Analyzing the Nexus between SMEs and Economic Growth in Nigeria: 1992-2010

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Abstract: *This study empirically examines the relationship between SMEs and economic growth using a new data set covering the period 1992-2010 as a follow up to the Ogunleye (2000) argument on the SMEs development nexus and world Bank (1994, 2002, 2004) Pro-SMEs theory which advocates the need for government to formulate policies aim at supporting SMEs activities. RGDP, industrial output, value of export, small and medium scale employment and employment as a ratio of total population were the explanatory variables while loan disbursed under agricultural loan guarantee scheme, and commercial banks loan to SMEs were the explained variables. Canonical Correlation Analysis (CCA) and Vector Auto regression (VAR) analysis were conducted; and findings show that a significant relationship exists between SMEs government support policies and economic growth. In addition, unexpected rise in the general level of economic performance (RGDP) form a basis for further rise in other economic activities; while the amount of loan disbursed in the financial sector increases due to better economic performance. The need for government to formulate strategic and coherent SMEs support policies, in order to facilitate rapid economic growth, was recommended.*

Keywords: *Economic Growth, SMEs, Nexus, Nigeria.*

1. Introduction

At the core of industrial revolution in developed nations are the activities of small and medium enterprises which have served as the driving force of industrial development. Countries all over the world have, therefore, focused on funding and supporting small and medium enterprises (SMEs) activities (Anyawu, 2001). SMEs are those firms operating with relatively small capital and other productive resources as opposed to larger firms or cooperation. They facilitate the course of economic development through the creation of employment opportunities, production of import substituting machineries and equipment, mitigating rural urban drift, producing specialized items in small quantities to meet diverse needs, mobilization of rural resources as well as stimulation of technological development among others (Nwakoby, 2007). Ogunleye (2000) surmised that the contribution of SMEs to economic growth can be examined from its contribution to the performance of some selected macroeconomic variables which include Real Gross Domestic Product (RGDP), Employment, industrial output, and Export.

A lot of researches have been carried out on this sub-sector but very few of these studies have examined its contribution to economic growth. These studies include: Olaniyan et al (1998), Olusoji (1999), Ogunleye (2000), Owualah (1999), Obadan and Agba (2006), Nwakoby (2007), among many others. The study of Olaniyan et al (1998) was limited to the Nigerian wood working sector only, three enterprises were surveyed and the time frame for the study (1989-1995) could be considered as too short. Plausibly, a number of factors can be attributed to the few available empirical studies that exist on the contribution of SMEs to economic growth. Firstly there exist the problem of different definition of SMEs among countries of the world which makes international organization research effort at studying the nexus between SMEs and economic growth almost fruitless. Secondly the presence of large informal sector especially in developing countries makes it impossible for adequate data to be available on SMEs operations. Thirdly, comprehensive theoretical knowledge on the impact of SMEs on economic growth is inadequate. Fourthly, efforts at studying the actual contribution of SMEs to economic growth through the identified channels have been at best impracticable due to non-availability of data on the contribution of SMEs to GDP, output, employment, and export (Ogunleye, 2000).

This research looks at small and medium scale enterprises (SMEs) and economic growth, to ascertain whether any meaningful and reliable association can be guaranteed between them. It seeks to evaluate whether some of the measures, programmes, and efforts put in place by government to increase efficiency

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and rapid productivity in the sector have produced positive results. It also intends to assist policy formulation with regards to whether or not government should continue to fund projects and programmes aimed at stimulating SMEs' productive capacity in Nigeria. To achieve the earlier stated objectives, the study is organized as follows: aside this section which provides basic introduction to the study, sections two entails review of relevant literature on the study, section three centres on methodology of the study, while section four entails results and discussion. Finally, the study concludes and suggests relevant policy actions.

2. Literature Review

There are many consensuses on the definition of small medium scale enterprises (SME) as the term are relative and they differ from industry to industry and country to country. Essien (2001) define small scale industry as an industry with total capital employed of over N1.50 million but not more than N50 million, including working capital but excluding cost of land, and / or a labour size of 11-100 workers. The Nigerian enterprises promotion decree of 1989 as amended in 1994 define small-scale business as any enterprise set up to make the owner self-employed and self-reliant. Such business include business centers: organized mechanics and allied artisan such as electricians, panel beaters, supermarkets, gift shops and so on. Emphasis is not laid on the amount of capital or on the numbers of employees engaged by the business but on creating employment for the owners.

2.1 Empirical Literature

A number of studies have been carried out on small and medium scale enterprises (SMEs) in Nigeria. Most of these studies where enriched with conceptual literature but lack the empirical backing to arrive at a logical conclusion. For instance the study of Dogon-daji et al (2006) explained the various role played by SMEs toward economic development from national and international perspective. The study reveals that employment generation, output expansion, income redistribution, revenue generation, and promotion of indigenous entrepreneurship and technology are the key roles played by SMEs in the developmental process.

