17.586**	0.000
Y2	0.176	0.026	0.240	0.035	6.763**	0.000
Y4	0.129	0.018	0.154	0.022	7.136**	0.000
Y5	0.184	0.028	0.505	0.078	6.485**	0.000
Y6	0.170	0.028	0.240	0.040	6.053**	0.000
Y7	-0.062	0.026	-0.166	0.069	-2.393*	0.017
Y8	0.016	0.016	0.068	0.068	1.013	0.311

** Significant @ 1% Level, * Significant @ 5% Level

Regression Analysis on Perception towards Role and Stress (Y4)

When the component Y4 - Perception towards their role and stress is regressed with other seven components, R^2 value is 0.30. It is observed that is related positively to Y3 - Perception towards HRM systems (t value: 7.136 at 1% Level) Y7 - Perception towards outcome factors (t value: 8.373 at 1% Level) and Y8 - Perception towards Women's Perspective (t value: 5.140 at 1% Level). It is also found that Y5 - Perception towards Technology Factors (t value: -3.162 at 1 % Level) and Y6 - Perception towards Employment relations (t value: -6.758 at 1% Level) are related inversely. The Beta values are given in the table (Table no. 4).

Table 4. Regression analysis on Y4 Component

Regression Summary for Dependent Variable: Y4 (all-data.sta) R= .55095558 R²= .30355206 Adjusted R²= .29825300 F (7,920) =57.284 p<0.0000 Std.Error of estimate: 34.615						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			94.117	13.565	6.938**	0.000
Y1	0.093	0.055	0.154	0.091	1.687	0.092
Y2	0.067	0.047	0.076	0.054	1.419	0.156
Y3	0.406	0.057	0.340	0.048	7.136**	0.000
Y5	-0.162	0.051	-0.371	0.117	-3.162**	0.002
Y6	-0.336	0.050	0.395	0.058	6.758**	0.000
Y7	0.373	0.045	0.834	0.100	8.373**	0.000
Y8	0.145	0.028	0.508	0.099	5.140**	0.000

** Significant @ 1% Level, * Significant @ 5% Level

Regression Analysis on Perception towards Technology Factors (Y5)

Relationship between Y5 - Perception towards Technology Factors and the other seven components is calculated. The R^2 value is 0.71. The regression results show that Y5 is related positively in case of Y1 - Perception towards Firm and Peers (t value: 1.982 at 5% Level), Y2 - Perception towards Job and Life(t value: 6.664 at 1% Level), Y3 - Perception towards HRM Systems (t value: 6.485 at 1% Level), Y6 - Perception towards Employment Relations (t value: 12.037 at 1% Level), Y7 - Perception towards outcome factors (t value: 5.990 at 1% Level) and Y8 - Perception towards Women's perspective (t value: 2.533 at 5% Level). The relationship is negative in case of Y4 – Perception towards their role and stress (t value: -3.162 at 1% Level). The Beta values are given in the table (Table no.5)

Table 5. Regression analysis on Y5 Component

Regression Summary for Dependent Variable: Y5 (all-data.sta) R= .84444758 R²= .71309171 Adjusted R²= .71090872 F (7,920) =326.66 p<0.0000 Std. Error of estimate: 9.6665						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			17.614	3.842	4.584**	0.000
Y1	0.070	0.035	0.050	0.025	1.982*	0.048
Y2	0.197	0.030	0.098	0.015	6.664**	0.000
Y3	0.238	0.037	0.087	0.013	6.485**	0.000
Y4	-0.067	0.021	-0.029	0.009	-3.162**	0.002
Y6	0.365	0.030	0.187	0.016	12.037**	0.000
Y7	0.174	0.029	0.170	0.028	5.990**	0.000
Y8	0.046	0.018	0.071	0.028	2.533*	0.011

** Significant @ 1% Level, * Significant @ 5% Level

Regression analysis on Perception towards Employment Relations (Y6)

Regression is run between Y6 - Perception towards Employment Relations and other seven components. The R^2 value is 0.705. The results show that Y6 - Perception towards employment relations is positively affected by Y3 - Perception towards HRM systems (t value: 6.053 at 1% Level), Y5 - Perception towards Technology Factors (t value: 12.037 at 1% Level) and Y7 - Perception towards outcome factors

(t value: 20.638 at 1% Level). The inverse relation is found between Y6 - Perception towards Employment Relations and Y2 - Perception towards Job and Life (t value: -3.621 at 1% Level), Y4 - Perception towards their Role and Stress (t value: -6.758 at 1% Level), and Y8 - Perception towards Women's Perspective (t value: -3.628 at 1% Level).The Beta values are given in the table (Table no.6)

