

DECEMBER 1991

RESEARCH PAPER EIGHT



MACROECONOMIC APPROACH TO EXTERNAL DEBT

The Case of Nigeria

S. IBI AJAYI

ARCHIV
90214

OMIC RESEARCH CONSORTIUM

POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

Macroeconomic approach to external debt

Other Publications in the AERC Research Papers Series

Structural Adjustment Programmes and the Coffee Sector in Uganda by Germina Ssemogerere, Research Paper 1.

Real Interest Rates and the Mobilization of Private Savings in Africa by F. M. Mwega, S. M. Ngola and N. Mwangi, Research Paper 2.

Mobilizing Domestic Resources for Capital Formation in Ghana: The Role of Informal Financial Markets by Ernest Aryeetey and Fritz Gockel, Research Paper 3.

The Informal Financial Sector and Macroeconomic Adjustment in Malawi by C. Chipeta and M. L. C. Mkandawire, Research Paper 4.

The Effects of Non-Bank Financial Intermediaries on Demand for Money in Kenya by S. M. Ndele, Research Paper 5.

Exchange Rate Policy and Macroeconomic Performance in Ghana by C. D. Jebuni, N. K. Sowa and K.A. Tutu, Research Paper 6.

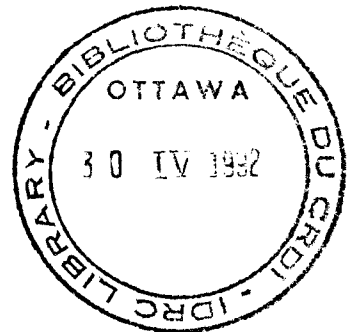
A Macroeconomic-Demographic Model for Ethiopia by Asmerom Kidane, Research Paper 7.

Macroeconomic approach to external debt

The case of Nigeria

S. Ibi Ajayi

*Department of Economics
University of Ibadan
Ibadan, Nigeria*



AERC Research Paper 8
Initiatives Publishers, Nairobi
December 1991

ARCHIV
330(6)
A
20.5

© African Economic Research Consortium, 1991

Edited and typeset by Initiatives Publishers
a division of Initiatives Ltd.,
P.O. Box 69313, Nairobi Kenya,
(Tel. 744047, 744095 Fax 743995)
for the African Economic Research Consortium
P.O. Box 47543, Nairobi, Kenya

Printed by English Press Ltd.,
P.O. Box 30127, Nairobi, Kenya

Cataloguing in Publication Data

Macroeconomic approach to external debt: the
case of Nigeria/S. Ibi Ajayi.—Nairobi, Kenya,
Initiatives Publishers, Initiatives Ltd., 1991.

(African Economic Research Consortium (AERC)
Research Papers Series; no. 8)

ISBN 9966-42-031-2

Contents

List of Tables	vi
List of Figures	viii
Acknowledgements	ix
I Introduction	1
II Objectives of the study	2
III Nigeria: General economic background	3
IV Dimensions of the external debt problem	5
How much does Nigeria owe?	5
Conceptual and practical problems	5
Size and magnitude of external debt	6
Structure, source, type and composition of external debt	7
External debt burden, debt service ratios and debt servicing capacity	10
Debt burden and export performance	13
Capital flight and the real capacity to service debt	14
Debt viability: Growth cum debt model scenario	15
V Causes of external debt accumulation	17
Domestic factors	18
VI Empirical estimates of the external and internal factors	21
VII Summary and policy implications	24
Appendices	
1. Tables	26
2. Figures	49
3. Real effective exchange rate calculation	59
4. List of variables for regression analysis	60
5. Debt viability model	61
Notes	63
References	64

List of tables

1. Nigeria's external debt, 1970–1988 (US\$ million)	26
2. Composition of external debt outstanding, 1970–1987	26
3. Nigeria's total external debt: Public, publicly guaranteed, and short-term, 1980–1988	27
4. Average terms of new commitment, Nigeria, 1970–1988	28
5. Total debt service, Nigeria, 1970–1988	29
6. Interest payments, Nigeria, 1970–1988	29
7. Principal repayments, Nigeria, 1970–1988	30
8. Debt outstanding and disbursed, Nigeria, 1970–1988	30
9. Debt outstanding and undisbursed, Nigeria, 1970–1988	31
10. Commitments, Nigeria, 1970–1988	31
11. Disbursements, Nigeria, 1970–1988	32
12. Net flows, Nigeria, 1970–1988	32
13. Net transfers, Nigeria, 1970–1988	33
14. Nigeria's external debt by source, 1969–1982	34
15a. Nigeria's external debt by type, 1970–1978	35
15b. Nigeria's external debt by type, 1979–1988	36
16. Nigeria's external debt outstanding, end of year	37
17. Nigeria's external debt outstanding (percentage distribution)	38
18. Debt burden indicators and debt servicing capacities, Nigeria, 1970–1988	39
19. Debt burden indicators for Sub-Saharan Africa and debt distressed countries	41
20. Solvency and liquidity calculations, Nigeria, 1970–1988	42
21. Some debt indicators and export performance, Nigeria, 1970–1988	43
22. Cross border deposits of non-banks by residence of depositor, Nigeria, 1981–1988	44
23. Results of growth-cum-debt model	44
24. Results of growth-cum-debt model	44
25. Results of growth-cum-debt model	45
26. Debt build-up, 1970–1979	45
27. World growth of export (average annual percentage change)	45
28. Debt build-up, 1979–1982 (average annual percent change) ¹	45
29. Empirical result for the debt–export ratio	46
30. Empirical result for the debt–GNP ratio	47

31. Value of beta coefficients, debt-GNP ratio	48
32. Value of beta coefficients, debt-export ratio	48

List of figures

1. Composition of total debt service by type or creditor, 1972–1988	49
2. Composition of principal payment by type of creditor, 1972–1988	49
3. Composition of interest by type of creditor, 1972–1988	50
4. Composition of debt outstanding and disbursed by type or creditor, 1972–1988	50
5. Composition of commitments by type of creditor, 1972–1988	51
6. Composition of disbursements by type of creditor, 1972–1988	51
7. Composition of net transfers by type of creditor, 1972–1988	52
8. Debt outstanding and disbursed as ratios of exports and GNP for Nigeria, 1970–1988	52
9. Debt service and total debt as ratios of GNP for Nigeria, 1970–1988	53
10. Total debt as ratio of GNP and exports for Nigeria, 1970–1988	53
11. Debt service as ratio of GNP and exports for Nigeria, 1970–1988	54
12. Interest as ratio of exports and GNP for Nigeria, 1970–1988	54
13. Debt service and interest as ratio of exports for Nigeria, 1970–1988	55
14. Debt service ratios for Nigeria, 1970–1988	55
15. Debt service and total debt as ratios of exports for Nigeria, 1970–1988	56
16. Reserves as ratio of debt outstanding and disbursed for Nigeria, 1970–1988	56
17. Debt level and export value for Nigeria, 1970–1988	57
18. Debt service and export value for Nigeria, 1970–1988	57
19. Debt service to export ratio for Nigeria, 1970–1988	58
20. Total debt to export ratio for Nigeria, 1970–1988	58

Acknowledgements

I have accumulated a lot of indebtedness in the process of writing this final report. First, I have benefited from the Research Committee of the AERC Advisory Board who suggested narrowing the focus of the research to Nigeria. Second, I am particularly grateful to Mohsin S. Khan and Percy Mistry for the discussion they had with me on the approaches to take in carrying out this study. I am also grateful for the research materials sent to me by G.K. Helleiner and Mohsin S. Khan.

I have greatly benefited from the discussion on the interim report at the last meeting of the AERC. In this regard, I am particularly grateful to Prof. Benno Ndulu for the excellent job of acting as a “post office” for me and for providing an excellent synthesis of the comments and discussions of the December workshop.

I am grateful to a number of research assistants who at one time or the other have assisted in the process of analysis, including Wale Ogunkola and Tunji Sobodu who worked hard on data collection, collation and estimation. I sincerely thank them.

My colleague Prof. Sam Olofin made computer time available to the research assistants working with me at the initial stage of the research, which I sincerely appreciate. Other facilities were, however, used to complete the rest of the computer work. A number of other colleagues also gave me the benefit of their competence in this area and I sincerely thank them all.

Not less deserving of appreciation are the ever capable typists who painstakingly typed various versions of this work.

I, however, am solely responsible for the views and ideas expressed in this report.

I. Introduction

One of the greatest problems facing many Sub-Saharan African countries today is the amount of their external indebtedness. The external debt problem is becoming more acute for a number of reasons. First, the size of the debt relative to the size of the economy is enormous and can lead not only to capital flight but it also discourages private investment. Secondly, debt servicing payments form a significant proportion of the annual export earnings. Meeting debt servicing obligations eats significantly into whatever other facilities can be provided to improve the welfare of the citizens and therefore has macroeconomic implications. This raises the question of whether a country can grow fast enough to maintain debt obligations and maintain adequate domestic investment. Thirdly, the burden of debt for a large number of Sub-Saharan countries threatens not only the execution but also the prospects of success of adjustment programmes being embarked upon. Fourth, the current system of debt management has a dire macroeconomic impact on an economy's output. This assumes a significant magnitude when the amount of time expended by chief executives of debtor countries who are involved in the various phases of rescheduling negotiations is considered.

It has been claimed that the debt payments have neither been the fundamental cause of Africa's low growth nor the cause of the difficulties. The debt problem is nevertheless becoming more acute as the proportion of debt payments not eligible for rescheduling is rising rapidly. The implication of this is clear as discussed previously. In addition the costs of debt transfer from scheduled debt repayments into lower manageable actual payments is becoming costly. The external indebtedness of African countries is an obstacle "to the restoration of the conditions needed for growth" (World Debt tables 1987-88, p. xix).

Sub-Saharan African countries fall into different groups when the issue of debt is discussed. The two most significant groups are the debt-distressed countries and the heavily indebted ones. Experiences do, however, differ not only amongst the groups but also between countries in the same group. It is in this light that an explanation of the debt crisis must necessarily be country specific. Two West African countries Côte d'Ivoire and Nigeria belong to the group of seventeen heavily indebted countries. The focus of the present work is on Nigeria.

II. Objectives of the study

The broad objectives of the study are to:

- analyse trends in and causes of debt accumulation and servicing;
- determine debt service ratios and debt servicing capacity;
- calibrate a debt viability model and provide appropriate scenarios; and
- draw policy implications from the above.

Specifically the study will:

- (i) examine the size and magnitude of Nigeria's debt including the structure, source, type and composition of external debt;
- (ii) analyse the indices for measuring the debt burden and debt servicing capacity;
- (iii) distinguish between the internal and external factors influencing external debt accumulation;
- (iv) identify the changes in the international environment necessary for an alleviation of the debt burden; and
- (v) examine the relationship between export performance and the debt burden.

III. Nigeria: General economic background

A study on macroeconomic aspects of debt in Nigeria is not complete without a preliminary discussion of the structure of the Nigerian economy and its political history. The present problems of Nigeria including the accumulation of debt cannot be divorced from the structural defects inherent in the economy after independence in 1960, and the political economy of development since independence.

At the time of independence in 1960, Nigeria was heavily dependent on agriculture as the mainstay of the economy. Shortly after independence, about 64 percent of the gross domestic product originated in the agricultural sector. The contribution of this sector, however, systematically declined until it reached an all-time low of about 17 percent in 1982.

Nigerian oil came on the economic scene vigorously in 1970 when Nigeria became a member of the oil-producing nations. From then on, oil became the catalyst element in Nigeria's growth process. Nigeria benefited immensely from the sharp price increases in 1973/74 and again in 1979/80. By 1976, oil had become the major source of government revenue and the main foreign exchange earner—over 80 percent in both cases. Consequent to the large revenue from oil, its relative importance increased at the expense of other sectors.

These revenues provided the basis for significant increases in government expenditure designed to expand infrastructure, and to improve the non-oil productive capacity. Indeed the large oil revenues "not only provided government with the financial resources to undertake new programmes and projects and to expand oil programmes, but they affected the very institutions which were to make policy and the nature of centralization of authority and decision making in Nigeria" (Bienen, 1983, p. 2). Pressures on expenditure were exerted from all sides. The creation of more states meant more expenditures on infrastructure, etc. In spite of the spending on some important projects, some projects were undertaken without sufficient attention being paid either to their economic viability or to the executive capacity of government.¹ Of importance in the success (or failure) story, is the increase in government expenditure, especially on construction and urban services which was accompanied by price and wage increases that drastically reduced the producer incentives in the non-oil tradeable sector.

A result of the neglect of agriculture in the first instance coupled with the appreciated naira, was that agricultural exports fell. Imports became relatively cheaper in the domestic market due to the government's attempt to curb inflation. Nigeria became a major food importer, and its dependence on oil gave it the character of a monoprodut economy.

One of the features of the economy during the period of the oil boom of the 1970s was the high degree of its openness. The economy was heavily dependent on the external sector in its manufacturing development strategy. Consequently, capital-intensive technology, and assembly-type industries dependent on imported inputs were stimulated and Nigeria had a high import-GDP ratio. Indeed, the need to protect a given level of consumer goods availability became so pervasive that it was difficult to cut expenditures in this area. During most of the 1970s, budgetary expenditures were greater than the fast rising income from oil.

There occurred a slump in the oil market in 1978. This precipitated Nigeria's economic downturn despite the fact that the danger of maintaining a monoprodut economy that is based on exports of an exhaustible resource, had been evident earlier. The re-awakening in the oil market in the 1979/80 period was a reassurance that all was not lost. However, the breathing space provided in the end was very short-lived (Ajayi, 1986, p. 4).

After thirteen years of military rule, the civilian regime arrived on Nigeria's political scene in 1979. The oil market weakened in the 1980s bringing about a reduction in Nigeria's export earnings. But with the new constitutional system, and intensification of inappropriate macroeconomic policy (plus the system of tariff protection and the import licensing system) resulting in further appreciation of the naira large external borrowing became inevitable after the foreign exchange reserves had been substantially run down. Large external borrowing of the late 1970s was continued. Substantial increases in external borrowing occurred between 1978 and 1983.

The government resorted to austerity measures in 1982 and 1983, relying heavily on controls and regulations rather than correcting the structural distortions, and worsened the situation. With a new government in power in 1985, policies changed towards a desire to combine austerity with adjustment. Between 1985 and 1986, external debt increased by about 20 percent. The year 1985 was crucial not only because of the economic malaise afflicting the economy and the urgent need for adjustment but also because of national debate surrounding the acceptance of the IMF loan. The dramatic fall in oil prices in 1986 increased the urgency of reform and Nigeria put in place a Structural Adjustment Programme in July 1986.

IV. Dimensions of the external debt problem

How much does Nigeria owe?

There is a common general belief among Nigerians that Nigeria does not know how much it owes. In other words, the genuineness of some of the debts are in dispute. The genuineness is not related only to false claims but also to serious accounting problems with some debt transactions. In the 1986 budget, the Federal Government stated as follows (Federal Republic of Nigeria Approved Budget 1986, p. xi):

In respect of external debt management, Government affirms its readiness to honour its obligations to clearly-established creditors, consistent with available foreign exchange resources accruing to the country and with the dictates of national survival. In this respect, Government has decided that no more than 30 per cent of such resources will be taken up in 1986 for external debt servicing. We believe that this is a realistic estimate considering recent revelations in the JMB affair and the foreign exchange scandals with the implication that not all purported external debts would eventually be certified . . .