Nwaloby (2007) in his study financing of small –scale enterprises in Nigeria discovered that the main source of funding for SMEs in Nigeria are generally through personal and family savings, informal credit institutions such as co-operative societies, money lenders and fund from money deposit banks which are still inadequate. Owulah (2001) investigates how small and medium enterprises can deliver in Nigeria, he discovered that if many educated individuals had not been engaged in a number of survival employment in the SMEs sector, the ranks of the unemployed would have swollen with far greater dire consequences than witnessed so far.

With regard to Nigerian experience on small and medium scale enterprises, Olusoji (1999) was able to disintegrate the Nigerian experience on SMEs into two different periods via the colonial era and the postcolonial era. He reveals that in the colonial era, policies such as trade policies, taxation and incentive scheme and the policy of local sourcing of raw material where used to encourage mass production. On the problem and prospect of small and medium scale enterprises in Nigeria, Fatai (2011) reveals that SMEs have been long believed to be catalysts for economic growth and national development both in developed and developing countries.

Adelaja (2003) examines the importance of small and medium industries in a developing/under developing economy using Nigeria as a case study. The study reveals that one of the major reason why the performance of SMEs fall short of expectation can be attributed to policy ineffectiveness, policy instability and inconsistency on the part of the government. Onugu (2005) reveals that although SMEs have played and continued to play significant role in the growth, development and industrialization of many economies the world over, however, the sub-sector have performed below expectation in Nigeria due to a combination of problems ranging from those associated with attitudinal problem of SMEs themselves, environmental related factors, instability of government to frequent government policy changes and somersaults. Ogunleye (2000) investigates small and medium scale enterprises as foundation for rapid economic development in Nigeria. Using available data which is on the contribution of small scale manufacturing firms to GDP, the study reveals as follows: that small scale manufacturing enterprises

contributed between 0.96 and 1.08 percent to total GDP between 1987 and 1998, which is 14 percent of the total contribution of manufacturing firms to GDP.

2.2 Theoretical Framework

The general framework of analysis for this study is derived in twofold: the first being the pro-SMEs theory which seems to advocate the utmost need for government to finance and support with relevant policies, programmes and projects aim at promoting, encouraging, motivating and empowering SMEs to operate with little or no challenges. Such intervention by government is considered desirable because of the potentials of the SMEs sub-sector to act as a catalyst in driving the part of third-world economics to the all sort for development. The USA government gave legislative and regulatory consideration to small business, as well as in antitrust policies that aim to limit the concentration of economic power (Samolyk, 1997). This direct government intervention into the affair of the sub-sector is not unconnected to the glaring potentials of the sector. According to Ogunleye (2000), USA has a small business sector that has about 22 million enterprises, generating more than a half of the country's GDP, employing about 53% of the total private work force and is responsible for creating vast majority of all new jobs. Indian took advantage of the industrial policy resolution of 1949 and paid more attention to the development of small scale industries. Throughout the 1950s and 1960s, the government offered the sector subsidies, reservations and direct support. SMEs have grown all over India employing 17.16 million at the end of 90s, accounting for US 108.18 billion out of the US192.3 billion industrial outputs during the same period.

In a developing nation like Nigeria, SMEs have been recognized as a foundation for achieving rapid economic growth and development due to their output as well as employment potentials. Direct policy intervention to reposition this sub-sector has manifested in the creation of financial organizations, programmes and projects in form of establishment of Small Scale Industries Credit Scheme (SSIC) in 1971, Industrial Development Centre (IDCs) during the second National Development Plan (1970-1975), National Direct of Employment (NDE) in 1986, the Nigerian Industrial Development Bank (NIDB) in 1964 and the Nigerian Bank for Commerce and Industry (NBCI) in 1973 among others. This type of argument could be regarded as the demand side of the theoretical framework. Apparently, the second argument, which invariably constitutes the supply side, is the Oguleye (2000) arguments which identify the channel through which SMEs contribution to economic development can be analyzed. According to this author, SMEs contribution to economic development can be investigated by their contribution to GDP, employment, industrial output and export (Ogunleye, 2000).

3. Methodology

As a first approximation to the study of the empirical relationship between SMEs operations and economic growth, the researcher examined whether a meaningful relationship can be established between the variable sets using multivariate method of analysis known as Canonical Correlation Analysis (CCA). This method was employed to reveal the nature of relationship that exists between the two phenomena. Secondary data that have already being compiled by some government organization charged with the responsibility of maintaining data bank regarding socio-economic activities and other aspect of the country were utilized. Quantitative data on SMEs access to capital such as agricultural loan guarantee scheme and Commercial banks loan to SMEs, and the contribution of the sub-sector to economic growth through Employment, Industrial output, Gross Domestic Product (GDP) and Export were extracted from Central Bank of Nigeria Statistical Bulletin (2010) and National Bureau of Statistic Publication for various years for the purpose of analysing the multi-interaction between these two sets of data.

