CAPITAL ACCUMULATION AND ECONOMIC GROWTH IN NIGERIA

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Abstract

This study aimed at examining the impact of capital mobilization and utilization for higher output in Nigeria. It was found that rational policies that will boost savings mobilization, utilization of bank credit and utilization of capital become desirable for economic growth in Nigeria, such savings mobilization, utilization of bank credit and capital can transform into capital accumulation for higher output in Nigeria.

Introduction

Structurally speaking, an economy could be defined as primary producing, secondary producing and tertiary producing. Nigeria economy happens to fall within the first category (Guobadia 2002). What is particularly disturbing in this category is that Nigeria has not attained the optimal level of production where investment per head is highest .It has not equally achieved a golden circle of production where consumption per head is highest. The obvious implication of this is that Nigeria is structurally backward in terms of production. In this sense, new policies for capital accumulation for higher productivity become warranted and new policies that affect resource mobilization and utilization for long-term investments become desirable.

In developing economies, macroeconomic policy options are to be encouraged for bringing about changes in the structure of production and in capacity utilization. Such policy, which target resources mobilization for higher output in aggregate investment over time, will undoubtedly result in changes in a country's productive base and when combined with positive change in productive capacity (rate of technological change) will lead to higher output in the economy. In this sense, effective utilization of a country's capital base is one way of achieving higher output (lyoha 2002).

In the light of the above survey, this study aims at examining the impact of capital mobilization and utilization for higher output in Nigeria. The reason being that capital accumulation is important in order to transform a country from primary producing or low-income economy to an industrialized or high-income economy.

Literature Review

The relationships between capital accumulation and higher output have assumed an extensive discussion in both economics and social science literature. The discussion appears to be centred on the role of private and public capital on one hand and the role of domestic and foreign capital on the other hand. But each argument recognizes the need to accumulate capital for development, but the emphasis on the nature; characteristics and consequences of capital accumulation differ among these views. For example, it is often argued that investment stimulate growth within a market economy while private sector investment remain the engine of growth, public sector is seen as providing enabling environment. In the classical sense, providing enabling environment connote providing law and order that will allow private initiative to strive. In this sense, the public sector in most part regulates in order to allow market to function effectively. Government in this vein must put in place effective fiscal, monetary, exchange, and other policies to ensure proper functioning of the system. Theoretically in this argument, the private sector remains the engine of growth through capital accumulation (Yesufu 2001).

Regardless of the role of private sector in economic growth process, Ekpo (2002) argued that the controversy over the growth effect of government investment is partly due to our incomplete understanding of the growth process and the determinants of economic expansion. According to him, in the "endogenous" growth theory, government investment in human capital formation can stimulate growth. It showed that government capital expenditure impact positively on technological changes. In a similar vein Blejer and Khan (1984), generally came to the conclusion that public investment or capital complement private investment. According to them, public investment, which has some bearing on infrastructure and the provision of public goods, was complementary to private investment. In this sense, both market propelled and state intervention in economic affairs serves as a necessary

stimuli for growth in an economy.

The need for foreign capital in accelerating the growth process have been viewed with different perceptions, wherein some analyst are of the opinion that foreign investment pave the part for the host country to move from a state of stagnation to self sustaining growth (Rosenstein - Rodan 1961, Chenery and Strout 1966, and Odusola 2002). These researchers demonstrated that there is a positive and significant relationship between private foreign capital inflow and national savings and this in turn affects investment and output positively. lyoha (2002), equally obtain a positive correlation between foreign investment and growth in Nigeria.

As explain by Chenery and Strout 1966, savings is a biding constraint to any sustainable economic growth and development. Accordingly, for growth to be initiated, countries must save at least 12 percent of their income, though recent development in some Asia countries have put this to be about 30 percent, for details on this see Odusola 2002. Since this savings rate is unattainable in most developing countries, they have to attract foreign investment and this is expected to complement the limited domestic investment. This complementary role of foreign capital had been addressed by Van Loo (1977) who examined the complementary and supplementary role of foreign investment in Canada. According to him, foreign investment partially supplements and partially complements domestic investment. The effect of one or the other depends on the coefficient value of foreign investment on domestic investment. It becomes complementary when the coefficient value is greater than one and supplementary when the coefficient value is less than one. In the case of complementary function, a one dollar inflow produces more than a one dollar increase in domestic investment, while the supplementary function indicate that a one dollar inflow produces less than a one dollar increase in domestic investment, the impact of savings in this case is negative. For details on this see Onwuka and Enoma (1997).