Table 6. Regression Analysis on Y6 Component

Regression Summary for Dependent Variable: Y6 (all-data.sta) R= .84122746 R²= .70766364 Adjusted R²= .70543934 F (7,920) =318.15 p<0.0000 Std.Error of estimate: 19.055						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			89.280	7.072	12.625**	0.000
Y1	-0.055	0.036	-0.078	0.050	-1.552	0.121
Y2	-0.110	0.030	-0.107	0.029	-3.621**	0.000
Y3	0.225	0.037	0.160	0.026	6.053**	0.000
Y4	-0.141	0.021	-0.120	0.018	-6.758**	0.000
Y5	0.372	0.031	0.727	0.060	12.037**	0.000
Y7	0.511	0.025	0.971	0.047	20.638**	0.000
Y8	-0.067	0.018	-0.199	0.055	-3.628**	0.000

** Significant @ 1% Level, * Significant @ 5% Level

Regression Analysis on Perception towards Outcome Factors (Y7)

The regression results between Y7 - Perception towards outcome factors and other components indicate that it is positively related to Y4 - Perception towards their role and Stress (t value: 8.373 at 1% Level), Y5 - Perception towards Technology Factors (t value: 5.990 at 1% Level) and Y6 - Perception towards Employment Relations (t value: 20.638 at 1% Level). It is observed that Y7 - Perception towards outcome factors is inversely related to Y3 - Perception towards HRM systems (t value: -2.393 at 5% Level). Other components are found to have no affect on Y7. The R^2 value is 0.64. The Beta Values are given in the table (Table no. 7)

Table 7. Regression Analysis on Y7 Component

Regression Summary for Dependent Variable: Y7 (all-data.sta) R= .80321641 R²= .64515660 Adjusted R²= .64245671 F (7,920) =238.96 p<0.0000 Std.Error of estimate: 11.040						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			-31.682	4.313	-7.345**	0.000
Y1	0.047	0.039	0.035	0.029	1.202	0.230
Y2	-0.001	0.034	-0.001	0.017	-0.037	0.970
Y3	-0.100	0.042	-0.037	0.016	-2.393*	0.017
Y4	0.190	0.023	0.085	0.010	8.373**	0.000
Y5	0.215	0.036	0.221	0.037	5.990**	0.000
Y6	0.620	0.030	0.326	0.016	20.638**	0.000
Y8	-0.005	0.020	-0.007	0.032	-0.231	0.818

** Significant @ 1% Level, * Significant @ 5% Level

The data regressed between Y8- Perception towards Women's Perspective and other factors indicate that Y4- Perception towards their Role and Stress (t value: 5.140 at 1% Level) and Y5- Perception towards Technology factors (t value: 2.533 at 5% Level) affect positively and inversely in case of Y6- Perception towards Employment Relations (t value: -3.628 at 1% Level). The R^2 value is 0.63. The Beta values are given in the table (Table no. 8).

Table 8. Regression Analysis on Y8 Component

Regression Summary for Dependent Variable: Y8 (all-data.sta) R= .26561924 R²= .07055358 Adjusted R²= .06348170 F (7,920) =9.9766 p<.00000 Std.Error of estimate: 11.386						
	Beta	St. Err. of Beta	B	St. Err. of B	t(920)	p-Level
Intercept			95.692	3.316	28.856**	0.000
Y1	-0.012	0.064	-0.005	0.030	-0.182	0.856
Y2	-0.014	0.055	-0.005	0.018	-0.262	0.794
Y3	0.068	0.068	0.016	0.016	1.013	0.311
Y4	0.193	0.038	0.055	0.011	5.140**	0.000
Y5	0.150	0.059	0.098	0.039	2.533*	0.011
Y6	-0.212	0.058	-0.071	0.020	-3.628**	0.000
Y7	-0.012	0.053	-0.008	0.034	-0.231	0.818

** Significant @ 1% Level, * Significant @ 5% Level

Conclusions

When attempted to measure the intertwined effects of organizational variables such as HRM systems, Technology and Employment relations and their effects on outcome factors regression analysis on above variables indicates that Y1 - Perception towards Peers, Y2 – Perception towards Job and Life, Y3 – Perception towards HRM systems and Y5 – Perception towards Technology factors are intertwined influencing each other positively. It is also evident that Y2 – Perception towards Job and Life and Y6 – Perception towards Employment relations are inversely related indicating that those who perceive Employment relations positively need not perceive Job and Life positively. Moreover, Y3 – Perception towards HRM systems affects positively all other organizational variables from Y1 component to Y6 component evincing that perception towards Firm and Peers, Job and Life, lack of Role conflict and Stress, Technology factors and Employment relations are directly related. However, those who perceive HRM systems as very high are not perceiving outcome factors – Job satisfaction, Job commitment and Organizational commitment positively showing that large gap exists between satisfactory levels and HRM systems. When Perception towards lack of Role conflict and Stress is regressed with other components as independent factors it is noticed that lack of Role conflict and stress