According to Sherry and Henson (2005), CCA is most appropriate when a researcher desires to examine the relationship between two variable sets. Under this condition, CCA makes a significant theoretical sense as a multivariate analysis, especially where a researcher provides some rationale for why the variable are being treated together in variable sets. In the case of this study where such variables as Agricultural Loan Guarantee Scheme and Commercial Bank Loan to SMEs are used to measure SMEs access to capital, with employment, industrial output, Gross Domestic Output (GDP) and export used to measure the level of economic growth occasioned by SMEs activities; applying CCA to the study and reveal the relationship between SMEs and economic growth is a step in the right direction. Canonical Correlation Analysis (CCA) can therefore be considered desirable for this study owing to the following reasons noted by Sherry and Henson (2005):

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Firstly, CCA limits the probability of committing Type I error anywhere within the study. Secondly, an extremely important advantage of CCA is that it best honor the reality of behavioural science research where variables with multiple causes and effects are investigated (Fish, 1988). Finally, this technique can be used instead of other parametric tests (e.g. ANOVA, MANOVA, multiple regressions) in many instances, making it not only an important tool to use, but a comprehensive technique as well. In searching the literature, the number of cases recommended ranged from ten to sixty (cases per variable). The general equations for performing a canonical correlation are relatively simple. First, a correlation matrix (**R**) is formed. **R** is the product of the inverse of the correlation matrix of q' (**R**$_{yy}$), a correlation matrix between q' and p' (**R**$_{yx}$), the inverse of correlation matrix of p' (**R**$_{xx}$), and the other correlation matrix between q' and p' (**R**$_{xy}$), where **q** and **p** are correlation matrix of the observed criterion and predictor variables respectively.

$$R = R_{YY}^{-1} R_{YX}^{-1} R_{XX}^{-1} R_{XY}^{-1}$$ …………………………………………………...(3.1)

Canonical analysis proceeds by solving the above equation for eigenvalues and eigenvectors of the matrix **R**. Eigenvalues consolidate the variance of the matrix, redistributing the original variance into a few composite variates. Eigenvectors, transformed into coefficients, are used to combine the original variables into these composites.
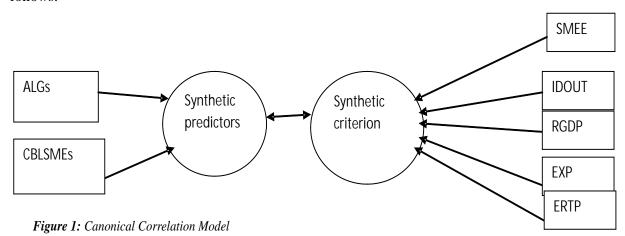
The eigenvalues are related to the canonical correlation by the following equation:

$$\lambda = r_{cc}^2$$ …………………………………………………………………………..(3.2)

Where λ = Eigen value

r_{cc}^2 = Square canonical correlation

That is, each eigenvalue equals the squared canonical correlation for each pair of canonical variates.

Following Sherry and Henson (2005), a simple form of CCA equation for this study is presented as follows:

Figure 1: *Canonical Correlation Model*

Where: ALGs = Agricultural Loan Guarantee Scheme
       CBLSMEs = Commercial Bank Loan to SMEs
           SMEE = Small and Medium Scale employment with 50 employees as   a cut off point.
       IDOUT = Industrial Output
       RGDP = Gross Domestic Product
       EXP = Value of Export
       ERTP = Employment as a ratio of total population age $\geq$ 15
       Predictor = Explanatory Variable
       Criterion = Dependent Variable

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A synthetic variable in CCA is formed through a linear combination of the associated variable sets to arrive at a single synthetic variable. That is;

$$Y^I = a + b^I_1 x_1 + b^I_2 x_2 + \ldots + b^I_n x_n \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.3)$$

Where: b^I_i are the estimated partial slope coefficients of the model (equation 3) and Y^I the estimated equation which is one synthetic variable.