Conceptual and practical problems

There are both conceptual and practical problems in estimating foreign debt (Krueger, 1987). First, current account deficits can be financed if only temporarily, by running down reserves or selling foreign assets. To the extent that large payments imbalances are financed this way, i.e. running down reserves or selling foreign assets, any estimate of the change in debt understates the true rate of increase in debt. The most appropriate concept for analysing the sustainability of debt is therefore a net concept. However only gross data are available in published form.

Secondly, currency revaluation can significantly affect the amount of debt outstanding. It is therefore possible that debt in a particular year may not necessarily be equal to the amount of external funds borrowed.

Thirdly, it is important to realize that different types of debts do exist. Debt at concessional terms is different from that at commercial terms. The rate at which funds are borrowed is also important.

Another conceptual problem of measurement arises from the inconsistency of the debt figures as published by official sources. For data published in Nigeria, consistent time series are often not available. What is often found are data series that cannot be meaningfully analyzed on a consistent basis. Publications of the World Bank and the IMF also often have the same defects, as the figures for debt sometimes depend on which of the World Bank publications is being used. Changes in the figures are sometimes a reflection of improvement on measurement standards.

The preponderance of statistics used for this work are nevertheless drawn from World Bank publications and denominated in US dollars. Even though some justification can be made for the use of Nigeria's official sources, if only to show the naira's magnitudes of change given the variation in the exchange rate, there are advantages in using World Bank publications. The first advantage is that some of the statistics utilized for the study are not generally available from domestic official sources. When such data exist, they are often not current and consistent. Inconsistent data series make comparisons difficult. Secondly, international comparisons are easier to make when a universal currency such as the dollar is utilized.

Finally, it is important to recognize the attempts made to reduce debt.² Debt reduction can be brought about through negotiated changes in the terms and conditions of contracted debt. Steps such as debt rescheduling and retiming of interest payments may reduce the amount of interest to be paid in any given year. Other debt reduction mechanisms include debt conversion, debt-equity swaps and debt buybacks, which result in the reduction of the present value of debt-service obligations.

Since April 1986, Nigeria has restructured its debt. For commercial banks (multilateral), a total of US\$4,687 million was restructured in April 1986 and November 1987. In March 1989, the sum of US\$5,986 million was restructured. For the official creditors, a total sum of US\$13,256 million was restructured between October 1986 and March 1989 (World Bank, 1990b).

Size and magnitude of external debt

Table 1 shows the size of Nigeria's external indebtedness in both current dollar and constant dollar values for the period 1970–88. From 1970 to 1973, Nigeria's external debt grew at very high rates particularly in the period 1972–73. The external debt in current dollars fell between 1975 and 1976. It has risen steadily from that period. While nominal debt grew at about 44 percent in 1982 to 1983, the growth in constant dollars was more pronounced. External debt grew at about 51 percent. While the nominal debt growth rate was about 13 percent in 1985 to 1986, it grew only about 10 percent in constant dollars.

While the external debt growth rate fell between 1975 to 1976, external debt rose astronomically between 1976 and 1977. The upward rise in external indebtedness continued from 1978 until 1983. Even though the percentage indebtedness increased between 1983 and 1988, it was of a different magnitude. The growth in external debt in constant dollars shows a fairly similar pattern to the growth rate in current dollar terms. To explain the sharp jumps during 1977, 1978, 1980, 1981 and 1983 one needs to recognize developments within the Nigerian economy. These developments provide the rationale for the sharp increases in debt. The period of the 1970s can be regarded as a period of successful growth and Nigeria benefited from the price shock of 1973–74—when the price of oil quadrupled. Between the period 1972/73 and 1973/74, exports grew by 94 percent and 138 percent respectively. Over the entire period of 1970–80, exports grew annually at an average of 41 percent while imports grew at an annual rate of 35 percent. In 1978, however, there were two developments. The first was the oil glut in the international market when Nigeria's exports fell by about 13 percent while imports increased by about 64 percent. Given the country's credit-worthiness it was not difficult to obtain external credit. Borrowing seemed sustainable because of the worldwide inflation and the consequent negative real interest rates.

Between 1979 and 1983, a number of developments affected Nigeria's level of indebtedness. The civilian regime which came into power in 1979 did not fail to avail itself of the opportunity and attraction of external borrowing. Developments in the external sector also helped increase the debt. Consequent to the second oil price increases in 1979, the stance of macroeconomic policy in OECD countries changed. The anti-inflationary macroeconomic policy adopted caused worldwide recession, the highest real rates of interest in the post-war era and sharply falling prices of commodities (Krueger, 1987). Between 1980 and 1983 the value of Nigeria's exports fell at an annual average rate of 6.5 percent. In 1981, 1982 and 1983, the value of exports fell by 29, 35 and 16 percent respectively. From 1980 Nigeria started borrowing from private sources. The percentage share of private borrowing rose to 85 percent in 1980–82 as opposed to the low figure of only 31 percent in 1970–72. Debt at floating rate which was only 0.7 percent in 1973–75 was 48.6 percent in the 1980–82 period. Simultaneously, the interest rate paid on new commitments rose by 39.5 percent between 1975 and 1978, and by about 11 percent between 1981 and 1983. Between 1975 and 1980, private creditors' average terms of new commitment also rose by about 67 percent (see Table 2).

Structure, source, type and composition of external debt

There are various ways of classifying external debt. First, external debt can be classified on the basis of the status of the donor, generally divided into official and private debts. Official debts are those obtained from national governments or their agencies or from international agencies like the World Bank and the IMF. Private debts consist of those obtained from private creditors which in-

clude the Euro-dollar loans, suppliers credit, exports and loans from private commercial banks.

Another useful classification is the maturity structure of external debts, whether they are short-term and/or long-term. Short-term debts are those with original maturity of one year or less. Long-term debts are generally subdivided into public or publicly guaranteed, or private non-guaranteed external debt. Publicly guaranteed external debt is usually defined as an external debt obligation of a private debtor which a public entity guarantees for repayment.

Over the last few years, a number of structural changes have occurred relating to Nigeria's external debt. These two changes are significant to Nigeria's external debt: the composition of external debt outstanding, and the terms of borrowing at fixed or floating rates. Table 2 shows the composition of debt outstanding between 1970 and 1987 from different sources. From the table, we see that external debt from official sources was about 69 percent, while external debt from private sources was about 31 percent in 1970-72. By 1980-82, the debt from official sources declined to about 15 percent while the debt from private sources rose to about 85 percent. This represents a structural change in the sources of funding. As official loans were difficult to obtain, Nigeria found the private sources attractive and borrowed from them at floating interest rates. In 1987, the debt from official sources fell from the 1970/72 level to about 45 percent while the share from private sources was about 55 percent.

Another important aspect of Nigeria's debt relates to the variation in the debt at floating rates between 1973 and 1987. Between 1973 and 75, less than 1 percent of total long-term debt was at floating rates. This share steadily rose to about 49 percent in 1980-82 and stayed at about 49 percent in 1987.

Thus a significant characteristic of Nigeria's debt structure is the increase in debt contracted at floating interest rates, and a decrease in the share of official loans. One of the macroeconomic implications of rising external debt contracted on floating rates is an ever-rising debt service. This will have great implications on resource use and hence on growth.

External debt can further be broken down into public and publicly guaranteed, private non-guaranteed and short-term debt. The significant changes occurred in the period 1980-88 (Table 3).

As can be seen from Table 3, public and publicly guaranteed debt increased from 79 percent in 1980 to 98.8 percent in 1988. On the other hand, the share of private non-guaranteed loans declined from about 21 percent in 1980 to about 1 percent in 1988. Short-term debt steadily declined from 40 percent of total external debt in 1980 to about 20 percent in 1982 and finally fell to about 6 percent in 1988.

Table 4 gives information on the average terms of new commitment for the period of interest. In general, average interest rose between 1971 and 1973, and rose again after a drop in 1974. For most of the period between 1978 and 1983, interest rates rose. The maturity structure of loans also varied between 1970 and 1988. In the early 1970s, the average maturity was about 20 years. This dropped thereafter to an average of 9.7 years between 1978 and 1983 and increased again between 1984 and 1988. In the early 1970s, the percentage of loans at

concessional rates was higher than it was in the late 1970s and early 1980s. Also, the variable interest rate as a proportion of public debt outstanding and disbursed was less than 3 percent between 1970 and 1977. By 1978, it rose to about 61 percent. In 1988, the ratio which stood at 42 percent represented a significant increase from the 1970 level of less than 3 percent.

To consider these changes, we should discuss the changes in composition between official and private creditors in total debt service, interest payments, principal payments, debt outstanding and disbursed, debt outstanding and undisbursed, commitments, disbursement, net Flows and net Transfers.

According to the World Debt Tables (World Bank 1989–90 p. xiii) the above terms are defined as follows: “*Disbursements* are drawings on loan commitment during the year specified. *Net flows* (or net lending or net disbursements) are disbursements minus principal repayments. *Net transfers* are net flows minus interest payments of disbursement minus total debt service payments” (emphasis added).

In 1974, the share of private creditors in the total debt service was 66 percent. It rose to 83.5 percent in 1976 but it declined thereafter until 1984 when it rose to a peak of 96.2 percent. By 1986, it stood at about 73 percent. Of the interest rate payments due in 1974, about 14.3 percent were paid to private creditors. The share paid to creditors declined to about 6 percent in 1978. Between 1974 and 1978, most interest payments were made to official creditors. After 1978, the situation changed. The total interest payments to private creditors and the share paid to them rose substantially reaching a peak of about 91 percent in 1982. By 1988, the share stood at about 51 percent.

The trend in principal repayment is different from that of interest payments. The share of principal repayments to private creditors was 80 percent in 1974. This rose steadily until 1976 when the share stood at 92 percent. The share fell between 1977 and 1979 after which it started to rise reaching a peak of 96 percent in 1984. Substantial reduction occurred after 1984 and private creditor share was only about 37 percent in 1988 (Tables 5, 6, 7). The pattern of debt outstanding and disbursed, debt outstanding and undisbursed, commitments, disbursements, net flows and net transfers is shown in Tables 8–13. In almost all cases the share of private creditors predominate from about the middle or late 1970s; the exceptions can be seen from the tables. Figures 1–10 show the official/private shares for different categories of debt.

Nigeria’s external debt by source is shown in Table 14. For the period for which statistics are available, the Euro-Dollar loan became important from 1978 rising to a share of 65 percent in 1982. Table 15a and 15b show a simplified version of Nigeria’s external debt by type for the period covered in this study. Trade arrears started exerting a very strong trend in 1984 and formed the largest type of debt by 1987. Before 1986 and up to 1985, the International Capital Market (ICM) formed the largest component. The table illustrates the important relationship between bilateral and multilateral external debt. Until 1981, bilateral debt was more important than multilateral debt. By 1982, the value of multilateral debt shot up significantly, being about three times the size of the bilateral loans in 1988. Table 16 shows the external debt outstanding in

naira for each of the levels of government for the period since 1982. While the federal government share of external loan was about 43 percent in 1984, the share rose to about 84 percent in 1987 (Table 17). The international capital market share was about 50 percent in 1984; it steadily declined thereafter until 1987 when it remained at 25 percent even though it was still the predominant source. In the case of the state government, while the international capital market remained the major source, its share declined from about 12 percent in 1982 to 10 percent in 1987.

External debt burden, debt service ratios and debt servicing capacity

The debt burden of a country inevitably imposes a number of constraints on its growth prospects. The burden of principal and interest payments for instance drains the nation's resources and curtail the possible expenditure of resources on other productive ventures. This is even more constraining considering that the incomes from which debts are to be serviced are very little. This gives rise to three macroeconomic problems: the macroeconomics of earning foreign exchange, finding extra budget resources for debt service, and adjusting to a reduction in spendable resources.

In order to reduce the debt burden and increase the debt servicing capacity, there is a need for an increase in exports, and a reduction in world interest rates, among other things. This raises some basic macroeconomic issues relating to international trade and costs. To the extent that the increasing protectionism of the developed countries prevents entry of Third World commodities into world markets, and rising real interest rates are maintained, the debt burden of many less developed countries may not abate. Thus, part of getting out of debt is related to events in the international sector. Two policy areas in this regard are real interest rates and protectionism (Ajayi, 1989a)

A number of macroeconomic aggregates and debt data are often used to assess the external situation of any given country. These ratios generally offer measures of the cost of, or the capacity for, debt servicing. The following ratios are often used:

- total debt service payment to exports of goods and services;
- interest payments to exports of goods and services;
- debt outstanding and disbursed to the exports of goods and services;
- debt outstanding and disbursed to GNP;
- total debt service to GNP;
- interest payments to GNP
- reserves to debt outstanding and disbursed;
- total external debt to exports of goods and services; and
- total external debts to GNP

The accompanying Table 18 shows the trends in these variables for the period 1970–88. The various indices shown depict the debt-burden and the debt-servicing capacity of Nigeria. It should be noted that movements in the ratio of external debts to income (EDT/GDP) and external debt to exports of goods and services are often used as the two most important indices. The most convincing evidence of a country's ability to service foreign debt is the stream of foreign exchange it earns. This is perhaps one of the reasons why "international lenders see the ratio of a nation's debt to exports as an important debt-burden indicator" (Sweet 1987, p. 9).

One way of looking at the debt problem is in terms of debt service (interest plus amortization) and interest payments in relation to exports and the Gross National Product (GNP). No doubt, these and some others to be discussed shortly are indicators of the debt burden (Feeder and Just, 1977, pp. 25–39). Between 1970 and 1980, the debt-service GNP ratio (DSR_5) averaged about 0.7 percent per annum (less than 1 percent per annum). Since 1980, the rate has virtually been on the increase reaching about 8 percent in 1988.

When the ratio of debt service to exports is considered (DSR_1) we find two discernible periods—one in which the ratio was less than 8 percent and the other in which it was more than 8 percent. The ratio grew to about 38 percent in 1985 representing a very high debt burden. It declined to a ratio of 13 percent in 1987 but rose again to 29 percent in 1988. In other words, the credit-worthiness of Nigeria was in doubt between 1982 and 1986 when this ratio was very high. Two other significant ratios are the ratio of total external debt to exports (DSR_8) and to GNP (DSR_9).

In 1970 and 1972, the first years of the petroleum earning surge, the debt export ratio stood at 42 percent and 32 percent respectively. It declined thereafter to about 6 percent in 1976 before it started its upward turn reaching the value of 170 percent in 1983, and by 1988, reaching 397 percent. Total external debt as a ratio of the GNP was less than 10 percent between 1970 and 1980. Since the early 1980s, the ratio has been rising, reaching a value of 125 percent in 1987. The ratio declined to 107 percent in 1988.