is positively related with HRM systems, positive Employment relations, outcome factors and women while inverse relationship is found with Technology factors. This clearly indicates that higher level technology leads to role conflict and stress. Women are significantly positive towards technology and technology is positively related with Employment relations and Outcome factors – Job satisfaction, Job commitment and Organizational commitment. Employment relations, on the basis of regression analysis can be said that they are positively related with HRM systems, Technology and Outcome factors – Job satisfaction, Job commitment and Organizational commitment and significant negative relationship is observed with Perception towards Firm and Peers, Job and Life, lack of Role conflict and stress. Women perceive Employment relations as significantly negative thus being more critical. Outcome factors as dependent variable is significantly positive with lack of Role conflict and stress, Technology and Employment relations while inversely related to HRM systems as explained earlier.

The correlation matrix on Components - Y1 to Y8 shows that these components when considered either as dependent or independent variable, they are interrelated positively at either one or five per cent significant level except in case of Component Y6 which is inversely related with Y8. The significant results give leads to further regression analysis.

The above discussion gives leads that along with sophisticated HRM systems and introduction of technological innovations developing of proper employment relations system and programs to eliminate role conflict and manage stress are highly essential to increase job satisfaction, job commitment and organizational commitment in steel plants and information technology units.

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Cause-Effect Analysis of Strategic Planning and the Performance of Small and Medium-Size Enterprises in Kogi State

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Abstract: This study focused on the cause-effect analysis of strategic planning and the performance of Small and Medium-size Enterprises in Kogi State. The study covered SMEs' cluster areas in three senatorial districts of Kogi State, and purposively selected 350 respondents.Data were analyzed using descriptive statistics, Logit and linear regression.Findings showed that SME owners lacked knowledge and skills on strategic planning, and that tradition-based thinking has significant and positive effect on strategic planning; while unavailability of resources has significantly negative effect on strategic planning of SMEs in Kogi State. Furthermore, finding showed that strategic planning has significantly positive effect on competitive edge and financial performance of SMEs in Kogi State. It was concluded that strategic planning is a crucial tool for firms' competitive and market situation. The study therefore recommended that SME owners should invest in knowledge and skills regarding strategic planning, and those SME owners, including the economic stakeholders, should establish a social network where resources can be pooled and tradition-based thinking can be redirected to favour strategic planning of enterprises in Kogi State.

Keywords: Strategic Planning; Competitive Edge; Financial Performance; Tradition-Based Thinking; Knowledge and Skills

JEL Classification: L20; M10

1. Introduction

There is no doubt that the success of strategic planning depends on some business environmentalfactors. The business environment of Kogi State is observed highly turbulence based on war of knowledge, comparative absorptive capabilities, availability of financial resources and agilities among SME owner/managers. It is suspected that poor outcome of strategic planning among some SME owner/managers in Kogi State is subject to low knowledge, skills and ability. The

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need to avail and judiciously transform these factors favorably for strategic planning purpose becomes very high.

SMEs are exposed to external forces that are practicallyimpacting on their survival in the business environment of Kogi State. The absorptive capabilities of successful enterprises determine the strength of these forces. Cohen and Levinthal (1990) expressed that "absorptive capability involves enterprises" ability to identify, assimilate, transform, and apply valuable knowledge which is crucial for converting the external forces into opportunities. This among others can often strengthen competition (Lin, Hsing & Wang, 2008). Initially, SME owners were bent on making sales growth, but almost all enterprises have to struggle for competitive advantage today (Eniola & Ektebang, 2014) through the absorption of knowledge, skills, availability of financial resources, agilities and ability that can translate into the formulation of outwitting strategies. The fact remains that the interplay between these factors and effective strategic planning process is critical to achieving outwitting strategies for competitive situation. Gomera, Chinyamurindi and Mishi (2018) noted that "strategy formulation, implementation, evaluation and control are aspects of strategic planning process".