Additional method of analysis can be derived from the theoretical framework that could allow an investigation of relevant policy implications on the set of variables. The channel of analysis adapted from Ogunleye (2004) permits the use of Dynamic Competitive General Equilibrium (DGCE) models in the spirit of Vector Autoregression (VAR) proposed by Sims (1980) to describe the dynamic implication of policy change on the economy. The VAR model of this study is specified on the basis of the analyst's a priori knowledge derived from the study's theoretical framework as follows:

$$ALGS_t = a_{1t} + \sum_{j=1}^{k} f_{1j} ALGS_{t-j} + \sum_{j=1}^{k} b_{1j} CBLSMEs_{t-j} + \sum_{j=1}^{k} l_{1j} SMEE_{t-j} + \sum_{j=1}^{k} q_{1j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{1j} RGDP_{t-j} + \sum_{j=1}^{k} g_{1j} EXP_{t-j} + \sum_{j-1}^{k} p_{1j} ERTP_{t-j} + U_{1t}$$

$$CBLSMEs_t = a_2 + \sum_{j=1}^{k} f_{2j} ALGS_{t-j} + \sum_{j=1}^{k} b_{2j} CBLSMEs_{t-j} + \sum_{j=1}^{k} l_{2j} SMEE_{t-j} + \sum_{j=1}^{k} q_{2j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{2j} RGDP_{t-j} + \sum_{j=1}^{k} g_{2j} EXP_{t-j} + \sum_{j-1}^{k} p_{2j} ERTP_{t-j} + U_{2t}$$

$$SMEE_t = a_{3t} + \sum_{j=1}^{k} f_{3j} ALGS_{t-j} + \sum_{j=1}^{k} b_{3j} CBLSMEs_{t-j} + \sum_{j=1}^{k} l_{3j} SMEE_{t-j} + \sum_{j=1}^{k} q_{3j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{3j} RGDP_{t-j} + \sum_{j=1}^{k} g_{3j} EXP_{t-j} + \sum_{j=1}^{k} p_{3j} ERTP_{t-j} + U_{3t}$$

$$IDOUT_t = a_{4t} + \sum_{j=1}^{k} f_{4j} ALGS_{t-j} + \sum_{j=1}^{k} b_{4j} CBLSMEs_t + \sum_{j=1}^{k} l_{4j} SMEE_{t-j} + \sum_{j=1}^{k} q_{4j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{4j} RGDP_t + \sum_{j=1}^{k} g_{4j} EXP_{t-j} + \sum_{j-1}^{k} p_{4j} ERTP_{t-j} + U_{4t}$$

$$RGDP_t = a_{5t} + \sum_{j=1}^{k} f_{5j} ALGS_{t-j} + \sum_{j=1}^{k} b_{5j} CBLSMEs_{t-j} + \sum_{j=1}^{k} l_{5j} SMEE_{t-j} + \sum_{j=1}^{k} q_{5j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{5j} RGDP_t + \sum_{j=1}^{k} g_{5j} EXP_{t-j} + \sum_{j-1}^{k} p_{5j} ERTP_{t-j} + U_{5t}$$

$$EXP_t = a_{6t} + \sum_{j=1}^{k} f_{6j} ALGS_{t-j} + \sum_{j=1}^{k} b_{6j} CBLSMEs_t + \sum_{j=1}^{k} l_{6j} SMEE_{t-j} + \sum_{j=1}^{k} q_{6j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{6j} RGDP_{t-j} + \sum_{j=1}^{k} g_{6j} EXP_{t-j} + \sum_{j-1}^{k} p_{6j} ERTP_{t-j} + U_{6t}$$

$$ERTP_t = a_{7t} + \sum_{j=1}^{k} f_{7j} ALGS_{t-j} + \sum_{j=1}^{k} b_{7j} CBLSMEs_{t-j} + \sum_{j=1}^{k} l_{7j} SMEE_{t-j} + \sum_{j=1}^{k} q_{7j} IDOUT_{t-j} + \sum_{j=1}^{k} d_{7j} RGDP_{t-j} + \sum_{j=1}^{k} g_{7j} EXP_{t-j} + \sum_{j-1}^{k} p_{7j} ERTP_{t-j} + U_{7t}$$

$$\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(3.4)$$

Where: $ALGS_t$ = current value of total annual loan disbursed under agricultural guarantee scheme, $CBLSMEs_t$ = commercial banks loan to SMEs, $SMEE_t$ = Small and Medium Scale employment with 50 employees as a cut off point, $IDOUT_t$ = industrial output, $RGDP_t$ = real gross domestic product, EXP_t = annual value of export, $ERTP_t$ = Employment as a ratio of total population age $\geq$ 15, $ALGS_{t-j}$ = current value of total annual loan disbursed under agricultural loan guarantee scheme over some time lag , $CBLSMEs_{t-j}$ = commercial banks loan to SMEs over some time lag, $SMEE_{t-j}$ = Small and Medium Scale employment with 50 employees as a cut off point over some time lag, $IDOUT_{t-j}$ = industrial output over some time lag, $RGDP_{t-j}$ = real gross domestic product over some time lag, EXP_{t-j} = annual value of export over some time lag, $ERTP_{t-j}$ = Employment as a ratio of total population age $\geq$ 15 over some time lag, $_{1t}$ = autonomous term (intercept),

The prepositions to be investigated are as follows:

Ho$_1$: there is no significant relationship between SMEs and economic growth in Nigeria

Ho$_2$: SMEs do not facilitate economic growth through the channels of RGDP, industrial output, employment and export.