In another vein, some researchers (Fafowora 1986, Obadan 2002, Onwuka and Enoma 1997) are of the opinion that foreign capital had negative effect on local effort and productivity. They posited that the present development effort in Africa and part of Asia are doomed to failure because of their cost of foreign capital equipment to the local economy. The high cost generated by leakages as a result of the absent of self reliance, that means, has their economy grows the cost of outside support by way of imported equipment and material grows too. According to them, for foreign capital to be meaningful its impact on the gross national product (GNP) must be greater than the resulting income of foreign investors. However, the value added to output by foreign capital is less than the income accruable to the local economy. Thus, the greater product that could be shared with other segment of the society in form of reduce prices and increases in wages does not materialize

Theoretical Consideration

The theoretical basis for capital accumulation and higher output is based on the classical, neoclassical (better exemplified in the cobb-douglas and malleable capital growth theory) and endogenous growth theory. According to the classical economist, increases in output and productivity are seen as a direct consequence of specialization, which lead to more tools and machinery made available for production. This point was well explained in Bamidele (1999), when he said that the process of capital formation is "cumulative" and "self feeding" and this involves three interrelated stages, thus the existence and rise of real savings; the existence of credit and lastly the existence of financial institution to mobilize savings and development for appropriate investment in capital goods.

The neo-classical growth theory is an extension of the classical theory of growth, which assumed variable input substitution in production and a constant return to scale in productive activities, this implies that the capital/labour ratio is constant and capital stock must be expanding at the same rate as labour forces. The basic framework of their analysis is found in the Neo classical malleable capital model of Solow (1956, 1962 and 1970) and in the Cobb-Douglas production* function. The Cobb-douglas equation relates production function to capital and labour input. Thus,

$Y = AK^{K}L'^{-ct}$ ----------(1)

Where Y is output, K, L are capital stock and labour input, A is index for technical change <x and 1-cc are elasticities of capital and labour input

The need for capital stock cannot be overemphasized in Nigeria. In the above equation, an increase in labour input in absence of capital stock raise output, but the output per worker is reduced because of the law of diminishing returns. An attempt to substitute labour for capital in Nigeria has

yielded minimal result (Guobadia 2002)

In the neo-classical growth equation exemplify by Solow 1957 states that

$$Y=f(K,L) \quad \text{.....2}$$

If we twice differentiate equation 2 we have

F'k, F'L >o and F"k, F"L<0 which implies that maximum values of the expression are attainable at the critical points, where the proportion of output save (s) is a constant, so the rate of saving is:

$$S=sY \quad \text{.....3}$$

The rate of increase of capital stock(net investment) is given as

$$dk/dt-^{A}/k \text{ ..... 4}$$

Combing equations 2,3 and 4, the basic identity in national income can be expressed as

$$K=sY=sf(K,L) \text{ ..... 5}$$

Suppose labour force grows at a constant relative rate n (natural growth rate). Then

$$Lt=Loe^{nl} \quad \text{.....6}$$

And capital-labour ratio is r=K7L.....7 and L/K=l/r .Thus ,the relative rate of change of r is given as ^r/r =^k/k - ^L/L 8

But ^L/L^n and IO=sF(K,L) so from equation 5, substituting these into equation 8, we obtain

r=rsF(K,L)/k -nr 9

Dividing the function through by L, we have

$$r=sF(r,l)-nr \quad \text{.....10}$$

This equation 10, gives output per worker as a function of capital per worker. If r=0 then the capital-labour ratio is constant and capital stock must be expanding at the same rate as labour force .This conclusion can be derived from the cobb-douglas production function, if we substitute equation 2,6 and 1 in 5, we have

$$K=sK^{cc}(Loe^{m})^{i-cc} \quad \text{.....11}$$

The integration of equation I 1 with respect to time gives

$$K—K_0^{cc} - sLO^{cc}/n+(sL_0^{cc}e^{nt}/n) \text{.....12}$$

Where K_0 is the initial capital stock and L_0 is the initial Labour force. It can be seen from equation 11 and 12 that K_t grows essentially at the same rate as the Labour force, that is, $(s/n)^{I/oc}Loe^{nt}$. At equilibrium, the value of the capital-Labour ratio is

$$r'=(s/n)^{1/cc} \quad \text{.....13}$$

Here again, equation 13, shows that the larger the capital-Labour ratio the higher the savings ratio and the lower the rate of labour supply. This implies that output will be higher if savings ratio is higher and labour supply rate is lower. Given this condition, emphasis is placed on capital if higher output is to be achieved.