Researches have shown that majority of SME owners despise strategic planning (Wang, Walker & Redmond, 2007; Kraus, Reische & Reschke, 2007). Lately, this has been proven erroneous as SMEs now engage in strategic planning in Nigeria. By neglecting strategic planning, the growth of an enterprise is expected to stampede, and there is probability that such enterprise that ignores strategic planning will suffer unimproved performance (Majama & Magang, 2017). Nonetheless, the problem with SME owner/managers in their strategic planning process has connection with the competence in transforming the aforementioned factors favorably. Majama and Magang (2017) argued that the problem is attributed to insufficient knowledge of the planning process, rejection of external assistance, tradition-based thinking, fear of radical change, lack of time, size of business and type of industry. It is observed that strategic planning of SMEs (with the consideration of strategy formulation and implementation) still face a backdrop in Kogi State. This is expected to affect the performance of SMEs in Kogi State. Thus, the objectives of this study are to:

i. Investigate the factors considered in the formulation of competitive strategy for SMEs in Kogi State;

ii. Ascertain the cause of poor outcome of a strategic planning process by SME owners in Kogi State;

iii. Determine the factors affecting strategic planning of SMEs in Kogi State;

iv. Determine the effects of strategic planning on performance (competitive edge, financial performance and customer's satisfaction) of SMEs in Kogi State.

2. Literature Review

Competitive strategy positions SMEs to achieving their goals ahead of others in a turbulent business environment. The competencies of SME owners in analyzing strategic issues and aligning enterprise priorities with available resources in respect of a more outwitting approach determines theirs competitive advantage over others. The purpose of competitive strategy is to build a sustainable competitive advantage over rivals. Interestingly, the concept "strategy" seems to have created confusion for many SME owner/managers in Nigeria; there have been an observed hit and miss in its planning and adoption in the marketplace. It is good to know that what makes an effective strategy is the result or its outcome after implementation, and its sustainability. The strategy that stands the chance of making a firm to outwit others in a business competition has a great potential, and such strategy when adopted is likely to be more effective. The knowledge of strategic planning and adoption varies significantly, and that is why strategic planning is viewed and done in different ways to facilitate the achievement of favorable outcome (positive pay-off).

Table 1. Definitions of Concept

Author(s)	Years	Definitions of Strategic Planning	Brief Comments
Ansoff	1965	It is the process of seeking a better match between a firm's products or technology and its increasingly turbulent markets.	It is a chronological task, but the focal point in Ansoff's view is innovative product or technology that can distinguish an enterprise.
Johnson, Scholes & Whittington	2008	It is a form of systemized, step-by-step, chronological procedures to develop the strategy of the firm.	This definition complements that of Ansoff. It clearly spells out its necessity in developing firm's strategy.
Grant	2014	Strategic planning is the procedure of creating and upholding consistency between the establishment's goals and possessions and its shifting prospects	This definition shows that strategic planning focuses on the alignment between organizational resources and overall corporate goals.
Makinde, Akinlabi&Ajike	2015	Strategic planning has to do with sequential steps to develop 'stable and workable strategy'.	This definition is able to establish the cleavage between having a strategy and having an effective strategy. It advances that of Johnson and colleagues

Source: The Authors

Adeleke, Ogundele and Oyenuga (2008) cited by Makinde *et al.* (2015) further noted that the sequential steps in strategy planning include formulation (environmental analysis, resources analysis, determining the extent to which strategy change is required), strategy implementation and strategy control. Based on the discussed

definitions in table 1, it will be proper to define strategic planning as a task which involves analyzing controllable and uncontrollable business environmental forces to come up with effective and outwitting strategy that can facilitate the achievement of firms' long-term goal. In the case of SMEs, there is a need for owners to focus on formulating and implementing winning strategies in order to pursue their mission, vision and objectives without compromising the competitive situation in the Kogi State business environment. One vibrant way of doing this is through SWOT analysis (Strength, Weakness, Opportunity and Threats). Ordinarily, these two stages are precedent for strategic planning, but the application of distinctive prowess will make a particular strategy more effective to win a competitive war. Michael Porter wrote in 1980 that formulation of business competitive strategy includes consideration of four key elements:

1. Strengths and weaknesses;
2. Personal values of management and the board;
3. Industry opportunities and threats; and
4. Broader societal expectations. (Bryson, 2018)

In analyzing the business environment of Kogi State, SME owner/managers have to consider some forces to determine the strength and weakness of their enterprises. In that case, SME owner/managers need considerable level of knowledge, skills, capability and other resources to manage these forces effectively. Dubilihla and Sandada (2014) noted that "the key to success for SMEs in South Africa (for example) was grounded in their ability to practice strategic planning". Actually, this is one of the baselines for resources conversion and utilization for strategic planning. Having considered this, Majama and Magang (2017) stressed that strategic planning is not an easy task and that certain platforms need to be established to transfer knowledge to SME owner/managers. Porter (1980) noted that this task is driven by SME owner/managers' personal values. Abosede, Obasanand Alese (2016) added that the role of the owner-managers and their attitude towards strategic issues are often critical for strategic planning process. Though, strategic management task is traditionally viewed as being exclusive to the SME owner/managers, but it is believed that some key employees' involvement is very much paramount at the implementation stage.