4. Results and Discussions
4.1 Empirical Results on the Relationship between SMEs and Economic Growth
Under this subsection, an empirical investigation of the relationship between SMEs and economic growth as proposed by Ogunleye (2000) was examined below.

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Table 4.1: Multivariate Tests of Significance

Test Name	Value	Approx. F	Hypoth. DF	Error DF	Sig. of F
Pillais	1.48321	7.46220	10.00	26.00	.000
Hotellings	12.04898	13.25388	10.00	22.00	.000
Wilks	.03678	10.11349	10.00	24.00	.000
Roys	.91476				

Source: Extract from SPSS 17
Note. F statistic for WILKS' Lambda is exact.

Table 4.2: Eigenvalues and Canonical Correlations

Root No.	Eigenvalue	Pct.	Cum. Pct.	Canon Cor.	Sq. Cor
1	10.73173	89.06757	89.06757	.95643	.91476
2	1.31725	10.93243	100.00000	.75396	.56845

Source: Extract from SPSS 17

Table 4.3: Dimension Reduction Analysis

Roots	Wilks L.	F	Hypoth. DF	Error DF	Sig. of F
1 TO 2	.03678	10.11349	10.00	24.00	.000
2 TO 2	.43155	4.28105	4.00	13.00	.020

Source: Extract from SPSS 17

A canonical correlation analysis was conducted using two SMEs support variables which include agricultural loan guarantee scheme and commercial bank loan to SMEs as predictors of five SMEs induced economic growth variables which include industrial output, real gross domestic product, volume of export, small and medium scale employment cut off point of 50 and employment rate as a ratio of population age $\geq$ 15 (criterion-dependent- variables) to evaluate the multivariate shared relationship between the two variable sets (i.e., SMEs and economic growth). Table 4.3 showed that the analysis yielded two functions with squared canonical correlations (R^2_c) of 0.91476 and 0.56845 for each successive function. It also revealed that, collectively, the full model across all functions was statistically significant using the Wilks's = .03678 criterion, $F (6, 12) = 10.11349$, $p < .001$. Pillais, Hotellings and Roys statistics are also used to evaluate the level of significance of the model. However, because wilks's represents the variance unexplained by the model, $1 –$ yields the full model effect size in an R^2 metric which makes the criterion more appealing in evaluating not only statistical significance of the model but also the proportion of shared variation in the variable set that is explained by the estimated equation. Thus, for the set of two canonical functions, the R^2 type effect size was 0.96322, which indicates that the full model explained a substantial portion, 96%, of the variance shared between the variable sets. Using the Wilks's criteria, the first null hypothesis is here by rejected. We hereby conclude that there is a significant relationship between SMEs and economic growth in Nigeria.

The dimension reduction analysis in table 4.3 allows the researcher to test the hierarchal arrangement of functions for statistical significance. As noted, the full model (Functions 1 to 2) was statistically significant. Functions 2 to 2 (which was tested in isolation) also appeared statistically significant, $F (6, 12) = 4.28105$, $p = .020$. Given the R^2 type effects for each function, the two functions were considered noteworthy in the context of this study (91% and 57% of shared variance, respectively).

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Table 4.4 presents the reports of CCA results involving the standardized canonical function coefficients (i.e., the weights) and structure coefficients for all variables across both functions. The squared structure coefficients (r_s^2) are also given, which represent the percentage of shared variance between the observed variable and the synthetic variable created from the observed variable's set. The last column lists the communality coefficients (*h2*), which represent the amount of variance in the observed variable that was reproducible across the functions which simply are the sum of the variables. The communalities can be viewed as an indication of how useful the variable was for the solution. For emphasis, structure coefficients above 0.45 are underlined in the table.

As the analysis reveals, relevant primary criterion (dependent) variables include industrial output, real gross domestic product, volume of export and Small and medium scale employment cut off point of 50. Employment rate as a ratio of population from age 15 and above made neither secondary impact let alone primary impact. This conclusion was supported mainly by the squared structure coefficients, which indicated the amount of variance the observed variable can contribute to the synthetic criterion variable. The canonical function coefficients were also consulted, and these measures of SMEs contribution to economic growth tended to have the larger coefficients. Since industrial output, real GDP, volume of export and employment rate as a ratio of population age $\geq$ 15 possess the same sign, they are therefore considered to be positively related, however SME contribution to employment with 50 employees taken as cut-off point carries a positive sign, hence this variable is considered to be negatively related to the remaining criterion variables.

