CAPITAL ACCUMULATION AND ECONOMIC GROWTH: THE ROLE OF THE NIGERIAN STOCK EXCHANGE

BY

Mary M. N. Ado (Ms)

M.Sc. Thesis submitted to the Postgraduate School, Ahmadu Bello University, Zaria, in partial fulfillment of the requirements for the award of the degree of Master of Science (Economics).

Department of Economics
Faculty of Arts and Social Sciences
Ahmadu Bello University
Zaria, Nigeria.

NOVEMBER, 1987

DECLARATION

I hereby declare that this thesis is original and is based on my own research work. It has not been submitted anywhere else for a higher degree or for publication. Quotations are either indented and their sources are duly acknowledged by means of text reference. The sources of information used in the study are also shown in the references.

Declared this day:

...20.../12/ 1987

Signed.....
Mary M. N. Ado (Ms)

Certification

The thesis titled "Capital accumulation and Economic Growth - the role of the Nigerian Stock Exchange" by Ado, Mary Magdalene meets the regulations governing the award of the degree of Master of Science (Economics) of Ahmadu Bello University and is approved for its contribution to knowledge and literary presentation.

Dr Sam Nahamya
Chairman, Supervisory Committee — Date 20/12/87

Dr Mike Kwanashie
Member, Supervisory Committee — Date

Dr Mike Kwanashie
Head of Economics Department — Date

Dean of Post-Graduate School — Date 19-2-88

DEDICATION

This work is dedicated to:

All those who made it possible.

ACKNOWLEDGEMENT

In the process of this work as the ultimate to mark my 'second coming', the road was very rough. It then goes without saying that the completion of this work is an expression as well as the result of the unflinching support given to me by people too many to name. I am nevertheless deeply appreciative of all the contributions and help that was given me by all.

Foremost, I thank the Almighty for his mercies and constant guidance, which was manifest in the disposition of others to help see me through. Specifically, I would like to thank the following for their support and help: Dr Sam Nahamya, who supervised this work with the assistance of Dr Mike Kwanashie. Their comments and constructive criticisms improved the quality of this work. I would like also to thank Dr Ode Ojowu and Dr Agogo Mawuli (whose frank comments at the early stage of this work made it a challenge). A BIG thank you to Dr Abdullahi Mahadi who made sure I came back despite all 'odds'; Dr Joshua Attah, who inspired the research topic; Mr Sam Mensah, for his lighter-mood jokes; Z.T. Abdallah, Ganiyu Garba for their interest and time spent discussing the issues pertaining to this work.

I cannot exclude the non-academic staff of the Department of Economics who offered their love and friendship. Mrs R.T. Sanni, Innocent Aduku, Cecilia, Rose, Garba, Mustapha and Abubakar. You are all great people and I enjoyed every minute we shared in your homely office.

Miss Rose Ako, Miss Esther Kude, and Miss Kate Uloko, thank you for your friendship, it is good to know I have you both to talk to, especially when the going got tough.

Most of all, I owe everything to Hafizu Ilyasu and my family for their encouragement and support at every stage of the programme. I hope I have lived up to your expectations.

Finally, the views expressed in this work are mine, likewise, the responsibility for any error(s) therein.

Ado, Mary M.N. (Ms)

ABSTRACT

The general rate of economic growth is limited by the shortage of capital which has been identified as the core factor by which all other aspects of growth are made possible. Therefore, development efforts are geared towards finding a way of breaking the vicious circle between capital shortage and under-development by designing a mechanism for achieving an optimum rate of capital accumulation. The rate of capital accumulation is determined by the level of investment, which necessitates domestic savings and/or foreign assistance. However, foreign assistance has its implicit burden, especially for the less developed countries (LDCs). As such, domestic savings has become the most reliable source of investment finance, while foreign assistance acts as a supplement. The mobilisation of large investible funds required for increased rate of capital accumulation thus becomes an imperative.

It is on the above-mentioned premise that this study of the Nigerian Stock Exchange is being Undertaken, albeit as a single financial institution where large sums of investible funds can be raised. Informed by the need to ascertain its real significance, and its contribution to capital accumulation and the

growth process, especially through the new issues of its primary market (this signifies new saving creation in the market), simple but testable macro-economic models are used to empirically test the significance of new issues to economic growth vis-a-vis the relative significance of other determinats of investment or gross capital accumulation viz: domestic institutionalised savings and foreign capital inflow. The Nigerian Stock Exchange* was found to be significant, with potentials of further contributing to gross capital accumulation and growth. As such, ways in which to further the contributiion of the Nigerian Stock Exchange are suggested. These suggestions centers around increasing government participation in providing a conducive atmosphere for the development of indigenous enterprises. This is identified as a necessary step to increase the supply of indigenous corporate new issues thereby neutralising the current foreign-owned/dominated corporations quoted on the exchange.

•Further references to the Nigerian Stock Exchange shall be in abbreviation - NSE.

TABLE OF CONTENT

		Page
	Declaration	ii
	Certification	iii
	Dedication	iv
	Acknowledgement	v
	Abstract	vii
	List of Figures	xi
CHAPTER 1	INTRODUCTION	1
1.1	Statement of the Problem	10
1.2	Objective of the Study	12
1.3	Justification of the Study	13
1.4	Methodology	14
CHAPTER 2	LITERATURE REVIEW	18
2.1	Introduction	18
2.2	Theoretical Framework: An Analysis of Some Growth Models	19
2.3	The Need to Mobilise Internal Resources Through the Development of Capital Markets	58
CHAPTER 3	THE ESTABLISHMENT AND THE DEVELOPMENT OF THE NIGERIAN STOCK EXCHANGE	81
3.2	The Nigerian Capital Market: An Overview	83
3.2.1	The Historical Development of the NSE	85

3.2.2	Activities and Operation of the NSE	86
CHAPTER 4	ECONOMETRIC TESTING OF NSE's CONTRIBUTION TO ECONOMIC GROWTH	107
4.2	Nature and Sources of Data	112
4.2.2	Limitations of the Data	113
4.2.3	Choice of Variables	113
4.3	Specification of the Models	114
4.3.1	Method and Procedure	114
4.3.2	Estimation of the Models	116
4.4	Evaluation and Interpretation of the Models	118
CHAPTER 5	THE NEED FOR FURTHER DEVELOPMENT OF THE NSE	129
5.1	Introduction	129
5.2	Measures for Increasing the Supply Indigenous of Corporate Issues	132
5.2.1	The Role of the NSE in Privatisation	140
CHAPTER 6	SUMMARY AND CONCLUSIONS	148
Bibliography		152
Appendices		163

LIST OF FIGURES

FIGURES	
1	35
2	38
3	64
4	94
5	98
6	99
7	102
8	103
9	104

Chapter 1

INTRODUCTION

In recent years, the issue of economic development in the LDCs has been a topic upon which much attention has been focused. There is little doubt that this subject will continue to attract attention, as long as the present international maldistribution of wealth persists in its present content. The literature on the problems of stimulating growth in these countries is enormous in its proportion, and its evolution has been distinguished by an increasing subdivision of the problem into its constituent parts.

After the second world war, interest in the topic had tended to suggest that the mere infusion of sufficient capital into LDCs will solve the problem. However, the refinements of theoretical analysis have established the superficiality and inadequacy of such an approach. The availability of capital is not enough. Economic development requires a minimum of natural endowments, a trained and mobile labour force, an adequate supply of enterpreneurs, the modification of social attitudes and organisation so as to make them work in favour of an increased and

efficient productivity, thus enabling the process of economic development.

Yet, the availability of capital lies ultimately at the root of many of these needs. Though capital alone will not solve the problem of under-development, it nevertheless provides access to the other ingredients whose combination can eventually bring about positive development in the LDCs.

The supply of capital therefore remains one of the key factors in the solution of the problem. International organisations have sought to deal with this aspect of under-development. Inspite of the great value of their contributions, the effects have been disappointingly limited.

As Professor Higgins emphasised in his calculation, in order to attain the same level of foreign investment as was maintained by the United Kingdom (U.K) during the nineteenth century (19th century) in the LDCs, the United States (U.S) would need to carry out the entire European Recovery Programme twice a year.[1] Apart from the limited resources at their

---

1. Higgins, B. Economic Development, Norton, New York, 1959, page 459.

disposal, political difficulties have limited the role of the international agencies.

This leaves an immense gap to be filled by other means. The essential need in most LDCs is for the financing of general development programmes aimed at establishing a broad and solid economic foundation upon which a subsequent but predictable and high social benefit can be achieved.

Hence, both developed and developing countries have come to lay increasing emphasis on the importance of an adequate source of local, rather than external funds to finance capital investments. Leading international agencies themselves stress that LDCs need to finance the major part of their economic expansion from their own resources.[2] The United Nations Commission on Economic Development for example, concluded that the financing of development must be based on the maximum exploitation of domestic sources of funds, and reported that: "it emphasises so much the role of domestic finance in economic development because it believes that,

---

2. United Nations, Methods of Financing Economic Development in Under-developed countries, New York,

it is the pre-requisite for enabling countries to implement the social, political and economic policies which they consider most suitable for the improvement of their standard of living. The role of foreign finance in economic development can therefore be of only subordinate character".[3]

Individual commentators have also expressed a view similar to this. Professor Nurkse, for example, laid great emphasis on the importance of developing internal sources of development finance. He says that "external resources, even if they come in the most desirable forms, are not enough..... In my view, what needs to be stressed above all is that external sources can scarcely make a significant contribution to economic growth unless there is complementary action on the home front".[4] Putting aside the difficulties in obtaining foreign capital, and of properly integrating it into the local economy when it is obtained, there is the further problem of balance of payment burden implicit in it. Most LDCs are dependent on the export of a limited

---

3. Ibid, page 94.

4. Nurkse, R, Problems of Capital Formation in Under-developed Countries, Blackwell, Oxford, 1953, page 140-141.

number of primary products, which are faced with violent fluctuations in their world demand and prices. The crucial importance of internal flow of investible funds in the general struggle against economic under-development cannot therefore be under-estimated.

Broadly speaking, internal suppliers of capital funds can be mobilised through two main channels viz: fical and monetary measures. The former, which though has been proved to be the most appropriate for LDCs, involves important and difficult problems concerning the relationship between taxation and incentives, types of tax most suited to the administrative machinery of LDCs; the conflicts between equity and efficiency and so on.

But for the purpose of this work, we are concerned with the latter measure and the contribution which it can make to the financing of development by the reformation or development of monetary arrangements and institutions. This is only an aspect of a topic which in itself is only an element of a highly complex problem. Nevertheless, a discussion of the broad issues [illegible] ing this single

strand in the whole complicated fabric may make contribution to the solution of the problem as a whole.

Thus, an appraisal of the Nigerian Stock Exchange (NSE) establishes its contribution to economic development through its mediating role between savers and investors. This, however depends on the level of savings which is linked with the rate of investment. A break in this linkage is often manifest in low rates of capital accumulation, an identified impediment to economic growth in LDCs.

The study of the NSE must then be situated within the historical perspective around which it was established. It was established as a mechanism to rationalise the operation of world capitalism within the Nigerian socio-economic context. Its stated objective, is presumably to mobilise investible funds (surplus value) for the expansion of the productive capacity and thus the exploitative potential of capitalist industrial machinery in Nigeria.

However, the establishment of the NSE must be located within its historically verifiable background, which dates back to the colonial era and

whose continued development has in the present time given rise to a dependency situation in the country and indeed in most LDCs. This situation is objectively characterised by the growth of the multinational corporations, whose operations expresses the logic of capitalist expansion in its present stage. The NSE is thus also an expression of the principles guiding the effective exploitation of the country's resources for the benefit of the world capitalist centre in Europe and America. It is interesting to note that out of 96 companies quoted on the first and second-tiers of the NSE, only 4 of them can be deemed to be wholly owned by Nigerians (this seeming total control is however underscored by the fact that these "Nigerian" companies are ebing financed with foreign physical capital, hence the full impact of their operations have a leakage effect on the economy - (see appendix 1).

Given this dominance by the multinational conglomerates in the NSE, and the logic of a dependent economic structure, it can be aptly concluded (tentatively at least) that, while the NSE may be effective in channelling domestic savings into industrial financing, the social benefits and other

returns accruing from industrial expansion is often repatriated, with only a token percentage retained to sustain a limited domestic industrial expansion. It can be little doubted, that the development of the NSE as an institution dedicated to the furtherance of foreign economic domination, has been actively encouraged and pursued by government policies. This encouragement takes the specific forms of both stated government support and active participation in the totally capitalist outfit which is supposed to be propelled by private sector initiatives. Consequently, the domination of government securities in terms of values has in fact sustained the existence and growth of the NSE. The indigenisation decrees of 1972 and 1977, which was supposed to lead to an increase in corporate issues and indigenous participation in the market, had only a marginal effect. This was largely due to an implicit collaboration of the indigenous comprador bourgeoise with the multinational corporations. This collaboration resulted in little or no change in the corporate decision making structure, which is still effectively in the hands of the expatriate management. Though in most of the affected corporations, (depending on the schedule into which they belong) at least 40% share ownership is foreign

and 60% Nigerian, the block ownership of the foreign shares still gives them an edge over the Nigerian's, which is spread among financial institutions, individuals and government agencies. Thus, the ostensible purposes for establishing the NSE can be seen to have been negated both by the corporate structure of the quoted companies and the nature or character of the economy itself. This point does not however preclude an analysis aimed at determining the impact of the NSE within the scope of its limitations and in the light of the basic postulates of bourgoise economic theory. This analysis could then be posited against the background of the current efforts being made by the Nigerian government to revamp the nation's economy through such measures as trade liberalisation, deregulation of interest rates, the establishment of floating exchange rates, and their significance on corporate issues and the operation of the NSE.

1.1 Statement of the Problem

The establishment of the NSE was prompted by the need to finance growing budget-deficit as from 1958, the deteriorating balance of payment position, and the need to mobilise finance for development programmes. Growth in the volume and value of issues on the exchange increased gradually through the early 1970s up to the middle of the 1980s, most especially, equities and government development stocks. Two major policies of government that led to the increase in private issues were the indigenisation decrees of 1972 and 1977, and most recently the introduction of the second-tier securities market (SSM). However, the full impact of the latter does not come under the analytical scope of this work, since only one equity was quoted within the period under consideration.

The growth of the stock exchange should either accomodate the expanding economic development of an economy, or encourage and induce rapid expansion in the growth rates of the economy. Some studies have shown that the mobilisation and channelling of funds by financial institutions is important for the

development of various sectors of the economy.[5] The injection of such financial resources is reflected in the transfer from savers to investors. Hence, it is expected that the success of this mediation will increase aggregate domestic savings which then encourages high levels of capital accumulation in the productive sectors and other sectors essential for economic development.

Udo Udoka has shown in his study that the lack of adequate institutional arrangements for financing economic growth and development hampers the achievement of any form of industrialisation.[6] This means that the development quest cannot be sustained by foreign assistance alone without sufficient domestic participation to back such foreign aid. Thus the question of whether the development of the NSE has an impact on the growth process becomes imperative. Though its development is not a sufficient criterion

---

5. Ajayi, I, "Commercial Banks' loans and Advances: A decompositional analysis of structural changes," in Onoh, J.K ed. The foundation of Nigerian Financial Infrastructure, Croom Helm, London, 1980, page 27.

6. Udo-Aka, U. The Role of Money and Capital Markets in Economic Development: An Analysis of the Nigerian experience, An unpublished Pb.d Thesis, University of Nebraska, 1970.

for economic growth, but the important issue raised for investigation is whether the development of the NSE through increased new issues is significant in economic growth.

Through the operations of the NSE, new issues are raised by government and private corporations for the financing of fixed capital investment. Hence, the rate of capital accumulation and economic growth is enhanced. It is in this light that this study seeks to investigate the real significance of the NSE in the economic growth process of Nigeria. The problem under investigation is therefore the development of the NSE, its performance and impact on the economy. Consequently, the assumption is that the role of the NSE in the process of saving and investment increase the rate of capital accumulation and hence economic growth. It follows that an increased utilisation of the facilities and services offered by the market leads to new fixed investment and an increased rate of economic growth.

1.2 Objective of the Study

The main concern of this study is to show that if the NSE is properly adapted to the development

needs of this country, it can play a significant role in raising the rate of capital accumulation and economic growth. Therefore, this study is aimed basically at exploring the following dimensions:

(a) Appraising the development of the NSE.

(b) Examining its contribution to economic growth, through its saving and investment role; and

(c) Based on (b), suggestions are made as to how to increase the NSE's impact on economic growth process.

1.3 Justification of the Study

The best justification for this study is the present orientation and direction of the Nigerian economic development. The deepening crisis, with its attendant neck-breaking debt servicing, Amortisation, dwindling foreign assistance and national revenue. All this means that efforts to internally provide necessary capital funds must be pursued with full vigour. Since the provision of investible funds will enhance the growth of an economy.

The NSE as an important capitalist outfit for increasing the rate of capital accumulation, its

development and mode of operation may call for a reappraisal of the capitalist growth process in Nigeria.

The scope of this study is necessarilly limited to an empirical analysis of the impact of the NSE on the growth and development of the Nigerian economy between the years 1961 and 1982. The major emphasis is on the role of capital accumulation in the growth of the economy, giving due recognition to the importance, and the relationship between new issues, the rate of capital accumulation or investment and economic growth.

1.4 Methodology

The methodology adopted in this study is both theoretically and empirically based. In the evaluation of the development and the mode of operation of the NSE, specific emphasis is laid on its role as a source of investible funds in its primary market. This leads to the investigation of the causal relationship between savings, investment or capital accumulation and economic growth. This is explained, using the theoretical framework of some existing

growth models which has been used to explain the linkage/transmission mechanism of savings, investment and growth.

The models used are simple macro-economic relationships reproduced in highly simplified mathmatical forms - showing the relations between gross domestic fixed capital accumulation (I), gross domestic product (Y), institutionalised domestic savings (S), and forein capital inflow (F). The specification of the models are tested by including and dropping some investmentment determinant variables that may be considered important (or not as the case may be) in the economic growth process. The estimation of the models are based on regression analysis.

The importance of the regression analysis used is to draw inferences on the causal relationship(s) that exist between the real variables constituting our measure of the growth process. This approach suggested a framework for the analysis of the relationship between new issues of the NSE and economic growth.

The data used are primarily secondary in terms of their source obtained mainly from annual issues of the Central Bank annual reports, annual reports

of the NSE and statement of accounts, annual abstract of statistics published by the Federal Office of Statistics. It should be pointed out however that researches in LDCs in most cases suffer from a problem of reliable data availability. This study is not an exception. Though the above-mentioned sources of data suffer grave limitations in their absolute accuracy, they nevertheless offer a significant insight into the development and operation of the NSE in its relation to economic growth.

The work is divided into six chapters. Beginning with the introduction, Chapter Two reviewed the literature on some growth models, and the need to establish and develop a capital market. Based on emphasis of theoretical views on the rate of capital accumulation as the core determinant of economic growth opinions on the mechanism for increasing its rate in the economy are explored. The conclusion of this chapter then establishes the need to develop a capital market.

Chapter Three is concerned with the analysis of the development and operation of the NSE from 1961 to 1985. The pricing mechanism and the total volume and value of new issues are among the issues highlighted.

In Chapter Four, the models used to evaluate the significance of the NSE as one of the precipitators of economic growth, and the results of their estimates are presented. The second section of the fourth chapter introduced the sources and the nature of the data used. The choice of variables for economic growth as well as the limitations of the data are also discussed. In the last section of the chapter, the models, their estimates, results and interpretation are discussed.

Chapter Five dealt with the need to further develop the NSE. This recommendation is based on the fact already established in the previous chapters of the significance of NSE as a contributor to economic growth. The subsequent sections of this chapter foregrounds the contradiction of roles, especially, where government participation in economic activities are concerned, leading to a further but tentative suggestion of non-privatisation. This argument against the privatisation policy is based on the perceived feeble and slow development of indigenous private enterprises.

Chapter 2

LITERATURE REVIEW

2.1 Introduction

The role of capital accumulation in the development process has been explicitly expressed in theoretical analyses. However the exact nature and magnitude of that role still remains a point of controversy, leading to varying emphases on the importance of capital vis-a-vis other factors that influence development rhrough time. These other factors can only be made possible through the availability and utilisation of capital. Thus capital can be rightly said to be the core ingredient of economic growth. The process of economic growth is engineered by the rate of capital accumulation, while the causal relationship between them is explained by the various theories of growth. Each of these theories attempt to show the transmission mechanism of translating savings into investment or accumulated capital to facilitate economic growth.

The analysis of these growth theories underscores the need for both the accumulation of capital as well as its efficient utilisation in Nigeria. Moreover, capital accumulation is a pre-requisite for the

economic growth of this country. However, the exposure of these growth theories does not provide an empirical analytical tool for testing economic growth in Nigeria, but at least it provides a theoretical base for understanding the need to increase the rate of capital accumulation through the much prefered internal mechanism. Most of the models also are based on very restrictive assumptions which tends to limit practicality or applicability in the LDCs.

However, there is a general agreement that a decline in the rate of growth of capital accumulation would, ceteris paribus, be associated with a commensurate decline in aggregate output, since an increase in output depends on both capital availability and the extent of utilisation.

2.2 Theoretical Framework: A Critical Analysis of some Growth Theories

The Keynesian-based theories of economic growth deal with a triad of problems: the factors that determine the potential growth of national income in the long-run; the conditions for a 'self-sustained

growth', and the dynamic equilibrium, how disequilibrium is restored. The analysis of long-term growth rates assumed the form of empirical studies, while 'self-sustained growth' and dynamic equilibrium constituted the substance of theoretical speculations and further elaboration of abstract models of growth. 'Self-sustained' growth is characterised by the following distinct features: stable growth of labour productivity and of national income, with stable population growth; stable growth of capital and of capital-labour ratio; a trend towards a constant capital-output ratio, and stable rate of profit and its share in the national income. These features provides the basis for the hypothesis that an economy with a constant growth of output, employment and capital, capital-output ratio and relations of distribution tends to exhibit 'self-sustained' growth in the long-term. It is left for this theory to provide an explanation for the conditions for 'self-sustained growth' and how to establish whether an economy was capable of automatically balancing out deviations from its line of growth.

Thus, the Keynesian theories view the problem of 'self-systained growth' and the mechanism of balanced growth by distinguishing between two types of growth:

natural growth rate (accorded with full employment), and warranted growth rate (not necessarily coinciding with conditions of full employment). Neither type constitute a steady dynamic equilibrium. The actual rate only accidentally coincides with one of these, so that the system is subjected to short and long-term deviations from equilibrium, which is why it has to be regulated by the State. This conclusion is based explicitly on Keynes's notion on the imperfections of the capitalist economy, its gross defects which necessitates State intervention for the maintenance of equilibrium in the economy.

In considering the problem of determining the potential rates of growth and the conditions for dynamic equilibrium, an expanding economy is examined, taking the interrelations between the three fundamental elements of manpower, output and quantity of available capital into consideration. These interrelations are examined through the construction of aggregate models of economic growth, linking up the growth rate with capital accumulation rate and establishing the feedback influence of national income growth on the level of investment in order to determine

the necessary growth rate that will ensure full employment of resources.