According to Mathore (2016), strategy implementation is the process of allocating resources to support chosen strategies. Unlike strategy formulation, strategy implementation is often seen as something of a craft, rather than a science, and its research history has previously been described as fragmented and eclectic (Noble, 2009). The crafting of effective strategy is in no doubt the task at the formulation stage. Empirical researches according to Grant (2003) were focused on the impact of strategic planning on firm performance and the role of strategic planning in

strategic decision making. The later area of research explored the 'organizational process of strategy formulation' (Ikoro & Nwosu, 2017). Strategic planning therefore is part of the contemporary managerial tool kits not only for dealing with the inevitable uncertainty in the management environment, but for stimulating outcome (Schendel, 2009).

However, effective strategic planning is expected to facilitate the achievement of SMEs' performance. The study conducted by Dubilihla and Sandada (2014) found a significant positive relationship between strategic planning and the performance of small business. Meanwhile, this study did not specify the aspects of performance to which strategic planning is related. Although many researchers have directed efforts towards unraveling the effects of strategic planning on varying parameters of business performance, but there are gaps based on the fact that sectors, organizations and business environment vary in a number of ways. For instance, Owolabi and Makinde (2012) argued that "most researches on strategic planning and performance focused on profitability, market share, earnings per share, net asset, working capital and expansion" which are distant from the direction of their study. It is observed that studies which have no specified measures of performance continue to create confusion in the field of research. With respect to this, Chinyamurindi (2016) emphasized the need to conduct research on the effects of strategic planning on outcomes of business organizations. The ability to define specific aspects of business performance in relation to the direction of any study is quite significant to establishing clarity in the research world. To a reasonable extent, few studies have been able to create clarity in that regard. For example, studies (such as Mryan, 2012; Gomera et al., 2018) have found that "strategic planning has a significantly positive relationship with competitive advantage and financial performance of SMEs. In that case, investigating the effects of strategic planning on the competitive advantage, financial performance and customer's satisfaction of SMEs in Kogi State is highly imperative.

3. Methodology

The study area was Kogi State, and the state has three senatorial districts (Kogi Central, Kogi East and Kogi West). The study focused on SMEs' cluster in each of the senatorial district (Okene in Kogi Central, Dekina in Kogi East and Ijumu in Kogi West). SMEs were selected from each of the areas in the senatorial districts. The study purposively selected the sample size of 350 SME owners from the indefinite population of SMEs in the chosen senatorial districts. The study used a well-structured questionnaire. It has its coverage on strategic planning, factors considered in the formulation of competitive strategy, cause of poor outcome of strategic planning process and factors affecting strategic planning of SMEs in Kogi State. The figure 1 shows the research coverage/focus of this study. For all the

constructs, Cronbach alpha (α) was used to test the reliability of total items as shown below:

Table 2. Reliability Test

Constructs	**Cronbach Alpha**	**Cronbach Alpha (Standardized Items)**	Number **of Items**
Total	.701	.710	20
Strategic Planning	.789	.785	4
Performance	.723	.723	3

Source: Field Survey, 2018

The table 2 shows that the estimate of the total items to be 0.701. The estimated reliability for strategic planning construct is 0.789 and the estimated reliability for performance is 0.723. The estimates show the true reliability of the instrument. Zikmund *et al.* (2010) pointed that the estimate of multiple-item scale's reliability is robust with the critical value of 0.70 and above. The items were analysed using the following specification:

$$\alpha = \frac{K}{K-1}\left(1-\frac{\sum_{i=1}^{K}\sigma^2_{Y_i}}{\sigma^2 x}\right)$$