Table 4.4: Canonical Solution for SMES Contribution to Economic Growth for Functions 1 and 2

Variable	COEF	r_s	r_s^2(%)	COEF	r_s	r_s^2(%)	h^2 (%)
UTPUT	5.353	<u>-0.908</u>	<u>82.44</u>	-3.948	-0.139	1.93	<u>84.37</u>
RGDP	-1.118	<u>-0.917</u>	<u>84.09</u>	3.863	-0.058	0.34	<u>84.43</u>
EXPORT	-5.033	<u>-0.934</u>	<u>87.24</u>	-0.926	-0.151	2.28	<u>89.52</u>
SMEE	0.169	<u>0.774</u>	<u>59.91</u>	-1.033	-0.407	16.56	<u>76.47</u>
EMPLRP	-0.159	-0.338	11.42	0.327	0.342	11.69	23.11
R²			96.32			56.85	
ALGS	-0.977	<u>-0.992</u>	<u>98.41</u>	-0.248	-0.125	1.56	<u>99.97</u>
CBLSMES	-0.126	-0.246	6.05	0.999	<u>0.969</u>	<u>93.89</u>	<u>99.94</u>

Source: *Authors Computation   Extracted from SPSS 17*

Note: Structure (r_s) and squared structure coefficients (r_s^2) greater than |0.45| are underlined. Squared structure coefficients (r_s^2) and communality coefficients (h^2) greater than 45% are also underlined. Coef = standardized canonical function coefficient; r_s = structure coefficient; = squared structure coefficient (r_s^2); h^2 = communality coefficient.

The other side of the equation on Function 1 involves the predictor (independent variables) set. The table results informed us that only agricultural loan guarantee scheme made relevant primary impact on the synthetic variable created by the predictor variable's set. This is equally supported by the squared structure coefficient, which indicated 98.41% to be the amount of variance the variable contribute to the synthetic predictor variable. Loan to SMEs by commercial banks only contributed 6.05% variance to the synthetic variable thus exacting little or no impact on the synthetic variable. Since the structured coefficients of the observed predictor variables have negative signs, it therefore follows that they are both positively related. Furthermore, the predictor variables are positively related to criterion variables with the exemption of only employment rate as a ratio of population age $\geq$ 15. This however suggest that growth rate of employment lack behind that of population.

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These results are generally supportive of the theoretically expected relationships between SMEs and economic growth. Loan to SMEs and Agricultural loan guarantee scheme are positively related to increase in the level of industrial output, export, and SMEs contribution to employment. Therefore, this function seems to capture theoretically consistent relationships that may be collectively called "SMEs and economic growth". Moving on to function 2, the coefficients in the table suggest that the only variable of relevance can be found in the predictor equation. Specifically loan to SMEs by commercial banks made a primary impact on the predictor synthetic variable. This was further complemented by squared structure coefficient which indicated that about 97% variance in the synthetic variable is accounted for by commercial banks loan to SMEs.

The results on the table also suggested irrelevant variables in the model. As the analysis revealed, employment rate as a ratio of population age $\geq$ 15 was not useful in the model. This indicated that the variable may neither have been strongly negatively related to the rest criterion variables nor the predictor variables. This further verifies the theoretical consistency of Ogunleye (2000) preposition on SMEs and economic development as the original framework does not include this variable. The decision to include this variable in the model was based on the researchers' intuitive to control for adequate inclusion of the employment variable in the model in order to enhance it's (the model) robustness.

4.3 Test Issues and VAR model Estimation and Analysis
Stationarity test was carried out, and the test revealed that the variables are stationary at level except employment rate as a ratio of population age $\geq$ 15 and commercial banks loan to SMEs which are stationary after first difference. Granger Causality test was equally conducted and the result shows that RGDP granger causes industrial otuput, value of export, employment rate as a ratio of population age $\geq$ 15 and agricultural loan guarantee scheme; industrial output granger causes employment rate as a ratio of population age $\geq$ 15 only while value of export granger causes employment rate as a ratio of population age $\geq$ 15 and the amount of credit issued under agricultural loan guarantee scheme.

Small and medium scale employment cut off point of 50 (SMEE), granger causes RGDP, employment rate as a ratio of population age $\geq$ 15 and agricultural loan guarantee scheme. Employment rate as a ratio of population age $\geq$ 15 on the other hand does not granger cause changes in any of the variables which provides further evidence to support the preceding CCA result. Agricultural loan guarantee scheme granger causes only Employment rate as a ratio of population age $\geq$ 15; while commercial banks loan to SMEs granger causes changes in industrial output, RGDP and value of export. On the basis of the granger causality criteria, the second null hypothesis is here by rejected. This implies that SMEs do facilitate economic growth through the channels of RGDP, industrial output, employment and export.