Taking the national income as constituting saving (S) and investment (I), and assuming that in the long run S is equal to I in the static analysis, while in the dynamic analysis S and I are not real magnitudes but a real magnitude and an expected magnitude respectively. Thus, actual saving may be greater or less than the expected investment. The difference is characterised by changes in inventories, productive capacity, employment and growth rates. Consequently, the equality between S and I depicts a state of dynamic equilibrium.

Most Keynesian economic growth models are structured on this basis: the Harrod's model, Kaldor's and Domar's which is more expansive. All of these models have the two aspects of S and I whose equality is ensured when the real magnitudes are equal. Hence, the central problem is to identify the determinants of the magnitude of net investment and its share in national income or the rate of capital accumulation. The accelerator principle is used to determine net investment over the long-term is determined by national income growth rate and the amount of invest-

ment required to produce a unit increase in income or the capital-output ratio. The latter indicator is assumed to be constant and given, so that increase in output is only ensured by means of net investment, hence growth rate depends only on the capital accumulation rate.

Harrod's equation can be represented below, based on the aforementioned premises:

$$GC = S \quad . \quad . \quad . \quad (1)$$

Where S - saving ratio;
G - national income growth ratio
C - capital-output ratio.

All the magnitudes apply to one and the same past period, therefore the equation does not require any special condition to be realised. From this, Harrod went on to its other form which is expressed thus:

$$Gw\ Cr = S,$$

in which S alone is given and relates to the past.

Cr - marginal capital-output ratio;
Gw - warranted growth rate (which makes S = Sr).

Where SA - actual saving

Sr - real saving

GwCr is determined by the required magnitudes. Harrod concluded that the growth rate ensuring dynamic eqiulibrium, Gw, must be constant. This conclusion is based on the premise that Cr and S are constant.

Since Gw = S/Cr,

S and Cr are constant,

therefore Gw must be constant.

Consequently, a unique warranted line of growth is determined jointly by the propensity to save and the quantity of capital required by technology for increment in total output.

Domar's model however differs in some respects from Harrod's; he based his, not on the equality of S and I, but on money income and productive capacity. His analysis is a kind of synthesis of the pre-keynesian and keynesian approaches. He started with the assumption that the share of saving in income and the average efficiency of investment correspond to the inverse fraction of capital output ratio which is constant. Using Keynes's national income

theory, he determined 'effective-demand' and included investment as an independent variable, consumption as functionally connected with investment, and government expenditure. He stressed that increment in income is a function of investment. He then used the accelerator theory to determine productive capacity, growth and regarded it as a function of investment, growth in labour, and technical progress together as one indicator of productivity of investment or efficiency of investment.

But he regards this indicator as a constant and makes a further qualification: "Our growth models do not require that capital productivity remain constant; only that its changes be known and reasonably regular. As a first approximation, it may be assumed to be constant".[1] This differentiates Domar's theory from Harrod's. Another difference is in Domar's dynamic equilibrium, which from the outset implies the assumption of full employment (while Harrod assumed that dynamic equilibrium may not coincide with full employment).

---

1. Domar, E.O., Essays in the Economic Theory of Growth, Cited in Keynesianism Today, A Critique of Theory and Economic Policy, Progress Publishers, Moscow, 1983, page 70.

Domar emphasised that his objective is to "find the conditions needed for the maintenance of full employment over a period of time, or more exactly, the rate of growth of national income which the maintenance of full employment requires".[2]

Thus, he stressed the two-fold role of investment, while it promotes the growth of income, on the other hand, it increases the productive capacity which is why income growth must be adequate to balance out increased productive capacity in the economy. Based on his premises, Domar proposed the following equation whose solution gives the formula for the required rate of growth:

$$\Delta I 1/\alpha = I\sigma \quad \ldots\ldots\ldots\ldots\ldots\ldots 2$$

from which follows that

$$\Delta I/I = \sigma\alpha \quad \ldots\ldots\ldots\ldots\ldots\ldots 3$$

where I is the volume of next investment;

ΔI - its annual growth

$\Delta I/I$ - the investment growth rate;

$1/\alpha$ - the multiplier (being the share of savings in the national income);

- the potential average efficiency of investment which does not depend on the movement of money income ($\Delta I \cdot 1/\alpha$)

2. Ibid, page 71.

The second equation is similar to Harrod's warranted growth rate formula, because productivity of investment and the saving ratio are constant.

The major flaw in the Keynesian models is that they cannot serve as a starting point for the analysis of the capitalist form of economic growth. This becomes obvious from the macro-economic variables with which they analysed their models, which are not defined in social terms. Thus, the models do not show the source of capital accumulation and further mystifies the fact that surplus value obtained through the exploitation of the working class is the main source of saving. Here, Karl Marx's theory of economic growth becomes relevant for the sole reason that his schemes enables an understanding of the conditions of equilibrium which we find that they already contain the specific elements of capitalist accumulation.

Also, there is an oversimplification, especially in the consideration of investment as the only factor of national income growth. These models ignore such factors as increase in the existing productive capacity, improvements in technological know-how and so on.

Furthermore, the dynamic equilibrium models involve a high level of aggregation of variables. An expanded model requires a close observation not only of values, but of physical proportions which implies an analysis of the structure of the aggregated magnitudes used in the models. This defect has given impetus to the development of structural models to analyse interseactorial relations in the economy.

Also, the constancy assumptions in the models, that is, the share of savings in income, capital-output ratio and technology raises certain doubts. Since a decline in the capital-output ratio is related to change in the structure of production as a result of which labour productivity tends to grow faster than the capital-labour ratio in almost all industries, with subsequent decline in the capital-output ratio. The models do not go into the factors determining the constancy of the required capital-output ratio, although, it has an important part to play in the models. It is only assumed that technology is neutral and as such, the growth of capital and output over long-term proceed at the same rate.

The assumption of full employment of resources

also poses a problem, especially for the developing countries where under-utilisation of resources is the rule rather than the exception. To crown it all, none of the models identifies the necessity for a steady growth rate with the automatic possibility of maintaining such growth rate. They however, stress the complexity of the dynamic equilibrium problem and the need to have appropriate State policy to ensure economic stability.

Thus the Keynesian growth models dealt principally with the general technico-economic factors and trends in the development of productive forces. They generalised and formalised the relationship between growth rate and structural proportions in the national economy at different levels of development and technology. Hence, their analyses focused on factors which determine stable and balanced growth, though they do not tell us anything about capitalist reality. They merely presented an imaginary rational system for the capitalist economy which has nothing in common with capitalism per se. The result is a consequent defence of the status quo which is far from the subjective intentions of the model builders.

The Neo-classical theory of growth sprang from the criticism of the Keynesian growth models. They set out to solve the same central problems that had preoccupied Keynesian theorists. Consequently, they proposed the use of neo-classical production function for modelling a growing economy. In the model, fixed capital and labour appear as the growth factors capable of being combined in various proportions under the impact of technological and economic influences resulting from rising efficiency of the production factors. The core of their theories is determined by the built-in premises and the way in which the problem of establishing dynamic equilibrium is solved. These assumptions are:

(a) the production function which is based on Say's theory of growth factors supplemented with the concepts of marginal factor productivity;

(b) all what is produced is consumed or invested and capital acculmulation implies accumulation of the composite commodity;

(c) the saving function is given as $S = sY$.....1

(d) No depreciation hence,

$K = I$ and from 1 above,

$K = S = sY$.....2

(e) the labour force grows at a constant exogenous rate n that is $L/L = n$;

(f) the technical possibilities are represented by

$$Y = f(K,L) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3$$

$$y = f(K) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 4$$

Equation 4 gives the average production possibility where $y = Y/K$ and $k = K/L$

Each of the three basic factors of production - labour, capital and land - participates in the production process creating value in equal measures. The premise of marginal product is based on the assumption that under given technological level, an increase in one of the factors of production, others remaining constant, would result in a declining increment in output, while the marginal product depends on changes in the relationship between growth rates. Accordingly, the marginal product determines the income that is paid to each factor of production where there is free competition and no government intervention. It is also assumed that wages, profit and rent would be proportional to the marginal productivity of the corresponding factors.

This implies that production and distribution have a common basis. Thus, their whole analysis of

theory of production is based on technico-economic relations which determines the creation of the national income as an aggregation of use-values.

Based on the assumptions of their model, the fundamental equation which seeks to trace the path of k(K/L) through time is represented as follows:

from assumption (a)

$$Y = C + I$$

income per worker becomes

$$Y/L(t) = C/L(t) + I/L(t)$$

and from assumption (d)

$$Y/L = y = f(k)$$

hence,

$$f(k(t)) = C/L(t) + I/L(t).....5$$

from the capital-labour ratio

$K = K/L$ if $*K/K = *L/L$, then $*K/K = 0$

it is also implies that $\hat{K}$ is greater OR less that $\hat{K}$ where $\hat{K}$ is greater or less than 0

Thus, the rate of growth of K is given as

$$\dot{K}/K = K/K - L/L$$

or

$$\hat{k} = \hat{K} - \hat{L}$$

and since $\hat{L} = n$

$$\hat{k} = \hat{K} - n \text{ or } \dot{K}/K = \dot{K}/K - n$$

multiplying both by $K = K/L$

$$*\dot{K} = *\dot{K}/K \cdot K/L - nK = K/L - nK \text{ or}$$

$$K/L = K + nK \quad \ldots\ldots\ldots\ldots\ldots\ldots 6$$

knowing that $*\dot{K} = I$, $I/L = *\dot{K}/L$

$$I/L = *\dot{K}/L - nK \quad \ldots\ldots\ldots\ldots\ldots 7$$

substituting equatio 7 into equation 5 gives

$$f(K) = C/L + K + nK \ldots\ldots\ldots\ldots 8$$

Equation 8 shows that output per worker is used for consumption- C/L; the constancy of K when L grows at n , that is, nK is maintained and investment increases K. From equation 8

$$*\dot{K} = f(k) - C/L - nK$$

or

$$*\dot{K} = Y/L - C/L - n\ K/L$$

it can be rewritten as

$$*\dot{K} = S/L - nK$$

since $Y/L - C/S = S/L$

given that $S = sY$

$$*\dot{K} = S\ Y/L - nK$$

or

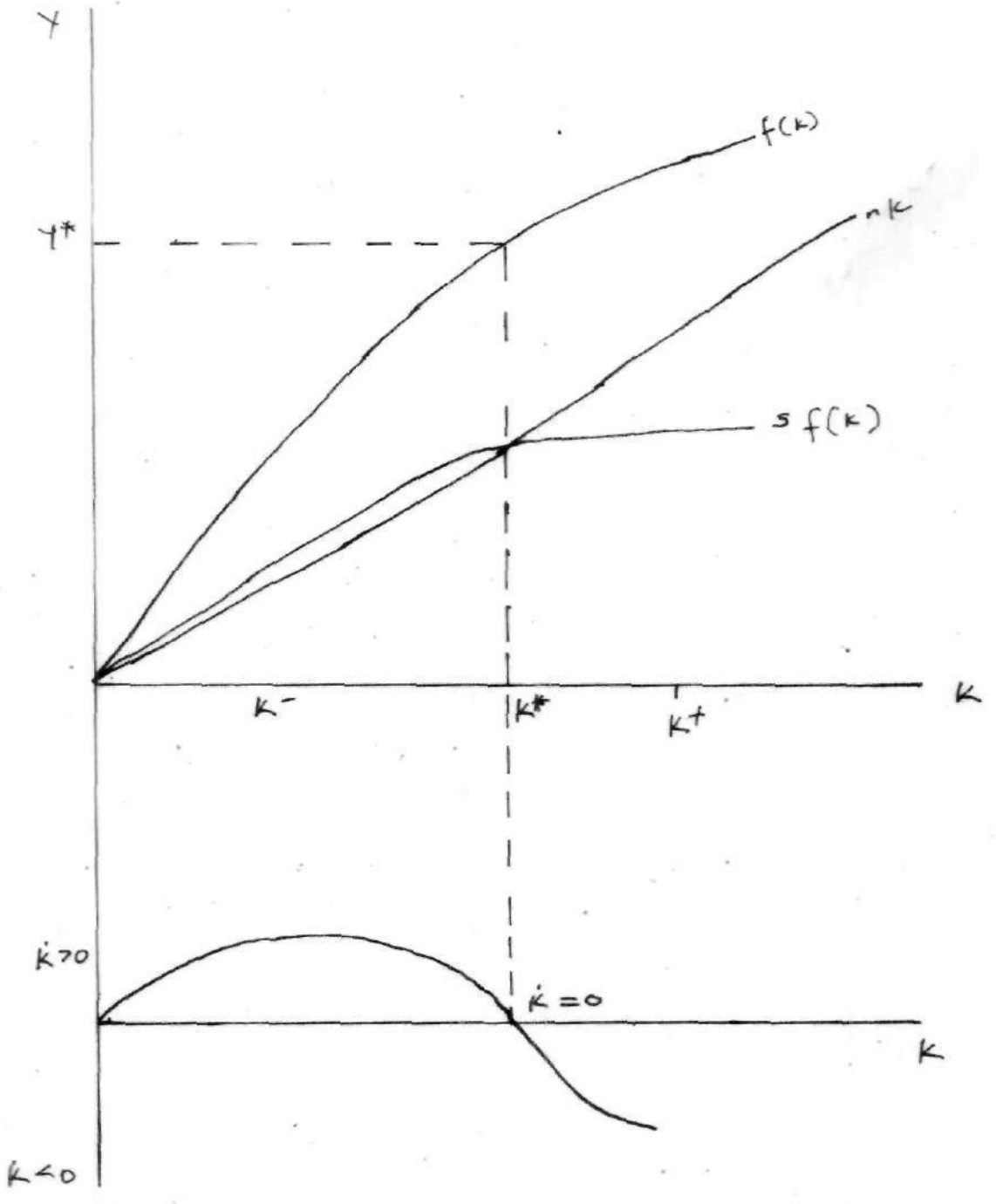
$$*\dot{K} = sf(k) - nK \ldots\ldots\ldots\ldots\ldots 9$$

here, equation 9 indicates that the rate of change of capital-labour ratio is the difference between

saving and investment per worker and the amount required to keep the C/L constant as L grows if sf(k) is greater or less than nK, $\dot{K}$ is greater or less than 0.

The neo-classical model also attempts to provide solution for a balanced growth problem. They based the solution on the assumption of the self-correcting model.

FIGURE 2



y^* and k^* indicate a balanced growth path.

*Y and *K indicate balanced growth path. At *K corresponding output is *Y and *K = 0.

If *L/L = n, then *K/K = n .

given that

$$*K = s(f(K)) - nK$$

or

$$Sy = nK \text{ where } S = Y/L \cdot L/K, \quad n$$

so that

$$S\ Y/K = n \text{ since } SY = S = I$$

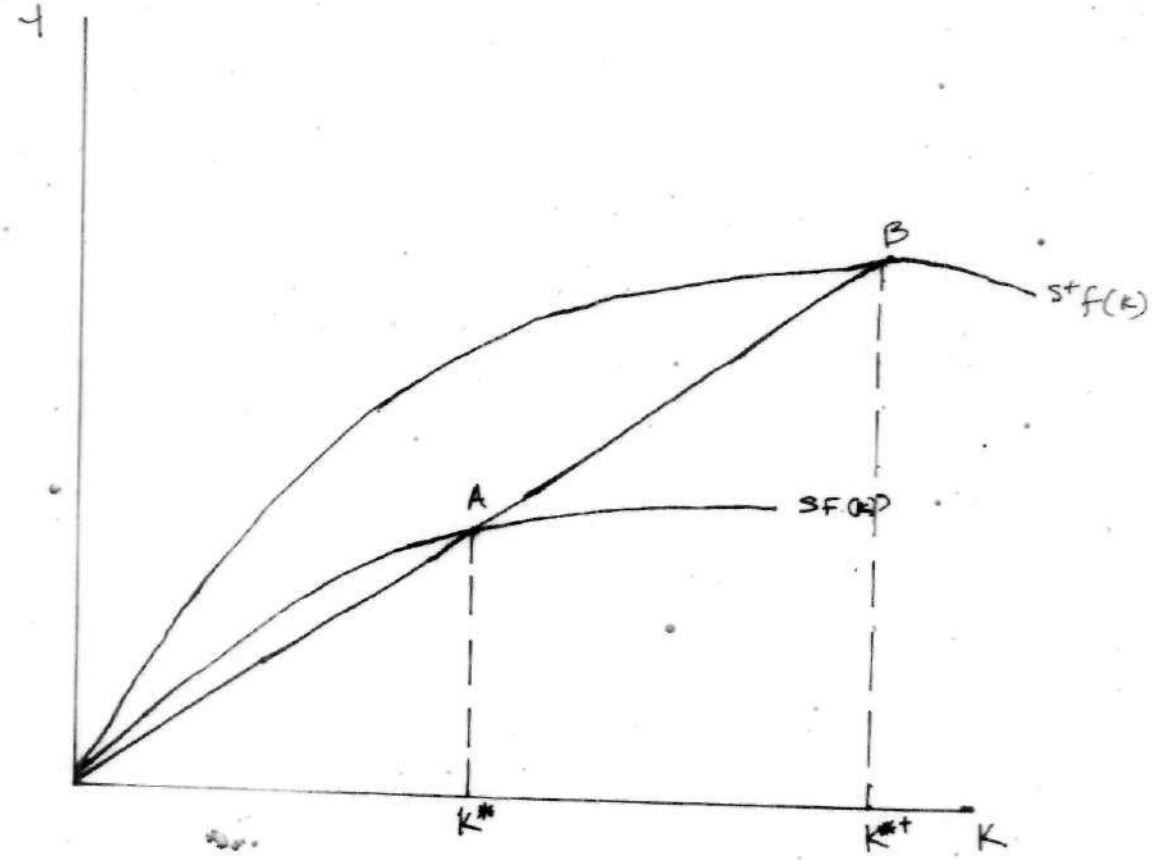
$$*k/K = n \text{ with } *k = 0, \text{ then } y = Y$$

and since $y = Y/L$, $\hat{L} = n$, then $\hat{Y} = n$ for y to be constant.

If $k < *k$, then saving per worker exceeds what is enough for capital expansion. The excess is thus devoted to capital expansion, hence $*K > 0$. While in the case where $*K < 0$, this indicates that saving per worker falls short of what is needed to maintain the current capital-labout ratio, thus the rate of change of capital is negative. This is because the rate of capital is L exceeds K, thus K must fall. It should be noted that (a) it is only at *k that balanced growth equilibrium is realised; (b) whatever the initial K, a process of smooth convergence to balanced growth is expected.

The second proposition on the balanced growth theory is the contention that the balanced rate of growth is the constant exogenous rate of growth of labour, n and that it is independent of the proportion of income saved.

FIGURE 3



From figure (3), increase in S shifts the saving function upwards, establishing a new equilibrium at B. At B since $^{*}K = 0$, $\hat{L} = n$, $\hat{K} = n$ and $\hat{Y} = 0$. The increase in S does not in the long-run change n. However, between A and B, $K/K > n$ but in the long-run balanced growth rate is n, but with higher K and Y.

In conclusion, the neo-classical model asserts that (a) in the long-run,

$$^{*}K/K = L \quad Y/Y = L \quad L/L = n$$

(b) the economy invariably tends to a balanced growth because of the an inherent self-correcting mechanism;

(c) y, k and C/L, S/L are all capital (K) in the long-run;

(d) as saving(s) increases while income (Y) and capital (K) also increase, there is no change in the long-run rate of growth.

The neo-classical growth models explain the potential level of output, but absolutely say nothing about the conditions of realisation. Examining the assumptions on which the theory is built, there is a suggestion that the conclusions are quite removed from the concrete and actual conditions of the

capitalist economy. Production is treated as a techno-economic process leading to the creation of use-value without showing the underlying socio-economic relations. It follows that production does not depend on the use of production function but rather a mere expression of qualitative relations between input and output. Moreover, capital in the model is non-specific in the sense that they can be combined with any number of workers to perform a particular task. This implies a conception of malleable capital which can be transfered costlessly and instantenously from operation at one level of capital-labour ratio to any other.. Particularly, since capital can be moulded from one form to another, the expectations of entrepreneurs need never be incorrect, they can change a 'mistaken' investment in capital into the appropriate capital good. The assumption of malleability of capital relates to the degree of substitutability of capital for labour however, the model does not believe that real capital goods are malleable in this manner. It is a possible fruitful assumption employed in specifying the model of the process of gowth. While it may seem reasonable to assume some possibility for substituting labour for capital, the malleability assumption appears to

omit some of the central difficulties of a real growing economy in which mistakes are made, expectations unrealised and the specific given capital stock is a constraint on the short and medium-term growth possibilities.

The model implies that in the long-run, the rate of growth of an economy is independent of the propensity to save and hence an independent investment function is not included in their model. In the absence of an investment function, investors' expectations play no role in determining the growth of the economy. Also, the assumption of malleable capital implies that expectations can never be disappointed, markets are perfect, and prices of goods and factors accurately transmit the correct information as to the relative scarcities. The relative prices of capital and labour change instantenously to the new equilibrium prices following a change in any constant in the model.

However, the Marxian theory of capitalist reproduction which is broader than the theory of growth, shows that any mode of production develops in consequence of the operation and interaction of

two set of factors; technico-economic factors which are determined by the level of development of productive forces and the pace of economic growth; and socio-economic factors which spring from the nature of property relations and the class structure in the society. Both factors are relatively independent and yet they determine each other, with the socio-economic factor being the most crucial in asserting the fundamental historical trends of development. Based on this broad framework, economic growth is considered in two contexts: as the growth of the basic indicators of social product and consequent changes in macro-economic indicators and technico-economic interconnections; and as change in social institutions and the relations of production signifying the transition from one social structure to another or adaptation of the relations of production within the framework of one and the same mode of production.

The Marxian theory considers the process of economic growth as a unity with its technico-economic aspects, but priority is given to the analysis of socio-economic factors and historical trends in the development of the capitalist mode of

production. To understand the historical trend of development, a study of the evolution of its production process through time must be undertaken.

According to Marx, the gross output of an economy is composed of three elements: the variable capital V; the constant capital C; and the consumption of the intermediate goods employed in the production process. The constant capital, C, refers to the portion of the economy's capital stock because "it adds no more to the value of output than it loses in production, new value added being due to the labour power purchased by variable capital".[3]

Lastly, there is the surplus value, S, which is equal to the absolute amount of profit which arises because the worker gets just his subsistence wage and not the entire value of his marginal product in such wages. With this postulates, Marx's production function is written as:

$$Y = (q^1 + q^2)L + kK + nN \quad \ldots\ldots\ldots 1$$

where q^1L - variable capital, V;

q^2L - surplus value, and

($kK = nN$) corresponds to constant capital, C which is treated as a single quantity, hence the production function can be rewritten by combining

---

3. Adelman, I. Theories of Economic Growth and Development, Stanford University Press, California, 1961, Page 90.

the raw material and equipment components of the production function into one index K^1 so that we have:

$$Y = (q^1 + q^2)\, L + kK^1 \quad \ldots\ldots\ldots\ldots 2$$

(q^1, q^2, k^1) are not fixed over time, they change as the relations of production.