Where: K= Items of number

$\sigma^2 x$ = Variance of observed total scores

$\sigma^2 y_i$ = Variance of item I for the current sample

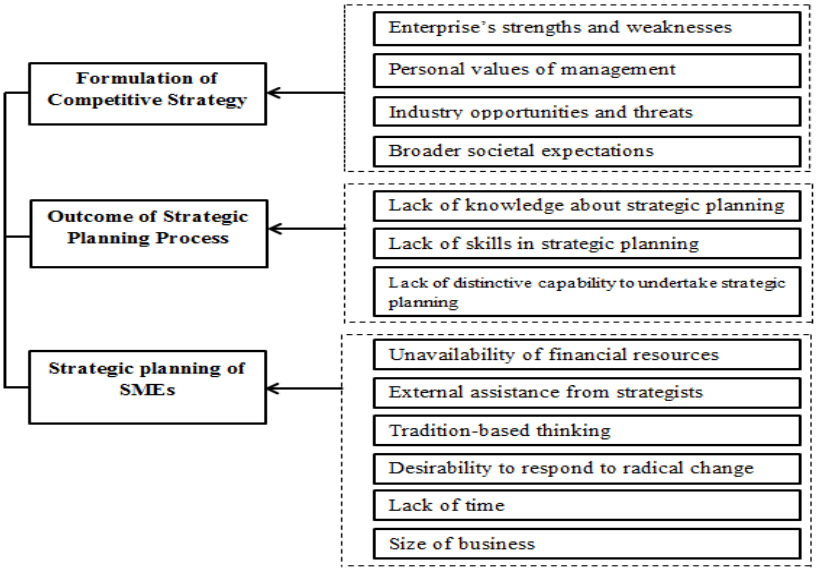

Figure 1. Research Structure

Data were analyzed using descriptive statistics (for objective one and two) and Logit regression (for objective three). In simple term, the essential model of the Logit regression for this study is specified below:

$$\mathbf{Y^* = \beta_0 + \beta_1 UR_1 + \beta_2 EA_2 + \beta_3 TH_3 + \beta_4 FC_4 + \beta_5 LT_5 + \beta_6 SB_6 + e}$$

Where **Y*** = Unobserved dependent variable (Strategic planning of SMEs)

UR = Unavailability of financial resources

EA = Rejection of external assistance from strategists

TH = Tradition-based thinking

FC = Fear of radical change

LT = Lack of time

SB = Size of business

β = Vector of regression coefficients

e = Error margin

Linear regression model was adopted for the analysis of objective four. The model is specified as:

$$(y_1, y_2, y_3) = b0 + b_1 x_1 + e$$

Where

y_1= The first dependent scale-variable (competitive edge)

y_2 = The second dependent scale-variable (financial performance)

y_3= The third dependent scale-variable (customer's satisfaction)

b_j = The j^{th} coefficient, j=0

x_1 = The predictor (strategic planning)

e= Error term

4. Results and Discussion

Table 3. Showing Demographic Characteristics

Demographic Factor	Frequency	Percent	Mean
Gender			
Male	171	51.5	
Female	161	48.5	
Total	**332**	**100.0**	
Age			
Below 20 Years	60	18.1	
21-25 Years	84	25.3	
26- 30 Years	85	25.6	
31-35 Years	43	13.0	28.11
36- 40 Years	20	6.0	
41- 45 Years	26	7.8	
Above 46 Years	14	4.2	
Total	**332**	**100.0**	
Level of Education			
Primary School	87	26.2	
Secondary School	109	32.8	
College of Education	72	21.7	
Polytechnic/University	64	19.3	
Total	**332**	**100.0**	
Business Experience			
Below 2 Year	139	41.9	
2-4 Years	50	15.1	
4-6 Years	35	10.5	4.54
6-8 Years	40	12.0	
8-10 Years	20	6.0	
10-12 Years	21	6.3	
Above 12 Years	27	8.1	
Total	**332**	**100.0**	

Source: Field Survey, 2018

Table 3 shows the demographic characteristics of respondents. It is depicted from the table that 171 respondents (51.5%) were male; and 161 respondents (48.5%) were female. The result corresponds with that of Aworemi, Abdul-Azeez and Opoola (2010) which shows that male SME owners were more than their female counterpart.

Similarly, the study conducted by Adofu andAkoji (2013) found that males are more engaged in entrepreneurial activities than their female counterpart. It also shows that 60 respondents (18.1%) were below 20 years; 84 respondents (25.3%) were within the ages of 21 to 25; 85 respondents (25.6%) were within the ages of 26 to 30; 43 respondents (13.0%) were within the ages of 31 to 35; 20 respondents (6.0%) were within the ages of 36 to 40; 26 respondents (7.8%) were within the ages of 41 to 45; and 14 respondents (25.3%) were above 46 years old. The mean score of 28.11 shows that majority of respondents are 28 years old.

Table 3 shows that 87 respondents (26.2%) finished from primary schools; 109 respondents (32.8%) finished from secondary schools; 72 respondents (21.7%) finished from college of education; and 64 respondents (19.3%) finished from polytechnic and university. The implication of this result is that the respondents (32.8%) having low educational background may find strategic planning as a tedious task. It is expected that respondents with polytechnic and university educational background will showcase essential acumen due to higher learning, vocational and technicality skills taught in the higher institution of learning. In addition, 139 respondents (41.9%) have below 2 years of business experience; 50 respondents (15.1%) have between 2 to 4 years of business experience; 35respondents (10.5%) have between 4 to 6 years of business experience; 40 respondents (12.0%) have between 6 to 8 years of business experience; 20 respondents (6.0%) have between 8 to 10 years of business experience; 21 respondents (6.3%) have between 10 to 12 years of business experience; and 27 respondents (8.1%) have above 12 years of business experience. The implication of the result is that the respondents have the average and reasonable business experience of about 5 years, and this is believed to be significant for this study.