4.3.1 Vector Auto regression (VAR) Estimation/Interpretation
The vector auto regression (VAR) model is commonly used for forecasting systems of interrelated time series and for analysing the dynamic impact of random disturbances on the system of variables**.** The VAR approach sidesteps the need for structural modelling by treating every endogenous variable in the system as a function of the lagged values of all the endogenous variables in the system (Gujarati and Sangeetha, 2007). The main focus of the VAR result analysis in this study is with regards to the response of credit and output shocks to the innovations or shocks occurring to the other variables in the system, as well as their forecasting power. In passing note, the VAR result of all the endogenous variables and their different lag periods are presented below. The values enclosed in the block shape bracket ([ ]) are the t-statistics, while those in parentheses ( ) are the standard errors. However, to adjudge whether the past values of any endogenous variable is significant (or not significant) in determining its own or any other endogenous variable's present value, we compare the t-statistic value against its critical value (1.96 or 2). If the t-statistic of a variable is greater than or equal to 1.96, we conclude that the lagged period value of the variable is significant in determining either its own present value or that of another endogenous variable. Specifically, four-period-lag value of industrial output (IDOUT) influences significantly and positively current value of industrial output and export, while four period lag value of RGDP negatively and significantly influences current value of amount of loan disbursed under agricultural loan guarantee scheme (ALGS).

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Table 4.5: VAR Estimation Results

Vector Autoregression Estimates
Date: 12/25/12   Time: 07:17
Sample (adjusted): 1996 2010
Included observations: 15 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	IDOUT	RGDP	EXPORT	SMEE	ETPR	ALGS	CBLSMES
IDOUT(-4)	3.393329	6.294832	3.616574	-0.009291	1.41E-06	4.703987	-0.023193
	(1.38102)	(3.67189)	(1.49800)	(0.01397)	(9.0E-07)	(3.01614)	(0.05633)
	[2.45711]	[1.71433]	[2.41427]	[-0.66481]	[1.56189]	[1.55961]	[-0.41173]
RGDP(-4)	-0.270264	0.356465	-0.539361	0.000500	-1.76E-07	-1.750067	0.008192
	(0.30845)	(0.82011)	(0.33457)	(0.00312)	(2.0E-07)	(0.67364)	(0.01258)
	[-0.87621]	[0.43466]	[-1.61209]	[0.16032]	[-0.87119]	[-2.59791]	[0.65110]
EXPORT(-4)	-1.827890	-4.564513	-1.403452	0.007187	-8.14E-07	-1.005278	0.007804
	(1.12730)	(2.99729)	(1.22279)	(0.01141)	(7.4E-07)	(2.46201)	(0.04598)
	[-1.62147]	[-1.52288]	[-1.14775]	[0.63003]	[-1.10245]	[-0.40832]	[0.16973]
SMEE(-4)	-245.8419	-442.6538	-346.6636	-0.176385	-4.70E-06	-651.7876	3.548611
	(53.8197)	(143.097)	(58.3783)	(0.54461)	(3.5E-05)	(117.541)	(2.19524)
	[-4.56788]	[-3.09339]	[-5.93823]	[-0.32387]	[-0.13332]	[-5.54518]	[1.61650]
ETPR(-4)	-10295.07	-6440.532	-7649.574	-104.4996	0.021182	42621.80	315.1475
	(20655.1)	(54918.1)	(22404.6)	(209.014)	(0.01352)	(45110.4)	(842.497)
	[-0.49843]	[-0.11728]	[-0.34143]	[-0.49997]	[1.56617]	[0.94483]	[0.37406]
ALGS(-4)	-0.009374	0.529918	-0.147297	-0.001048	1.08E-07	0.346575	0.001889
	(0.24068)	(0.63993)	(0.26107)	(0.00244)	(1.6E-07)	(0.52565)	(0.00982)
	[-0.03895]	[0.82808]	[-0.56421]	[-0.43034]	[0.68472]	[0.65933]	[0.19246]
CBLSMES(-4)	32.31598	71.68756	22.35094	-0.178644	2.12E-05	-15.59118	0.132161
	(10.4515)	(27.7886)	(11.3368)	(0.10576)	(6.8E-06)	(22.8259)	(0.42630)
	[3.09199]	[2.57975]	[1.97155]	[-1.68912]	[3.09413]	[-0.68305]	[0.31002]
C	5160394.	9064684.	7409530.	28533.09	29.40538	13436462	-32509.61
	(1319709)	(3508863)	(1431490)	(13354.5)	(0.86411)	(2882223)	(53829.4)
	[3.91025]	[2.58337]	[5.17610]	[2.13660]	[34.0297]	[4.66184]	[-0.60394]
R-squared	0.987809	0.988357	0.987460	0.617624	0.914655	0.936220	0.361345
Adj. R-squared	0.975617	0.976714	0.974919	0.235249	0.829311	0.872441	-0.277310
Sum sq. resids	2.00E+12	1.42E+13	2.36E+12	2.05E+08	0.859364	9.56E+12	3.33E+09
S.E. equation	535117.6	1422779.	580442.8	5414.984	0.350380	1168688.	21826.82
F-statistic	81.02552	84.88670	78.74195	1.615229	10.71719	14.67899	0.565791
Log likelihood	-213.4217	-228.0899	-214.6412	-144.5219	0.163018	-225.1389	-165.4315
Akaike AIC	30.05604	31.37124	30.21532	20.12543	0.964080	30.47377	22.46322
Schwarz SC	30.44233	31.75754	30.60161	20.51172	1.350374	30.86007	22.84952
Mean dependent	4559684.	11974362	4678293.	11695.00	31.37333	3058879.	50096.81
S.D. dependent	3426958.	9323641.	3665117.	6192.086	0.848079	3272222.	19312.67