Since Marx does not explicitly discuss the coefficients of production, there is no indication that he considered them individually to depend upon other variables in the system. Therefore, the following equations can be derived;

$$q^1 = q^1(S) \quad \ldots\ldots\ldots\ldots 3$$

$$q^2 = q^2(S) \quad \ldots\ldots\ldots\ldots 4$$

$$k^1 = k^1(S) \quad \ldots\ldots\ldots\ldots 5$$

Consequently, the rate of expansion of output becomes,

$$dY/dt = [q^1(S)] = q^2(S)] \, dL/dt + k^1(S)\, dk^1/dt + [L\, d(q^1 + q^2)/dS + K^1\, dk^1/dS]dS/dt \quad \ldots.6$$

To determine the time path of the economy's rate of production, the development of the relations of production as well as progress through time, the amount of labour employed and of the equipment and raw material used up are considered. Improvement in production techniques are regulated by the gross rate of capital formation. We therefore have the proposition that

$$dS/dt = z(I) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots 7$$

where I - gross investment.

Marx also implied that the rate of change of the relations of production is an increasing function of the amount of gross investment, $dZ/dI>0$. He believed that techniques of production become more capital intensive through time and to this effect, he used the ratio of constant to variable capital C/V, which he refered to as the 'organic composition of capital', an increasing function of the rate of capital formation. He deduced this tendency towards a rise in the 'organic composition of capital without directly analysing the course of either interest rates or the wage rates. So that the rate of change of C/V depends solely on the rate of change of technology which also depends on the rate of capital formation.

The rate of increase in the variable capital stock regulates the demand for labour, while the supply labour is abundant and exogenously determined.

Equating $S/V = q^1/q^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots 8$

that is the rate of exploitation of labour both of which are fixed. So that when q^1 is fixed and

increase in the demand for labour moves in same proportion as the increase in variable capital. Thus,

$$L = V/q^1(S) \ldots\ldots\ldots\ldots\ldots\ldots\ldots 9$$

If $dq^1/dt = 0$, then the demand for labour increases proportionally with variable capital. Such increase occur if either the productivity of labour increases, with the rate of exploitation remaining the same or the rate of exploitation increases with productivity remaining unchanged. Thus, Marx believed that both the rate of exploitation and productivity rise secularly, so that an increase in q^1 would take place then the demand for labour would rise more slowly than the variable capital. The demand for labour function is then expressed as

$$dL/dt = q^1(dV/dt) - V\ dq^1/dt\ /\ (q^1)2 \ldots\ldots 10$$

Similarly, his views on the technical relationship involved in production imply that the labour-capital ratio depends only on the gross investment, since from equation 9 variable capital is defined as

$$K^1 = C/k^1(S) \ldots\ldots\ldots\ldots\ldots\ldots 11$$

if both variable and constant capital equations are intergrated, we find

$$L/K^1 = q(S)\ k^1(S)/\ C/V \quad \ldots\ldots\ldots\ldots 12$$

so that

$$C/V = n = n(I,\ dI/dt,\ d2I/dt2\ldots\ldots t) \quad \ldots\ldots 13$$

The coefficients of production are all functions of I and its time derivates I(t), therefore determines not only the coefficients of production and the organic composition of capital, but also the capital-labour ratio at any point in time. However, additional restriction is placed on the function $n(I,\ dI/dt,\ d2I/dt\ldots\ldots t)$ in the model, that variable capital grows at the same rate as total capital during the first stage of accumulation.

We have seen that the demand for capital is regulated by the rate of capital accumulation and that there is always excess supply of labour with the demand for labour determining the actual amount of labour employed in production. If equation 10 is substituted into equation 6 and we use 7 in its intergrated form to eliminate S and dS/dt from the equation. Thus dL/dt can be expressed in terms of K^1 and I(t), the equation is written as

$$dY/dt = h1\ (K^1,\ dK^1/dt,\ I,\ dI/dt,\ d2I/dt2\ldots\ t) \ldots 14$$

Consequently, by definition, gross investment consists of net capital formation and depreciation (D) that is

$$I = dK^1/dt + D \quad \ldots\ldots 15$$

Depreciation is assumed to be an increasing function of the size of the capital stock alone so that equation 15 becomes

$$I = dK^1/dt + D(K^1) \quad \ldots\ldots 16$$

substituting 16 into 14 we get

$$dY/dt = h'' (K^1, dK^1/dt, d2K^1/dt2, \ldots, t) \quad \ldots 17$$

It is apparent from the above that the clue to economic growth in Marx's model lies in the rate of capital accumulation. Hence, the limits to output expansion are solely dependent on the growth of productive capacity. But the rate of capital accumulation itself depends upon the distribution of income among wage earners and profit takers. In conclusion, a Marxian economy is uniquely determined by the conditions of the system and its structural parameters. Once the economy has started, its course is fixed, hence future development will proceed on a predictable path. But over time, as the economy's capital stock and the level of output expands, the distribution of income will become more and more skewed between workers and capitalists. Also, with decline in the rate of profit, competition is generated amongst capitalists, cyclical fluctuations become increasingly severe so that structural

maladjustment in the economy increases until the system collapses.

From the theoretical viewpoint, Marx's conclusion that an increase in the organic composition of capital leads to a declining rate of profit creats some doubts. This is because any increase in the organic composition of capital implies not only an increase in the productivity of labour, but changes in technology. These effects tend to counteract the pressures pushing the rate of profit downward. In this case, the rate of profit does not fall because as the organic composition of capital rises, competition among capitalists may not intensify capital accumulation, and innovations need not be basically labour-displacing. As a result the share of wages in total output may not decline.

Secondly, Marx made a logical error pertaining to industrial growth. Though external economies may lead to growth in the size of a firm, it does not necessarily imply an increase in the degree of concentration of industry. So in a growing economy, the size of the industry keeps pace with the growth in the size of the efficient firm. But the share of wages in national income need not drop, neither

must the share of consumption. Marx's conclusion that cyclical fluctuations become increasingly severe does not also appear to stem from his hypotheses.

Felman's model also attempted to resolve the problems set out by the Keynesian theorists. The basic assumptions of the model are:

(a) The economy is divided into two sectors viz: capital goods and consumer goods sectors, where capital used in both sectors are specific; U of current capital (K) is used in sector 1, thus (1 - U) in sector 2;

(b) The production function is fixed coefficients in both sectors, that is:

$$Y1 = \text{Min } \left[\overline{K}1/V1,\ L1/U\underline{1}\right]$$

$$Y2 = \text{Min } \left[\overline{K}2/V2,\ L2/U\underline{2}\right]$$

K is the only constraint to growth for it is assumed that labour is available in any quantity and composition. Thus, the production function is

$$Y1 = K1/V1 \text{ and}$$

$$Y2 = K2/V2;$$

(c) No depreciation;

(d) The economy is closed and K cannot be imported;

(e) Production of capital goods and consumer goods are independent.

Based on these five assumptions, the total volume of capital good is

I = Y1 = K1/V1 and

I = 1/V1 *K1

but *K1 = UI that is the rate of change of capital stock is proportional to capital goods allocated to the sector. Hence,

I = 1/V1 UI or I/I = U/V.....18

Equation 18 indicates that the rate of growth of investment is equal to the ratio of U and capital-output ratio. Specifically, it is directly related to U but inversely so, to U1. To find out

*Y/Y and *C/C from assumption (b),

C = Y2 = K2/V2.....19

and

*C = *Y2 = *K2/*V2.....20

K_2 = (1-U)I.....21

substituting the above into equation (20), then dividing by C, we have

*C/C = 1 - U/V2 • I/C.....22

Equation (22) shows that C/C depends on the rate of growth of I.

Felman made two propositions viz.

(1) *C/C < I/I in the short-run, but in the long-run,

*C/C = *I/I = U/V1;

(2) $^{*}Y/Y < {}^{*}I/I$ in the short-run, but in the long-run $^{*}Y/Y = {}^{*}I/I$.

He then concluded that an increase in U would increase $^{*}I/I$, $^{*}C/C$ and $^{*}Y/Y$. Using simulation models, he was able to show that the higher the value of U, the higher the rate of growth of C and Y in the long-run.

Felman's model is not without flaws; again, they emanate from the underlying asumptions of the model which have special implications for its applicability in a growing economy. The assumption of a closed economy where capital cannot be imported pertinently implies that if the model is used to analyse growth in an LDC, it will only mystify reality. This is because LDCs do not only depend on developed countries for almost everything but specifically capital in terms of funds and equipment.

The models discussed thus far, place great emphasis on the price mechanism which is assumed to equilibrate potential disequilibrium in the economy every time. Despite the rigidities of these models and inefficiency of the price mechanism, an allocation model developed by an Indian statistician, Mahalanobis provides a basic rationale for intersectoral development choice for LDCS. A choice

which is emphatically based on the capital goods sector.

The Mahalanobis model though not exactly a growth model, is an allocational model developed between1952 and 1955. The model is based on the variables of national income and investment. The model shares the Harrod-Domar model's assumption that output is a function of capital only but moreso, it is essentially equivalent to Feldman's growth model. The Mahalanobis variant is a formalization of ideas current in India at that time, and it served as an under pinning for the early 5-year plan; 1951-1956. The model established sectoral targets for the plan and implementation proposals, which have influenced Indian economic policy as interpreted by the emphasis on the capital goods industry.

Mahalanobis divides the economy into two sectors viz: the proportion of net investment used in the capital goods sector, B_k, and the proportion of net investment used in the consumer goods sector, B_c.

Thus, $B_k + B_c = 1$ 1

Furthermore, net Investment (I) is divided into two parts, the part $B_k I_t$ to increase the productive

capacity of the capital goods sector and $B_c I_t$ of the consumer goods sector. In this manner

$$I_t = B_k I_t + B_c I_t$$

Taking α_k and α_c as the output-capital ratios of the capital goods sector and the consumer goods sector respectively and as the total productivity coefficient, the latter can be represented as

$$\alpha = \frac{\alpha_k B_k + \alpha_c B_c}{B_k + B_c} \quad \ldots\ldots\ldots\ldots\ldots\ldots 2$$

Since

$$B_k + B_c = 1$$

therefore $\alpha = \alpha_k \quad B_k + \alpha_c B_c \quad \ldots\ldots\ldots\ldots\ldots 3$

The Income identity equation for the entire economy is

$$Y_t = I_t + C_t \quad \ldots\ldots\ldots\ldots\ldots\ldots 4$$

When national income changes, investment and consumption also change. The change in investment depends upon the previous year's investment $I_{(t-1)}$ and so dies Consumption $C_{(t-1)}$. As such the increase in Investment and Consumption in period t, is related to the linking up of productive capacity of investment and the output-capital ratio. The investment

growth path is determined by the productive capacity of investment in the capital goods sector ($B_k I_t$) and its output-capital ratio (α_k), so that

$$I_t = I_{t-1} - (I + B_k \alpha_k) \quad \ldots\ldots\ldots\ldots\ldots\ldots 5$$

Similarly for the consumer goods sector the consumption growth path is given as

$$C_t = C_t - C_{t-1} = B_c \alpha_c C_{t-1} \quad \ldots\ldots\ldots\ldots\ldots 6$$

So that the growth path of income for the whole economy on the basis of equation (4) is

$$\Delta Y_t = \Delta I_t + \Delta C_t$$

OR

$$Y_t - Y_o = (I_t - I_o) + (C_t - C_o) \quad \ldots\ldots\ldots\ldots\ldots 7$$

The model possesses great usefullness for development planning. But it has its limitations. One of such weakness is the assumption of an arbitrary value of $B_k = \frac{1}{3}$. He does not give any reason for this and simply says that "it would not be possible to go beyond this value under present conditions".[4] The assumption of B_k = 1/3 or 33% of the cost of capital would not help planners in

---

4. Cited in Thinga M.L., The Economics of Development and Planning, 13th Revised Edition, Vikas Publishing House PVT Ltd., India, 1975, Page 237.

arriving at solutions for the optimum allocation of investments to the different sectors of the economy.

Secondly, the technique is not applicable to an open economy, since the model assumes that there is no foreign sector. Thus, the impact of foreign trade on the variables in the model are not examined.

Thirdly, Mahalanobis's model fails to link up investment decisions with the rates of saving required for capital-intensive techniques of production.

Lastly the dichotomy into sectors completely ignores intermediate goods, yet these make up the bulk of manufacturing output even in less industrialised economies. Also, most sectors produce at least two types of goods. For example, the motor vehicle industry produces replacement parts (intermediate goods), vehicles as capital and consumer goods. Thus, this diversity into to boxes called capital and consumption is unnecessary.

However, there is a particular merit of the Mahalanobis model that puts the question of a decisive intersectoral development technique to the forefront especially for LDCs. Still for this study, it's applicability is limited by the fact that it

is extremely difficult to isolate the capital-consumption goods sectors in the new issues statistics of the NSE at any reasonable level of disaggregation.

Inspite of the flaws in the growth models reviewed, their analyses of economic growth and development constitute a tremendous contribution to economic theory. However, mainstream economic theory is of limited relevance for understanding the characteristic features of economic growth in LDCs. This is as a result of the peculiarity of underdevelopment and problems attendant upon it. Consequently, we notice that policy options are directed towards increasing savings and purchase of capital equipment - a situation that has encouraged price distortions favouring imported goods thus killing domestic initiative to mobilise domestic resources for capital accumulation.[5] This situation has also encouraged the expropriation of the limited resources from LDCs to the metropolis thus widening and maintaining the gap between the developed countries (DCs) and LDCs.

---

5. Yotopoulous, P.A and Nugent, J.B. Economics of Development: Empirical Investigations, Harper and Row Publishers, New York, 1976, Page 12.

Though the emphasis on capital formation has generated controversies, the theories stress that it exerts a strategic influence on the path and pace of economic growth, However, any policy option for mobilising domestic resources for economic growth must be based on the principle of combinations and interactions. This principle is based on an intergrated programme that works on a carefully selected combinations of factors simultenously guided by internal needs. Consequently, economic growth process of Nigeria must be engineered by internally harnessing resources for faster rate of growth. It is in this light that the development of the capital market is considered important, especially for the mobilisation of long-term investible funds, the utilisation of which has implicit role in capital accumulation and economic growth.

2.3 The Need to Mobilise Internal Resources Through the Development of Capital Markets

While the problem of stimulating economic growth in LDCs is one which is constantly in the forefront of contemporary political and economic discussion,

the question of financing such development through foreign investment has received an equally great attention. However, relatively very little has been done by way of examining the possibilities of designing financial institutions that would maximise the contribution of domestic financial resources in the development process. An analysis of a financial institution where large sums of investible funds can be mobilised becomes imperative. The institution that readily comes to mind is the Stock Exchange, which is the apex institution of any capital market. The need to encourage its development has occupied the main treatises of various studies.

Edward Nevin,[6] made some contribution towards filling this gap. He investigated in general terms the ways in which existing arrangements in the spheres of currency, central and commercial banking, lending institutions and capital markets may be modified so as to make their contribution greater to growth in the LDCs.

---

6. Nevin, E, Capital Funds in Underdeveloped Countries, Macmillan and Company, 1963, Page 80.

He noted that because of the importance of liquidity in the allocation of savings, the creation and encouragement of rudimentary markets in long and short-term loans within the LDCs is a task of first importance. Accordingly, at first sight, it might appear extravagant and inappropriate for a badly under-developed country to indulge in the luxury of creating stock exchanges and comparable institutions; but in fact, such a policy might even prove essential to the success of other measures of development. He noted that unless local investors are able to secure the kind of investment which they are seeking, capital will continue to be diverted out of the country or inappropriately used within it. Only when the available capital has been channeled in the right direction will the maximum rate of growth and development become possible. Growth as he cited, often depends more on where and how capital is invested than on the absolute quantity of savings.[7]

---

7. Cochran, T.C 'The Entrepreneur in American Capital Formation', Capital Formation and Economic Growth, N.B.E.R, Princeton, 1956, Page 372, quoted in Nevin, E Op.Cit. Page 89.

Hence, the development of capital markets may be a necessary prerequisite for agricultural and industrial development, not as a result of it.[8] By ensuring that assets of a proper kind and reasonable degree of liquidity are available to local investors, the authorities will not merely encourage the direction of the internal flow of savings to the most important ends, the rate of saving itself may well be stimulated in time by the knowledge that attractive, safe and lucrative outlets exist for the employment of savings.

The use and encouragement of local private assets is no doubt the ideal from many points of view. Nevertheless, the fact remains that such instruments may not be forthcoming in sufficient quantities to establish an active market, or may not prove acceptable to the potential suppliers of funds (long and short term). In many cases, a leading role is played by government and its foremost agent - the central bank. Only a governmental institution has both the resources and the respnsibility for sholdering the risks implicit in increasing the liquidity of investment within the economy.

---

8. Birnbaun, E.A 'The cost of a Foreign Currency as the Circulating Medium, I.M.F Staff Papers, Vol. V, No.3, February 1957, Page 480, quoted in Nevein, E Op. Cit. Page 89.

There is a parallel need, therefore, for LDCs to establish a market in which public and private securities can be regularly traded at prices which do not fluctuate between wild extremes from week to week, even if the market initially take a very rudimentary form. Nevin further pointed out that it will be absurd to suggest that anything as sophisticated as the Stock Exchanges of London or New York coult be established within the forseeable future in any of the LDCs. On the other hand, it is unlikely that anything as refined and complex as this is at all necessary in the environment of such countries. He stressed that the institutional framework within which such markets can be created and developed in any particular economy will by no means be necessarily modelled on the particular institutional arrangements to be found in the old established markets of London and New York. The specialisation familiar in London or elsewhere may very well prove to be neither practicable nor particularly desirable for the completely different environment of an LDC.

In summary, the economic development of LDCs does not rest upon the rate of capital formation

alone; the rate of capital formation in turn does not rest on the flow of finance alone. In the words of United Nations report, "good financial organisation cannot by itself produce development; bad financial organisation can hamper it.[9] The flow of credit in adequate and desirable amounts and in a logical pattern of distribution is only one of the many links between, on the one hand, growth and development in the economy, and on the other hand, the activities of individual private citizens. As with any chain, a particular link in the chain of economic relationship cannot be neglected if a country's state of underdevelopment is to be lifted to ultimately a high and expanding level of output through which welfare is raised to the highest level attainable, with the human and material resources with which it is endowned.

Raymond W. Goldsmith[10] showed in his work that there is a statistical relation between economic growth and financial development. Using long historical time series data, some for about a hundred years and covering major industrial countries, he

---

9. United Nations, Domestic Financing of Economic Development, New York, 1950, Page 1, quoted in Nevin, E Op. Cit. Page 101.

10. Vai U.T Economic Essays on Developing Countries Sijthoff and Noordhoff, Alpen aan den Rijn, The Netherlands 1980, Page 293.

showed that there is a good correlation between financial structure and economic development. His study was however inductive in nature thus he was unable to show in what manner and through what time-paths the relationship occured.

Consequently, J.G Gurley[11] filled the gap in his study of the role of financial structures in economic development. Using the chart which is adapted from his article, "Financial Structures in Developing Economies", different statistical relations between gross national product (GNP) per capita and financial ratios was postulated. Expressing the financial ratios either as the ratio of total financial assets to the physical or one relating financial assets to GNP, the relationship overleaf was established:

---

11. Ibid Page 293.

ALTERNATIVE FINANCIAL PATHS

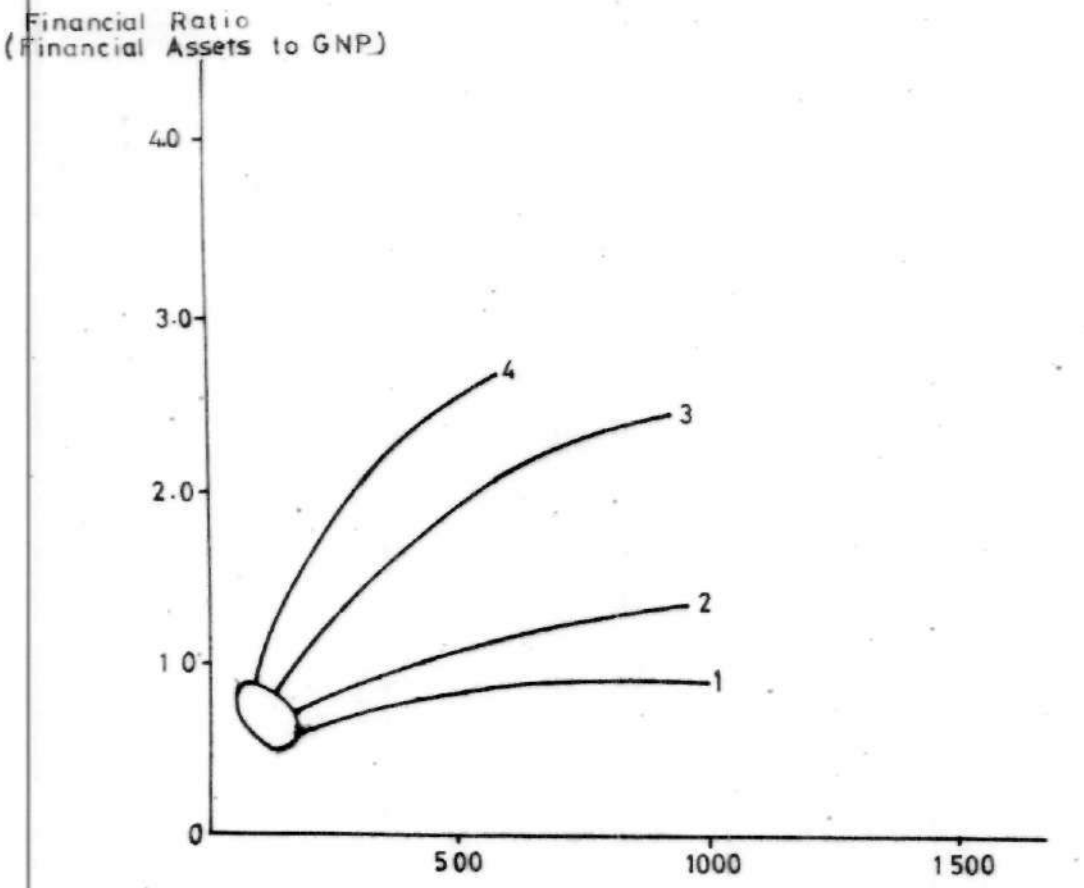


Figure 3

In the chart, the slope of path 1 is below that of path 2, which is also below paths 3 and 4. This implies that there is less reliance on the financial technique for promoting economic growth in path 1 than in the other paths, depending on the nature of the economy.

The statistical relationship can only emerge when an economy has broken out of the threshold level as indicated by the eclipse from which the various paths originate. This means that the creation of financial structures in the LDC which is below the threshold level will not necessarily lead to additional economic growth. However, when a country is already on a given financial path, one could count on a predictable relationship between financial structure and economic growth.

According to Gurley, a country on a given financial path can only switch to another path if the use of other techniques of mobilising savings and channelling them into investment (like the use of centralisation techniques), is modified and authorities make greater use of the market machanism.

In both Gurley and Goldsmith's studies, there is no clear-cut explanation as to whether it is the

financial structures which cause economic growth or whether financial institutions are established as a result of economic development.

However, U Tun Wai[12] in his article, 'Role of Financial Markets in Development', indicated that financial markets can play an important role in economic development rhough the mobilisation of investible funds into investments. According to him, the degree to which policy makers should make further use of these markets depends in part on the efficiency of other methods of collecting savings and financing investment namely centralisation of investment decisions, use of fiscal measures and inflation. But in the case of a free enterprise economy, he emphasised the need to rely more heavily on the development of financial markets.