We can compare the performance of Nigeria's external debt-export ratio and external debt-GNP ratio with that of Sub-Saharan Africa (Table 19). Compared to the whole of Sub-Saharan Africa, Nigeria's debt export ratio was better than that of the rest of the sub-continent up to the late 1980s when Nigeria's relative situation worsened. While the debt-export ratio for Sub-Saharan Africa was 352.4 percent in 1987, it was 384.0 percent for Nigeria. Nigeria also had a better debt-export ratio than the average for the fifteen heavily indebted countries (a group to which it belongs) until 1987 when conditions deteriorated. Although Table 19 expresses the ratio as external debt to GDP while Table 17 expresses it as a ratio of the GNP, the two figures are nevertheless comparable. Nigeria performed better than Sub-Saharan African countries as a group and also performed better than the fifteen heavily indebted countries for the periods for which comparative data are available. The data also show that Nigeria's debt burden is very high. Figures 9 to 20 explain the behaviour of a number of ratios for the period 1970–88.

In order to assess the impact of the debt problem, ignoring the equity issues, one must ask whether the issue of debt is one of liquidity and/or solvency problems. The liquidity problem refers to the inability of a country to service debts now in the amount initially contracted while the solvency issue relates to the “question of whether the value of a country’s liabilities exceeds the ability to pay any time” (Dornbusch, 1986, p. 138). When examined critically, “a solvency problem would mean that the real interest rate on the marginal external loan exceeded the increase in national income made possible by this loan. A liquidity problem would mean that the borrower would be unable to obtain the foreign exchange to make the debt service payments on schedule” (Aliber 1980, p. 1).

The liquidity and solvency problems raise a number of macroeconomic issues which can neither be ignored nor under-rated. The first is whether countries (in both the medium and long run) can continue to service their debt as contracted and continue to enjoy, at the same time, growth in per capita incomes. The general belief is that this will depend on domestic policies as well as the scope for effective resource mobilization in both import substitution and export promotion. The extent of a country’s success depends on the world economic environment, particularly monetary policy and fiscal policy as they affect interest rates and the extent of protectionism in world trade. “It is generally believed that if the real interest rates rapidly turn to low levels and the growth of the world trade is strong and sustained, and protectionism is not an issue, then the debt problems can be solved” (Dornbusch, 1987, p. 139).

The second macroeconomic issue is related to the intricate balance between pure economics and politics. Given the interwovenness of the two, to what extent are the level of economic activity and living standards depressed in order to generate the needed foreign exchange for servicing debt?

Given the discussion on the liquidity or solvency issue of debt, when did it become apparent that Nigeria had a debt problem? What was the nature of the problem, liquidity or solvency? The first question has been answered from the array of indicators previously discussed. Drawing from the literature, there are many ways of assessing whether a liquidity or solvency problem exists. One of the ways of determining solvency is to calculate an index of solvency (Cohen 1985). Given the definition of solvency given earlier and following Eaton and Taylor (1986), and Krueger (1987) a country is insolvent when it is incapable of servicing its debt in the long run (Eaton and Taylor 1986). By this definition, when debt exceeds the expected discounted present value of the borrower’s income stream, the country is insolvent. Most recent authors have focused on export growth as the main variable for measuring the income stream. Thus the simple rule for solvency is that the export growth rate be greater than the interest rate (Eaton and Taylor 1986). In other words, if the rate of growth of exports is represented by n , and the interest rate on debt by r , “if $r < n$ then the country’s wealth in present value terms, infinite and there is no solvency problem: any fraction, however small, of its revenues can repay any level of initial debt in finite time” (Cohen 1985, p. 143). From Table 20, the average for the period

shows that there is no evidence of insolvency in the period 1970–88; the average for the period is about 6 percent.

Lack of liquidity occurs when a country does not have enough cash on hand to pay current obligations; when the maximal income lies below a debt service obligation in some particular time period (Eaton and Taylor, 1986, p. 219). There are many indices that can be used to gauge the level of liquidity of a nation, such as the relationship between debt and export earnings. One can also look at the difference between net debt (total indebtedness minus foreign reserves) and export earnings and use this to calculate the liquidity problem. If this is done we find that Nigeria's liquidity problem started in the early 1980s (column 4, Table 20).³ Indeed, the liquidity problem emerged in 1983, when Nigeria began searching for solutions to its economic problems culminating in rescheduling, and the search for loan accommodation and structural adjustment.

Debt burden and export performance

In order to examine the relationship between the debt burden and export performance, it is important to remember the well-known stability condition: "If the rate of growth of exports exceeds the interest rate, a permanently positive resource gap can be reconciled with a limited debt/export ratio" (Simonsen 1985, p. 103).⁴ In other words, we can calculate the rate of unsustainable borrowing as the excess of the percentage of the rate of growth of debt over the percentage rate of growth of exports of goods and services.

The calculations in Table 21 reveal an interesting story. They show that unsustainable borrowing occurred in 1973, 1977, 1978, 1981–1983 and from 1986 to 1988. The rates of growth of debt in those years were greater than the rate of growth of exports. The story is similar when we use net indebtedness u^* which is defined as the growth in net external indebtedness over exports. Table 21 showed the relationship between export growth and the interest rate in an attempt to illustrate that Nigeria's liquidity problem developed in 1983. The parameter reveals that in the years 1978, 1981–1983 and 1986, the country was becoming relatively overindebted.

In conclusion, the stability of the debt-export ratio in the long run requires that the rate of growth of exports be higher than the rate of interest on debt. Thus of great importance is the "value" of the interest rate at which new loans are contracted on when the old ones are being renewed. This parameter is outside the control of borrowers in many cases because interest rates are determined in the international market where the debtor country has had little say. The other parameter of importance is exports. This is one whose growth can be influenced domestically depending on the macroeconomic policy being pursued, and a favourable international economic environment. An international environment with high growth potential is crucial to the promotion of the export sector, as is the absence of protectionism.

Capital flight and the real capacity to service debt

Private capital flight in developing countries has received much attention in recent times as contributing to debt problems. This is particularly true when capital-scarce developing countries borrow heavily in international capital markets. It is generally believed that capital flight is indeed counterproductive.

The macroeconomic argument against capital flight is that it is “a perverse exportation of domestic savings and foreign exchange that given the insufficiency of both in low income countries has consequences that may severely hinder their potential for growth” (Lessard and Williamson, 1987, p. 136). Capital flight intensifies the shortage of foreign exchange and the savings necessary to finance investment projects; investments held abroad could serve a more useful purpose at home.

The existing literature on the causes of capital flight refer to overvaluation of the domestic currency as the most important macroeconomic factor (Dornbusch, 1985). Others include domestic inflation and interest rates (Cuddington, 1986), the domestic economic growth rate (Conesa, 1987), and external incentives provided by foreign banks and governments (Khan and Ul Haque, 1987). However, for a lot of Third World countries capital flight is related more to being in “power” and having access to domestic and foreign money, and it is an issue that goes beyond the straight-jacket economics that is often used to explain its magnitude.

While the term “capital flight” itself is subject to debate, there is no precise method of measuring it (Lessard and Williamson, 1987). Three approaches are nevertheless often used: the balance of payments accounts approach, the residual approach, and the increase in the recorded foreign bank deposits owned by the residents of a country (this is usually published by the IMF; Lessard and Williamson, 1987).

There are no calculated values on the first two approaches for capital flight in Nigeria. Using the IMF statistics, however, the capital flight of the country can be approximated by the cross border bank deposits of non-banks by residence of depositor.⁵ This is used herein as the measure of capital flight. These statistics have inherent limitations that may underestimate capital flight since substantial funds are held in assets other than bank deposits and some funds are held in bank deposits outside the major reporting financial centres. The nationality of the depositor is also often not known and reported correctly. In some cases the national identity and name of some foreign depositors are never made public.

Limited as the statistics may seem, they are nevertheless suggestive, and point to the magnitude of the problem. Some useful information derived for the period 1981–1988 is shown in Table 22. The first observation is that a substantial amount of money is kept abroad which could assist the implementation of the nation’s macroeconomic policy. Cross border deposits by Nigerians as a ratio of the GNP was 1.3 percent in 1984, and 9.6 percent and 7 percent in 1987 and 1988, respectively. If these funds were held at home, they could positively affect the “real capacity” to service debt.

There are some interesting aspects of these figures which must be mentioned. The Nigerian cross border deposit of non-banks by residence of depositors fell between 1981 and 1982; 1983 and 1984 and between 1987 and 1988. Between 1986 and 1987 it rose by \$620 million and fell by \$350 million between 1987 and 1988, fluctuations that are very difficult to explain. One explanation is that some of the deposits went into real estate investments or other investments abroad. The other explanation, however, is that consequent to the adjustment of the exchange rate in 1986, some of the funds that were moved between 1986 and 1987 were moved back to Nigeria in order to take advantage of the depreciated naira.

Debt viability: Growth cum debt model scenario

The behaviour of the indicators of debt burden under varying assumptions also requires analysis. How do some indicators of debt behave under different assumptions (scenarios)? In order to answer this question we use the growth-cum-debt model developed by Solis and Ernesto Zedillo (1985, details of model are in the appendix). Using a simple growth dynamic equation of the type:

$$D_t = D_{t-1} (1 + \gamma)$$

where

$$D_t = \text{the total external debt}$$

and γ is a constant that is varied in each scenario.

The equations solved are (4) and (9) in the appendix for different possible parts for D_t and r_t . The value of γ is varied in the scenario from -0.05 to 0.07 . We allowed for three possible values of interest ($r = .04, .08$ and $.10$).

Assuming various values for the reciprocal of the incremental capital output ratio (σ) and for different rates of interest r , simulations were run for the period 1989–95. The indicators used are labelled as DB_1 , DB_2 , and DB_3 where

$$DB_1 = \text{Debt-GNP ratio}$$

$$DB_2 = \text{interest-XGS ratio}$$

$$DB_3 = \text{resource transfer}$$

The variables DB_1 , DB_2 , and DB_3 are further defined as:⁶

$$DB_1 = \frac{D}{\text{GNP}}$$

$$DB_2 = \frac{rt D_{t-1}}{\text{XGS}}$$

$$DB_3 = \frac{(D_t - D_{t-1}) - (rt D_{t-1})}{\text{GNP}}$$

The results are shown in Tables 23–25.

Considering first the high interest rate scenario (10 percent), a zero growth in external debt is consistent with an average growth rate of GNP of about 1.9 percent. The debt/GNP ratio (DB_1) would be lowered to 139.57 percent which is very high. The debt service ratio DB_2 would be about 32.8 percent and the resource transfer would be negative at 14.2 percent.

We can examine the scenarios for the case of $r = 8$ percent and $r = 4$ percent. A zero growth rate in external indebtedness when $r = 4$ percent is consistent with a 2.2 percent growth in the GNP and reduction of the debt–GNP ratio to 140.6 percent. The resource transfer would continue to be negative at 11 percent of GNP; the debt service ratio DB_2 would be 13 percent.

When the interest rate is 8 percent, the following picture emerges. A zero growth in the external debt is consistent with an average GNP growth rate of 1.95 percent. The debt–GNP ratio will be lowered to 139.9 percent. The resource transfer (which is negative) is more than twice the value when $r = 4$ percent.

In terms of this model, a doubling of the interest rate has the same effect on the growth of GNP. Only about 0.19 percent is lost when the interest rate is increased from 4 percent to 8 percent; and only about 0.09 percent is lost when the interest rate is increased from 8 percent to 10 percent. This is perhaps not too surprising since the effect of a rise in interest rates is divided between consumption and savings (Silos and Zedillo, 1985, p. 283). The rise in interest rate has larger impacts in terms of DB_2 and DB_3 which in all cases are higher. Thus variations in interest rates have effects on debt burdens and debt-service capacity.

While a zero growth rate for external debt is not only optimistic but somewhat unrealistic, it nevertheless gives a base for the purposes of comparison. Similarly by taking $\sigma = 4$ percent, a very productive economy is assumed. There is perhaps a need to be optimistic in view of various adjustments taking place in the Nigerian economy and the need to put a lid on Nigeria's past extravagance. It is within this context that the model analyzed is meaningful.

V. Causes of external debt accumulation

There is no shortage of literature on the causes of the debt crisis of the Third World. It is often said that the debt accumulation has been brought about by the overambitious nature of many governments to overly-speed up the processes of growth prompted by the international creditors that were also overly-generous. Many creditors overstated the potential capabilities of the now debtor-countries to meaningfully absorb and pay for debts. While commenting on the origin of the debt crisis in 1982, Dornbusch and Fischer (1985) concluded:

Imprudent borrowing policies in the debtor countries and imprudent lending by commercial banks had a chance encounter with extraordinarily unfavourable world macroeconomic conditions that exposed the vulnerability of the debtors and the creditors.

In the same vein, Guttentag and Herring (1985) and Swoboda (1985) blame the commercial lenders and their regulators. Different authors have emphasized different aspects of the debt crisis. For example, Cline (1985) focuses on the global macroeconomic considerations, and Sachs (1985) stresses not only the importance of the global shocks but also the country specific factors. Greene (1989) combines both the external and internal factors in his description of the causes of Sub-Saharan Africa's debt.

One prominent aspect in all these views, is that the sources of debt accumulation and the reaction to it differ from one developing country to another. However, there are common themes like budget deficits, misaligned exchange rates (generally overvaluation), economic mismanagement, deteriorating terms of trade, and rising real interest rates. While these are intertwined linkages, the causes of the debt accumulation generally fall into two categories: the domestic factors (usually merged under the general term of poor performance of macroeconomic policy), and the external factors. The division of the factors into these two seemingly water-tight compartments is, however, not correct. Indeed, external factors do impinge crucially on what happens domestically. The same is true of internal (domestic) factors. As Khan and Knight point out "external factors such as changes in terms of trade may also exert a systematic influence

on the real effective exchange rate so that it is not always a reflection of domestic factors alone” (1983, p. 830).

A host of factors, including oil shocks, rising interest rates, and declining terms of trade, are key factors responsible for debt accumulation.

When the price of oil increased substantially between 1973 and 1974, Nigeria benefited and public expenditure was expanded sharply. When the price of oil fell, expenditures were not reduced commensurately, and the buoyant nature of the economy arising from previous periods gave a high credit rating to Nigeria allowing it to borrow heavily in the period 1978 to 1979. When the second oil shock came in 1979, the industrialized countries adopted an anti-inflationary policy stance. The period 1979–1982 coincided with a period of recession, resulting in a declining value of exports from 1981 to 1983 at a much faster rate than imports. Indeed Nigeria’s terms of trade by 1977 and 1988 were 46.2 percent and 59.9 percent below their 1980 level respectively. Borrowing was necessitated by declining export earnings and increasing import requirements. Nigeria’s import substitution strategy depended on importation of raw materials, equipment and machinery and food.

Interest rates rose in the 1980s, affecting Nigeria in particular since it made significant use of commercial borrowing. As discussed earlier, the percentage share of private borrowing rose to 85 percent in the 1980–82 period. Similarly, debt at floating rates rose to about 49 percent in the same period, and the interest rates on new commitments also rose by about 11 percent between 1981 and 1983.

Growth in industrial countries has both direct and indirect effects on the economies of the Third World. It has a direct impact by increasing demand for exports from the less developed countries. Thus rapid growth in the industrialized world pulls up the growth of the Third World economies. A healthy international environment is a *sine qua non* for strong economic growth, particularly in the Third World (Ajayi 1989a). The indirect effect is on the terms of trade of developing countries (Khan and Knight, 1983b).