In spite of this brilliant growth theory by the neoclassical economist, it has been subjected to some stringent and virulent criticism on the ground of convergence in the long run. Because of this, the recent researches and empirical works in the last decade have given rise to some growth analysis, which are referred to as "endogenous" growth models. This model shows that growth is better generated endogenously as against the neoclassical exposition of exogenously generated growth. This can be seen in the works of Romer (1984), King and Levine (1993). The endogenous growth model provides an understanding of the importance of financial development in economic growth.

Model Specification

Based on the theoretical framework and literature review, several variables have been identified and introduced in this segment for examination of functional relationship; see Guobadia (2002), lyoha (2002). These variables include capital stock (k_t), aggregate savings (sa), Bank credit (B_{cl}), Capital formation (cf), labour input (L_t), Output (Y_t),Direct foreign investment (dr), and Interest rate (R_t). The structural models are specified as follows:

$$K_t = F(sa,B_{ct},cf,dr,R_t,) \text{ ..... 14}$$

$$Y_t=F(K_t,L_t) \text{ ..... 15}$$

Transforming into log linear form yields:

$$£nK_t = C_0 + C,lnsa + C_2 lnB_{cl} + C_3 lncf + C_4 lndr + C_5 InR, + Ut \quad \text{..... 16}$$

Where C,, C2, C_3, C_4,>0 and C_5 <0; dut=0

$$hiY_t = f_0 - HnfiKt + lnf_2 L, + Et \quad \text{..... 17}$$

Where $f_b f2>0;dEt=0$

Empirical Evidence and Analysis

An examination of table II, and I yield meanings, which are quite revealing and this could be explained in one or more ways. Comparing bank credit and capital formation values, it reveals that increases in bank credit did not yield corresponding increase in capital formation. In most instances, bank credit exceeded the value of capital formation. This outcome could be attributed to the non-banking practicing behaviour of most people in Nigeria or it could be attributed to the general practice of borrowers not using borrowed fund for project other than the investment purpose for which the loan was granted. The government interest in this kind of practice is to develop a policy that would give loan to specific sector. Here the conduct and behaviour of borrowers are to be subjected to direct control.

Also in table (I), output (GDP) level rose generally in absolute terms but relatively, the growth does not exceed 3 percent in most instances and the level falls short of the desired levels. This could be due to a number of causes, for example, Nigerian growing population, increasing absorptive capacity, etc. Capital as a component of output is very low for this period we can verify this in table (II) and this call for urgent policy in this direction. To form capital on long-term basis is to encourage continuous and significant investment from period to period thereby, impacting on output at the desired level.

In table (II), the ratio of saving to capital formation for a better portion of year is not impressive. This shows that if capital formation and the attainment of higher output were to depend strictly on available savings, by implication Nigeria will never industrialize and the country's stagnant growth will remain a legitimate fact.

Table I: Capital Formation, Bank Credit and Gross Domestic Product in Nigeria 1980 2004 in (Billions)

Years	Capital Formation (CF)	Bank Credit (BCt)	Gross Domestic Product (GDP)
1980	47.3	10.8	73.2
1984	19.9	32.9	63.0
1988	19.4	57.3	79.8
1992	42.0	160.9	97.4
1996	50.5	340.8	107.0
2000	53.1	511.5	116.0
2004	55.0	1854.1	118.1

Source: **CBN** (2004) Statistical Bulletin

Table II: Ratio of Bank Credit to Capital Formation (BCt/Cf), Savings to Capital Formation (Sa/Cf), Capital Formation to Output (Cf/CDP)

Years	BCt/Cf	Sa/Cf	Cf/GDP
1980	22.8	12.2	64.6
1984	156.5	55.3	31.3
1988	294.9	119.4	24.6
1992	383.1	130.0	43.1
1996	675.2	266.4	47.1
2000	1012.1	578.1	43.5
2004	1134.7	647.1	44.6

Source **CBN** (2004) Statistical Bulletin

Model Estimation

Since the model is a set of simultaneous equation, all the variables are specified as instrumental variables for the 2SLS estimation of the regression coefficients. The model will be estimated by 2SLS technique because it gives consistent estimate of the structural parameters. The results for the specified model are as follows

K_t=2.3+1.58sa+0.35cf+0.81dr-1.4R_t+0.5B_{ct}..... 18

(15.0) (0.48) (0.22) (0.91) (-1.46) (2.8)