He noted further that though the financial structure of the developed countries are more advanced, developing countries have made progress in using financial markets which have been supplemented by other sources of finance such as internally generated savings and the inflow of capital from abroad. The inflow of capital from abroad is limited

---

12. Ibid Page 291.

most especially as growth aspirations increase rapidly. Therefore, it is desirable that appropriate measures be adopted to increase the supply of national savings which should be utilised for highest yeilding projects through enlarged and more efficient financial markets in LDCs.

In a joint study, Hugh T. Patrick and U Tun Wai[13] both showed that for the sample of thirteen (13) developing countries, new securities issues on the average, financed about twenty-seven percent (27%) of gross domestic investment during the period 1967-1971. Likewise, in relation to GNP, new securities constituted about five percent (5%). This compared reasonably with developed securities markets, where the ratio of new issues to GNP was about seven percent (7%), though in some countries such as Belgium, The Netherlands, and Switzerland the ratio is as high as ten percent (10%).[14]

Ronald McKinnon[15] in his work presented a different approach from the conventional "stages of growth" hypothesis or strategies, emphasising foreign

---

13. Ibid Page 295.
14. Ibid Page 299.
15. McKinnon, R.I (ed), Money and Capital in Economic Development, The Brookings Institution, Washington D.C, United States, 1973, Pages 3&4.

aid, trade or regional association. Leaving these aside, he breaks new ground by focusing on the use of domestic capital markets to stimulate economic development. He suggested a "bootstrap" approach in which successful development would depend largely on policy choice made by national authorities in the developing countries themselves. Central to his theory is the freeing of domestic financial markets to allow interest rates to reflect the true scarcity of capital in LDCs. His analysis leads to a critique of the existing monetary theory and to a new view of the relationship between monetary and physical capital - a view with policy implications for governments trying to overcome the vicious circle of inflation and stagnation.

He examined the performance of South Korea, Taiwan, Brazil and other LDCs, and suggested that their success or failure has depended on the steps taken in the monetary sector. He concluded that monetary reforms should take precedence over other development measures, such as tarrif and tax reform or the encouragement of foreign capital investment.

Nathaniel Leff[16] however identified that in

---

16. McKinnon, R.I (ed), Money and Finance in Economic Growth and Development, Essays in honour of Edward S. Shaw, Marcel Dekker inc. New York, 1976, Page 78.

many LDCs, most of the modern large-scale activity in the private sector are characterised by a special institutional feature. He called this structure the "Group". The Group is a multienterprise firm that draws its capital from sources extending beyond a single nuclear family, for example, from people linked by communal, tribal, ethnic, or personal relations of trust and confidence. In addition, these Groups invest and produce in several product markets rather than a single product line. The largest Groups also have their own banks. Groups in fact constitute a mechanism for mobilising and pooling entrepreneurship and technical expertise as well as capital in large-scale, for modern activities. But most importantly, Leff dealt with the important context in which Groups perform the principal functions of a capital market.

Thus, Leff, studied the structure, behaviour and the implications for public policy, of the Groups, de facto capital market. From his findings, he pointed out that the existence of the Groups, together with the investment activities of government and foreign investors, greatly reduce the

allocational losses, increase savings, reduce distortions and the cost of intermediation that would occur if capital markets in the LDCs were infact as deficient as is often alleged. The Groups, Leff contends, are clearly similar in some aspects to the large investment banks that played a prominent capital market role in the industrialisation of Japan and other "late-comer" countries in the Nineteenth century Europe.

In evaluating the allocational efficiency of the capital markets, Leff described the alternative against which a comparison is made. According to him, the Group system is surely better than having no capital market at all. The most relevant standard for comparison is with the capital markets that might be feasible within the conditions of the LDCs themselves. The most serious defect of the Groups which he raised, lies in the implications for monopoly power in the product market, and hence on the distribution of income. And also by pre-empting the field, the Groups may foreclose the possibilities for the future evolution towards a pattern of capital markets with broader public access.

P.J. Drake[17] in an article "Securities Markets in LDCs" written in 1977, examined the extent to which the promotion of securities market is relatively low in LDCs and that, the constraint on their development, notably the shortage of local sources of funds for equity investment, have been exaggerated by other writers. The large capital outflow which have taken place in many LDCs despite exchange controls is indicative of the existence of potential investible funds. He suggested the provision of a variety of local securities as a potent way of reversing this outlow and reducing the dependence of LDCs on foreign loans. He emphasised that the supply of local securities by private firms is crucially affected by the terms of access of firms to bank credit. He suggested that increases in interest rates on loans would encourage the issue of securities.

Research on the Nigerian Stock Exchange is limited if not virtually non-existent. Most works done in the area, focus on the efficiency of the the market while a lot of articles of mainly

---

17. Drake, P.J. 'Securities Markets in Less Developed Countries', cited in Ayre, P.C.I (ed.) Finance and Development, Frank, Cass and Company Ltd., New Jersey, United States, 1977, Page 73.

descriptive category indicate its usefulness in the economy. It follows then that its contribution to economic development is taken for granted and as such further and subsequent researches emphasised efficiency.

Osaze[18] in his study, analysed the nature and performance of the market within the framework of conditions necessary for its effective performance. The study looked at the issues of regulation and intervention in the market, the thin and shallow nature of the market and factors responsible for this, as well as the pricing mechanism which he related to the theory of capital market efficiency. He concluded with propositions and directions for future action.

First, he provided some background to his study with an overview of the NSE. He pointed out that the market was incorporated in 1961 with all the characteristics of any market. Also, a council is responsible for policies, operation, quotations and enforcement of the rules and regulations of the market. The Stock Exchange Council intervenes quite

---

18. Osaze, "The Nigerian Stock Market: A Performance Analysis", A paper presented in a seminar organised by the Department of Business Administration, Ahmadu Bello University Zaria, 1982.

frequently to regulate prices and eliminate the influence and activities of speculators. In conjunction with the council, the Nigerian Securities and Exchange Commission (NSEC), act as a watchdog of the capital market. The NSEC determines (a) the offer prices, value, timing, and amount of shares and debentures; (b) the timing and amount of any supplementary offer for sale and prices thereof; and (c) such matters incidental or supplementary to the foregoing as the NSEC may at its discretion determine.

Based on the efficient market hypothesis, Osaze examined the efficiency of the NSE. The hypothesis defines an efficient market as one in which security prices adjust rapidly to new and current information, so that current stock prices fully reflect all available information concerning the stock. Thus, in an efficient market, information must be freely available to rational profit-maximising investors. Using Nigerian data of volume and value of transactions, he showed that the market is far from being efficient. Arguing that both variables have remained very low because of the market's lack of depth, the little or no trading and the few new public issues. All these comound to explain the narrowness of the

market. The prohibition of speculation is one other factor responsible for the stagnancy of prices in the market and it takes volume/deals to move prices and ensure activity in the market. He established emperically why the market is shallow.

First using the 165 securities listed on the NSE as at December 1982, with a total value of ₦4.9 billion of which ₦3.0 billion represented government stocks. The annual turnover on the market was ₦430.0 million, barely 9% of the total market capitalisation. He concluded that it is this low turnover that has been responsible for the market's lethargic state since its establishment.

Though government stock dominate the market in terms of value while equities occupy a dominant position in terms of the total number of bargains struck, it appeared that there is an inverse relationship between number and total value of transactions in the market. This clearly confirmed the shallowness of the market, especially for equities.

Another major factor that he used to butress his argument is the Trustees Investment Act of 1962 which specifies the structure of most portfolios in Nigeria, especially insurance company portfolio.

Ojo, Ade[19] in his study critically reviewed the need to foster the development of financial markets. He presented a rationale and an examination of the prospects for fostering the development of financial markets in a developing country. Three basic questions were raised:

(1) The extent to which the efforts being made to develop certain special money and capital market instituions in LDCs are justified.

(2) What LDCs can learn and how they can benefit from the financial experience of advanced countries;

(3) If the presence of such a special institution as a stock exchange is really essential in making the financial sector adequate to promote economic development.

He begins with an observation that the LDCs are aware of the potential role the financial sector can play in their efforts to promote economic development; but what seems to be the major problem confronting them is that they do not know exactly what financial technology to adopt or how to combine alternative techniques and what policy to pursue to

---

19. Ojo, A, The Nigerian Financial System, University of Wales Press, London, 1976, Page 77.

make the financial sector play the desired role adequately.

The choice of a narrow but special established institution would be useless when existing institutions can organise a form of broad, non-orthodox type of market among themselves to provide the formal facilities for trading in financial assets. Secondly, the more the banks and other financial institutions can cope adequately with the tasks of providing the needed financial facilities, the less the absence of developing a special market is felt.

Thirdly, where banks and other financial institutions are active, dynamic and well adapted to the requirements of a country, most of the non-basic functions of financial markets would be rendered unnecessary. So, in the LDCs the absence of developed formal financial markets has been felt mainly as a result of the inadequacy of banks and other institutions in meeting their special needs for development.

Hence, the arguments in favour of the need to develop special money and capital markets are now weak. Accordingly, in LDCs the development of financial markets should be forstered only where

conditions make their efficient functioning possible. The development of special financial markets might serve a useful purpose in a developing economy where they could influence the rate of growth by ensuring that available capital is used in the most efficient way in terms of chosen criteria, and for influencing the supply of capital itself by improving the payment system and facilitating the development of financial institutions.

He further argued that one advantage of LDCs being latecomers is that they can benefit from a more efficient financial technology that has evolved in some developed countries without having to employ first the less efficient ones employed earlier in the latter. Using Britain as an example, where the former outstanding importance of the stock exchange is being challenged and its monopolistic operation is being threatened to some extent by recent developments in the financial system, for example, the ARIEL system and the possibility of raising finance from relatively cheaper alternative sources.

Thus, in view of the pressing need to allocate available capital into hightly urgent uses and the fact that the establishment of financial markets

may actually lead to a diversion and wastage of capital, many LDCs can only benefit in financial development by looking at the hard-won experiences of the advanced countries for the purpose of adapting it creatively to their own development requirements rather than transplanting them.

Having formulated a framework from the foregoing, he traced the development of the financial markets in Nigeria. This development was prompted and fostered by government initiative. Indicating that before the stock exchange, there were less formal market arrangements for the issue of securities for sale and transfer. This dates back to 1946. He undertook an evaluation of the stock market by basically considering its expected purpose which is principally that of supplying new equity capital to enterprises for expansion. In doing this, emphasis was laid mainly on its significance in promoting economic development by examining the efficiency of the market, and the importance of stocks for capital formation in relation to other sources of finance.

As regards an efficient market, he observed that the exchange lacked breadth in that it cannot offer and absorb a wide variety of securities, both

with regards to types and different issues. It also lacks depth in that it cannot readily supply and absorb sustained quantities of the different securities listed on it at currently quoted price.

Lastly, he examined the impact of new issues on capital formation and concluded that it does not appear that greater resources have been mobilised and allocated for promoting development in a more efficient and productive manner than would have been the case without the exchange. Using data of new issues of government and private issues, and taking the ratios of new issues to gross domestic fixed capital formation, he vividly showed that the relative importance of the exchange has been very marginal as a source of industrial finance.

He pointed out the problems facing the stock exchange. These problems are mainly to do with the limited supply of securities on the one hand, and a generally weak and insufficient demand for them on the other. Both the demand and supply conditions reflect the underlying narrowness and other deficiencies in the functioning of the market.

Another attempt was made by Olusegun Ayadi[20] in 1984. The study covered 30 shares quoted on the exchange between January 1977 and December 1980. Using the Wallis Moore test, he found that the Random Walk Hypothesis holds for the Nigerian sample.

From the foregoing, statistical tests have indicated that the NSE is efficient and its development/contribution to economic development is imperative.

---

20. Ayadi, O. 'The Random Walk Hypothesis and the Behaviour of Share Prices in Nigeria,' The Nigerian Journal of Economic and Social Studies, Vol. 26, No.1 March 1984, Page 89.

Chapter 3

The Establishment of the Nigerian Stock Exchange (NSE)

3.1 Introduction

The existence and development of a stock exchange which is the largest sector of a capital market in terms of money value of securities that can be raised and those outstanding cannot be underestimated. The existence of such a market even, at its rudimentary stage is crucial in transmitting savings into investible funds for fixed investment. If this financial transmission mechanism does not exist, the flow of funds from every sector of the economy is impeded thereby reducing gross national product below its potential level. However, there are other financial institutions whose role is also to mobilise and channel savings from all sectors of the economy. But the credit mechanism of these institutions such as commercial banks only play a dominant role in the structural reorganisation of the accumulation process. As a result of their activities, the importance of separate sectors of the economy at the stage of mobilising private accumulation differ in many ways,

from their place in the final phase of accumulation corresponding to the financing of capital investments. Credit institutions largely determine the strategy of economic development by their mobilisation and effective utilisation of money assets. By advancing loans to some industries and limiting credit to others, they help raise the investment possibilities of modern branches of the economy and influence the character and rates of accumulation.

The structural shift that has taken place in the country, the expansion of the whole market, the growth of industrial production, and the increase in commercial operations are accompanied with a demand for loan capital. There is no doubt about the credit system's effectiveness in accumulating resources especially when the role of banks are judged by the place of deposits of credit institutions in the composition of the total money supply. There has been an expansion of credit operations as evidenced by the increase in the proportion of bank credits in the GDP. Hence, with the expansion of credit relations, the significance of deposits in the total money supply has increased. The bulk of the accumulated resources has been in the form of current accounts, for medium term and long-term

capital. This is the weakest of the credit system in Nigeria whose duty is to resolve the contradiction between the growing need for capital investments and the limited nature of the available, disposable resources. The preponderance of demand deposits in the structure of bank accounts restricts opportunities for long-term credits, for which a need is felt in all sectors of the economy. Even a relatively high level of development of the banking sector is not enough evidence that they can be active in financing capital investment. The decisive circumstance is how to raise long-term financial resources for capital investments. It is in this light that the NSE is relevant.

3.2 The Nigerian Capital Market - An Overview

The capital market is defined as an institution in which long-term financial instruments are traded. This encompasses various institutions but for the purpose of this research, the NSE constitutes the apex institution of the capital market in Nigeria.

The development of the NSE was initiated and prompted by the government. The immediate need arose from;

(a) the need to finance growing budget deficits as from 1958 (by the issue of financial instruments); (b) the deterioration of the balance of payment position as from the latter part of the 1950s (the desire for the repatriation of funds from abroad); (c) the need to mobilise funds for development finance after independence.[1]

However, this development actually dates back to 1946 when the first securities were floated.[2] Though the institutional facilities for trade were absent until 1959 when the Central Bank of Nigeria (CBN) was established. It henceforth provided the facilities for trading in capital market instruments. Subsequently, that year and 1960, government development loan stock of ₦2.2 million and industrial loan stock of Nigerian Cement Company worth ₦0.4 million[3] were publicly offered. By 1961, the Lagos Stock Exchange (now the NSE) was established for effective trade in long-term securities.

---

1. Ojo, A.T The Nigerian Financial System, University of Wales Press, Scotland, 1976, Page 20.
2. Ibid, Page 20.
3. Nwankwo, G.O. The Nigerian Fiancial System, Macmillan Press, Hong-Kong, 1980, Page 88.

3.2.1 The Historical Development of the NSE

The Lagos Stock Exchange was incorporated in 1960 as a non-profit making organisation. It started operation in 1961 with 9 equities, 6 government and 3 industrial securities respectively.

The objectives of the market as spelt out in the memorandum of association are:

(a) the creation of an appropriate mechanism for capital formation and efficient allocation of savings among competing productive investment projects;

(b) a machinery for mobilising long-term funds for industrial projects with long-term gestation periods;

(c) maintenance of discipline and confidence in the capital market;

(d) broadening the share ownership base of enterprises;

(e) providing the necessary liquidity mechanism for investors through a formal market for debt and equity securities;

(f) maintenance of fair equitable prices for securities; and

(g) to act as a leading indicator of economic activity in the aggregate economy.

The level of development of the NSE is better understood within the context of its operations and activities. These are examined in the next section.

3.2.2 Activities and Operation of the NSE

The NSE is a two-tier market, with three trading floors located in Lagos, Kaduna, and Port-Harcourt respectively, the second-tier arm of the market was established in 1985 to enable increased participation of small and medium scale indigenous enterprises whose non-participation had hitherto been based on the stringent requirements of the first-tier. Activities are carried out in the new issues (primary) and the outstanding (secondary) markets.

The stock market is called an exchange because it is a systematised and precisely definable focal point for stock transactions. The main characteristics of the exchange market are:

(a) Prices are consecutively determined everyday when sessions are held except on public holidays;

(b) There exists a fixed market where the parties to the transactions can gather;

(c) Trading is limited to outstanding listed stocks which have met certain basic requirements;

(d) In connection with the trading of the listed stocks, the system of a centralised market is adopted so that buy and sell orders converge on the market and the trading is concluded based upon the principles of competitive bidding; and

(e) To ensure fairness in trading, the exchange reserves the right to supervise the trading by enacting appropriate regulations to guide stock-trading and to penalise any violation of its regulations.

Generally speaking, stock prices are similar to commodity prices in that they are formed in accordance with the elementary laws of demand and supply curves that are important. In this respect, stocks differ from ordinary commodities in that the purchaser of stock does not expect to derive any benefit from its direct consumption. Thus, it becomes necessary to consider the value of stock in a different way from other ordinary commodities. A look at the physical aspects of the enterprise such as the plant and equipment, then the net assets, are in a sense the liquidation value of the enterprise, and as such are not necessarily the most suitable measure of the value of stock in a going concern. Fundamentally, the important factor is

how much profit the invested money realises in one year, and this depends on the dividend rate. Thus, the question of how much the yield will be becomes an important factor in the supply and demand relationship. This is the basic factor behind stock-price formation. Since the yeild is dividend divided by stock-price, it follows that that the stock-price is dividend divided by yeild.

It is also necessary to anticipate future dividend beyond the next accounting period, of which earning power is highly influenced by economic factors, especially by business trends. Consequently, many indeterminate factors come into play to complicate the picture. Also, there are those investors who, feeling that the earning power per share of the company is more important, go beyond considerations of yeild to base their investment decisions on the price earning ratio. But the dependence on yeilds does not seem to be a prominent feature on the NSE, however, greater importance is attached to earning power of shares and price earning ratio.

Since stock price is determined by the point of equilibrium between supply and demand, the shifting of this balance results in an incessant

adjusting of stock price in search of the ever-changing new equilibrium.

To analyse the causes of stock-price fluctuations, we consider the economic, non-economic and market factors. One basis for the determination of stock-prices is dividends, and dividends are strongly influenced by the enterprise's earning power. There is a correlation between corporate earnings and dividends. Earning power is in turn strongly influenced by changing economic trends which are related to interest rates. In this way, the fundamental factor in stock-price fluctuations lies in changes in corporate earnings, which together with interest rates and business trends contribute to making up the economic factors influencing stock-price.

The next major determinants are non-economic factors, including changes in political conditions, such as wars or administrative changes.

Market forces or internal forces of the market, consisting the tone of the market and supply and demand relations is cited as the third category that influences the stock prices. The tone of the market is a phenomenon of excessive expectations which takes the form of over-estimating the intrinsic

value of stock when stock price is high because of business properity while under-estimating its value at the time of a market decline. This explains the underwriting of securities undertaken by stock-brokers on the exchange market. While the relationships of supply and demand are reflected directly in the volume of transactions, there is also a considerable effect from the actions of institutional investors, and margin transactions. Although margin transactions increase purchases when stock-price is going up, once the price begins to decline, they become a selling factor and accelerate price decline.

Thus, stock-price fluctuations are influenced by the mixture of a wide variety of factors, centering upon the rational factors of dividends and corporate earning power. The Nigerian Stock prices with periods of recession intermittent, show the economic tone of activities keeping with the economic growth. The stock exchange price index could have been the best indicator of aggregate economic activity, but it is relatively still new (compiled in 1984). However, using linear trend model for stock prices of 20 different sectors of the first-tier showed a general representation of the trend

of price movement from 1976 to 1985, (see Appendix II). By using simple extrapolation models, the long-run price movement pattern for stocks in the 19 sectors of the NSE was undertaken. The trend showed that despite the short-run fluctuations in economic activities over and within the years, stock prices exhibited a clear-cut upward trend. This upward trend however does conform with the reality, except that the successive price increase is exaggerated. This conformity is explained by the increasing value of stock prices within the period under consideration despite fluctuations in business activities and also under non-economic factors such as changes in administration of the country. (see figure 6). If the profitability of firms is used as a criteria for investment, then increasing value of stocks imply increasing earning per share and hence upward movement of stock prices. As already mentioned, investors are interested in the value of shares and some sort of predictable upward trend in its prices. Consequently, if profitability is used as the only criteria of investment in shares, without the analysis of structural distortions within the economy and the buffer provided by

government to enhance industrial activities, then the NSE is efficient in allocating resources. Ayadi, Samuels and Yacout in two different studies[4] concluded that the NSE is efficient because they found the prices of stocks following a random-walk. The Random-Walk Hypothesis simply states that an exchange is efficient if the prices of stocks on a particular day do not influence the prices on subsequent days. The hypothesis assumes away price memory. The efficiency of the market is an important criteria necessary for the effective transmission of savings into fixed investment. So in examining the significance of the new issues of the NSE in contributing to capital accumulation or investment, the NSE is assumed to be efficient.