In summary, the external factors contributing to Nigeria’s debt crisis were:

- cumulative impact of the world price shocks—the first resulting in expansionary policy necessitating heavy borrowing while the second resulted in restrictive fiscal and monetary policies resulting in rising real interest rates;
- decline in the terms of trade; and
- liberal lending policies of the international commercial banks.

Domestic factors

The problems posed by the external factors were exacerbated in most cases by the adoption of wrong macroeconomic policies. Two of such domestic errors that occurred were those attributed to fiscal irresponsibility and exchange rate

misalignment. These often led to large fiscal deficits, excessive monetary expansion and consequent inflation, excessive reliance on external sources of funding, over-valued exchange rates, and poor project profiles.

Fiscal irresponsibility in this case refers to the amount of government fiscal deficit allowed. Within the Keynesian type model, fiscal policy is the main instrument used to shift the economy from one equilibrium position to the other. This view is based on the concept that "it is feasible for the fiscal authority to control, at each point in time the size of the fiscal balance so as to bring it close to what government wants it to be" (Muns, 1984, p. 117). The way a deficit is financed determines to a large extent the impact that it will have on the economy. In general, an increase in fiscal deficit tends to raise domestic absorption and worsens the current account (Khan and Knight, 1983). When the deficit is financed by borrowing from abroad, external indebtedness is increased. Although this external indebtedness may be beneficial, there can be problems when loans carry high interest rates or when loans are not utilized to finance productive expenditures and when long-run projects are financed with short-term loans (Tanzi and Blejer, 1984).

Nigeria opted for many projects and used its access to the capital market to support projects with doubtful viability, often referred to as "elephant projects". These are projects which either have no income streams to guarantee repayment of loans or those where there is a serious mismatch of loan maturities and expected profitability. Nigeria also borrowed funds to maintain consumption in the face of deteriorating export earnings.

In addition to expansionary fiscal policy and borrowing for consumption, Nigeria pursued policies which further weakened its external position in the first half of the 1970s. With the growing fiscal deficits coupled with increasing private credit demand, there was a rapid expansion of the money supply which contributed to higher inflation. Nigeria did not depreciate its currency during the period under consideration, the currency inevitably became overvalued. The extent of overvaluation of the Nigerian exchange rate has been variously put as between 80 percent and 84 percent in the period 1970–84. Overvaluation can result from expansionary monetary and fiscal policies of government (aimed to maximize growth) and governmental industrial promotion strategies imposing high duties and quotas or bans on imports of industrial goods that compete with those produced by domestic industries (Ajayi, 1986). The behaviour of the real exchange rate—the outcome of changes in the nominal exchange rate and domestic rate of inflation—is a reflection of the way the exchange rate policy and demand-management policies are coordinated (Khan and Knight, 1983). When the exchange rate is overvalued, the demand for imports is raised at the expense of exports. Thus an appreciated exchange rate, in addition to the fiscal position, affect the current account balance and ultimately, the magnitude of external debt required to finance the deficit on the current account.

Government policy that deters savings (such as negative real interest rates) encourages not only capital outflows, but also contributes to debt accumulation because external financing is needed to bridge the gap. All these domestic factors increase borrowing needs and lower the earnings from exports, and in the process reduce the ability to meet the rising debt service obligations.

In summary, there were some changes in the international economy which could not have been anticipated by the policy makers. These included the sharp increases in nominal and real interest rates, the duration and severity of the worldwide recession and changes in the terms of trade resulting from the oil price increases of 1979, culminating in declines in commodity prices. Internal factors, also play substantial roles. Nigeria had poor macroeconomic policy management in the early 1970s and particularly in the late 1970s, which would have resulted in problems even without the external surprises.

When it was appropriate to adjust in the late 1970s and early 1980s, the foreign exchange reserves were first run down and later heavy external borrowing took place to avoid adjustment. Given the unrealistic nature of the macroeconomic policy (resulting in overvaluation) and the inappropriateness of trade regimes, export growth was discouraged. The issue of the changed external environment was not properly addressed at the appropriate time and domestic policy exacerbated the situation.

VI. Empirical estimates of the external and internal factors

In the preceding section, we have identified and analysed the internal and external factors influencing Nigeria's debt accumulation. This section gives it some empirical content, and this is done in two stages. The first stage follows the work of Krueger (1987), attempting a quantitative assessment of the following:

- (a) the extent to which Nigeria has borrowed in an unsustainable manner in the 1970s. This could be due to trade policy which did not support growth in export earnings to sustain additional debt, and/or unsustainable macroeconomic policies
- (b) the extent to which the downturn of the early 1980s resulted in an altered world economic environment which fueled debt accumulation and debt burden; and
- (c) the extent to which Nigeria undertook policy reforms designed to avert imminent problems.

It should be emphasized here that while the contributory factors may be arbitrary, they nevertheless allow us to identify the origin of the debt crisis.

The analysis utilizes data on growth rates of export earnings and the deviation of the export earnings from the share-weighted world trade and debt. These figures are then used to estimate the unsustainable portion of the debt build-up for the 1970s and 1980s. The unsustainable portion is apportioned between deviations in country performance from the average world trade performance and unsustainable macroeconomic policy. The shift in world conditions is added as an additional factor for the 1980s.

For the analysis, world exports are broken down into fuel and non-fuel exports in world markets. The constant share-weighted world trade was calculated on the basis of the 1976–78 shares of fuel and non-fuel exports in world markets. It is therefore possible to compare actual growth rate with constant share growth. Thus, if actual growth performance is greater than the constant share growth (a minus sign) there is positive trade policy. If the converse is true,

i.e., if the constant world share is greater than the actual performance, the country's trade policy was inadequate for it to maintain its share of world markets (see Krueger, 1987, p. 174). The results for the 1970–79 are presented in Table 26, while those for 1979–82 are presented in Table 28.

While it is true that Nigeria had rising shares of the petroleum market, and fast growth in exports, the data show that for the period 1970–79, the rate of growth of debt exceeded exports. This meant that Nigeria had macroeconomic policies that led to accumulation of debt in excess of what was sustainable as judged by the export performance of the country. Thus for the entire period, the net effect was 51.0 percent indicating that macroeconomic policy coupled with inadequate trade policy led to a rate of borrowing that was not sustainable.

For the period 1979–82, the international economy deteriorated, as indicated in Table 27. There was a rapid decline from 27.7 percent to 0.6 percent.

In Table 28, we show computation similar to Table 27 above, where the new element is the drop in the rate of growth of world trade. As can be seen, Nigeria was not able to maintain the growth of debt to its exports, and neither trade performance nor macroeconomic policy offset the decline in the global economy. Thus, instead of adjusting to the changed international environment, the situation deteriorated because of it, and was worsened by internal economic policies, and by 1982 the debt-export ratio had risen significantly.

The second method⁷ utilizes regression analysis to estimate the internal and external factors in the debt crisis. The model has the following general form:

$$DSR_i = f(TOT, CGDP, FRRI, FPY, T, REER)$$

where

DSR_i = is the debt–export ratio or the debt–GNP ratio.

TOT = terms of trade

CGDP = growth rate of income in industrialized countries

FRRI = foreign real interest rate

REER = real effective exchange rate index (developed in the Appendix)

FPY = fiscal position of government defined as revenue minus expenditures divided by the GDP/GNP

T = linear time trend

An improvement in the terms of trade or an increase in the growth rate of industrial countries should lead to an improvement in the debt–export ratio. An increase in the foreign real interest rate would tend to worsen this ratio just as an appreciation in the real effective exchange rate would. The time trend variable, on the other hand, captures the influences of other external environmental factors like trade barriers. Given the definition of the fiscal position, an increase in the ratio of government revenue minus expenditures to income means an improvement in the fiscal position. It is expected that a deterioration of the fiscal position will have a negative impact on these ratios.

In estimating the equations, various forms of the independent variables were used. In some cases, the fiscal performance level was replaced with the fiscal surplus or deficit of the government (FP). The results of the estimations using the general equation incorporating both internal and external factors are shown in Tables 29 and 30.

From the tables we find in general that a worsening of the terms of trade worsens the debt–export ratio as so does a rise in foreign real interest rate. A fall in the growth of industrial countries has the same effect. We would expect an improvement in the fiscal position to have a positive effect on this ratio. The significance of the time trend variable in all cases indicates that other variables not included in the regression analysis are very important. The goodness of fit of all the equations is, however, good.

One cannot ascertain the relative importance of the variables included in the equations using directly the coefficients of the variables estimated, thus beta coefficients are used, with the advantage that it measures the “change in the explained variable (in standard deviation units) for unit change in each explanatory variable (in standard units) holding other variables constant.¹ These coefficients are presented in Table 31 for the debt–export ratio variables, and in Table 32 for the debt–GNP ratio. The tables show (leaving out the time trend and constants) that the most important variables are the real effective exchange rate and the terms of trade in all equations except in one case where fiscal performance is more important.

The results reported herein lend credence to the earlier findings that domestic policies play important roles in the debt burden and other economic problems afflicting Nigeria. It should be emphasized that linkages exist between the domestic and external factors in this analysis and there is a very thin line between some of the variables.

VII. Summary and policy implications

This paper analyzes the external debt of Nigeria within a general macroeconomic framework recognizing the specific nature of Nigeria's debt. No adequate summary can be given without much repetition of what has been said earlier. A number of significant findings of this work can however, be highlighted.

- Structural changes took place in the composition of external debt outstanding. While the preponderance of external debt outstanding came from official sources between 1970 and 1972, the share of private sources of external debt became important since the 1980s. By 1987 the share of external debt from private sources was 55 percent. While less than 1 percent of total long-term debt was at floating rates between 1973 and 1975, the share stood at 49 percent in 1987. Thus the significant characteristic of Nigeria's debt structure is the increase in debt contracted at floating rates and a decrease in the share of official loans.
- Nigeria's debt-export ratio has been on the high side since the 1980s. Nigeria's debt-export ratio was better than the rest of the sub-continent until the late 1980s when the Nigerian situation worsened.
- Nigeria's accumulation of external debt can be directly traced to both domestic and external causes. The domestic causes include poor macroeconomic policies arising from fiscal irresponsibility, exchange rate misalignment generally of overvaluation and economic mismanagement. The external causes include deteriorating terms of trade and rising real interest rates. It is, however, difficult to separate these factors into watertight compartments because of intertwined linkages.
- Empirical analyses from the paper demonstrate that Nigeria had macroeconomic policies that led to the accumulation of debt in excess of what was sustainable as judged by her export performance. It has been found out that for the entire period, macroeconomic policy coupled with inadequate trade policy led to a rate of borrowing that was not sustainable. When the international economy deteriorated in 1979-1982, neither her trade performance nor her macroeconomic policy offset the negative impact of the decline in the global economy.

There are two main lessons to be drawn from this analysis, among others: the need to pay off indebtedness and the need to restore the path of growth and development. Paying off present debt is important, but the policy question is whether given the existing levels of debt and the payments arising from them, growth can be restored and sustained in the near future. Thus, the issue of debt forgiveness, debt reduction and interest rate reduction should be given serious consideration. While the 1988 Toronto Summit was important (even though the cash flow relief has not been significant for highly indebted countries), the initiatives are commendable and further attempts in this direction can be beneficial.

The current solution to debt is said to rest on three pillars :

- favourable international economic environment;
- strong and sustained adjustment efforts by countries that are heavily indebted; and
- adequate flow of external financing.

It is generally believed that the restoration of sustained economic growth requires a proper mix of these three pillars. In the economic environment, there is a need to eliminate trade restrictions such as decelerating or eliminating non-tariff barriers. An open international trading system should be emphasized and action taken on the high real cost of external debt. High interest rates are likely to worsen the debt servicing problems of highly indebted countries.

The extent, composition and dimension of Nigeria's external debt raise a number of policy issues. The debt burden imposes a number of constraints on its growth prospects. The major macroeconomic problems are the need to earn foreign exchange and find extra budget resources for debt service and adjust to a reduction in spendable resources.

To reduce the debt burden and increase debt servicing capacity, an increase in exports and reduction in world interest rates is required. Thus, two externally important policy areas in this respect are real interest rates and protectionism.

While the above analyses seem to emphasize the external sector, a larger role needs to be assigned to domestic policy. A cautious macroeconomic policy that will avoid inflation and overvalued exchange rate should be adopted and, in addition or as part of the package, borrowed funds must be used productively. The present structural adjustment programme being pursued aims at expanding the productive base, removing infrastructural bottlenecks and eliminating public sector inefficiency.

In order to restore investment to the levels needed for sustainable growth, the evolution of appropriate domestic policy to increase savings and promote investment will be required. Thus, policies that will foster savings habits and remove impediments to investment will be necessary. Foreign investment, while beneficial, will only be forthcoming if the economic environment is suitable and if political stability exists. More reliance on domestic savings in the future will be needed given the increasing stagnation in the international capital flows to indebted countries.

Appendix 1

Table 1 Nigeria's external debt, 1970–1988 (US\$ million)

Year	Total external debt	Growth in external debt (%)	External debt (constant dollars*)	Growth in external debt (constant dollars)
1970	567		1,817	
1971	651	14.8	1,979	8.9
1972	732	12.4	2,062	4.2
1973	1,205	64.6	2,757	33.7
1974	1,274	5.7	2,085	-25.1
1975	1,144	-10.2	1,702	-17.6
1976	906	-20.8	1,332	-21.7
1977	3,146	247.2	4,257	219.5
1978	5,091	61.8	6,270	47.3
1979	6,216	22.1	6,398	2.0
1980	8,855	42.5	7,511	17.4
1981	12,018	35.7	10,405	38.5
1982	12,815	6.6	11,692	12.4
1983	18,422	43.8	17,646	50.9
1984	18,435	0.1	18,109	2.6
1985	19,324	4.8	19,324	6.7
1986	23,164	19.9	22,402	15.9
1987	30,039	29.7	26,373	17.7
1988	30,718	2.3		

Note: * Calculated as the value of external debt deflated by the World Unit Import Value Index 1985 = 100 (See Dornbusch, 1987).

Sources: 1. World Bank, 1990.
2. World Bank, 1990 from the data files of the World Bank.
3. IMF, 1989.

Table 2 Composition of external debt outstanding, 1970–1987 (as percentage of total long-term debt)

	1970–1972	1973–1975	1980–1982	1987
Debt from official sources	68.8		14.6	44.6
Debt from private sources	31.2		85.4	55.4
Debt at floating rate		0.7	48.6	48.8

Source: World Bank, 1989, p. 154.

Table 3 Nigeria's total external debt: Public, publicly guaranteed, and short-term debt, 1980–1988 (US\$ million)

Year	Total external debt	Long-term debt				Short-term debt		
		Public and publicly guaranteed		Private non-guaranteed		Amount	Share (%)	
		Amount	Share (%)	Amount	Share (%)			
1980	8,855	4,205	79.3	1,097	20.7	5,302 (59.9)	3,553	40.1
1981	12,018	6,244	82.3	1,347	17.7	7,591 (63.2)	4,427	36.8
1982	12,815	8,969	67.2	1,313	12.8	10,282 (80.2)	2,533	19.9
1983	18,422	12,066	90.3	1,300	9.7	13,306 (72.6)	5,056	27.4
1984	18,435	11,290	89.0	1,400	11.0	12,690 (88.8)	5,744	31.2
1985	19,324	12,934	90.1	1,416	9.9	14,350 (74.3)	4,974	25.7
1986	23,164	19,046	97.9	400	2.1	19,446 (83.9)	3,718	16.1
1987	30,039	28,026	98.8	352	1.2	28,377 (94.5)	1,662	5.5
1988	30,718	28,630	98.8	357	1.2	28,967 (94.3)	1,752	5.7

Notes: Numbers in brackets represent percentage share.