Determinant resid covariance (dof adj.)	7.97E+54						
Determinant resid covariance	3.84E+52						
Log likelihood	-1057.092						
Akaike information criterion	148.4122						
Schwarz criterion	151.0556						

Source: *Author's Computation Extracted from Eview7.*

Similarly four lag period value of total employment attributed to small and medium scale enterprises (SMES) with 50 cut number of employees taken as cut off point (see NBS, 2010 for more information) influences significantly and negatively IDOUT, RGDP, export and ALGS. Conversely, four period lag value of commercial bank loan to SMES (CBLSMES) influences positively and significantly IDOUT, RGDP, export employment rate as a ratio of total population within the age bracket 15 and above (ETPR). Variations in IDOUT, RGDP, export, ETRP and ALGS are individually statistically significantly as accounted for by the estimated VAR model since their individual f- statistic is higher than the theoretical value (55, 38, =1.64) at 5% level. The coefficient of other regressors and their f- statistic are to be interpreted similarly.

5. Conclusion and Recommendations
5.1 Conclusion
Findings from this study show that all the parameters of SMEs support polices and economic growth indicators in the CCA and VAR model got the right signs. Commercial banks loan to SMEs and Agricultural loan Guarantee scheme are positively and significantly correlated with Real GDP, industrial output, employment creation, and export. The relationship between the variable set does not just stop at correlation but also extends to causation suggesting that SMEs government support polices impact positively on economic growth. It also suggests that SMEs support programmes have high degree of association with economic growth and development objectives. It is therefore save within proportion to conclude that SMEs government support policies in Nigeria are related to the pace of economic growth achieved so far in recent times and can be important sources of achieving greater economic progress in the future, which might trickle down.

5.2 Recommendations
1. Governments of both developed and developing countries need to strategically and coherently formulate and implement SMEs support policies in order to achieve rapid industrialization, economic growth, employment generation and export.

2. Such policies need to be consistent and operated over a long period of time in order to achieve sustainable growth.

3. For a trickle-down effect, other relevant policies such as monetary and fiscal policies must be used to stair the direction of SMEs support programmes through relevant agencies such as CBN and federal ministry of finance in order to maximize the expected gains or outcome. Then and then, SMEs could be thought of as economic development driver.

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APPENDIX I

YEAR	IDOUT	RGDP	EXPORT	SMEE	ETRP	ALGS	CBLSMES
1992	274755.3	532613.8	205611.7	20155	0	93391.8	20400
1993	282305.9	683869.8	218770.1	20155	29.3	81273.8	15462.9
1994	283563.1	899863.2	206059.2	20155	29.5	106901	20552.5
1995	873884.7	1933312	950661.4	20155	29.7	166645.1	32374.5
1996	1293226	2702719	1309543	20155	29.9	227664.5	42302.1
1997	1215912	2801973	1241663	20155	30.1	242028.3	40844.3
1998	882034.2	2708431	751856.7	20155	30.3	220288.5	42260.7
1999	1179551	3194015	1188970	20155	30.6	241839	46824
2000	2359313	4582127	1945723	20155	30.8	361449	44542.3
2001	1874083	4725086	1867154	7465	31.1	728545.4	52428.4
2002	2042916	6912381	1744178	7465	31.4	1050982	82368.4
2003	3037706	8487032	3087886	7465	31.6	1151015	90176.5
2004	4610084	11411067	4602782	7465	31.9	2083745	54981.2
2005	6094891	14572329	7246535	7465	31.9	9493855	50672.6
2006	7488744	18564595	7324681	7465	32	4262430	25713.7
2007	8085380	20657318	8309758	7465	32.1	4425462	41100.4
2008	9719514	24296329	10161490	7465	32.2	6497959	13512.2
2009	8071071	24794239	8356386	7465	32.3	8328566	63300.7
2010	10440835	29205783	11035795	7465	32.4	6567357	60424.7

Source: CBN, 2010; NBS, 2010, World Bank Data, 2010

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