However, this assumption is based on the behaviour of stock prices. A major study can be undertaken to measure the efficiency of the market using adaptive models that will capture all the determinants of stock prices. This does not imply that the simple extrapolation method used is not

---

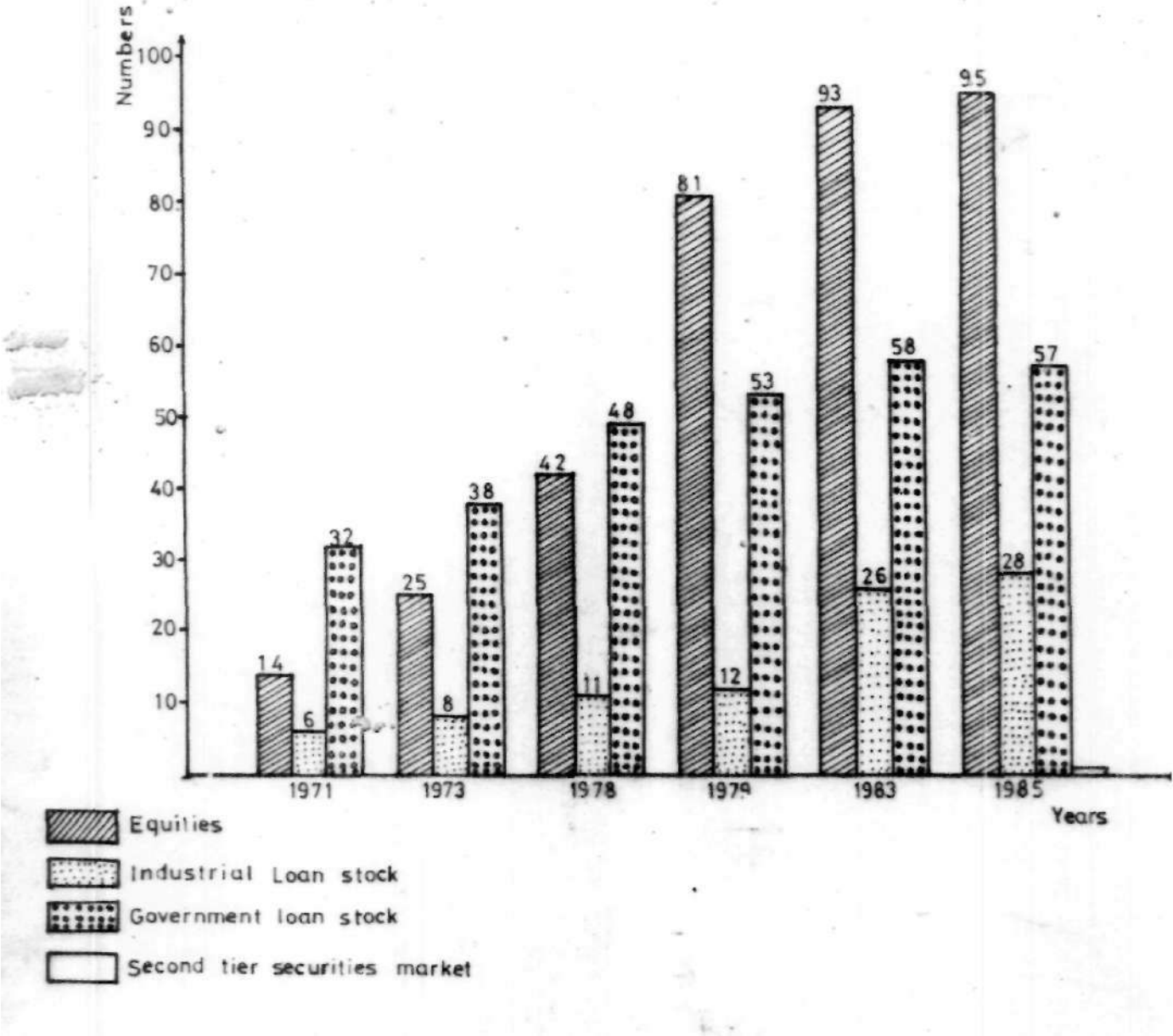
4. Ayadi, O. "The Random-Walk Hypothesis and the Behaviour of Share prices in Nigeria" in The Nigerian Journal of Economic and Social Studies, Vol 26, No.1, March 1984, Page 58.

useful, but it is conceeded that the model has an inherent limitation of forecasting accuracy. Thus, it is used in this study as a basis for making causal long-range forecast of price movement behaviour.

Aside from stock-price behaviour, the number of issues on the exchange is an important criteria for determining the impact or significance of the market. The growth in the number of securities listed shows a tremendous increase from 1961, when only 9 equities were listed on the exchange (6 government loan stock and 3 industrial loan stock). These three types of securities have grown to 95, 57, and 28 respectively by the end of 1985 with one equity on its second-tier. Figure 4 shows the growth in the number of securities from 1976 to 1985.

FIGURE 4

GROWTH OF SECURITIES ON THE EXCHANGE 1971 – 1985



Though equities show a faster rate of growth than the other two types of securities, it is however important to note that such growth is a concomitant of investment policy of multinational corporations and to a limited extent, the implementation of the 1972 and 1977 indigenisation decrees. As a rule, multinational corporations operating subsidiaries in the country and elsewhere in developing countries depend largely on domestic resources for investment expansion, hence the number of equities of mostly foreign dominated firms on the exchange is hardly surprising. On the other hand, the implementation of the indigenisation decrees still preserves the advantage of foreign investors over their Nigerian counterparts or partners. This is because of the 40% block ownership of shares by foreign partners in the affected firms. This is opposed to the Nigerian 60% ownership which is however spread between institutions, both private and public. The higher percentage of indigenous share ownership notwithstanding, decisions taken by foreign shareholders still hold sway in management and production structure. Nevertheless, the total number of companies utilising the facilities of the NSE

increased with the implementation of the indigenisation decrees. Out of the 1,106 affected companies, 78 complied, 59 of these sought quotations for the first time.

Consequently, with the growth in the number of equities and companies that are listed on the NSE, private securities, both equities and industrial loan stock dominated.

But in terms of value of transactions, government sector takes the lead. The total value of stock transactions is as important as the national income, savings in financial institutions, or any other major index of economic development. This is so because trading volumes are strongly influenced by economic trends which indicates the scale of flow of funds in the market. In evaluating market conditions by examining the trading volume, it is noted that:

(a) it does not necessarily show the same trend as the stock-price movement;

(b) it increases even when it is concentrated on low-priced stocks (due to poor business performance of companies and/or low interest rates paid on government securities);

(c) it presents an unrealistic picture when large-scale transactions by multinational corporations and financial institutions such as commercial banks are included.

FIGURE 5

TOTAL VALUE OF GOVERNMENT AND PRIVATE SECURITIES

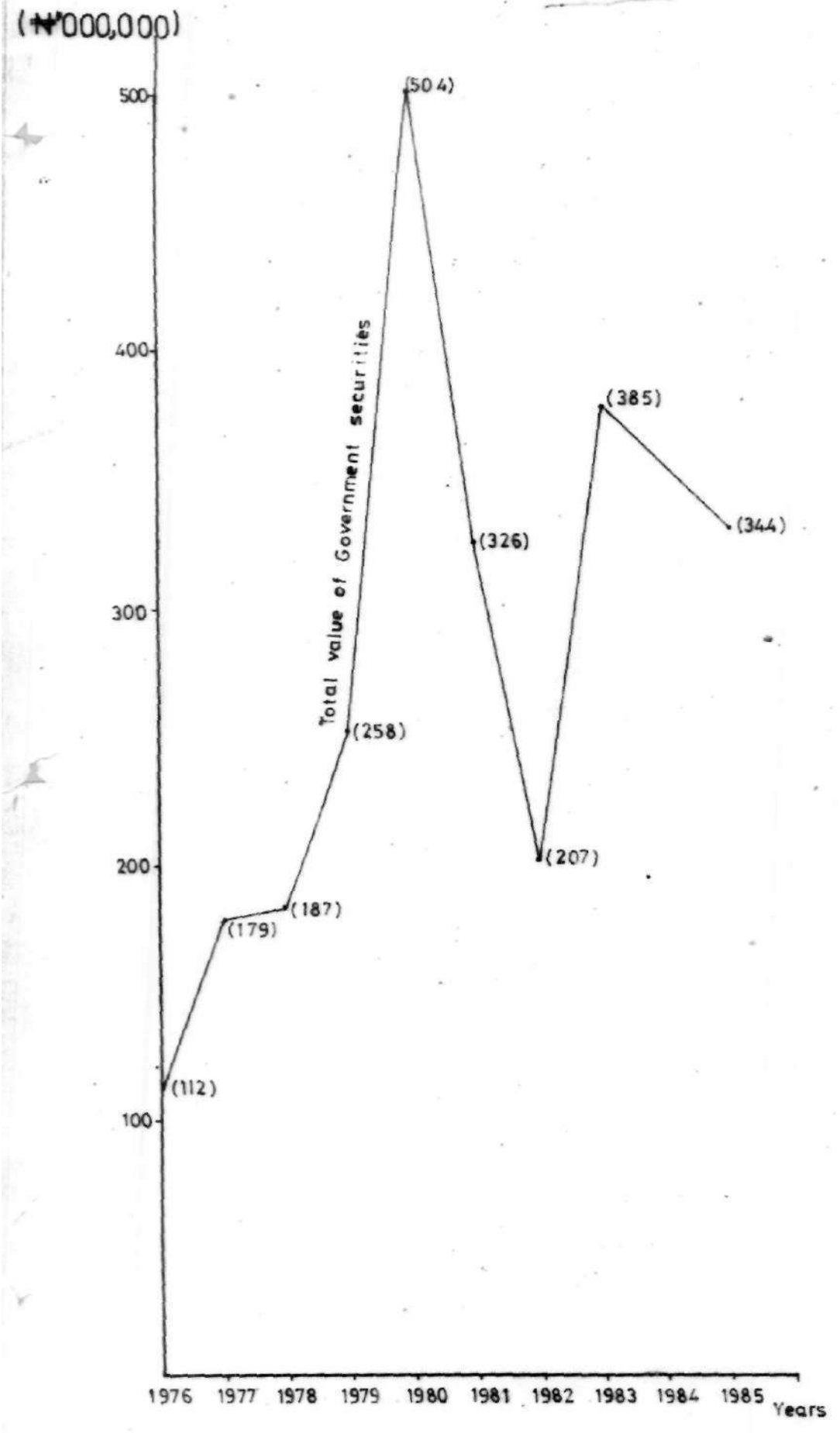


FIGURE 6

TOTAL VALUE OF PRIVATE SECURITIES

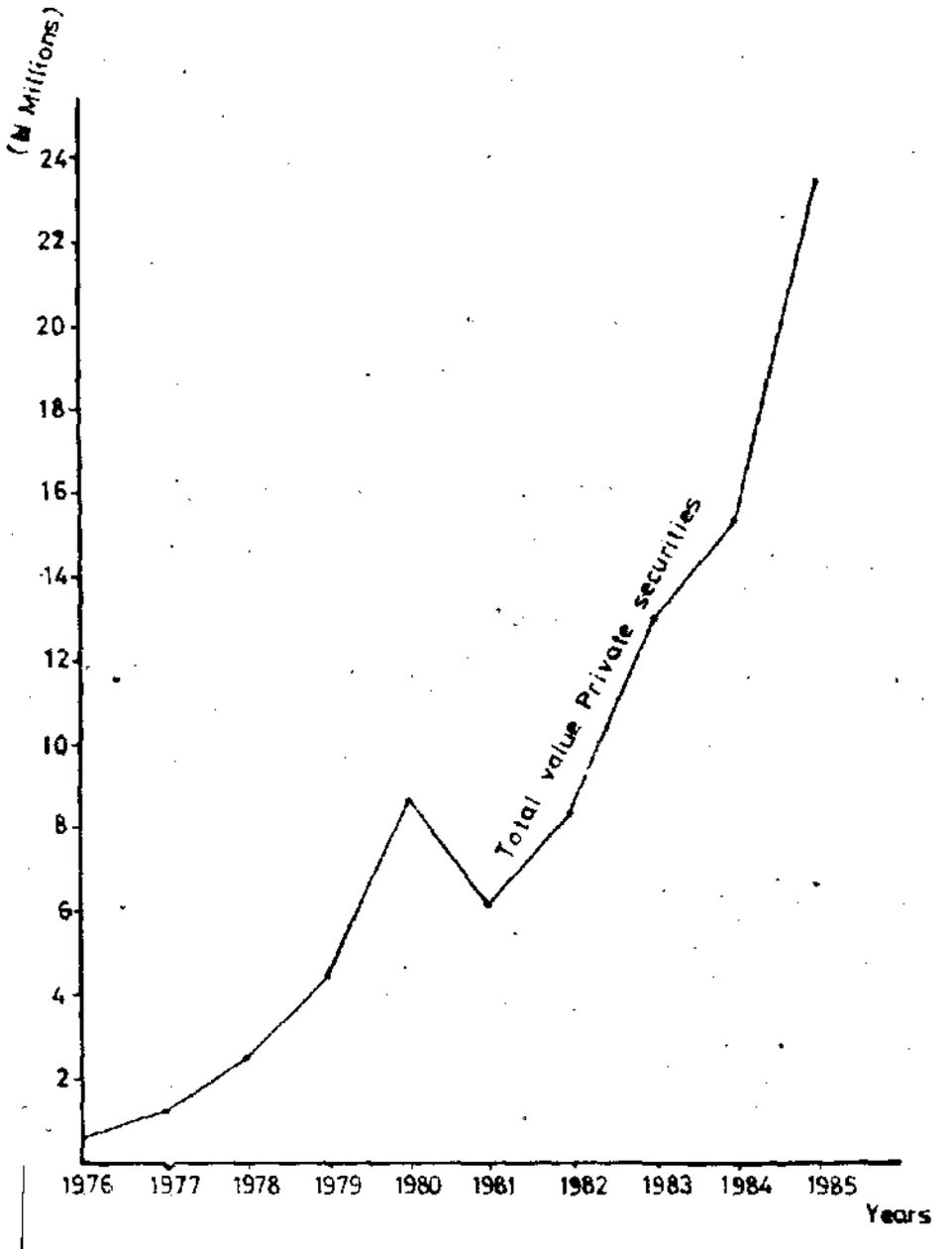


Figure 5 and 6 show the total value of government and private securities from 1976 to 1985. In figure 5, the total value of government securities show a wide margin of fluctuations which finds explanation within the framework of the economic conditions during that period. From 1976, it shows a steady growth from ₦112 million to ₦258 million in 1979, and reached its peak of ₦504 million in 1980. After this point, there was a decline to ₦326 million in 1981 and ₦207 million in 1982, its lowest value. The sharp decline between 1981 and 1982 typifies the economic crisis of the Nigerian economy. The dwindling national revenue coupled with debt servicing, amortisation and regulated interest rates, all account for the low ebb of economic activity within the period.

Figure 6 shows the total value of private securities, its upward trend however indicates a contradiction in which low economic activity or recession have no impact on the value of private securities. This probably explains the profitability of the private sector within the realm of market distortions and imperfections. It is difficult to explain how total value of private securities are

not affected by the economic conditions. One possible explanation is the investment incentives given by government such as tax concessions, subsidies, low cost of capital (low interest rates, especially in favoured sections of production) and tarrif structure. But on the whole the real reasons lie outside economic theory, here, non-economic factors play an important role. Factors such as consumer tastes and demand for products, attained standards which consumers seek to maintain despite increasing prices of products during recession.

But despite the low total value of private securities, the high value of government securities gives an indication that the issues of the NSE can make a significant contribution to the rate of capital accumulation and growth of the country.

FIGURE 7

TOTAL VOLUME OF GOVERNMENT SECURITIES TRANSACTIONS ON THE N.S.E. 1976 - 1985

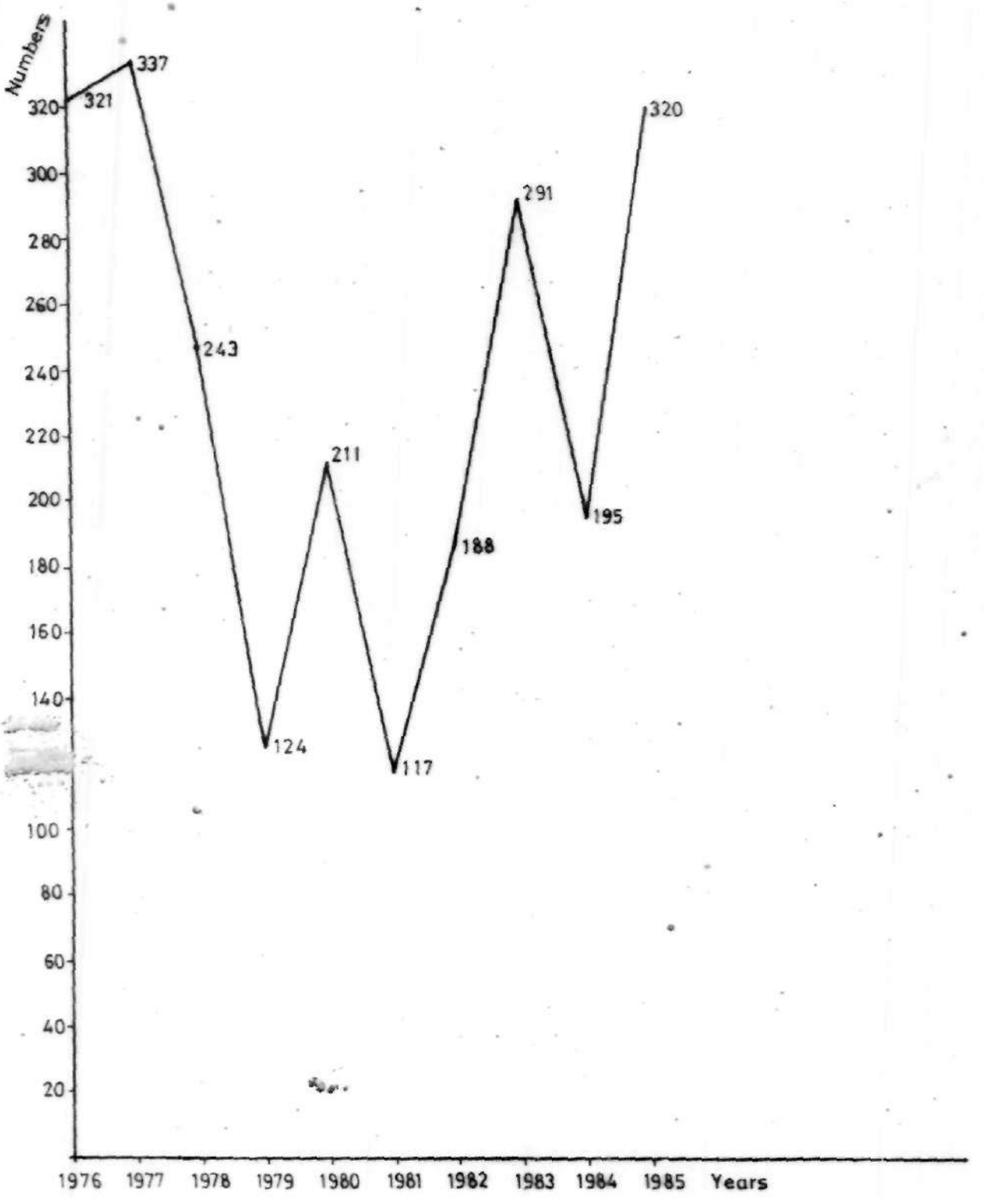
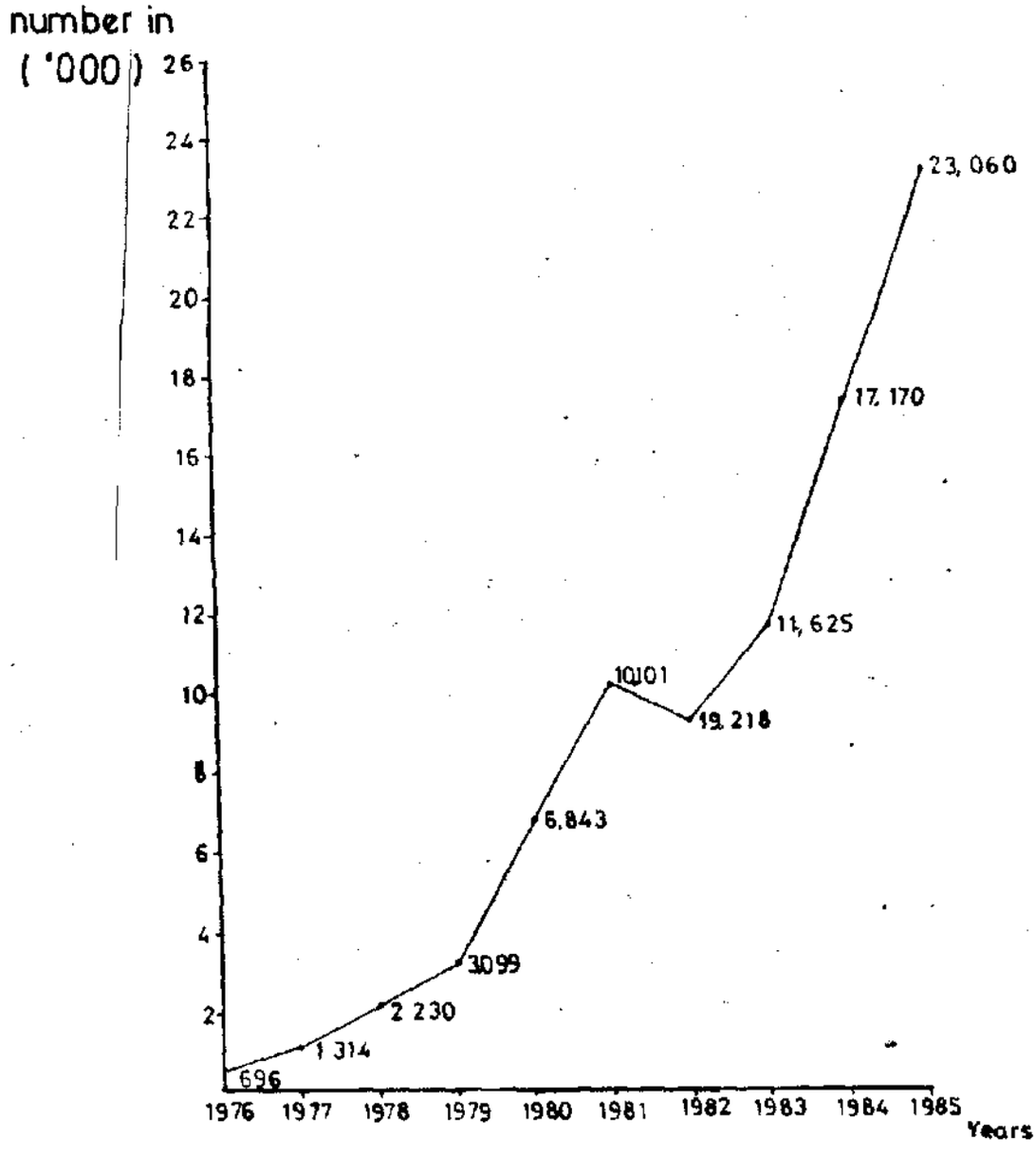
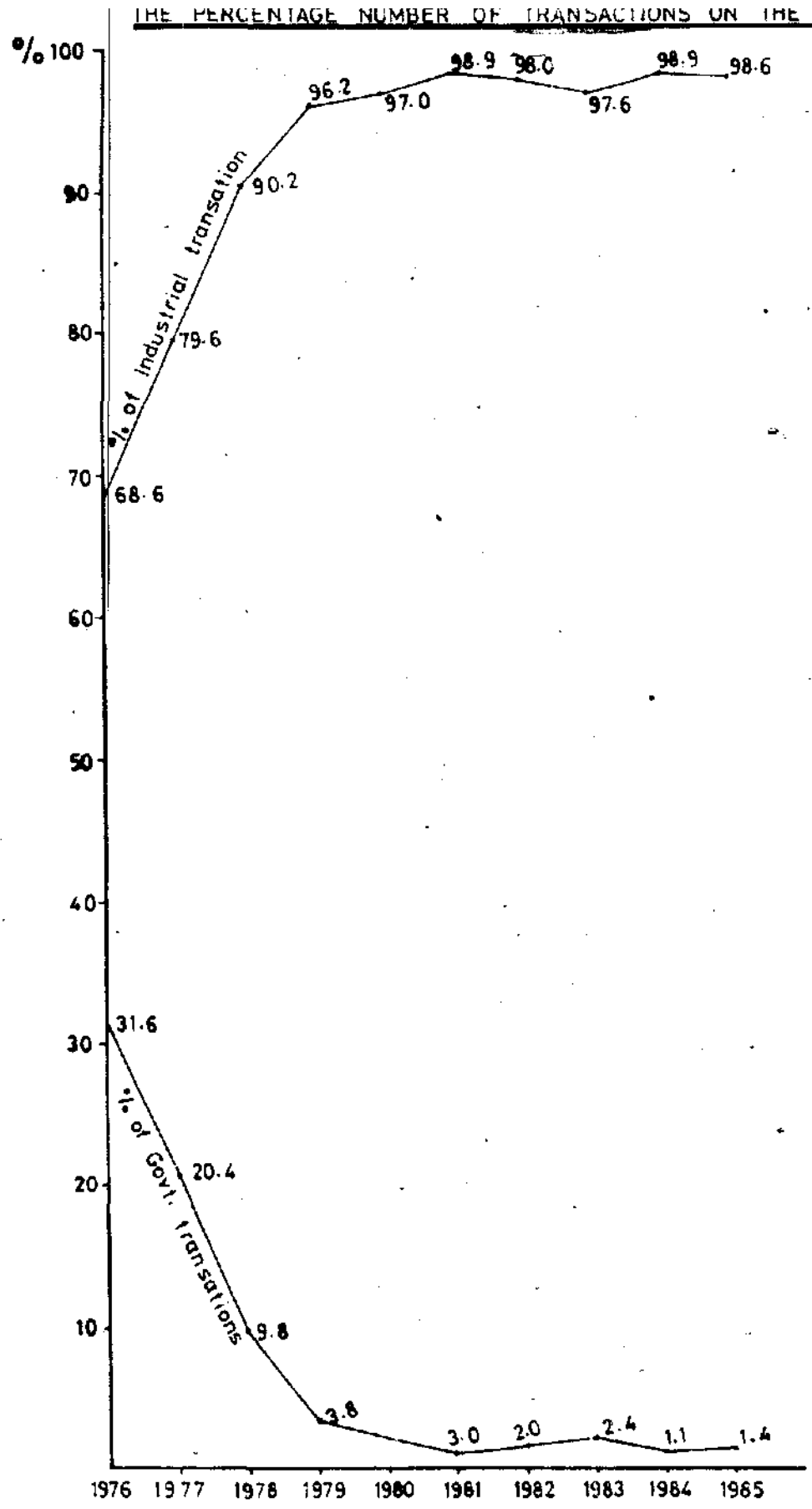


FIGURE 8

TOTAL VOLUME OF INDUSTRIAL SECURITIES TRANSACTIONS ON THE NSE, 1976 – 1985



THE PERCENTAGE NUMBER OF TRANSACTIONS ON THE N.S.E 1976 - 1985



On the other hand, figures 7 and 8 show the total volume of transactions of government and private securities from 1976 to 1985; while figure 9 shows the percentage number of transactions for the same period. In figures 7 and 9, government securities account for only 21.9% of the total volume of transactions, while private securities account for 78.1% of the total volume as figures 8 and 9 both show. Despite the high percentage of private securities transactions, government securities account for 90.1% of total market value, leaving private securities with a marginal share of 0.9%.