*refers to share of long-term debt in total external debt.

Sources: World Bank, 1989, 1990b.

Table 4 Average terms of new commitment, Nigeria, 1970-1988

Year	Interest	Grant element (%)	Maturity (years)	Grace period (years)	Concessional/public DOD (%)	Variable interest Public DOD (%)
1970	6.0	21.5	14.3	3.9	64.6	2.8
1971	4.5	40.3	24.9	6.4	62.9	2.2
1972	6.1	26.1	22.7	5.8	58.7	1.6
1973	6.6	24.0	23.0	7.5	35.9	0.9
1974	4.4	41.7	24.2	7.2	36.9	0.8
1975	7.6	13.3	17.5	4.3	43.6	0.7
1976	8.5	8.2	18.6	4.1	57.5	0.7
1977	8.2	10.7	19.7	5.2	55.9	-0.7
1978	10.1	-1.1	8.1	3.1	21.7	60.8
1979	10.7	-1.6	9.6	3.8	15.2	68.8
1980	10.6	-2.5	10.9	3.6	11.7	68.5
1981	9.2	4.4	10.3	4.1	7.1	57.3
1982	10.0	-0.3	9.9	3.7	4.5	50.5
1983	10.2	-1.3	9.2	3.0	3.6	52.0
1984	9.8	-0.2	11.8	2.6	3.5	45.6
1985	9.0	4.3	12.6	3.6	3.3	41.7
1986	9.0	8.0	16.7	4.4	2.8	54.3
1987	7.9	10.8	14.9	4.4	3.2	49.5
1988	7.6	13.6	16.0	4.6	2.1	41.8

Sources: Calculated from World Bank, *World Debt Tables, 1988-89, 1989-90*.

Table 5 Total debt service, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	55.60	31.60	24.00	56.83	43.17
1971	32.8	n.a.	0.00	n.a.	n.a.
1972	64.50	40.80	23.70	63.26	36.74
1973	102.3	n.a.	0.00	n.a.	n.a.
1974	169.20	57.40	111.80	33.92	66.08
1975	246.60	66.70	179.90	27.05	72.95
1976	374.80	62.00	312.80	16.54	83.46
1977	106.20	79.50	26.70	74.86	25.14
1978	105.70	87.50	18.20	82.78	17.22
1979	237.80	103.60	134.20	43.57	56.43
1980	544.40	118.30	426.10	21.73	78.27
1981	934.40	120.10	814.30	12.85	87.15
1982	1,456.50	143.40	1,313.10	9.85	90.15
1983	2,060.00	215.20	1,844.80	10.45	89.55
1984	3,162.80	121.80	3,041.00	3.85	96.15
1985	4,003.40	774.60	3,228.80	19.35	80.65
1986	1,624.40	430.90	1,193.50	26.53	73.47
1987	983.00	480.00	503.00	48.83	51.17
1988	1,984.00	987.00	997.00	49.75	50.25

Source: World Bank, *World Debt Tables*, several years.

Table 6 Interest payments, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	19.80	16.00	3.80	80.81	19.19
1971	9.2	n.a.	0.00	n.a.	n.a.
1972	26.30	22.50	3.80	85.55	14.45
1973	32.6	n.a.	0.00	n.a.	n.a.
1974	35.70	30.60	5.10	85.71	14.29
1975	41.10	36.80	4.30	89.54	10.46
1976	39.00	35.00	4.00	89.54	10.46
1977	44.20	41.90	2.30	94.80	5.20
1978	50.30	47.20	3.10	93.84	6.16
1979	180.30	59.40	120.90	32.95	67.05
1980	443.70	66.50	377.20	14.99	85.01
1981	564.70	64.80	499.90	11.48	88.52
1982	819.20	75.50	743.70	9.22	90.78
1983	1,042.70	123.00	919.70	11.80	88.20
1984	1,172.00	157.80	1,014.20	13.46	86.54
1985	1,256.00	172.60	1,083.40	13.74	86.26
1986	391.20	163.80	227.40	41.87	58.13
1987	524.00	340.00	184.00	64.89	35.11
1988	1,386.00	682.00	704.00	49.21	50.79

Source: As in Table 5.

Table 7 Principal repayments, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	36.00	15.60	20.40	43.33	56.67
1971	n.a.	n.a.	0.00	n.a.	n.a.
1972	38.20	18.30	19.90	47.91	52.09
1973	n.a.	n.a.	n.a.	n.a.	n.a.
1974	133.50	26.80	106.70	20.07	79.93
1975	205.50	29.90	175.60	14.55	85.45
1976	335.90	27.00	308.90	8.04	91.96
1977	61.90	37.60	24.30	60.74	39.26
1978	55.40	40.30	15.10	72.74	27.26
1979	57.50	44.20	13.30	76.87	23.13
1980	100.70	51.80	48.90	51.44	48.56
1981	369.77	55.30	314.47	14.96	85.04
1982	637.30	67.80	569.50	10.64	89.36
1983	1,017.30	92.20	925.10	9.06	90.94
1984	1,990.80	83.70	1,907.10	4.20	95.80
1985	2,747.40	602.00	2,145.40	21.91	78.09
1986	1,233.20	267.10	966.10	21.66	78.34
1987	307.00	140.00	167.00	45.60	54.40
1988	483.00	306.00	177.00	63.35	36.65

Source: As in Table 4.

Table 8 Debt outstanding and disbursed, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	479.60	385.10	94.50	80.30	19.70
1971	n.a.	n.a.	0.00	n.a.	n.a.
1972	680.50	570.80	109.70	83.88	16.12
1973	n.a.	n.a.	n.a.	n.a.	n.a.
1974	1,219.70	629.30	527.40	56.76	43.24
1975	1,101.30	749.80	351.50	68.08	31.92
1976	838.40	781.00	57.40	93.15	6.85
1977	892.70	842.30	50.40	94.35	5.65
1978	2,359.60	920.90	1,438.70	39.03	60.97
1979	3,267.60	936.40	2,331.20	28.66	71.34
1980	4,368.90	991.50	3,377.40	22.69	77.31
1981	6,141.20	1,110.70	5,030.50	18.09	81.91
1982	9,011.40	1,341.90	7,669.50	14.89	85.11
1983	12,338.20	1,965.19	10,373.10	15.93	84.07
1984	11,815.40	2,182.70	9,632.70	18.47	81.53
1985	13,043.60	3,169.30	9,874.30	24.30	75.70
1986	21,496.30	8,382.60	9,808.30	39.00	0.00
1987	29,507.00	11,919.00	17,588.00	40.39	59.61
1988	29,743.00	11,440.00	18,303.00	38.46	61.54

Source: As in Table 5.

Table 9 Debt outstanding and undisbursed, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	668.20	555.70	112.50	83.16	16.84
1971	n.a.	n.a.	0.00	n.a.	n.a.
1972	1,067.80	934.40	133.40	87.51	12.49
1973	n.a.	n.a.	n.a.	n.a.	n.a.
1974	1,670.50	1,122.70	547.80	67.21	32.79
1975	1,584.30	1,196.10	388.20	75.50	24.50
1976	1,299.70	1,227.20	72.50	94.42	5.58
1977	1,340.00	1,289.60	50.40	96.24	3.76
1978	3,278.40	1,461.50	1,816.90	44.58	55.42
1979	6,784.60	1,707.80	5,076.80	25.17	74.83
1980	8,057.90	2,118.90	5,939.00	26.30	73.70
1981	13,583.90	3,775.60	9,808.30	27.79	72.21
1982	15,140.40	4,043.80	11,096.60	26.71	73.29
1983	17,979.10	4,807.00	13,172.10	26.74	73.26
1984	15,802.00	4,623.30	11,178.70	29.26	70.74
1985	16,374.60	4,770.20	11,604.40	29.13	70.87
1986	24,068.70	10,036.40	14,032.40	41.70	58.30
1987	31,865.00	13,547.00	18,318.00	42.51	57.49
1988	33,069.00	13,541.00	19,528.00	40.95	59.05

Source: As in Table 4.

Table 10 Commitments, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	64.80	55.10	9.70	85.03	14.97
1971	n.a.	n.a.	n.a.	n.a.	ERR
1972	210.60	178.60	32.00	84.81	15.19
1973			0.00	n.a.	ERR
1974	95.50	94.30	1.20	98.74	1.26
1975	205.00	174.90	30.10	85.32	14.68
1976	36.00	36.00	0.00	100.00	0.00
1977	62.00	62.00	0.00	100.00	0.00
1978	1,995.90	221.20	1,774.70	11.08	88.92
1979	3,440.70	285.70	3,155.00	8.30	91.70
1980	1,876.70	538.50	1,338.20	28.69	71.31
1981	6,358.80	1,796.30	4,562.50	28.25	71.75
1982	2,808.20	491.50	2,316.70	17.50	82.50
1983	4,823.20	1,071.20	3,752.00	22.21	77.79
1984	668.00	213.00	455.00	31.89	68.11
1985	1,180.50	449.90	730.60	38.11	61.89
1986	1,018.10	842.90	175.20	82.79	17.21
1987	835.00	673.00	162.00	80.60	19.40
1988	1,461.00	1,054.00	407.00	72.14	27.86

Source: As in Table 5.

Table 11 Disbursements, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	61.80	57.10	4.70	92.39	7.61
1971	n.a.	n.a.	n.a.	n.a.	n.a.
1972	148.20	117.90	30.30	75.55	20.45
1973	n.a.	n.a.	n.a.	n.a.	n.a.
1974	92.20	86.60	5.70	93.82	6.18
1975	118.90	108.80	10.10	91.51	8.49
1976	91.40	73.80	17.60	80.74	19.26
1977	88.60	73.80	14.80	83.30	16.70
1978	1,470.80	71.90	1,398.90	4.89	95.11
1979	952.60	73.40	879.20	8.61	92.29
1980	1,157.90	99.70	1,058.20	33.23	91.39
1981	2,565.90	852.60	1,713.30	14.99	66.77
1982	3,603.10	540.00	3,063.10	18.75	85.01
1983	4,670.20	875.50	3,794.70	23.13	81.25
1984	1,848.10	427.50	1,420.60	23.64	76.87
1985	1,560.20	571.70	988.50	36.64	63.36
1986	1,253.40	675.80	577.60	53.92	46.08
1987	1,130.00	473.00	657.00	41.86	58.14
1988	776.00	456.00	320.00	58.76	41.24

Source: As in Table 5.

Table 12 Net flows, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	25.80	35.50	-9.70	137.60	-37.60
1971	n.a.	n.a.	n.a.	n.a.	n.a.
1972	110.00	99.60	10.40	90.55	9.45
1973	n.a.	n.a.	0.00	ERR	ERR
1974	-41.30	59.70	-101.00	-144.55	244.55
1975	-86.50	78.90	-165.40	-91.21	191.21
1976	-244.50	46.80	-291.30	-19.14	119.14
1977	26.70	36.10	-9.40	135.21	-35.21
1978	1,416.20	29.20	1,383.80	2.29	97.71
1979	895.10	29.20	865.90	3.26	96.74
1980	1,094.40	53.90	1,040.50	4.93	95.07
1981	2,204.50	803.60	1,400.90	36.45	63.55
1982	2,976.60	477.20	2,499.40	16.03	83.97
1983	3,722.10	797.20	2,924.90	21.42	78.58
1984	-172.00	266.70	-438.70	-155.06	355.06
1985	-1,187.20	-30.30	-1,156.90	2.55	97.45
1986	20.20	408.70	-388.50	2,023.27	-1,923.27
1987	699.00	333.00	366.00	47.64	52.36
1988	202.00	150.00	52.00	74.26	25.74

Source: As in Table 5.

Table 13 Net transfers, Nigeria, 1970–1988

Year	Total	Official	Private	Official/total (%)	Private/total (%)
1970	6.00	19.50	-13.50	325.00	-225.00
1971	n.a.	n.a.	n.a.	n.a.	n.a.
1972	83.70	77.10	6.60	92.11	7.89
1973	n.a.	n.a.	n.a.	n.a.	n.a.
1974	-77.00	29.10	-106.10	-37.79	137.97
1975	-127.70	42.10	-169.80	-32.97	132.97
1976	-283.40	11.90	-295.30	4.20	104.20
1977	-17.50	-5.80	-11.70	33.14	66.86
1978	1,366.70	-14.10	1,380.80	-1.03	101.03
1979	714.80	-30.20	745.00	-4.22	104.22
1980	654.40	-11.00	665.40	-1.68	101.68
1981	1,661.80	740.20	921.60	44.54	55.46
1982	2,209.90	403.90	1,806.00	18.28	81.72
1983	2,765.20	678.90	2,086.30	24.55	75.45
1984	-1,306.70	112.80	-1,419.50	-8.63	108.63
1985	-2,443.20	202.10	-2,645.30	-8.27	108.27
1986	-370.00	244.90	-614.90	-66.19	166.19
1987	524.00	340.00	184.00	64.90	35.10
1988	1,386.00	682.00	704.00	49.21	50.79

Source: As in Table 5.

Table 14 Nigeria's external debt by source, 1969-1982 (%)

	1969	1970	1971	1972	1974	1975	1976	1977	1978	1979	1980	1981	1982
Total external	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Contractor finance	22.98	20.52	17.25	11.57	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Austria	0.00	0.00	0.90	0.35	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ADB	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.10	0.08
Canada	0.00	0.00	0.00	0.00	1.61	2.86	7.69	8.79	2.84	2.02	1.74	1.39	1.21
Dumez	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.05	1.41	3.10
Hungary	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.56	0.42	0.34
IBRD/IDA	22.98	20.52	17.25	39.79	37.84	36.01	34.78	40.14	12.32	10.17	9.60	7.70	6.99
Israel	0.23	0.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Italy	10.35	9.92	9.29	6.12	4.16	3.60	3.20	3.29	0.90	0.65	0.51	0.39	0.34
Japan	0.00	0.00	1.46	2.14	2.45	7.23	7.85	8.51	2.40	1.89	1.32	0.96	1.14
Netherlands	2.16	2.17	2.13	1.48	3.26	2.92	2.72	2.72	0.75	0.56	0.47	0.36	0.31
UK	33.11	33.18	30.46	20.27	16.66	14.55	13.00	11.45	3.48	1.63	2.04	1.57	1.27
USAID	10.58	11.74	16.13	18.00	14.61	14.43	13.75	13.81	3.67	3.06	2.63	2.05	1.78
USSR	0.00	0.00	0.00	0.31	0.37	0.54	0.45	0.47	0.05	0.04	0.00	0.00	0.00
West Germany	0.00	0.00	0.00	0.00	12.41	11.23	10.12	9.36	2.72	14.34	15.06	19.17	13.09
Euro-Dollar loan	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	50.11	63.78	58.42	56.52	65.08
Others	0.00	0.68	2.02	2.10	6.64	6.63	6.46	1.46	20.75	0.86	5.96	7.54	5.26

Source: Central Bank of Nigeria, *Annual Report and Statement of Accounts*, Lagos: CBN, several years.