Table 4. Factors Considered in the Formulation of Competitive Strategy

Factors	N	Mean	Std. Deviation
Enterprise's strengths and weaknesses	332	1.3946	.48950
Personal values of management	332	1.4277	.49549
Industry opportunities and threats	332	1.5271	.50002
Broader societal expectations	332	1.5241	.50017

Source: Field Survey, 2018

Table 4 shows a univariate summary of four prominent factors considered in the strategy formulation process of SMEs in Kogi State, Nigeria. SME owners seem to have considered opportunities/threats and broader societal expectations more than their enterprise's strength/weaknesses and personal management values. The table 4 shows the estimated enterprise's strengths and weaknesses (π= 1.3946; σ= .48950); personal values of management (π= 1.4277; σ= .49549); industry opportunities and threats (π= 1.5271; σ= .50002); and broader societal expectations (π= 1.5241; σ=

.50017). On the average, SME owners consider industry opportunities and threats the most in the formulation process of strategy, but it is observed that the factor has the highest variance. SME owners only consider broader societal expectations slightly less than industry opportunities and threats, but there is also almost unnoticeable variation in the values of the two factors. On the other hand, SME owners consider enterprise's strengths/weaknesses and personal values of management lesser with corresponding lesser variations. The finding of this study advances Porter's (1980) assertion about the key elements in strategy formulation.

Table 5. Cause of Poor Outcome of a Strategic Planning Process

Causes	N	Mean	Std. Deviation
Lack of knowledge about strategic planning	332	1.6837	.46572
Lack of skills in strategic planning	332	1.6747	.46919
Lack of distinctive capability to undertake strategic planning	332	1.4157	.49358

Source: Field Survey, 2018

Table 5 shows a univariate summary of three causes of poor outcome of strategic planning of some SME owners in Kogi State, Nigeria. The table 5 shows the estimated value of lack of knowledge about strategic planning (π= 1.6837; σ= .46572); lack of skills in strategic planning (π= 1.6747; σ= .46919); and lack of distinctive capability to undertake strategic planning (π= 1.4157; σ= .49358). On the average, majority of SME owners lack knowledge about strategic planning the most (but with the least variance). Other causes (lack of skills and distinctive capability to undertake strategic planning) have lesser mean score and more variation.

Table 6. Logit Regression on Factors Affecting Strategic Planning of SMEs

Codes	Variables	Coefficients	Standard Error	P>|z|
UR	Unavailability of financial resources	-1.162	1.182	.026*
EA	External assistance from strategists	.063	.624	.920
TH	Tradition-based thinking	.290	.567	.009**
FC	Desirability to respond to radical change	.943	.670	.160
LT	Lack of time	-.544	1.027	.596
SB	Size of business	.129	.642	.841

Source: Field Survey, 2018

Number of Obs = 184

LR chi^2 = 90.287*

Prob > chi^2 = 0.000

Pseudo R^2 = .623

Note: z-values** and * indicate 5% and 1% level of significance respectively.

Table 6 shows that external assistance from strategists, tradition-based thinking, desirability to respond to radical change and size of business positively relate with the adoption of strategic planning by SME owners in Kogi State. It is observed from the table 6 that only tradition-based thinking relates with strategic planning adoption significantly. This implies that strategic planning adoption has similar effect as tradition-based thinking increase on the same scale. The probability of strategic planning adoption lies in the tradition-based thinking of SME owners in Kogi State. On the contrary, factors such unavailability of resources and lack of time negatively correlate with the adoption of strategic planning by SME owners in Kogi State. The logical implication of this is that SME owners have not been able to adopt strategic planning effectively due to problems relating to financial resources and time; though the result appears to be insignificant.

The LR chi^2 of 90.287 shows that the "model does adequately fit the data" (since it is less than 5%), and as such the data is in alignment with the assumption of the model. Prob > chi^2 of 0.000 signifies that 100% of changes witnessed in the total adoption level of strategic planning by SME owners in Kogi State were predicted by the "variables" in the model. The Pr ratio of 90.287 is observed significant at 1%. The R^2 value of 0.623 indicates that about 62.3% of adoption level of strategic planning by some SME owners in Kogi State is explained by the identified factors. Other SME owners will adopt strategic planning by 37.7% without considering these factors.