The high total number of transactions of private securities is explained by the block deals (large purchases) and the earnings per share of the companies which is determined by the profitability of the firms. While the high total value of government securities is explained by the mandatory purchase imposed on government agencies such as the National Provident Fund, by Income Tax Management Act of 1961, Trustees investment Act of 1962 and the Insurance Act of 1976.

In general therefore, private securities dominate the market in terms of number and volume

of transactions while government securities account for the highest total value on the market. This explains the dominance of government in the exchange and hence her role in providing liquidity for the effectiveness of the market.

Based on the large value of securities on the NSE, its role in contributing to economic growth is examined in the next chapter.

Chapter 4

ECONOMETRIC TESTING OF NSE's CONTRIBUTION TO ECONOMIC GROWTH

4.1 Introduction

From the preceeding chapter where we reviewed the development of the NSE vis-a-vis its activities, its possible role in contributing to economic growth is envisaged. The immediate indication is the large volume/value of securities and the role of the NSE in channeling investible funds. The causal relationship need not be repeated since it has been theoretically explained in the appraised growth models (see chapter 2). Each of the models emphasise investment or the rate of capital accumulation as the key determinants of the level of output and economic growth.

However, because of the limitations and gross abstractions of the mainsteam growth models, their applicability to our study is greatly impaired. The assumptions of full employment of resources, closed economy, constancy of capital-output ratio and technology among others, are inapplicable to our case-study because:

(a) a priori, we know that the assumption of full employment of resources is out of the question for most LDCs among which Nigeria certainly belongs. Rather, what obtains is underexploitation and under-utilisation of resources. Hence, an assumption of full employment in a growth model for Nigeria would greatly misrepresent the reality;

(b) as Marx pointed out in his theory of capitalist reproduction, the capital-output ratio and technology cannot be assumed as constants since changes in technology in itself is a requirement for increases in the net investment. This then implies that the capital-output ratio has to change to reflect the dynamic nature of production.

Based on these limitations, we opted for simple macro-econometric models which provides the necessary framework for our analysis. First we tested the simple investment multiplier model to see the influence of changes in investment on output. From the estimates which is presented in section 4.4 of this chapter, we observed that investment is a significant determinant of output using both the t-test and the adjusted correlation coeeficient measure.

The sign of the estimated parameter which is positive conforms to the specification of the model. The magnitude of the multiplier 0.51, which is less than unity hardly make any economic sense. However, when we analysed the structure of the Nigerian economy, reasons were advanced to explain the very insignificant multiplier effect.

Given the dependent structure of the Nigerian economy, investment, defined as gross capital formation, is of necessity achieved through the importation of the relevant capital stock from developed economies. Such importations constitute a leakage out of the Nigerian economy. When over-invoicing and transfer pricing that accompany such transactions are considered, it is hardly suprising that the impact of investment is so marginal. This is because when eventually plants are installed, they are usually reconditioned machines whose productivity is much lower than expected. Even when the machines are not obsolete, scarcity of raw materials, spare-parts, technicians reduce the capacity utilisation[1]

---

1. Capacity utilisation is a key domestic variable in production. By the beginning of 1986 for example, capacity utilisation in the Nigerian economy was down by more than 60%. Based on this, the 1986 budget aimed at raising it to a 50% level. This expectation was not realised. Also the 1987 budget the capacity utilisation was below 40%.

of such machines. In effect, their contribution to output is not as large as it ought to be.

In spite of the structural problems of the economy as highlighted above, the importance of investment in generating growth in output is unquestionable. The question that is raised concerns the need to restructure the economy to ensure that self-propelling or self-sustaining stimulus to growth are located within the economy.

Having observed the importance of investment in stimulating growth, the logical focus is the analysis of the determinants of investment. For the purpose of this study, the simple acceleerator model is considered first. This is followed by a consideration of the importance of private and government issues (Mp and Mg respectively), domestic institutionalised savings and net foreign capital inflow as determinants of investment.

The estimate of the simple accelerator model is presented below, showing investment as depending on the changes in output.

$$I = 3271.5 + 1.713\ Yt$$

S.E (1583.57) (1.3163)

t-ratios (2.065) (1.312)

R2 1.2 0.043

D.W 0.485

The estimate of the model show that no such relationship exist. This is implied from the insignificance of the change in output coefficient of 1.713 and the very low R2 of 0.043. The results of the model simply explains the inherent limitations of the accelerator model.

The model has been criticised of, among other things, assuming full-capacity utilisation which is evidently not true about the Nigerian economy. A similar contention can be made pertaining to the assumption of automatic adjustment which does not seem to apply in the case of Nigeria since capital is imported. But most importantly, the conception that changes in output is determined by investment is inapplicable as has been shown elsewhere in the study. Thus, any increase in output can be easily achieved by expanding capacity utilisation.

Though several investment theories have been postulated, we did not test them since it is beyond the scope of this work. However, we established that private-government issues are important in the growth process of Nigeria. This implies by extension that the NSE is significant in contributing to economic growth. For this purpose, simple econometric models are formulated and tested.

4.2 Nature and Sources of Data

4.2.1 Sources of Data

The data on the relevant variables used in this study are time-series data and were obtained from secondary sources - mainly from published annual reports of the Central Bank of Nigeria (CBN), the Nigerian Stock Exchange (NSE) and the Federal Office of Statistics, Lagos.

Figures on gross domestic product (Yt), total new issues (Mt) and gross domestic fixed capital formation (It) were obtained for a period of seventeen years (17yrs), 1966 to 1982, a duration considered to meet statistical and econometric criteria. Also, the period captures a series of changes in the Nigerian economy and the NSE. It should be noted that national accounts did not include the estimates for the former Eastern region during the civil war period 1967 to 1970. (Annual abstract of statistics, 1973, Page 148). While data on foreign capital inflow is for the duration 1970 to 1982.

The data used did not need to be normalised because they were in constant terms.

4.2.2 Limitations of the Data

The most common impendiment with any research in LDCs is the limited availability and reliability of statistical data. In Nigeria, the major constraints are the qualitative and quantitative inadequacy of relevant data. The national accounts statistics have conceptual problems and the inconsistent methods of compiling such time series data constitute a major limitation. However, they still provide the most convinient and authentic framework in which the consistency of detailed policy decisions is tested and also a framework for assessing past performances of the economy. It is therefore important to note that national accounts in this study have been used for these same reasons to portray the general structure of the Nigerian economy despite its short-comings. (For data used, see Appendix III.)

4.2.3 Choice of Variables

Within the context of savings-investment-economic growth, gross domestic capital formation is considered to be gross investment (It), while its determinants are domestic institutionalised

savings (St), new issues (Mt) and net foreign capital inflow (Ft). All other factors are held constant. These determinants of (I) provide the linkage between the rate of capital accumulation and growth. Also, the influence the NSE exerts on economic growth. Therefore the study is based on the hypothesis that the development of the NSE in terms of raising value of new issues of government and private sectors, has a direct positive influence on the rate of capital accumulation and hence economic growth.

4.3 Specification of the Models

4.3.1 Method and Procedure

The method used is the application of the regression analysis to evaluate the relationship between the development of the NSE and the process of economic growth. The basic procedure in this method includes model specification, estimation and analysis of the results.

The general form of the models derive from simple macro-economic phenomena of economic development in any economy. Thus, the hypothetical relationship between the variable of economic

growth, investment and the development of the NSE's new issues as presented in the following mathematical forms:

The Simple Investment Multiplier Model

$Y = f(I)$

where Y is the GDP at 1973 constant prices

I GDF CF

Given the postulate that I is a fraction of economic growth, we hypothesise that there exists a linear relationship between new issues and economic growth and the multiple regression equation is given as

$$I = f(M_P\ M_G)$$

where M_P - private new issues

MG government new issues

The model acertains the relative importance of each type of new issues. According to the signs and magnitudes of the parameter estimates. It is expected that MG and MP will have a significant relationship to economic growth.

Alternative models were also used to determine the relative importance of new issues vis-a-vis domestic savings (S_t) and net foreign capital inflow (F_t). The first model specifies the relationship between I, M, S while the second shows the relationship between I and F.

Consequently, the first multiple regression equation is represented as:-

$$I = f(M,S)$$

where M - total new issues

S - aggregate domestic savings

Then I as a function of F is represented by the simple functional relationship between:

$$I = f(F)$$

where F -net foreign capital inflow

All the models were estimated using the Orinary Least Square (OLS) technique and the estimates were obtained by the use of a Statistical Package for Social Sciences (SPSS) computer package. This approach has been found to provide a better insight into the contribution of the NSE to the economic growth process than the empirically grounded study of the NSE using ordinary ratios.

4.3.2 Estimation of the Models

The general forms of the estimated relationship between I, M, S and F are expressed in the following equations:

$$Yt = \alpha_0 + B1It + Ut \quad \ldots\ldots\ldots\ldots (1)$$

$$B1 > 0$$

$$It = \alpha_0 + B1\ Mgt + B2\ Mpt + Ut \quad \ldots\ldots\ldots (2)$$

$B1$ and $B2 > 0$

$$It = \alpha_0 + B1\ Mt + B2\ St + Ut \quad \ldots\ldots\ldots (3)$$

$B1$ and $B2 > 0$

$$It = \alpha_0 + B1Ft + Ut \quad \ldots\ldots\ldots\ldots (4)$$

$B1 > 0$.

where the Uts are the error terms in the equations.

It should be noted that the above equations have been derived from experimental approach to the study. We started with the single variable equations, some of whose results were not encouraging as a result of specification errors. Other variables were tried out in a multi-variant equations and their estimation proved to be best among the results obtained. Some of these results are shown in appendix III. Consequently, only these four models were estimated and found to have economic meaning. The importance of the econometric experimentation is to test the impact of the NSE on economic growth through its role in increasing the rate of capital accumulation.

The mathematical specifications gives us the tools for evaluating the contribution of the NSE to economic growth. It is however important to note

that the process of specifying any model is prone to errors of specifications and thus the specification of these models should be considered no exception. It was expected that the results would provide a basis for analysing policy implications that could engender the contribution of the NSE to economic growth. The results also provided a guide for recommendations for increasing the performance effectiveness of the NSE.

4.4 Evaluation and Interpretation of the Models

The evaluation of the estimated models are based on a knowledge of statistics, economic and econometric theories to validate the reliability of the estimates. Statiscally, the t-ratio and the $\bar{R}2$ are used to test for the significance of the parameter estimates and the goodness of fit of the regression line.

The econometric evaluation aims at investigating whether the assumptions underlying the estimation technique are satisfied or violated. In this case, the Durbin-Watson (D-W) test is used to test for auto-correlation or serial correlation and also to test the validity of the assumptions underlying

the error term-Uts. The sign and size of the estimated coefficients were expected to conform to a priori postulations. Consequently, it was expected that the new issues of the NSE would have a significant impact on the rate of capital accumulation and thus economic growth.

Estimates of the models are given below with their t-ratios in parentheses. The computed Standard Error (SE), adjusted correlation coefficient ($\bar{R}2$), decomposed correlation coefficient ($\Delta R2$), F-test and the D-W test statistic are all given viz:

(i) $\hat{Y}t = 8574.64 + 0.51\hat{I}t.$

S.E (777.22) (0.117)

t-ratio (11.03) (4.34)

$R2_{1.2}$ 0.53

F-test 18.83

$\Delta R2$ 0.56

D-W 0.37

(ii) $\hat{I}t = 1425.3 + 102.85\hat{M}P + 3.54\hat{M}gt$

S.E (1165.3) (40.06) (4.95)

t-ratios (1.2) (2.60) (0.716)

$R2_{1.23}$ 0.52

F-test 9.63

$\Delta R2$ 0.198 0.361

D-W 1.85

(iii) $\hat{I}_t = 251.64 + 3.72\hat{M}_t + 1.54\hat{S}_t$

S.E	(651.14)	(2.08)	(0.213)
t-ratios	(0.386)	(1.80)	(7.24)
R2	1,2,3	0.86	
F-test	50.6		
ΔR2	0.83	0.85	
D-W	1.97		

(iv) $\hat{I}_t = 1784.9 + 4.6\hat{F}_t$

S.E	(1024.9	(0.28)
t-ratios	(1.74)	(5.65)
R2	1,2	0.72
F-test	31.88	
Δ R2	0.74	
D-W	not calculated	

The first result presents the investment multiplier, the estimate of the model is given overleaf.

The intercept coefficient of 8574.6 and the investment coefficient of 0.51 are significant at both 5 and 10 percentage level using the t-test. This implies that a relationship exists between investment (I) and output (Y). The positive value of the investment coefficient implies that this

relationship is direct. In other words, increase in investment lead to increases in output and vice versa. The degree of the relationship is given by the $\bar{R}2$ value of 0.53, which indicates that 53% of variations in Y is explained by the variations in I.

From the estimates of the model, the significance of I as a determinant of Y has been determined. However, the coefficient of I appears to be low, the value of 0.51. This implies that a Naira (₦) increase in I leads to a 51 Kobo increase in Y. This multiplier figure appears to contradict economic theory, specifically, the multiplier concept, because according to the keynesian multiplier concept, increase in I. causes increases in Y by some multiple of the increase in I. This means that an increase in I leads to a more than proportionate increase in Y. However, our estimates contradicted this concept, One explanation that can be given for this is that the structure of production in the Nigerian economy does not allow the full impact of the multiplier effect to work for the benefit of the economy. Tracing the transmission mechanism of the multiplier, an increase in I causes an increase in the use of production resources and

hence the increase in income. This increase in income is expected to result in an increase in consumption. But since consumption is a positive function of income, an expansion in consumption means more pressure on the productive sector to increase production. Consequently, the productive sector invests to expand production thus marking the beginning of a new cycle of the multiplier effect. However, from the beginning of the transmission mechanism, an increase in I does not lead to an increase in the employment of domestic resources (due to the nature of production) which implies that any increase in Y is not met by the full amount of the increase in I. This is so because investment sourcing is mostly foreign or in partnership with foreigners. So, for the full impact of investment to be felt in Nigeria, it requires that importation of capital goods, spare parts, raw materials and skilled personnel be replaced domestically so that the multiplier effect does not leak out of the economy. Even if consumption expands, the consumption pattern of Nigerians show an inordinate preference for foreign goods, therefore, there may be no pressure on the manufacturing sector to invest because consumption demand

is almost always satisfied by the importation of goods and services. Despite these lapses, the importance of I as an engine of growth does not diminish, all it has done is to point out the loopholes in the structure of production in Nigeria. Fundamentally, showing the dislocation of the dynamics of growth. It is in this light that we identified the determinants of I which the other models were designed to test.

The next model shows the relationship between investment and new issues of private and government sectors. The estimate of the model is represented by equation (2). The estimate indicates the existence of a relationship between investment, government and private new issues. This is evident in the high 9.63 F-value of the estimate and the adjusted R2 of 0.52. This adjusted R2 imply that about 52% variation in investment is traceable to variations in government and private issues. Also the estimates are unbiased and consistent since the model does not suffer from either autocorrelation or multicollinearity.

The signs of the estimates are positive. This conforms with the specification of the model. The

magnitude of the coefficients show that a unit increase in government issues result in 3.5 unit increase in investment, while a unit increase in private issues leads to 102.9 unit increase in investment. However, taking the decomposed R2 to explain the explanatory power of Mg and Mp, it is discovered that 36% of investment is explained by variations in Mg, while only approximately 19.9% variations in investment is explained by variations in MP. The relative importance of Mg in investment is explained by the significance of government accumulation which stems from the fact that acceleration of economic growth in Nigeria depends to a decisive extent on the scale of government intervention in investment. On the other hand, a large portion of the profits obtained by enterprises which are mainly expatriate companies enable them not only to export significant amount of funds out of the country but also to finance capital investments from undistributed profits and from other sectors of the economy, mobilised in the main by bank credit, hence raising new issues via the stock exchange becomes a secondary matter.

Having established that there is a relationship between investment, and government and private

new issues, we estimated the third model. The estimate of the model shows that there exists a linear relationship between investment, savings and total new issues. The parameters are significant at the 10% level using the t-test. Also, the adjusted R2 shows that about 86% of variations in investment are accounted for by the linear influence of savings and total new issues.

The signs of the parameters are positive, indicating that a direct relationship exist between investment, savings and total new issues. The magnitude of the coefficients show that a unit increase in total new issues create a 3.7 unit increase in investment, while a unit increase in savings lead to a 1.5 unit increase in investment. In terms of their decomposed R2, savings explains 85% of the variations in investment and total new issues explain 83% of the variations in investment. This seeming contradiction based on the magnitude of the parameters of M and S can be explained by the fact that, from the component of M, a large percentage which is from government does not go into fixed investment, so that the proportion of M that explains variations in investment is lower than for savings.

The estimate of the fourth model shows the relationship between investment and net foreign capital inflow. The estimate of the model confirms the existence of the model as specified in the preceeding section. Furthermore, the estimates are unbiased and consistent. The test shows that the foreign capital inflow coefficient of 4.6 is significant at the 5% level. The adjusted R2 of 0.72 lends weight to the existence of the model by indicating that foreign capital inflow explains about 72% of variations in investment.

The positive sign of foreign capital inflow coefficient indicate that a direct linear relationship existed between investment and foreign capital inflow. The magnitude of the coefficient indicate that a unit increase in foreign capital inflow causes investment to increase by 4.6 units. This indicates a strengthening financial dependence on foreign sources which is also further expressed in the rapid growth of external indebtedness of the country. However, the influence of foreign capital inflow is complex and contradictory. On the one hand, the flow of external resources increases the total volume of accumulation, promotes an increment in fixed assets, and provides opportunities for

repaying them. On that level, their employment can further economic growth to some extent, because it makes the usage of modern technology possible. On the other hand it is very difficult to locate the effect of external resources on accumulation and economic growth in a quantitative sense. Thus, from the estimates, the role of foreign capital inflow is overstated at the expense of the significance of domestic accumulation.

The receipt of external resources can raise domestic savings if it is laid out on increasing capital investment and will diminish gross savings if part of the resources received are utilised to increase consumption on a scale exceeding the increase in the capital investment fund. But the character of the employment of outside funds depends on the investment policy of government and of the coutries exporting capital.

On the whole, the role of the NSE in capital accumulation and growth cannot be underestimated as shown in the result of the estimates already discussed. This then points to the fact that there is a need to further the development of the NSE to exploit maximally its potential in terms of raising the rate of capital accumulation.

The next chapter looks at the possible areas of increasing the new issues on the exchange, especially those of indigenous enterprises which require further development.

Chapter 5

THE NEED FOR THE FURTHER DEVELOPMENT OF THE NSE

5.1 Introduction

The NSE is no doubt an active link in the credit system and a source of long-term investible funds. This is evident from the analysis of the results obtained in the preceeding chapter, where new issues were shown to be of great significance in the capital accumulation and growth process. Although domestic institutionalised savings and net foreign capital inflow constitute a considerable part of domestic capital accumulation, the contribution of the NSE is more significant and traceable to fixed investmtnt. This is largely because of the significance of government accumulation which stems from the fact that acceleration of economic growth rates in Nigeria depends largely on the level of government participation in investment. Also, after the transfer of profits abroad by the foreign dominated companies, the proportion of government accumulation becomes even higher. It is also evident that a priori government investment needs exceed accumulation in terms of the value of gross domestic fixed capital formation. This is considerably so because

capitalisation of profits is not a prominent criterion for government investment. Thus, despite the present scale of government involvement in economic development, there is a need for immense financial resources to be mobilised internally, especially from the private sector. But emphasis within the sector should be on the indigenous enterprises since foreign resources and government finances are dwindling. This new dispensation is characterised objectively by the falling oil revenue, the depreciating value of the Naira, low investment and economic activities. The most efficient way of mobilising such funds for capital accumulation and economic growth by the private sector is through the NSE.

As it has already been pointed out in chapter 3, the NSE presently deals in the main with shares of the expatriate companies because the indigenous private enterprises do not utilise the facilities of the NSE due to lack of capital funds, availability of cheap bank credits for medium/long-term industrial financing and weak development of joint-stock form of company.

The feeble development of joint-stock company form of business organisation has had a negative

impact on the supply of corporate new issues - an apparent significant stimulus for increased contribution of the NSE to economic growth. Measures therefore have to be taken to provide the necessary conditions to encourage the participation of indigenous enterprises aside from establishing the second-tier securities market (SSM) in 1985, whose less stringent listing requirement has led to 4 indigenous companies enlisting. This is not a sufficient measure for increasing indigenous corporate issues of the NSE. Thus, there is need for government to provide a conducive atmosphere for the development of indigenous enterprises into viable joint-stock companies. A major step to utilising the facilities of the NSE.

However there is a contradiction inherent in the suggestion of active government participation in economic activity in order to provide a conducive atmosphere for private sector growth. This is because, presently, government is articulating a recovery package which is aimed at opening up the economy in order to enhance the functioning of the market mechanism. This implies a withdrawal of government from active participation in economic

activities, playing only a regulatory role. It is in this context that the impact of the privatisation policy on the NSE is examined.