Table 15a Nigeria's external debt by type, 1970-1978 (million naira)

Debt type	1970	1971	1972	1973	1974	1975	1976	1977	1978
Bilateral	100.2	106.1	124.0	150.9	182.8	200.7	233.1	350.3	210.6
Multilateral/World Bank	37.9	37.9	102.1	107.1	122.0	126.0	119.4	140.2	154.3
International capital market (ICM)	-	-	-	-	-	-	-	-	641.0
Trade arrears	-	-	-	-	-	-	-	-	-
a. refinanced	-	-	-	-	-	-	-	-	-
b. unrefinanced	-	-	-	-	-	-	-	-	-
Others (unguaranteed state/private loans)	350.7	70.5	37.3	18.9	17.6	23.2	22.1	6.4	259.8
Total	488.8	214.5	263.4	276.9	322.4	349.9	374.6	496.9	1,265.7

Source: Central Bank of Nigeria.

Table 15b Nigeria's external debt by type, 1979–1988 (million naira)

Type	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988
Bilateral	405.9	483.8	656.1	163.2	179.3	351.3	365.1	1,159.1	1,986.9	3,308.1
Multilateral/World Bank	163.9	181.6	181.9	530.4	566.4	1,271.2	1,283.5	4,670.2	8,782.3	9,991.8
ICM loans	1,027.8	1,090.2	1,317.5	5,474.4	5,026.5	6,003.1	7,726.4	21,725.3	40,546.3	54,563.3
Trade arrears	-	-	-	1,891.7	4,283.4	6,598.4	7,438.2	102,597.3	47,593.6	61,194.2
a. refinanced	-	-	-	-	1,524.6	1,155.0	1,273.9	94,152.6	32,869.7	n/a
b. unrefinanced	-	-	-	1,981.7	2,758.8	5,443.4	6,164.3	8,444.7	14,723.9	n/a
Others (unguaranteed state/private loans)	13.9	111.2	175.7	669.7	522.1	312.6	477.4	1,300.0	1,898.0	5,898.3
Total	1,611.5	1,866.8	2,331.2	8,819.4	10,577.7	14,536.6	17,290.6	14,451.9	100,789.1	133,956.3

Source: 1. Central Bank of Nigeria.
 2. First Bank Quarterly Review, March 1990, p. 25–26

Table 16 Nigeria's external debt outstanding, end of year (million naira)

	1982	1983	1984	1985	1986	1987 ^a (Oct)
Total outstanding (of which)	8,819.40	10,577.70	12,987.20	17,290.60	41,451.90	100,789.10 ^b
(a) Federal	4,819.30	5,818.00	5,558.70	13,962.00	30,956.50	85,043.50
International capital market	4,431.40	3,907.00	3,326.50	5,403.40	13,671.00	25,253.90
World Bank	280.70	295.10	900.10	879.40	3,852.30	5,963.20
Bilateral	107.20	91.30	180.00	241.00	835.90	1,470.20
Capital interest on reschedule		n.a.	n.a.	n.a.	n.a.	2,149.50
Refinanced debts/promisory notes		1,524.60	1,152.10	1,273.90	4,152.60	20,634.70 ^c
Accrued int. on letters of credit						2,149.40
Letters of credit						24,809.00
Guaranteed parastatal loans				6,164.30	8,444.70	2,623.60
(b) State	2,018.40	2,000.90	2,041.40	3,328.60	10,495.40	14,781.10
International capital market	1,043.00	1,119.50	1,272.00	2,323.00	8,054.40	10,519.10
World Bank	249.70	271.30	371.10	404.10	817.90	2,829.70
Bilateral	56.00	88.00	85.70	124.10	32.20	498.70
Unguaranteed SGS loans	669.70	522.10	312.60	477.40	1,300.00	933.60
Unguaranteed private sector loans						
Payment arrears	1,981.70	2,758.80	5,387.10			964.60

Notes: a. A FEM Central rate of US\$ 1 to N4.2989 as at end of October 1989 was used.
 b. The large increase in nominal value of outstanding debt is mainly due to fluctuations in exchange rate.
 c. Includes capitalized interest of US\$ 1.5 billion on Promisory Notes

Source: Central Bank of Nigeria, *Economic and Financial Review*, Lagos, CBN, several years.

Table 17 Nigeria's external debt outstanding (percentage distribution)

	1982	1983	1984	1985	1986	1987
(a) Federal	100.00	100.00	100.00	100.00	100.00	100.00
International capital market	54.64	55.00	42.80	80.75	74.68	84.38
World Bank	50.25	36.94	25.61	31.25	32.98	25.06
Bilateral	3.18	25.79	6.993	5.09	9.29	5.92
Capital interest on reschedule	1.22	0.86	1.39	1.39	2.02	1.46
Refinanced debts/promisory notes	0.00	0.00	0.00	0.00	0.00	2.13
Accrued interest on letters of credit	0.00	14.41	8.87	7.37	10.02	20.47
Letters of credit	0.00	0.00	0.00	0.00	0.00	2.13
Guaranteed parastatal loans	0.00	0.00	0.00	35.65	20.37	24.61
(b) State	22.89	18.92	15.72	19.72	25.32	14.67
International capital market	11.83	10.58	9.79	13.44	19.44	10.44
World Bank	2.87	2.56	2.86	2.34	1.97	2.81
Bilateral	0.63	0.83	0.66	0.72	0.08	0.49
Ungaranteed SGS loans	7.59	4.94	2.41	2.76	3.14	0.93
Ungaranteed private sector loans	0.00	0.00	0.00	0.00	0.00	0.96
Payment arrears	22.47	26.06	41.48	0.00	0.00	0.00

Source: Central Bank of Nigeria, Annual Report and Statement of Accounts, Lagos: CBN (several years).

Table 18 Debt burden indicators and debt servicing capacities, Nigeria, 1970–1988

Year	DSR ₁	DSR ₂	DSR ₃	DSR ₄	DSR ₅	DSR ₆	DSR ₇	DSR ₈	DSR ₉
1970	7.16	2.09	42.28	4.41	0.73	0.21	30.69	42.28	4.31
1971	4.73	1.49	32.39	4.38	0.64	0.20	55.61	32.39	4.38
1972	4.10	1.38	31.61	4.29	0.56	0.19	39.89	31.61	4.29
1973	6.11	1.04	32.17	6.29	1.19	0.20	38.51	32.17	6.29
1974	1.91	0.42	12.68	3.82	0.58	0.13	431.07	12.68	3.82
1975	2.95	0.50	12.52	2.84	0.67	0.11	461.07	12.53	2.84
1976	3.67	0.40	8.29	1.83	0.81	0.09	521.08	8.29	1.83
1977	1.04	0.39	7.42	1.75	0.25	0.09	379.59	23.70	5.59
1978	1.29	0.57	22.93	4.30	0.24	0.11	50.02	44.14	8.29
1979	2.17	1.43	21.83	5.12	0.51	0.33	126.95	34.34	8.06
1980	4.15	3.28	19.10	5.35	1.16	0.92	180.93	31.91	8.90
1981	9.09	5.87	38.58	8.17	1.92	1.24	40.81	61.08	12.93
1982	16.17	9.70	79.83	11.21	2.27	1.36	15.25	99.50	13.97
1983	23.60	13.04	123.03	15.18	2.91	1.61	7.20	169.57	20.92
1984	33.62	15.71	102.50	13.96	4.58	2.14	11.44	148.90	20.28
1985	38.75	12.76	105.98	16.23	5.93	1.95	11.61	142.72	21.85
1986	29.55	11.80	281.66	42.43	4.45	1.78	5.56	335.52	50.54
1987	13.08	7.58	362.78	118.45	4.27	2.48	4.11	384.03	125.39
1988	29.26	18.76	374.54	100.95	7.89	5.06	2.25	397.18	107.06

Sources: Calculated from:

- a. World Bank World Debt Tables 1988–1989, 1989–1990.
- b. World Bank World Debt Tables 1989–1990 edition.

Debt Burden Indicators and Debt Servicing Capacities**List of Variables (Table 18)**

- DSR₁ = Ratio of Total Debt Service to Exports of Goods and Services (TDS/XGS)
- DSR₂ = Ratio of Interest Payment to Exports of Goods and Services (INT/XGS)
- DSR₃ = Ratio of Outstanding and Disbursed Debt to Exports of Goods and Services (DOD/XGS)
- DSR₄ = Ratio of Debts Outstanding and Disbursed to GNP (DOD/GNP)
- DSR₅ = Ratio of Total Debt Service to GNP (TDS/GNP)
- DSR₆ = Ratio of Interest Payments to GNP (INT/GNP)
- DSR₇ = RES/DOD = Ratio of Reserves to Debt Outstanding and Disbursed (RES/DOD)
- DSR₈ = Ratio of Total External Debts to Exports of Goods and Services (EDT/XGS)
- DSR₉ = Ratio of Total External Debts to GNP (EDT/GNP)

Table 19 Debt burden indicators for Sub-Saharan Africa and debt distressed countries (%)

	1970 ^a	1975 ^a	1980	1982	1985	1986	1987 ^d
A. Ratio of external debt to exports of goods and services							
Africa	72.6	71.2	108.7	108.4	230.4	315.0	
Sub-Saharan Africa	65.5	65.2	94.1	190.9	253.6	335.6	352.4
countries with recent debt servicing problems ^b	131.7	111.0	155.6	247.0	282.3	322.6	317.0
Fifteen heavily- indebted countries ^c	162.5	133.9	169.5	271.9	301.2	361.0	347.6
B. Ratio of external debt to GDP							
Africa	15.9	19.5	31.9	41.4	50.3	58.1	
Sub-Saharan Africa	14.1	17.1	27.2	38.7	51.2	62.8	81.6
countries with recent debt servicing problems ^b	18.7	18.8	34.2	44.6	51.1	51.7	54.2
Fifteen heavily- indebted countries ^c	19.6	18.5	33.1	43.0	47.0	49.2	51.3

- Notes:*
- Estimated
 - Average for capital-importing countries that experienced external arrears in 1985 or that rescheduled debt during 1984–86.
 - Average for Argentina, Bolivia, Brazil, Chile, Columbia, Côte d'Ivoire, Ecuador, Mexico, Morocco, Nigeria, Peru, Philippines, Uruguay, Venezuela, Yugoslavia.
 - Figures from Green (1989, p. 42).

- Sources:*
- Joshua E. Green and Mohsin S. Khan (1988) "The African debt crisis". Paper presented at the meeting of the African Economic Research Consortium, Nairobi, Kenya, May 27–30, 1989, p. 2a.
 - Joshua Green, 1989, p. 42.

Table 20 Solvency and liquidity calculations, Nigeria, 1970–1988

Year	$n - r^*$	External net debt	XGS (US\$m)	Liquidity difference (4 = 3-2)
	(1)	(2)	(3)	(4)
1970	-0.06	393	1,341	+
1971	0.45	289	2,041	+
1972	0.09	440	2,316	+
1973	0.55	741	3,746	+
1974	1.64	-4,229	10,048	+
1975	-0.17	-4,126	9,130	+
1976	0.11	-3,815	10,924	+
1977	0.13	-593	13,277	+
1978	-0.23	3,768	11,535	+
1979	0.46	1,199	18,100	+
1980	0.43	-738	27,754	+
1981	-0.38	8,920	19,675	+
1982	-0.45	11,247	12,880	+
1983	-0.26	17,459	10,864	-
1984	0.04	15,983	12,381	-
1985	0.00	17,658	13,540	-
1986	-0.58	22,083	6,904	-
1987	0.05	28,874	7,822	-
1988	-0.09	30,067	7,734	-
Total average	0.06			

Note: * n is growth of exports and r is interest rate.

Source: Calculated with data from World Bank *World Debt Tables* 1989–90, and World Bank *World Tables* 1989–90 edition.

Table 21 Some debt indicators and export performance, Nigeria 1970–1988

Year	u	u*	CD	x	tc	g
1970					75.7	-2.5
1971	35.0	76.3	14.8	49.9	83.1	14.6
1972	2.7	-37.0	12.4	15.2	87.7	2.6
1973	-2.9	-6.7	64.6	61.7	100.7	17.7
1974	162.5	838.9	5.7	168.2	198.9	20.8
1975	1.1	-6.7	-10.2	-9.1	101.9	-2.1
1976	40.5	27.2	-20.8	19.6	98.2	2.0
1977	-225.7	106.0	247.2	21.5	94.1	3.1
1978	-74.9	722.3	61.8	-31.1	76.8	-10.1
1979	34.8	125.1	22.1	56.9	112.9	15.8
1980	10.9	214.9	42.5	53.3	125.9	13.7
1981	-64.8	1008.5	35.7	-29.1	77.4	-23.2
1982	-41.2	-97.1	6.6	-34.5	65.3	-44.7
1983	-59.6	-70.9	43.9	-15.7	73.3	-44.1
1984	14.0	16.7	-0.03	14.0	103.6	6.0
1985	4.5	5.4	4.8	9.4	125.8	0
1986	-68.9	-74.1	19.9	-49.0	108.0	-194.6
1987	-16.4	-17.5	29.7	13.3	99.5	19.2
1988	-3.4	-5.3	2.3	-1.1	88.5	-35.7

List of variables for Table 21

- u = unsustainable borrowing defined as the excess of the percentage rate of growth debt over exports.
- u* = unsustainable borrowing defined as the excess of percentage growth of net debt over exports.
- CD = percentage growth of debt.
- x = rate of growth of exports $\left(x = \frac{\dot{X}}{X}\right)$
- tc = transfer coefficient defined as the ratio of exports to imports.
- g = $(x - i) z$
 where x is growth rate of exports i is interest rate, z is the debt–export ratio.

Table 22 Cross border deposits of non-banks by residence of depositor, Nigeria, 1981–1988

Year	Amount of deposit (US\$m)	Change in cross border deposit (US\$m)	Cross border deposit/external debt	Cross border deposit/GNP
1981	1,540		0.128	.016
1982	1,380	150	0.108	.015
1983	1,380	0.0	0.075	.016
1984	1,170	-210	0.063	.013
1985	1,500	330	0.078	.017
1986	1,680	180	0.073	.037
1987	2,300	620	0.077	.096
1988	1,950	-350	0.063	.068

Sources: 1. International Monetary Fund, 1989.
2. World Bank, 1990b.