R^2=.56 R^2 -.55 F (4, 25) =5.2274

D.W=1.3

Y, -22.6 -8.8K_t +1.3L_t.....19

(8.7) (-2.2) (10.3) R^2=.87 R' =86 F(2,25)=61.95

D.W-1.5

The results obtained in this study are presented in equations 18 and 19. It should be noted that in equation 18, the R-square only explains about 57 percent variation in capital stock by exogenous variable. A significant linear relationship exist between capital stock and the independent variable, this is explained by F-statistic, which is highly significant at 1 percent level. The t-ratio in parenthesis is not all significant at 1 percent level. Only bank credit and interest rate are significant at 1 percent level. Direct foreign investment and savings are significant at 5 percent while capital formation is significant at 10 percent level. All the presumptive signs are correctly signed in equation 18, The Durbin Watson test shows the presence of autocorrelation

In equation 19, the coefficient of determination, R-square is very impressive at 87 percent. This shows that the capital stock and labour input explain output by that percentage. However, the presumptive sign of capital stock ought to be positive but it is negative. This could be as a result of capital insufficiency in the Nigeria economy or idle capacity in the industrial sector. The F-statistic is significant at 1 percent level. The t-ratio for labour input is significant at 1 percent level while capital stock is significant at 5 percent level. The DW-statistic shows that the presence of autocorrelation is negligible. .

Conclusion

This study examined the impact of capital mobilization and utilization for higher output in Nigeria. In attempt to do this, literatures were reviewed and some theories were considered as relevant in the link between capitals and output. There are lessons to be learned from this study; first, the t-ratio value for capital stock shows negative rather than positive. The implication is that Nigeria -is not fully utilizing its capital stock, in this vein new policy for effective utilization become desirable if Nigeria is to industrialize

While the widespread view of the neoclassical economist support unfiltered reliance on market system and the elimination of policy measure as a guarantee for higher output. The view in this study is that the western type or market-oriented production of constant return to scale cannot work in Nigeria because of differences in economic structure, processes and institutions. In this sense, rational policy that would boost savings mobilization and the utilization of bank credit becomes desirable for growth of the economy. Such savings mobilization and the utilization of bank credit can transform into capital accumulation and this will consequently lead to structural changes in the Nigeria economy from a primary producing to an industrialized economy.

References

Blejer, M. I and M .S, Khan (1984). Government Policy and Private Investment in Developing Countries. *IMF Staff Paper.* Vol. 1 no 31.

Central Bank of Nigeria (2004). Statistical Bulletin.

Chenery, H, B and A. Strout (1966). Foreign Assistance and Economic Development. America *Economic Review* Vol. 56 No2.

Ekpo, A. H (2002). *The Relative Contribution of Public Sector and Private Sector Investment to Nigeria's Economic Development Since I960.* Benin City Mindex Publishing.

Fafowora, D. (1986). *The Allocation of Resources-Theory and Policy.* London: George Allen and Unwin Publishers.

Guobadia, S. L. A (2002). *Monetary Policy, Capital Accumulation and Output in the Nigeria Economy.* Benin City: Mindex Publishing.

lyoha, M. A (2002). Assessment of Nigeria's Economic Performance Since 1960. Benin City: Mindex Publishing.

King, R. G and R. Levine: Finance, Entrepreneurship and Growth: Theory and Evidence. *Journal of Monetary Economics.*

Longe, J. B (1996). Deregulation and the Nigeria Economy. In Onwuka, Uniamikogbo and Idehia (eds), *Economic Development in a Deregulated Economy.* Stirling-Horden Publishers.

Obadan, M. I. (2002). *External Debt and Management Policy.* Benin City: Mindex Publishing

Obi. C. (1989). Applied Economics Lecture Notes, University of Nigeria Nsukka.

Odusola, A. F. (2002). *Foreign Investment Policy and Development of the Nigeria Economy.* Benin City; Mindex Publishing.

Onwuka, E. C. and A. I. Enoma (1997). The Impact of Net investment on Gross National Product: The Nigerian Experience 1980-1997. *Journal of Economics and Management Studies* Vol. I Nos 3 and 2.

Rosenstein-Rodan, P.N. (1961). International Aid for Under-Developed Countries. *Review of Economics and Statistics* Vol. 43 Nos. land 2.

Solow, R.M. (1956). Technical Change and the Aggregate Production Function. *Review of Economics and Statistics* Vol. 39.

Van loo (1977). The Effect of Foreign Direct Investment on Investment in Canada. *Review of Economics and Statistics* Vol. LIX No4.

Yesufu, T.M. (2001). Monetary and Associated Policies and' Strategies for Sustainable Industrialization and Trade Promotion in Nigeria. *The Nigeria Economic and Financial Review.* Vol. 6No.2.