5.2 Measures for Increasing the Supply of Indigenuous Corporate Issues

Accumulation takes place in Nigeria through enterprises belonging to expatriate companies, indigenous entrepreneurs and the government. While the total accumulation of expatriate companies earmarked for investment depends, ceteris paribus, not only on the level of taxation. Although the fiscal regime existing in Nigeria seems to be less favourable as compared with the taxes levied in Britain, the proportion of direct taxes levied on expatriate companies is 17.4% of gross revenue, while it is 12.4% of the companies gross revenue in Britain within the same period.[1] However, allowance must be made for the fact that the rate of profit on capital invested in Nigeria is considerably higher than in countries of western

---

1. UNECA, Mobilisation of Domestic Resources in Africa, Table 4, United Nations, Addis Ababa, 1977, Page 36.

Europe, and the deficiencies of the tax system enable expatriate companies to keep back a considerable part of the direct taxes payable by them.

On the other hand, government accumulation is significant because of the quest for economic development, with government participation in investment prominent, which implies that the government share in gross accumulation is greater than that of the private sector.

However, political independence gave more favourable conditions for extending private enterprise. This found expression in the quantitative growth of the Nigerian capitalist class, an increase in accumulation by new private capital and so on.

Also, with the dominance of expatriate capital and the expansion of public economic activity in the early 1970s, investment opportunities for private enterprises increased. The dynamics of this shows that private enterprises are mainly small, while the big ones are controlled by foreigners. The early years of independence saw a marked growth of indigenous private enterpreneurship with the national capitalist class succeeding in broadening its position in manufacturing, particularly in

the production of foodstuffs, alcoholic beverages and timber. This notwithstanding, local private capital still occupied a subordinate position not only in the economy, but also within the limits of the private sector which was still under the effective control of foreign companies.

Private indigenous enterprises lag behind expatriate ones in various ways; in terms of technical, production and financial indicators, but also in terms of volume of output, scale of appropriated revenue, capital investment, accumulation, degree of control over the means of production, level of organisation and management. Many indigenous enterpreneurship are governed by the specific features of the socio-economic structures, particularly the level of development of the export sector, the degree of urbanisation, influence of the pre-capitalist relations. The main source of accumulation in the private sector is the profits and depreciation allowances of joint-stock companies and individual enterprises. Due to lack of statistical data, we cannot show the structure of the distribution of profits fully. However, the opportunities of indigenous entrepreneurs using depreciation allowances as a source of accumulation are limited

by the smallness of their fixed capital which restricts the possibilities of growth of surplus value. Most indigenous enterprises are technically poorly equipped, their productivity is low, variable capital and recirculation of part of the fixed capital predominate over depreciation allowances.

The better organicity of the types and forms of indigenous entrepreneurship especially the preponderance of small and medium-sized enterprises normally employing from 10 to 100 people, have a considerable effect on accumulation in the private sector. Thus, an increase in the rate of accumulation is held back by the weak development of joint-stock companies. The commonest form of indigenous private capital is a firm belonging to a single owner, family, or a group of proprietors. The initial capital for such firms usually come from personal savings of the proprietors and various loans.

One difficulty being encountered by indigenous entrepreneurship is the narrowness of the home market, poor knowledge of its possibilities and needs, which leads to underutilisation of the productive capacity of the enterprises, idleness

equipment. Another obstacle to the creation of indigenous enterprises of an adequate technical standard is the constant rise in the necessary minimum initial capital investment because of the general rise in the capital intensity of production. The weakness of indigenous firms also stems from the lack of experience in the organisation and management of enterprises, lack of skilled personnel, weak accounting of financial activities. In the case of financial records, some of them do keep with the objective of not reflecting the true state of affairs in order to reduce the amount of taxes to be paid or to get additional credit from government.

Since indigenous enterprises lack their own accumulated funds, a large part of the capital investments in fixed and circulating capital are made by borrowing funds mobilised through the credit system. It is not possible to analyse the financing of petty enterprises due to lack of statistics, moreover, indigenous enterprises employing under 50 persons do not as a rule publish accounts of their finances.

However, indigenous entrepreneurs experience great difficulty in obtaining long-term credits to

buy capital equipment. And since, as a rule the bulk of bank loans are advanced to finance circulating capital and to buy land and only a tiny part form fixed capital, the current deregulation of interest rates will further make credit inaccesible to most indigenous firms. Also relevant, is the raising of the bank liquidity ratio from 25% to 30%. Both measures are aimed at reducing credit since rates of interest would be high, reflecting the true scarcity of capital and encouraging savings. For example, the First Bank raised its lending and fixed deposit rates to 16%, the highest hike ever witnessed in Nigeria.

Consequently, because of the aforementioned under-development of joint-stock companies form of enterprise, the issue and placing of private securities are on a limited scale. Since Nigeria has a capitalist orientation, government's economic policy in relation to indigenous entrepreneurship must therefore be directed towards providing the necessary conditions for the expansion of its activities so that indigenous capital can displace expatriate capital on the NSE. The specific motive of such a policy will be determined by a combination of factors,

and primarily by the position of expatriate monopolies and the government's role in the economy, but most of all by the potentialities of indigenous capital.

Indigenous enterprises that have an acute need for additional capital and credit get financial support from government in the form of long-term subsidies. As a result of their inability to obtain loans to undertake large capital intensive projects from commercial banks, the government established specialised credit institutions to assist indigenous entrepreneurs. Of this, the operations of the Nigerian Industrial Development Bank (NIDB), and the Nigerian Bank of Credit Commerce and Industry (NBCI) are indicative. In addition to direct financial aid, government need to encourage indigenous entrepreneurs by measures of indirect support of various kinds, in which a leading place must be taken by the fiscal systems.

Tax concessions should be granted to enterprises of major economic importance, new industries and enterprises employing new equipment.

The princi;al criteria for granting tax concessions to indigenous investors should be: (a) the development of import-substituting industries, so as

to economise foreign exchange; (b) providing fuller employment; and (c) diversifying the structure of production.

For industries employing new equipment, development rebate should be granted for one year, and after the first year of installation of the new equipment, 25% of the cost of the equipment should be deducted from the taxable profits. Concessions relating to the taxation of profits, in particular, temporary relief from taxes, tax exemption on dividends, will have a stimulating significance. This is because the features of accumulation in the indigenous private sector are not only associated with the lack of funds, but realisation of the resources accumulated by indigenous entrepreneurs, which is why they prefer to invest them in areas of activity that are known to them, mainly in commerce where the size of initial capital required is not great, the turnover is fairly rapid, and in the purchase of fixed assets such as land. Productive investment can be made by indigenous companies in industry, agriculture, and building only when the conditions are favourable (a weakening of expatriate capital and government financial support) while such development will necessitate the utilisation of the NSE for raising investible funds.

It is in this context that the inappropriateness of the privatisation policy as a structural adjustment instrument is analysed in the next section.

5.3 The Role of NSE in Privatisation

The issue of privatisation of the Nigerian economy became a serious concern of the government as far back as the late 1970s because of the consistent inefficiency of its parastatals. Based on findings of various public inquiries, variants of privatisation were experimented upon, such as contract management (an example is the Nigerian Railway Corporation which was managed by RITES of India on contract between 1977 to 1981). However, by 1982, an adjustment programme was contemplated in the midst of a serious economic crisis which involved the divestiture of some government parastatals. The active implementation of the policy started in earnest this year (1987).

The involvement of government directly in economic activities dates back to the colonial era, and has expanded quite rapidly. The role government plays as the prime mover of development and growth through planning and direct investment is clearly

recognised. However, it has been suggested that government intervention in economic activities particularly in the early stages of development is in recognition of the weak private sector. This weakness has forced government into controlling the major sectors of the economy, an attempt aimed at directing the course of economic development. In other countries also, governments have acted as a stop-gap until the indigenous private sector is developed. It became clear, since independence, that the private indigenous enterprises cannot compete with foreign ones whose predominant position has been consolidated before independence. By 1960, government involvement in economic activities was already a foregone conclusion. This is because independence would have been empty without government controlling the domestic economy at least to discourage foreign capital domination. The immediate question that come to mind is whether the private sector is developed enough to handle the new reversal of roles, and if not, is the privatisation policy not ignoring the history behind government involvement in economic activities, will it provide an opportunity for the development of the private sector?

There have been arguments for privatisation,

this notwithstanding, it is agreed generally that in a mixed economy, there is the need for an active governmental presence in the economy. The traditional role of providing public goods and services, especially in the areas of national defence, law and order and communication, still holds. Also government involvement in heavy capital intensive projects is acknowledged such as petrochemicals. Government involvement in the production and distribution of private goods such as food, is now being regarded as an over-stretching of government resources. The reason for this is that the government blames the present economic crisis on its excessive economic responsibility. Thus, public enterprises which are said to be inefficient have been constituting a major drain on the scarce resources of the economy. To butress this point it was indicated that of the ₦23.25 billion of total investment in parastatals as at October 31 1985, dividends amounting to only ₦93.7 million was received by the government. Apart from the total investment, these parastatals also ploughed in ₦1.5 billion as subventions. This point is an attempt to demonstrate how inefficient these parastatals had become, and why privatisation seems a better solution. Public enterprises' inefficiency

cannot be disputed because they have failed to achieve the objectives for which they were established. Their poor performance is evident and documented by the various public inquiries set up over the years to look into their operations. However, the claim of inefficiency based on normal commercial criteria might be a misconception, since these parastatals were not set up as strictly commercial ventures. It is then important to look beyond profit motive and take due cognisance of the social costs and benefits involved in their operations. Thus, simply comparing total investment with dividends received by the government will not be a fair assessment of their efficiency. The profitability of an enterprise is not the best measure of efficiency. There are inefficient private enterprises in Nigeria that continue to make large profits while their social costs are internalised within the economy.

The salient objective of privatisation is a shift in the public-private sector tilt. This mix is towards the private sector, by allowing the market mechanism to allocate resources. This implies that the market mechanism is the most efficient means of allocating resources. An identified problem for most developing countries has been that the market

do not always send the correct signals due to market imperfections inherent in their economies. It is in the recognition of some of these imperfections that the public sector expanded in most cases.

The questions then are: Are the rigidities in a developing economy - Nigeria, no longer existing, meaning that the market mechanism is an efficient means of allocating resources? OR is it that the private sector is developed enough and can shoulder the major part of economic activity? Otherwise, would privatisation lead to any increase in the participation of indigenous private enterprises in economic activities?

The answers to these questions depends on which policy the government choose to pursue. The extent to which policies are properly articulated for the development of the private sector with emphasis on the indigenous enterprises. If specific central policies are not pursued, privatisation will only further the disequilibria that has generated into a deepening dependence of the economy on foreign assistance.

The privatisation policy in itself dictates new opportunities for growth in the issues on the NSE. A growth which provides for an effective and

sustained contribution of the NSE in the capital accumulation and growth process within the dialectics of capitalist growth process. This is because privatisation involves the sale of shares of enterprises to qualified buyers in the private sector. This calls for a reorganisation of the parastatals into public limited companies, a step that would qualify them for enlistment on the exchange. Since in so doing their financial efficiency would be ascertained. On the other hand however, the parastatals have already been condemned for financial inefficiency. How then, one might ask, does the government intend to sell unprofitable ventures to profit-conscious private entrepreneurs, given the strong profit motive, the lack of which constitute the fundamental reason for selling the parastatals? Even in the event that the government works out a compensating incentive, not many indigenous private enterprises can afford to buy shares of these parastatals. Apart from the underdevelopment of the private sector, investment culture is still very rudimentary. The numerous indigenous enterprises do not have the financial grounding necessary to encourage investing in securities. So that the shares of these parastatals will be bought by foreign investors, government agencies,

and very few individuals. It becomes clear that the economy is not set for the implementation of this sort of policy.

Except the development of private enterprise preferably the joint-stock company, and the investment culture improves, privatisation will only entrench the dependence of the economy on government and foreign assistance and a skewed income distribution. A situation such as this would have negative implications for the effectiveness and efficiency of the private sector.

It is clear that the government is commited to privatisation of the economy, but whether it is set for the full repercusions is a question that will definitely be answered with time. While the policy has its own merits as an instrument for structural adjustment, it is clear that in the context of Nigeria, that adjustment would not necessarily lead to economic recovery. It will only further intensify the contradictions that perpetuate the dependence of the economy.

Government must seek an alternative strategy for structural adjustment because government's active participation is still a potent force in the economic development of Nigeria. This is necessary

especially with a dependent and parastic private sector. Also government activities would at least provide some counterbalance to foreign dominance within the economy and minimise the income distribution gap.

In essence therefore, the prescription for increasing corporate issues especially from indigenous enterprises is government active participation in economic activities especially through fiscal policies that would encourage the development of indigenous enterprises into joint-stock companies or public limited liability companies. This role of government would then be basically regulatory.

Chapter 6

6.1 SUMMARY AND CONCLUSIONS

The need to raise the rate of capital accumulation for economic growth using an internal mechanism has been the main treatise of this research. Emphasis laid on internal mechanism was based on the realisation that the influence of external resources on capital accumulation and economic growth is both complex and contradictory. This is because an influx of external funds is usually accompanied and followed by the export of profits generated by that influx. In many cases, the profits may even exceed the advanced capital due to the dislocation of the dynamics of production. Consequently, with the export of part of the national income, a limitation is placed on the volume of domestic accumulation which in turn restricts the base for extended reproduction. Thus, with the deepening economic crisis in Nigeria, the burden of servicing external debts which is imposing a heavy burden on the budget and balance of payments, falling value of the currency, and worsening financial position all impose further restrictions on capital accumulation.

Based on this, it became imperative to look inwards for an effective domestic mechanism for

raising the rate of capital accumulation and economic growth. The Nigerian Stock Exchange (NSE) provides the required internal mechanism because it is the single financial institutions where large sums of capital funds can be mobilised for fixed investment. Having made the choice, and based on the economic theory of growth, macroeconomic models were formulated and used to test the significance of the new issues of the NSE to the rate of capital accumulation and economic growth. Also, other determinants of investment like domestic institutionalised savings and foreign capital inflow were tested. It was observed that they both contribute a considerable part of domestic accumulation. However, the relative significance of the NSE was upheld, because the significance of savings and foreign capital inflow are not easily traceable. This is because savings is actually made up of funds for short and medium-term investment which is basically recirculating capital, while foreign capital inflow cannot be quantitatively located as contributing to domestic accumulation.

However, as the NSE has been found to contribute significantly to capital accumulation and growth while its potentialities are still to be fully

harnessed due to the underdevelopment of the joint-stock form of enterprises and indeed the private sector. Therefore, suggestions were made as to how to further develop private enterprise with the aim of increasing their participation in the NSE. This can be achieved through government's economic policy of mainly fiscal measures such as tax conscessions for import-substituting firms, development rebate for firms using new equipment and those firms making fuller use of domestic resources. The criteria for granting these concessions should be:

(a) the development of import-substituting industries, so as to economise foreign exchange, that is, consideration should be on how much of production is locally sourced;

(b) providing fuller employment of resources - the capacity utilisation level of such industries;

(c) diversifying the structure of production while industries employing new equipment should be granted a rebate for a year after which 25% of the cost should be deducted from their taxable profits for 5 years. Also, temporary relief in terms of exemption in dividends would stimulate the development of private indigenous enterprises.

The aim of all these concessions will be to encourage the development of private indigenous firm into large-scale productive units which would require large capital funds that can be effectively mobilised in the NSE.

Finally, privatisation (diverstiture) policy despite the merits it may have and the new opportunities it might open for the NSE, is nevertheless likely to be inappropriate at this time when the private sector is still very feeble. Its implementation would therefore only deepen the deppendence and parasitism of the private sector.

BIBLIOGRAPHY

1. Adelman, I. Theories of Economic Growth and Development, Stanford University Press, California, United States, 1961.

2. Adelman, I. and Morris, C.T Society, Politics, Economic Development, John Hopkins Press, Baltimore, 1967.

3. Agarwala, A.N and Singh, S.P (ed.) Accelerating Investment in Developing Economies, Oxford University Press, London, 1969.

4. Ajayi, O. Financial and Legal Implications of the Nigerian Capital Market, Evans Brothers Ltd, Ibadan, Nigeria, 1984.

5. Alile, H.I and Anao, A.R The Nigerian Stock Market in Operation, 1986.

6. Arnold, S. and Watchel, P. Understanding Capital Markets, Vol.II, Lexington Books, Massacheusset D.C Heath 1977.

7. Arnold, S. (ed.) Financial Development and Economic Growth: The Economic Consequences of Underdeveloped Capital Market, New York University Press, New York, 1972.

8. Ayre, P.C.I (ed.) Finance in Developing Croutries, Frank Cass and Company, London, 1977.

9. Briston, R.J. The Stock Exchange and Investment Analysis, George Allen and Unwin, London, 1973.

10. D'Ambrosio, C.A Principles of Modern Investment, Science Research Association, Inc. U.S.A., 1976.

11. Davies, E. and Yeomans, K.A Company Finance and the Capital Market, A Study of the Effects of Firm Size, Cambridge University Press, London, 1974.

12. Domar, E.D Essays in the Theory of Economic Growth, Oxford University Press, New York, 1957.

13. Eicher, C.K and Liedholm, C. (ed.) Growth and Development of the Nigerian Economy, Michigan State University Press, 1970.

14. Elton, E.J and Gruber, M.J International Capital Markets, North-Holland Publishing Company Amsterdam, 1975.

15. Elton, E.J et al Modern Portfolio Theory and Investment Analysis, John Wiley and Sons, New York, 1981.

16. Fama, E.F. Foundations of Finance, Basil Blackwell, Oxford, 1977.

17. Ferguson, C.E The Neo-Classical Theory of Production and Distribution, Cambridge University Press, 1969.

18. Fama, E.F. Foundations of Finance, Basil Blackwell, Oxford, 1977.

19. Ferguson, C.E The Neo-Classical Theory of Production and Distribution, Cambridge University Press, 1969.

20. Firth, M. The Valuation of Shares and the Efficient Markets Theory, Macmillan Press, London, 1977.

21. Fischer, R Stocks or Options? John Wiley and Sons Ltd., New York, 1976.

22. Harrod, R.F. The Trade Cycle, Oxford University Press, United Kingdom, 1936.

23. Hamberg, D Models of Economic Growth, Harper and Roe, New York, 1971.

24. Hendershott, P.H Understanding Capital Markets, Vol. I Lexington Books, Massacheusset Death, 1977.

25. Henning, C.N, Pigott, W and Scott, R.H Financial Markets and the Economy, Prentice-Hall International, New Jersey, U.S.A., 1975.

26. Hicks, J.R Capital and Growth, Oxford University Press, London, 1965.

27. Higgins, B Economic Development, Norton Publishing Company, New York, 1959.

28. Jhingan, M.L The Economics of Development Planning, Vikas Publishing House, New Delhi, India, 1980.

29. Jones, C.P et al The Essentials of Modern Investment, Roland Press, New York, 1980.

30. Jones, G.H An Introduction to Modern Theories of Economic Growth, McGraw Hill Book Company, New York, 1976.

31. Jucker-Fleetwood, E.E Money and Finance in Africa, George Allen and Unwin, London, 1961.

32. Kaldor, N (ed.) The Theory of Capital, International Economic Association, Macmillan, London 1965.

33. Lewis, W.A Theory of Economic Growth, George Allen and Unwin, London, 1955.

34. Meade, J.E A Neo-Classical Theory of Growth, Allen and Unwin, London, 1961.

35. McKinnon, R.I Money and Capital in Economic Development, The Brookings Institution, Washington D.C 1973.

36. McKinnon R.I (ed.) Money and Finance in Economic Growth and Development, Essays in honour of Edward S. Shaw, Marcel Dekker Inc. New York, 1976.

37. Meier, G.M Leading Issues in Economic Development, 4th Edition, Oxford University Press, London, 1984.

38. Murray, E.P Financial Institutions and Markets, Houghton Mifflin, Boston, 1970.

39. Myint, H The Economics of the Developing Countries, Hutchinson and Company Ltd., London, 1973

40. Nevin, E Capital Funds in Underdeveloped Countries Macmillan and Company Ltd., London, 1961.

41. Nurske, R Problems of Capital Formation in Underdeveloped Countries, Basil Blackwell, Oxford, 1962.

42. Nwankwo, G.O The Nigerian Financial System, Macmillan Press, Hong Kong, 1980.

43. Odife, O.O Understanding the Nigerian Stock Market, Vantage Press, New York, 1984.

44. Onoh, J.K (ed) The Foundations of Nigerian Financial Infrastructure, Croom Helms Ltd., London, 1960.

45. Onimode, B An Introduction to Marxist Political Economy, Zed Books Ltd., London, 1985.

46. Ojo, A.T The Nigerian Financial System, University of Wales Press, England, 1976.

47. Osubor, J.U Business Finance and Banking in Nigeria, New Africa Company Ltd., Owerri, Nigeria, 1984.

48. Osadchaya, I Keynesianism Today: A Critique of Theory and Economic Policy, Progress Publishers, Moscow, 1983.

49. Olakolu, F.A et al Structure of the Nigerian Economy Macmillan Press, Lagos, 1979.

50. Polshikov, P Capital Accumulation and Economic Growth in Developing Africa, Progress Publishers, Moscow, 1981.

51. Pindyck, R.S and Rubinfeld, D.L Econometric Models and Economic Forecasts, McGraw-Hill int. Book Co. Koga Kusha, 1981.

52. Ritter, L.S et al Principles of Money, Banking and Financial Markets, Basic Books, New York, 1974.

53. Robinson, R.I and Wroghtsman, D Financial Markets: The Accumulation and Allocation of Wealth, McGraw-Hill inc. New York, 1974.

54. Sprecher, C.R Introduction to Investment Management, Houghton Mifflin, U.S.A, 1975.

55. Sprinkel, B.W Money and Stock Prices, Richard Irwin Inc. Illinois, 1964.

56. Taylor, L. Macro Models for Developing Countries, McGraw-Hill Book Company, U.S.A 1979.

57. Udo-Aka, The Role of Money and Capital Markets in Economic Development: An Analysis of the Nigerian Experience, An Unpublished Thesis, University of Nebraska, 1970.

58. U Tun Wai, Economic Essays on Developing Countries Sijthoff and Noordhoff, Alpen aan den Rijn, The Netherlands, 1980.

59. Vickers, D Financial Markets in the Capitalist Process, University of Pennsylvania Press, U.S.A, 1970.

60. Yotopoulous, P.A et al Economics of Development - Empirical Investigations, Harper and Row Inc. New York, 1976.

JOURNALS

1. Arowolo, E.A 'The Development of Capital Markets in Africa, with Particular Reference to Kenya and Nigeria' IMF Staff Papers, XVIII.

2. Ayadi, O 'The Random Walk Hypothesis and the Behaviour of Share Prices in Nigeria' The Nigerian Journal of Economic and Social Studies, Vol. 26, No.1, March, 1984.

3. Lewis, W.A 'Reflections on Nigeria's Economic Growth' O.E.C.D Development Centre Studies, Paris, 1967.

4. Sato, R 'The Harrod-Domar Model Vs. the Neoclassical Growth Model' Economic Journal, Vol. XIII, No.1. 1964.

5. Harris, D.J "On Marx's Scheme of Reproduction and Accumulation' The Journal of Political Economy, Vol.XVII No.3, 1972.