Table 23 Results of growth-cum-debt model ($r = 0.04$; $\sigma = 0.40$)

γ	\bar{g} (-)	DB ₁	DB ₂	DB ₃
0.07	0.0211	180.075	15.499	5.154
0.06	0.0212	173.862	15.087	3.349
0.05	0.0212	167.850	14.735	1.632
0.04	0.0213	162.032	14.392	0.000
0.03	0.0213	156.405	14.057	-1.551
0.02	0.0214	150.961	13.731	-3.024
0.01	0.0214	145.696	13.413	-4.421
0.00	0.0215	140.605	13.103	-5.747
-0.01	0.0215	135.683	12.801	-7.003
-0.02	0.0216	130.923	12.506	-8.193
-0.03	0.0216	126.323	12.219	-9.318
-0.04	0.0217	121.876	11.940	-10.383
-0.05	0.0217	117.579	11.667	-11.389

Table 24 Results of growth-cum-debt model ($r = 0.08$; $\sigma = 0.40$)

γ	\bar{g} (-)	DB ₁	DB ₂	DB ₃
0.07	0.0189	179.026	30.897	-1.704
0.06	0.0190	172.874	30.175	-3.323
0.05	0.0191	166.981	29.471	-4.859
0.04	0.0192	161.155	28.784	-6.317
0.03	0.0193	155.579	28.114	-7.698
0.02	0.0194	150.183	27.462	-9.007
0.01	0.0195	144.964	26.825	-10.245
0.00	0.0196	139.916	26.205	-11.416
-0.01	0.0197	135.034	25.601	-12.522
-0.02	0.0198	130.313	25.012	-13.566
-0.03	0.0199	125.749	24.438	-14.551
-0.04	0.0200	121.336	23.879	-15.478
-0.05	0.0201	117.071	23.335	-16.352

Table 25 Results of growth-cum-debt model ($r = 10$, $\sigma = 0.40$)

γ	\bar{g} (-)	DB ₁	DB ₂	DB ₃
0.05	0.0180	166.458	36.838	-8.068
0.02	0.0184	149.799	34.327	-11.966
0.00	0.0187	139.575	32.757	-14.221
-0.02	0.0189	130.011	31.265	-16.227
-0.05	0.0192	116.819	29.169	-18.811

Table 26 Debt build-up, 1970–1979 (average annual percentage change)

1970–79 growth of:			Excess debt from:			Debt/ exports ratio 1979
World exports	Country's exports	Country's debt	Unfavourable export performance	Macro policy	Net	
27.9	48.6	99.6	-20.7	71.7	51.0	34.3

- Notes:*
1. Growth rates are calculated on an end-point basis.
 2. Weighted by the 1976–78 fuel and non-fuel export share for Nigeria.

- Sources:*
1. Krueger, 1987.
 2. World Bank 1989b, 1990b, 1990.

Table 27 World growth of export (average annual percentage change)

1970–79	1979–82	Changes
27.9	0.6	-27.3

Source: Krueger, 1987, p. 181.

Table 28 Debt build-up, 1979–1982 (average annual percentage change)¹

1979–1982 growth of:				Excess debts from:		Debt/exports ratio 1982
World exports ²	Country's exports	Country's debt	Global changes	Unfavourable export performance	Macro policy	Net
0.6	-7.2	26.5	27.3	7.8	-1.4	33.7
						99.4

- Notes:*
- a. Growth rates are calculated on an end-point basis.
 - b. Weighted by the 1976–78 fuel and non-fuel export share for Nigeria.

- Sources:*
1. Calculated from: World Bank, 1989b, 1990b and World Tables for exports and debts.
 2. Krueger, 1987.

Table 29 Empirical result for the debt–export ratio

	1	2	3	4
Constant	-3.140 (-0.413)	9.490 (6.296)*	-11.489 (-6.212)*	9.728 (8.291)*
LCTOT			-0.055 (-0.6941)	
TOT	-0.023 (-3.855)*	-0.045 (-4.848)*		-0.043 (-6.350)*
CGDP	-0.067 (-0.764)	-0.305 (2.531)*	0.122 (1.669)	-0.283 (2.680)*
FRRI	-0.004 (0.291)	-0.023 (-0.838)	0.007 (0.342)	-0.013 (-0.503)
T	0.319 (3.583)*		0.067 (8.990)*	
REER ₂				-0.043 (-7.004)*
L REER ₁	0.555 (0.411)			
L REER ₂		-0.041 (-5.741)*		
FPY		1293.28 (0.642)		
REER ₁			0.053 (5.195)*	
FP			-0.053 (-1.289)	0.095 (1.721)
$\frac{2}{R}$	0.936	0.803	0.913	0.842
D.W.	1.728	1.435	1.767	1.546

Note: The "t" values of the coefficients are in brackets below the relevant variables.

* Significant at more than 5%

Table 30 Empirical result for the debt–GNP ratio

	1	2	3	4
Constant	-5.579 (0.691)	-2.889 (-5.502)*	-6.830 (-2.781)*	-3.973 (-5.532)*
LCTOT		0.027 (1.163)	0.025 (0.783)	0.030 (0.977)
TOT	-0.022 (-3.405)*			
CGDP	-0.040 (-0.411)	0.027 (1.123)	0.040 (1.196)	0.054 (1.831)*
FRRI	-0.001 (-0.101)	-0.003 (-0.046)	-0.004 (-0.447)	0.006 (0.735)
T	0.349 (3.571)*	0.140 (7.005)*	0.139 (4.128)*	0.180 (6.926)*
REER ₂				0.018 (4.661)
L REER ₁				
L REER ₂	0.974 (0.691)		1.158 (2.551)*	
FPY		-1463.19 (-4.372)*	-1275.12 (-2.658)*	
REER ₁		0.013 (4.515)*		
FP				-0.043 (-2.637)*
$\frac{2}{R}$	0.938	0.899	0.808	-0.829
D.W.	1.653	1.964	1.529	1.951

Note: The "t" values of the coefficients are in brackets below the relevant variables.

* Significant at more than 5%

Table 31 Value of beta coefficients, debt–GNP ratio

Variable	Beta coefficients			
	1	2	3	4
Constant	-4.127	-7.754	-18.347	-10.672
LCTOT		0.127	0.199	0.140
TOT	-0.409			
CGDP	-0.409	0.116	0.170	0.229
FRRi	-0.011	-0.007	-0.099	0.153
T	1.230		1.779	2.305
REER ₂		1.784		1.950
L RRRT ₁				
L REER ₂	0.282		1.219	
FPY		-0.478	-0.417	
REER ₁			1.335	
FP				-0.424

Table 32 Value of the beta coefficients, debt–export ratio

Variable	Beta coefficients			
	1	2	3	4
Constant	-2.323	7.021	8.590	7.197
TOT	-0.440	-0.847		-0.819
CGDP	-0.079	-0.360	0.144	-0.333
FRRi	-0.029	-0.167	0.050	-0.091
T	1.123		3.115	
L REER ₁	0.150			
L REER ₂		-1.247		-1.281
FPY		0.116		
REER ₁			1.480	
FP			-0.144	0.259
LCTOT			-0.070	

Appendix 2

Figure 1 Composition of total debt service by type of creditor, 1972-1988

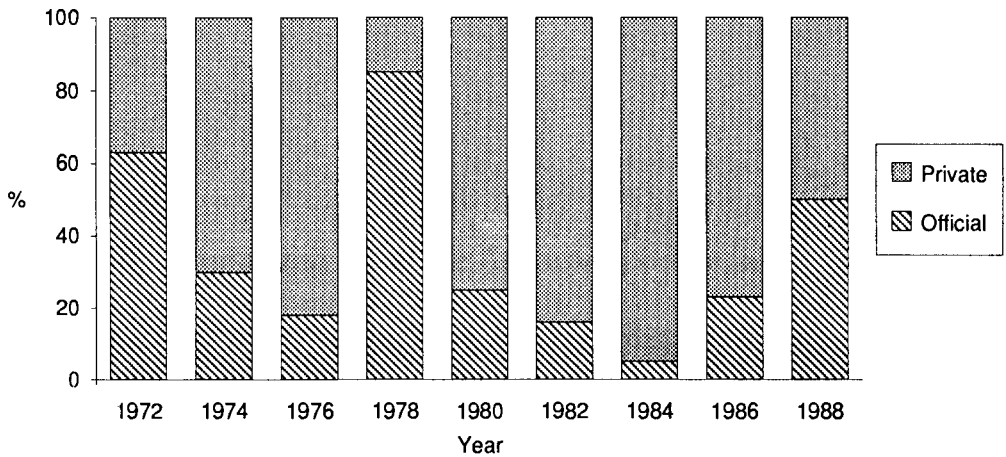


Figure 2 Composition of principal payment by type of creditor, 1972-1988

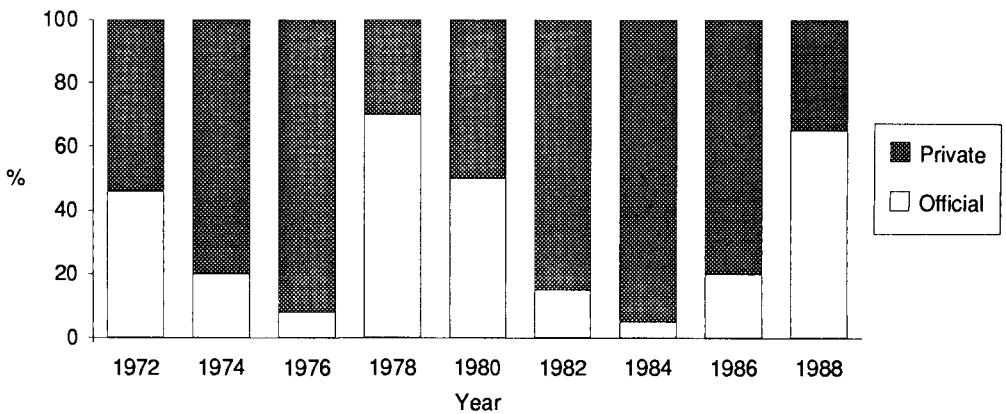


Figure 3 Composition of interest by type of creditor, 1972-1988

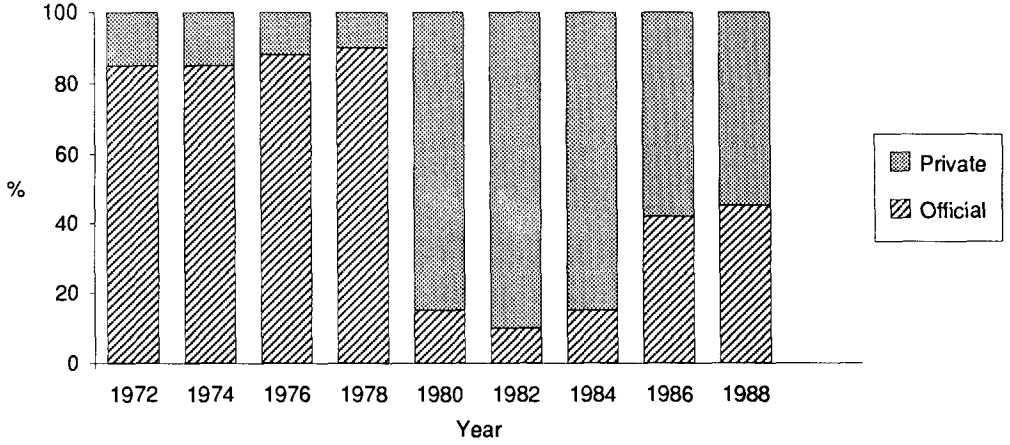


Figure 4 Composition of debt outstanding and disbursed by type of creditor, 1972-1988

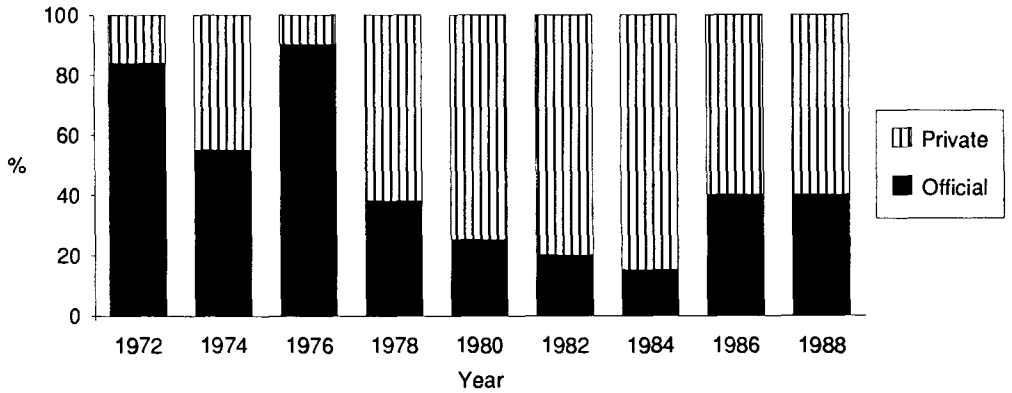


Figure 5 Composition of commitments by type of creditor, 1972–1988

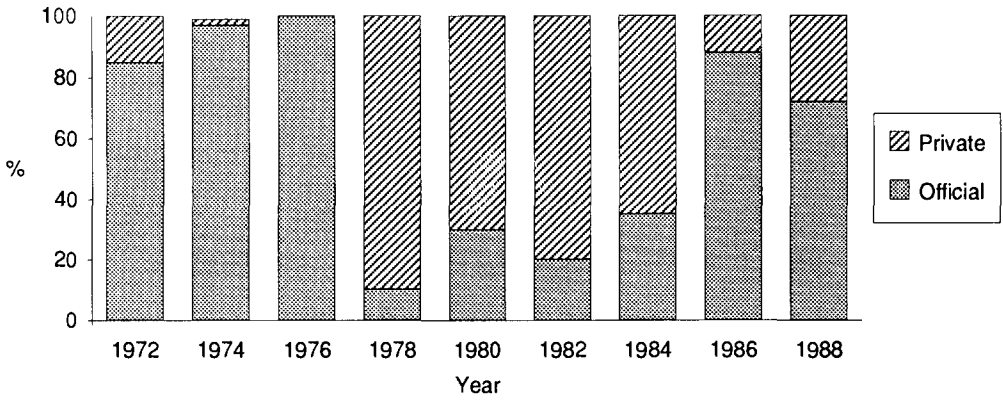


Figure 6 Composition of disbursements by type of creditor, 1972–1988

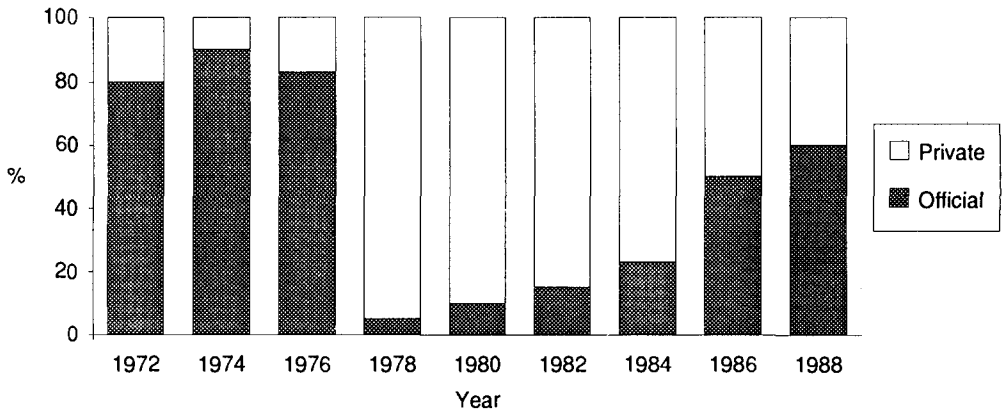


Figure 7 Composition of net transfers by type of creditor, 1972–1988

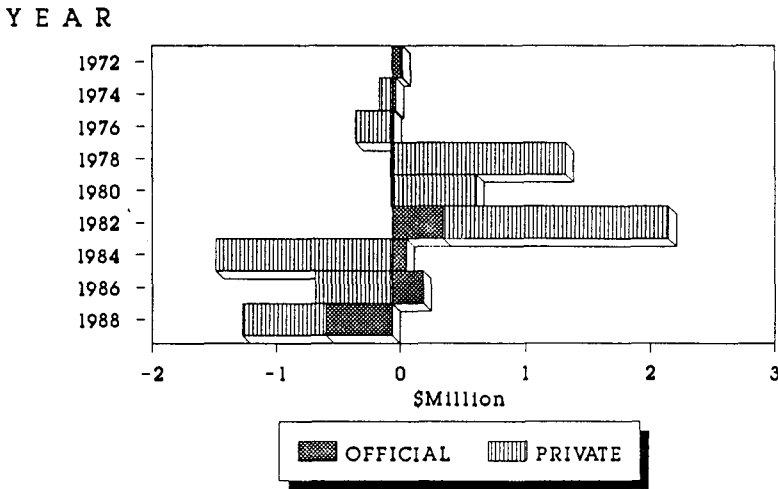


Figure 8 Debt outstanding and disbursed as ratios of exports and GNP for Nigeria, 1970–1988