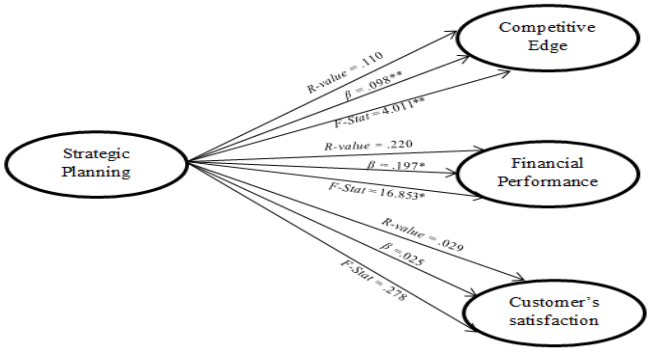

Figure 2. Regression Model on the Effect of Strategic Planning on Performance

**Significa nt at 0.05; * Significant at 0.01

Figure 2 shows the linear regression model of the relationship between strategic planning and performance of SMEs in Kogi State.

Firstly, the figure 2 shows that 11% variation in competitive edge of SMEs in Kogi State is explained by strategic planning effort. The remaining 89% of the variation in competitive edge of SMEs in Kogi State is explained by other unknown factors. The standard coefficient shows the value as the R-value with the significant level

being 0.05. The implication of this is that though strategic planning effort significantly affects competitive edge of SMEs in Kogi State, but the effect is very weak. The coefficient (β= 0.098; p= 0.05) shows that 9.8% additional improved strategic planning effort will lead to proportional change in competitive edge of SMEs in Kogi State. This implies that strategic planning has significant positive effect on the competitive edge of SMEs in Kogi State. The F-test value (4.011; p= 0.01) shows that the model does not appear by chance, due to its high level of significance.

Secondly, the figure 2 shows that 22% variation in financial performance is explained by strategic planning effort. The remaining 78% of the variation in financial performance is explained by other unknown factors. The standard coefficient shows the value as the R-value with the significant level being 0.01. The implication of this is that though strategic planning effort significantly affects financial performance of SMEs, but the effect is evidently weak. The coefficient (β= 0.197; p= 0.01) shows that 19.7% additional improved strategic planning effort will bring about the same proportional improvement in financial performance of SMEs. This implies that strategic planning has significant positive effect on financial performance of SMEs in Kogi State. This aligns with the finding of studies (such as Mryan, 2012; Gomera et al., 2018) that strategic planning has significantly positive effect on financial performance. The F-test value (16.853; p= 0.01) shows that the model does not appear by chance, due to its high level of significance.

Lastly, the figure 2 shows that 2.9% variation in customer's satisfaction of SMEs in Kogi State is explained by strategic planning effort. The remaining 97.1% of the variation in customer's satisfaction of SMEs in Kogi State is explained by other unknown factors. The coefficient (β= 0.025; p > 0.05) shows that 2.5% change in strategic planning effort will bring about proportional change in customer's satisfaction of SMEs. This result proves too weak predicting power and insignificant linear relationship. The F-test value (0.278; p > 0.05) shows that the model is not a good one. Thus, strategic planning has no significant effect on customer's satisfaction of SMEs in Kogi State.

5. Conclusion

Strategic planning is a crucial tool for firms' competitive and market situation today. There is increasing awareness now that SME owners need to be strategically inclined to combating strategic issues relating to business success in a turbulent environment. In Kogi State, it is evident, based on the empirical findings, that business failure of SMEs is caused by lack of knowledge about strategic planning, lack of skills in strategic planning and lack of distinctive capability to undertake strategic planning. Knowledge and skills are seen as the most paramount causes of poor outcome of

strategic planning among SMEs in Kogi State. Meanwhile, it is also clear from the result that tradition-based thinking relates with strategic planning adoption significantly and positively; while unavailability of resources negatively correlate with the adoption of strategic planning by SME owners in Kogi State. The empirical finding of this study further confirmed that unavailability of resources and tradition-based thinking is strong predictors of strategic planning of SMEs in Kogi State.

Based on the empirical verification, strategic planning has been found instrumental for the achievement of competitive edge and financial performance of SMEs in Kogi State. Although not very strong, it has significant effects on both competitive edge and financial performance of SMEs in Kogi State. The effect of strategic planning on customer's satisfaction of SMEs in Kogi State is insignificant. In fact, the predictive power of strategic planning on customer's satisfaction of SMEs in Kogi State is too poor. Therefore, it is recommended that:

i. SME owners should invest in knowledge and skills in strategic planning to influence its desirable outcome in the business environment of Kogi State;

ii. SME owners, including the economic stakeholders, should establish a social network where resources can be pooled and tradition-based thinking will be redirected to favour strategic planning of enterprises in Kogi State;

iii. SME owners should embrace effective strategic planning to facilitate their competitive edge and financial performance in the business environment of Kogi State.

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