6. Ringlinger G 'Indigenisation and Economic Development: The Nigerian Experience' The Journal of Economic Literature, Vol.XXI No.1 March 1983.

OFFICIAL PUBLICATIONS

-Central Bank of Nigeria (CBN) Annual Reports (1966-1985).

-Economic and Financial Review, Periodical (1966-1985)

-Federal Office of Statistics, Lagos Monthly

-Annual Abstracts of Statistics (1964-1985)

-The Nigerian Stock Exchange Annual Report (1985)

-Securities Market Journal Vol. I, 1984.

-Japan Securities Research Institute: Securities Market in Japan, Tokyo, 1986.

United Nations

-Methods of Financing Economic Development in Underdeveloped Countries, 1949.

APPENDIX I

LISTED COMPANIES AS AT DECEMBER 1985.

COMPANY.

BEVAC NIG. LTD.
DUNLOP NIG. LTD.
GUINNESS NIG. LTD.
FIRST BANK NIG. LTD.
BERGER NIG. LTD.
CHEMICAL AND ALLIED PROD.
T. CHALLARAMS LTD.
UBICO LTD.
G. CAPPA LTD.
CONSTAIN (W.A) LTD.
DUNEZ NIG. LTD.
LEVER BROS. NIG. LTD.
BEREC NIG. LTD.
SFN NIG. LTD.
NIG. BTTLING CO.
CHRISTLEB LTD.
FLOUR MILLS NIG. LTD
GLAXO NIG. LTD.
BEECHAM LTD.
EMPEE IND. LTD
A.T BRISCOE
BEREC INT. LTD.

JOHN HOLT LTD.

JOHN HOLT INVESTMENT LTD.

LEVENTIS MOTOR LTD.

A.G LEVENTIS & COMP. LTD

INDUSTRIAL GASES LTD.

METAL BOX NIG. LTD.

MOBIL OIL NIG. LTD.

NIG. TOBACCO COMP. LTD.

NIG. TEXTILE MILLS LTD.

NIG. ENAMELWARE COMP. LTD.

P.S MANDRIDES & CO. LTD.

STERLING PRODUCTS (NIG.) LTD.

*MERCANTILE BANK

SAVANNAH BANK

UNITED BANK FOR AFRICA

UNION BANK OF NIG. LTD.

CROSS RIVERS BREWRIES LTD.

GOLDEN GUINEA BREWRIES LTD.

NIGERIAN BREWRIES LTD.

NIGERIAN CEMENT COMP. LTD.

NIGERIAN ROPES LTD.

WEST AFRICAN POTLAND COMP.

INTERNATIONAL PAINTS LTD.

NIGERIAN HOECHST LTD.

J.L MORRISON LTD.

INCAR NIG. LTD.

NIGERIAN WIRE INDUSTRIES LTD.

N.C.R

THOMAS WYATT NIG. LTD.

WIGGINS TEAPE (WA) LTD.

---

* Wholly owned Nigerian Companies.

S.C.O.A. (NIG.) LTD.

U.A.C. OF NIGERIA LTD.

U.T.C. NIG. LTD.

C.F.A.O. NIG. LTD.

CAPPA & D'ALBERTO

JULIUS BERGER NIG. LTD.

ROADS NIG. LTD.

TAYLOR WOODROW NIG. LTD.

P.Z. INDUSTRIES LTD.

CADBURY NIG. LTD.

FOOD SPECIALITIES (NIG.) LTD.

FOREMOST DAIRIES (NIG.) LTD.

OVALTINE (W.A.) LTD.

TATE & LYLE (NIG.) LTD.

N. NIGERIAN FLOWER MILLS LTD.

SEVEN-UP BOTTLING COMP.

LENNARDS (NIG.) LTD.

ALUMACO LTD.

LEVENTIS TECHNICAL LTD.

VITAFOAM NIG. LTD.

VONO PRODUCTS LTD.

BLACKWOOD HODGE (NIG.) LTD.

NIG. SEW. MACH. MAN. COM.

STOKVIS NIG. LTD.

POLY PRODUCTS (NIG.) LTD.

STUDIO PRESS (NIG.) LTD.

VAN LEERS CONTAINER (NIG.) LTD.

WEST AFRICAN GLASS IND. LTD.

AGIP OIL NIG. LTD.

BATA NIGERIA LTD.

BOOTS CO. (NIG.) LTD.

AFRICAN PETROLEUM (NIG.) LTD.

TEXACO (NIG.) LTD.

TOTAL (NIG.) LTD.

APPENDIX II

(Price in Kobos)

Ordinary Shares	1981	1982	1983	1984	1985
Investment Comps.					
BFN	53	51	50	60	57
JHI	57	52	55	61	86
	110	103	105	121	143
Banking					
First Bank.	187	188	209	203	234
Mercantile Bank	51	50	53	42	42
U.B.A	206	171	210	221	268
Union	225	176	53	221	268
	669	585	525	687	787
Auto. & Tyre					
Leventis Motor	41	26	24	40	45
Incar	51	44	50	50	40
Intra Motor	44	32	33	45	45
R.T Briscoe	64	27	16	20	43
Bewac	43	27	16	15	16
Dunlop	41	34	28	55	135
	284	190	167	225	324
Breweries					
Guinness	145	106	129	99	115
Nig. Breweries	129	132	147	156	131
Golden Guinea	58	52	54	63	89
	324	290	330	318	335
Building Mat.					
WAPCO	65	60	61	58	70
Nigercem	128	128	128	128	128
Nig. wire Ind.	30	28	28	58	70
Nig. Ropes	50	28	50	49	48
	273	244	267	293	316

Berger Paints	144	102	100	102	95
Chemical & Allied	79	72	66	68	123
Inter Paints	41	38	53	45	54
Hageneyer	57	50	63	78	72
	291	262	282	293	344
Commercial					
Berec	29	26	61	45	46
T.L Morison	40	36	21	20	27
K. Chellarams	46	41	51	46	50
	115	103	133	111	123
Comp & Off Eq.					
NCR	60	50	58	67	115
Thomas Wyatt	36	33	30	50	111
Wiggins Teape	74	62	54	75	104
	170	145	142	192	330
Conglomerates					
UTC	92	92	88	94	70
CFAO	54	52	51	52	117
UACN	84	77	54	52	72
John Holt	76	73	68	102	135
AG Leventis	51	47	45	47	54
SCOA	69	60	51	50	94
	426	401	357	396	542
Construction					
Arbico	45	38	50	50	25
Costain	65	45	62	63	42
Roads Nig.	55	52	59	37	25
Cappa & D'alberto	37	41	51	50	47
Taylor Woodrow	46	31	51	48	40
Julius Berger	60	52	59	56	54
Dumez	45	44	52	47	44
G Cappa	41	40	53	51	50
	394	343	437	402	327

P.Z	123	76	83	85	93
Lever Brothers	145	117	191	94	113
	238	134	178	197	252
Food & Beverages					
Tobacco					
Food Specialities	123	76	83	85	93
Cadbury	135	87	105	113	127
A.C Christleb	75	60	59	57	115
Ovaltine	40	60	59	57	115
Tate & Lyle	65	34	52	56	58
P.S Mandrides	47	58	68	82	158
Foremost Dairies	56	37	37	45	55
Flour Mills	110	38	85	76	82
Nig. Flour Mills	62	98	56	78	95
Nig. Bottling Co.	131	60	140	113	144
NTC	49	28	50	55	94
	893	672	785	830	1133
Footwear					
Lennards	34	12	25	25	51
Bata	64	32	32	50	85
	98	44	57	75	136
Machinery(marketing)					
Blackwood Hodge	59	49	30	27	21
Stokvis	36	28	25	25	27
Nig. Sew. Mach.	45	42	50	50	45
	140	119	105	102	93

Industrial/Domestic					
Alumaco	63	38	50	49	51
Vitafoam	65	50	28	35	43
Vono Products	28	22	14	20	20
Nig. Enamelware	49	41	35	29	31
Leventis Tech.	42	27	27	28	37
Berec Nig.	30	29	40	72	62
Industrial Gases	56	44	50	50	61
	303	251	244	283	305
Packaging					
Metal box	65	58	57	54	51
Studio press	50	45	40	40	71
Poly Products	64	48	40	35	60
Van Leer	52	43	56	52	56
	231	194	193	181	238
Petroleum(marketing)					
Texaco	137	124	92	105	145
Total	174	99	124	95	146
Agip	114	95	96	71	63
A.P	157	86	124	119	133
Mobil	69	76	85	81	160
	651	480	321	471	674
Publishing					
Daily Times	33	25	32	44	47
University Press	38	40	51	45	53
	71	65	83	89	94
Textiles					
Afprint	19	19	25	50	68
Nig. textiles	27	26	30	31	51
Enpee Nig.	24	22	25	51	69
UNTL	42	30	51	42	84
Westex	22	19	25	52	114

Pharmaceuticals & Animal Feeds					
Beecham	86	90	72	87	107
Pharma-Deko	56	37	37	45	81
Boots	80	62	59	55	55
Mfg. Hoechst	73	79	86	93	70
Glaxo	103	57	70	87	76
Pfizer	63	60	65	53	60
Sterling products	72	50	93	136	125
Livestck Feeds	62	46	63	63	65
	595	481	545	619	639

Investment Companies

(1) $y = 116,4 + 8,5\chi$

1985	$\chi=2$	133,4
84	$\chi=1$	124,9
83	$\chi=0$	116,4
82	$\chi=1$	107,9
81	$\chi=2$	99,4
80	$\chi=3$	90,9
79	$\chi=-5$	82,4
78	$\chi=-5$	73,9
77	$\chi=-6$	65,4
76	$\chi=-7$	56,9

Banking

(2) $y = 650,6 + 33,8\chi$

85	$\chi=2$	718,2
84	$\chi=1$	684,4
83	$\chi=0$	650,6
82	$\chi=-1$	616,8
81	$\chi=-2$	583
80	$\chi=-3$	549,2
79	$\chi=-4$	515,4
78	$\chi=-5$	481,6
77	$\chi=-6$	447,8
76	$\chi=-7$	414

Automobiles and Tyre

(3) $y = 238 + 11.5\chi$

85	$\chi=2$	261
84	$\chi=1$	249,5
83	$\chi=0$	23,8,0
82	$\chi=-1$	226,5
81	$\chi=-2$	215,0
80	$\chi=-3$	203,5
79	$\chi=-4$	192
78	$\chi=-5$	180,5
77	$\chi=-6$	169
76	$\chi=-7$	157,5

Breweries

(4) $y = 319,4 + 7\chi$

85	$\chi=2$	333,4
84	$\chi=1$	326,4
83	$\chi=0$	319,4
82	$\chi=-1$	312,4
81	$\chi=-2$	305,4
80	$\chi=-3$	298,4
79	$\chi=-4$	291,4
78	$\chi=-5$	284,4
77	$\chi=-6$	277,4
76	$\chi=-7$	270,4

Building Materials

(5) $y = 287,6 + 13,5\chi$

85	$\chi=2$	305,6
84	$\chi=1$	292,1
83	$\chi=0$	278,6
82	$\chi=-1$	265,1
81	$\chi=-2$	251,6
80	$\chi=-3$	239,1
79	$\chi=-4$	226,6
78	$\chi=-5$	211,1
77	$\chi=-6$	197,6
76	$\chi=-7$	184,1

Chemical and Paints

(6) $y = 294,4 + 13,7\chi$

85	$\chi=2$	321,8
84	$\chi=1$	308,1
83	$\chi=0$	294,4
82	$\chi=-1$	280,7
81	$\chi=-2$	267
80	$\chi=-3$	253,3
79	$\chi=-4$	239,4
78	$\chi=-5$	225,9
77	$\chi=-6$	212,2
76	$\chi=-7$	198,5

Commercial

(7) $y = 117 + 2{,}4\chi$

85	$\chi=2$	121,8
84	$\chi=1$	119,4
83	$\chi=0$	117
82	$\chi=-1$	114,7
81	$\chi=-2$	12,2
80	$\chi=-3$	109,8
79	$\chi=-4$	107,4
78	$\chi=-5$	105
77	$\chi=-6$	102,6
76	$\chi=-7$	100,2

Computer and Office Equipment

(8) $y = 195{,}8 + 36{,}7\chi$

85	$\chi=2$	268,2
84	$\chi=1$	232 5
83	$\chi=0$	195,8
82	$\chi=-1$	159,1
81	$\chi=-2$	122,4
80	$\chi=-3$	85,7
79	$\chi=-4$	49
78	$\chi=-5$	12,3
77	$\chi=-6$	-24,4
76	$\chi=-7$	-61,1

Conglomerates

(9) $y = 424,4 + 22,7\chi$

85	$\chi=2$	469,8
84	$\chi=1$	447,1
83	$\chi=0$	424,4
82	$\chi=-1$	401,7
81	$\chi=-2$	379
80	$\chi=-3$	356,3
79	$\chi=-4$	333,6
78	$\chi=-5$	310,9
77	$\chi=-6$	288,2
76	$\chi=-7$	265,5

Construction

(10) $y=380,6 + 7,5\chi$

85	$\chi=2$	365,6
84	$\chi=1$	373,1
83	$\chi=0$	380,6
82	$\chi=-1$	388,1
81	$\chi=-2$	395,1
80	$\chi=-3$	403,6
79	$\chi=-4$	410,6
78	$\chi=-5$	418,1
77	$\chi=-6$	425,6
76	$\chi=-7$	433,1

Cosmetics and Toileteries

(11) $y = 211,8 + 3,1\chi$

85	$\chi=2$	218
84	$\chi=1$	214,9
83	$\chi=0$	211,8
82	$\chi=-1$	208,7
81	$\chi=-2$	205,6
80	$\chi=-3$	202,5
79	$\chi=-4$	199,4
78	$\chi=-5$	196,3
77	$\chi=-6$	143,2
76	$\chi=-7$	190,1

Footwear

(12) $y = 82 + 10,7\chi$

85	$\chi=2$	103,4
84	$\chi=1$	92,7
83	$\chi=0$	82
82	$\chi=-1$	71,3
81	$\chi=-2$	60,6
80	$\chi=-3$	49,9
79	$\chi=-4$	39,2
78	$\chi=-5$	28,5
77	$\chi=-6$	17,8
76	$\chi=-7$	7,1

Food/beverage/tobacco

(13) $y = 862,6 + 63,8\chi$

85	$\chi=2$	990,2
84	$\chi=1$	926,4
83	$\chi=0$	862,4
82	$\chi=-1$	798,8
81	$\chi=-2$	735
80	$\chi=-3$	671,2
79	$\chi=-4$	607,4
78	$\chi=-5$	543,6
77	$\chi=-6$	479,8
76	$\chi=-7$	416

Industrial/domestic products

(14) $y = 277,2 + 3,6\chi$

85	$\chi=2$	284,4
84	$\chi=1$	280,8
83	$\chi=0$	277,2
82	$\chi=-1$	273,6
81	$\chi=-2$	270
80	$\chi=-3$	266,4
79	$\chi=-4$	262,8
78	$\chi=-5$	259,2
77	$\chi=-6$	255,6
76	$\chi=-7$	252

Publishing

(15) $y = 80,4 + 7\chi$

85	$\chi=2$	94,4
84	$\chi=1$	87,4
83	$\chi=0$	80,4
82	$\chi=-1$	73,4
81	$\chi=-2$	66,4
80	$\chi=-3$	59,4
79	$\chi=-4$	52,4
78	$\chi=-5$	45,4
77	$\chi=-6$	38,4
76	$\chi=-7$	31,4

Machinery

(16) $y = 111,8 - 11,1\chi$

85	$\chi=2$	89,6
84	$\chi=1$	100,7
83	$\chi=0$	111,8
82	$\chi=-1$	122,9
81	$\chi=-2$	134
80	$\chi=-3$	145,1
79	$\chi=-4$	156,2
78	$\chi=-5$	167,3
77	$\chi=-6$	187,4
76	$\chi=-7$	189,5

Packaging

(17) $y = 207.4 + .1\chi$

85	$\chi=2$	207.6
84	$\chi=1$	207.5
83	$\chi=0$	207.4
82	$\chi=-1$	207.3
81	$\chi=-2$	207.2
80	$\chi=-3$	207.1
79	$\chi=-4$	207
78	$\chi=-5$	206.9
77	$\chi=-6$	206.8
76	$\chi=-7$	206.7

Petroleum

(18) $y = 554 + 1.7\chi$

85	$\chi=2$	557.4
84	$\chi=1$	555.7
83	$\chi=0$	554
82	$\chi=-1$	552.3
81	$\chi=-2$	550.6
80	$\chi=-3$	548.9
79	$\chi=-4$	547.2
78	$\chi=-5$	545.5
77	$\chi=-6$	543.8
76	$\chi=-7$	542.1

Phamaceuticals and Animal

(19) $Y=574 + 20.8\chi$

85	$\chi=2$	615.6
84	$\chi=1$	594.8
83	$\chi=0$	574
92	$\chi=-1$	553.2
81	$\chi=-2$	532.4
80	$\chi=-3$	511.6
79	$\chi=-4$	490.8
78	$\chi=-5$	470
77	$\chi=-6$	449.2
76	$\chi=-7$	428.4

$Pt = \alpha 1 Pt-1 + \alpha 2 Pt-2 + \alpha 3 Pt-3.$

(1)

t	y	x	x^2	xy	
1981	110	-2	4		-220
1982	103	-1	1		-103
1983	105	0	0		0
1984	121	1	1		121
1985	143	2	4		286
			10		85

$y' = 116,4$

$y = 116,4 + 8,5x$

(2)

	y	xy
1981	669	-1338
1982	585	-585
1983	525	0
1984	687	687
1985	787	1574
		338

$y' = 650,6$

$y = 650,6 + 33,8x$

(3)

1981	284	-568
1982	190	-190
1983	167	0
1984	225	+225
1985	324	648
y' =	238	115

(4)

1981	324	-628
1982	290	-290
1983	330	0
1984	318	318
1985	335	670
$\bar{Y}$ =	319,4	70

$Y = 319,4 + 7\chi$

(5)

1981	273	-546
1982	244	-244
1993	267	0
1984	293	293
1985	316	632
$\bar{Y}$ =	278,6	135

$Y = 278,6 + 13,5\chi$

(6)

1981	291	-582
1982	262	-262
1983	282	0
1984	293	+293
1985	344	688
$\bar{Y}$ =	294,4	137

$Y = 319,4 + 13,7\chi$

(7)

1981		115	-230
1982		103	-103
1983		133	0
1984		111	111
1985		123	246
	$y' =$	117	24

$y = 117 + 2,4x$

(8)

1981		170	-340
1982		145	-145
1983		142	0
1984		192	192
1985		330	660
	$y' =$	195,8	367

$y = 195,8 + 36,7x$

(9)

1981		426	-852
1982		401	-401
1983		357	0
1984		396	396
1985		542	1084
	$y' =$	424,4	227

$y = 424,4 + 22,7x$

(10)

1981		394	-788
1982		343	-343
1983		437	0
1984		402	402
1985		327	654
	y' =	380,6	-75

$y = 380,6 - 7,5\chi$

(11)

1981		238	-476
1982		194	-194
1983		178	0
1984		197	197
1985		252	504
	y' =	211,8	31

$y = 211,8 + 3,1\chi$

(12)

1981		98	-196
1982		44	-44
1983		57	0
1984		75	+75
1985		136	272
	y' =	82	107

$y = 82 + 10,7\chi$

(13)

1981		893	-1786
1982		672	-672
1983		785	0
1984		830	830
1985		1133	2266
	y' =	862,6	638

$y = 862,6 + 63,8\chi$

(14)

1981		303	-606
1982		251	-251
1983		244	0
1984		283	283
1985		305	610
	y' =	277,2	36

$y = 277,2 + 3,6\chi$

(15)

1981		71	-142
1982		65	-65
1983		83	0
1984		89	89
1985		94	188
	y' =	80,4	70

$y = 80,4 + 7\chi$

(16)

1981			
1982		140	-280
1983		119	-119
1984		105	0
1985		102	102
		93	186
	$y' =$	111.8	-111

$y = 111,8 - 11,1\chi$

(17)

1981			
1982		231	-462
1983		194	-194
1984		193	0
1985		181	181
		238	476
	$y' =$	207.4	1

$y = 207,4 + ,1\chi$

(18)

1981			
1982		651	-1302
1983		480	-480
1984		521	0
1985		471	+471
		647	1294
	$y' =$	554	-17

$y = 554 - 1,7\chi$

(19)			
1981		595	-1190
1982		481	-481
1983		545	0
1984		619	619
1985		630	1260
	$X' =$	574	208
	$Y =$	574 +	20.8

APPENDIX III

(a)

Year	Agg. Saving	Govt New issues	Private New Issues
	St	Mgt	Mgt
1966	206.4	28.0	1.4
1967	181.4	40.0	-
1968	241.3	40.0	-
1969	201.2	30.0	0.5
1970	411.7	40.0	0.8
1971	462.7	60.0	6.5
1972	566.5	60.0	9.2
1973	720.2	120.0	12.0
1974	1,137.1	60.0	14.0
1975	1,813.7	450.0	1.0
1976	2,255.4	400.0	26.0
1977	2,592.8	818.0	66.0
1978	3,209.7	400.0	26.0
1979	4	600.0	76.0
1980	5,	300.0	40.0
1981	6,8 ,7	300.0	34.0
1982	8,052.6	300.0	92.5

Year	Total New Issues	Gross Domestic Fixed Capital formation
	Mt	It
1966	29.4	485.2
1967	40.0	483.6
1968	40.8	434.0
1969	30.5	527.6
1970	40.8	911.2
1971	66.5	1,172.6
1972	69.2	1,300.4
1973	132.0	1,824
1974	74.0	2,506
1975	451.0	2,956
1976	426.0	5,020
1977	884.0	8,102
1978	426.0	8,421
1979	676.0	8,115
1980	340.0	15,234
1981	334.0	12;180
1982	392.5	10,618

Year	GDP Yt	ΔGDP ΔYt	Net capital inflow Ft
1966	6,520.9	6,520.9	
1967	5,510.8	-1010.1	
1968	5,454.6	56.2	
1969	6,913.7	1,459.1	
1970	8,978.9	2,065.2	175.4
1971	9,966.5	987.6	178.5
1972	10,561.4	594.9	265.6
1973	11,223.6	662.2	294.0
1974	12,200.0	976.4	322.4
1975	12,503.1	303.1	349.9
1976	13,748.9	1,245.8	374.6
1977	14,747.8	998.9	364.2
1978	13,962.1	785.7	1,252.1
1980	14,871.3	247	1,866.8
1981	11,807.2	3,064.1	2,331.2
1982	13,109.1	1301.9	2,594.7

(5)

`Yt	=	11805,8 +	0,953`Ft
S,E		731,47	0,58
t-ratios		15,85	1,63
R2		0,12	
F		2,68	
D-W		not calculated	

(6)

It	=	1364,8 +	147,9`Mpt
S,E		986,7	33,53
T-ratios		1,38	4,41
R2		0,53	
F		19,47	
D-W		not calculated	

(7)

I	=	226,98 +	2,154`St
S,E		420,78	0,155
T-ratios		0,53	13,82
R2		0,92	
F		191,1	
D-W		not calculated	

(8)

I	=	1350,7 +	12,46`Mg
S,E		1213,8	3,76
T-ratios		1,11	3,30
R2		0,38	
F		10,95	
D-W		not calculated	