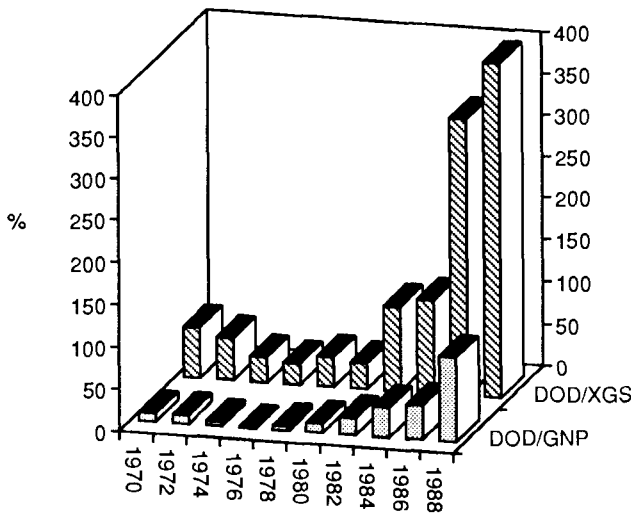


Figure 9 Debt service and total debt as ratios of GNP for Nigeria, 1970–1988

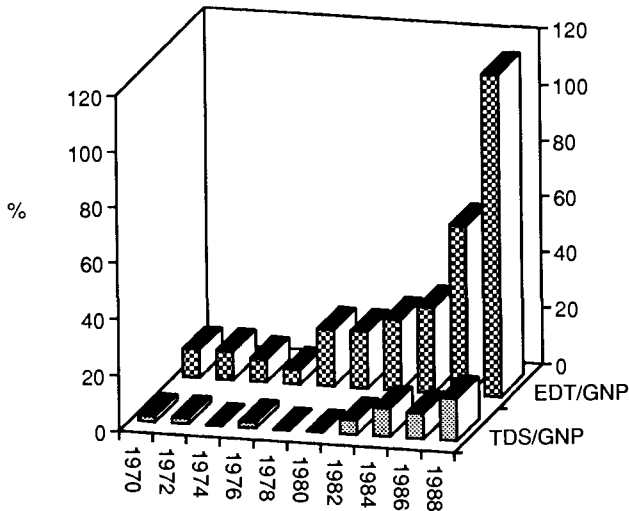


Figure 10 Total debt as ratio of GNP and exports for Nigeria, 1970–1988

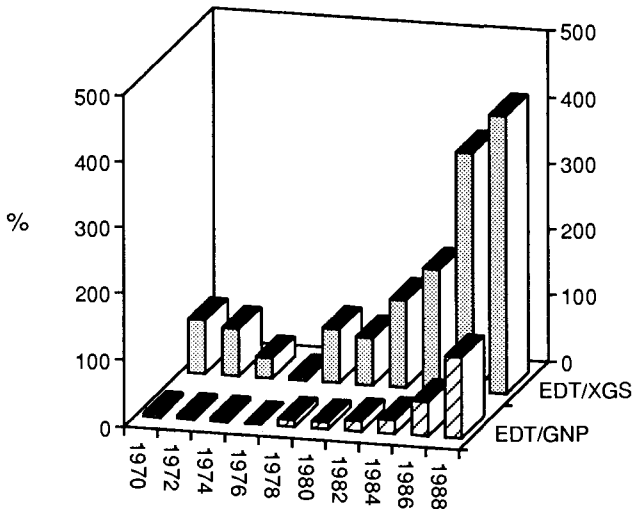


Figure 11 Debt service as ratio of GNP and exports for Nigeria, 1970–1988

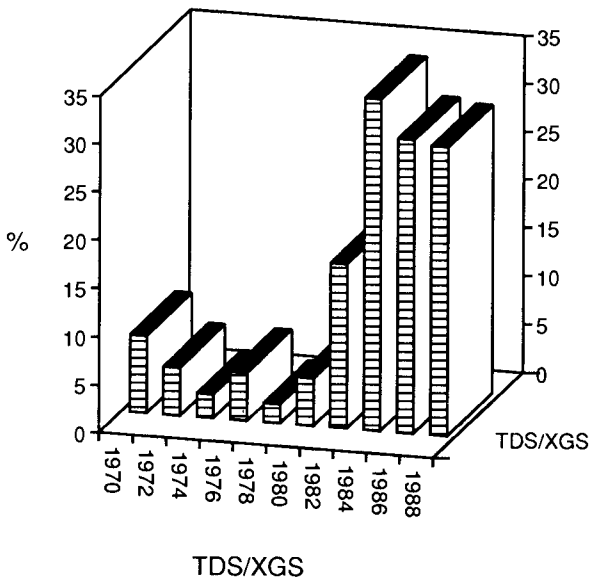


Figure 12 Interest as ratio of exports and GNP for Nigeria, 1970–1988

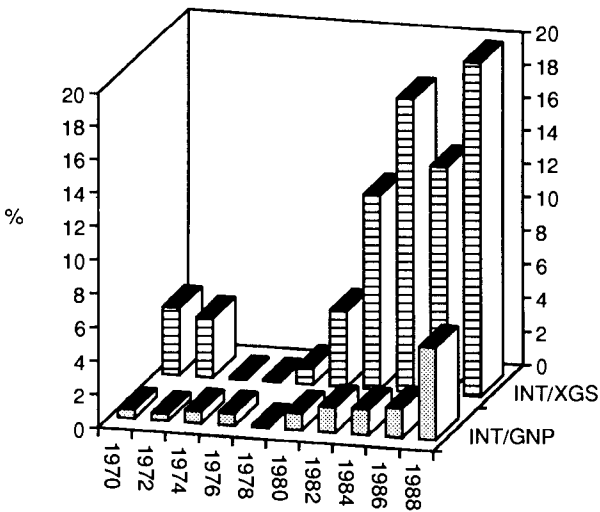


Figure 13 Debt service and interest as ratio of exports for Nigeria, 1970–1988

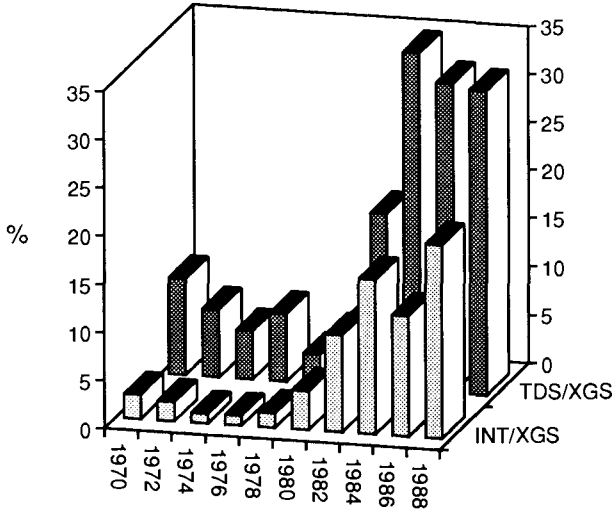


Figure 14 Debt service ratios for Nigeria, 1970–1988

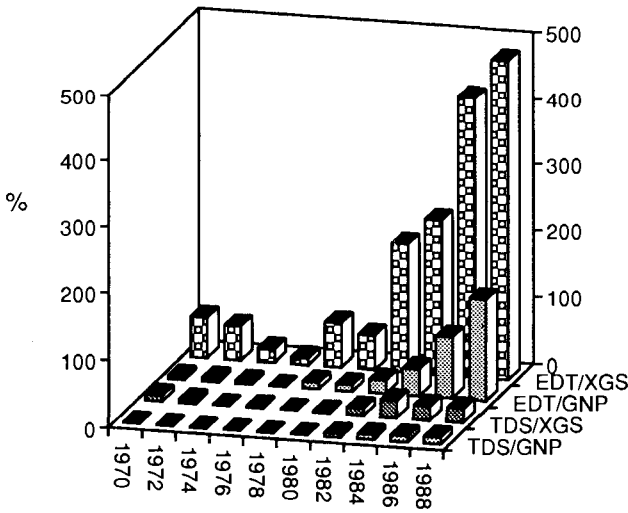


Figure 15 Debt service and total debt as ratios of exports for Nigeria, 1970–1988

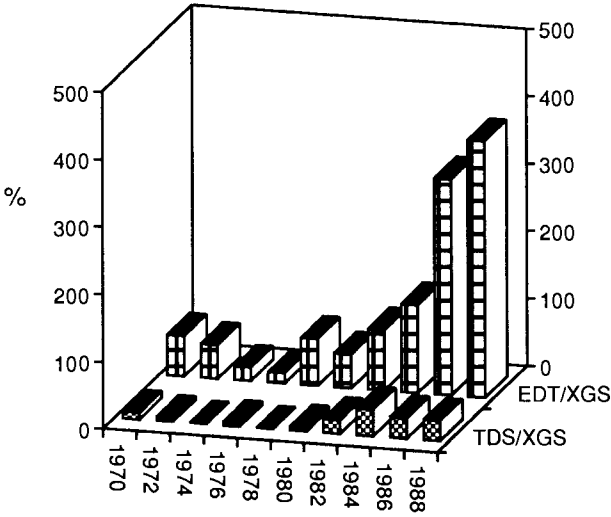


Figure 16 Reserves as ratio of debt outstanding and disbursed for Nigeria, 1970–1988

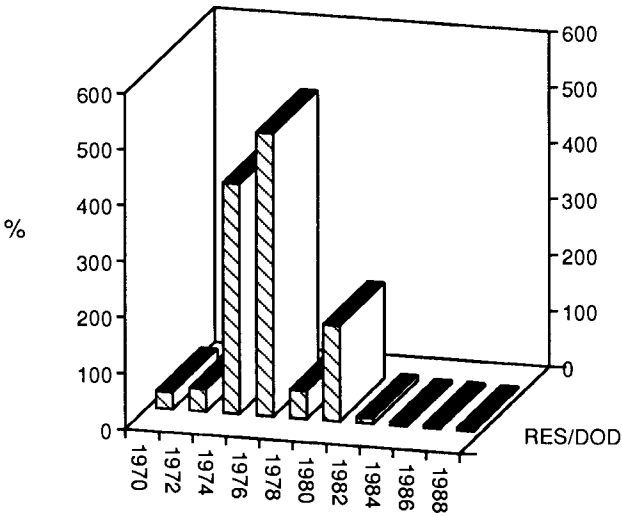


Figure 17 Debt level and export value for Nigeria, 1970–1988

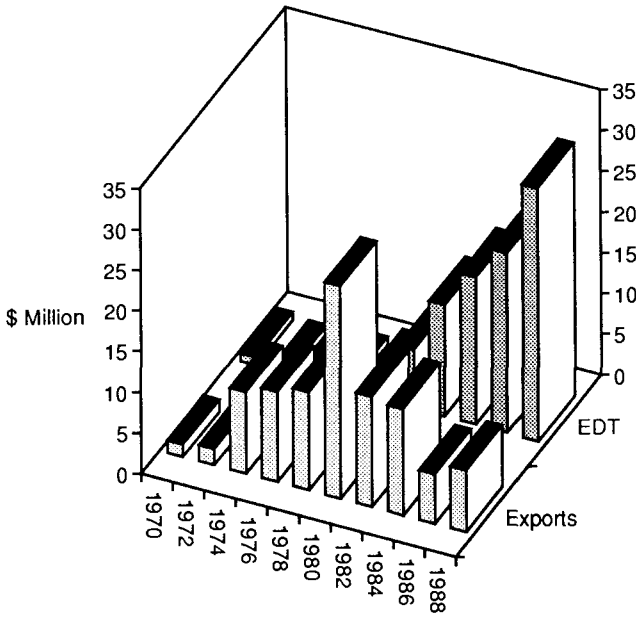


Figure 18 Debt service and export value for Nigeria, 1970–1988

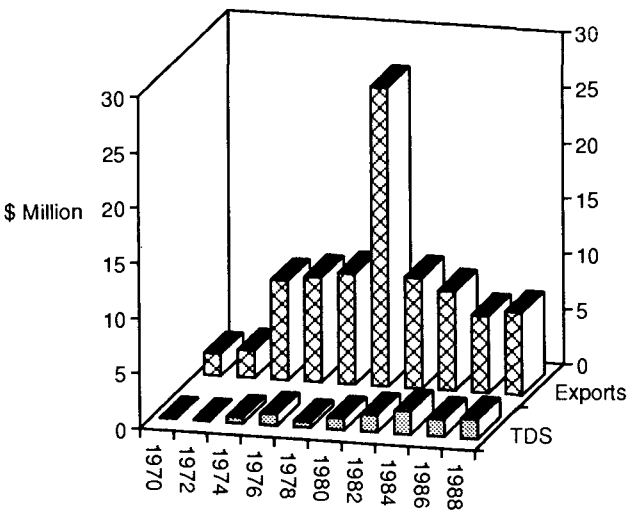


Figure 19 Debt service to export ratio for Nigeria, 1970–1988

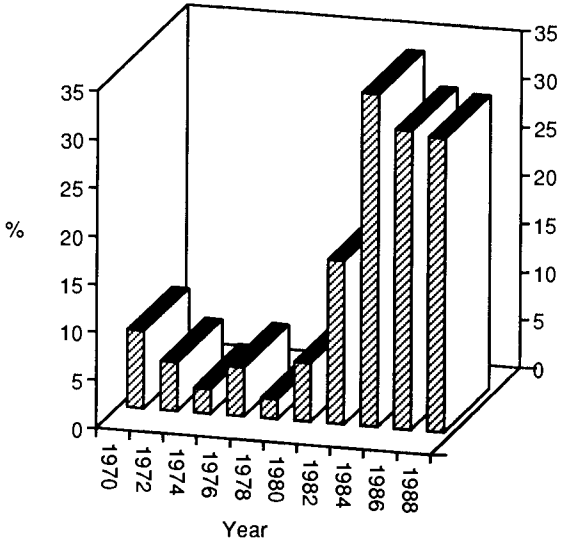
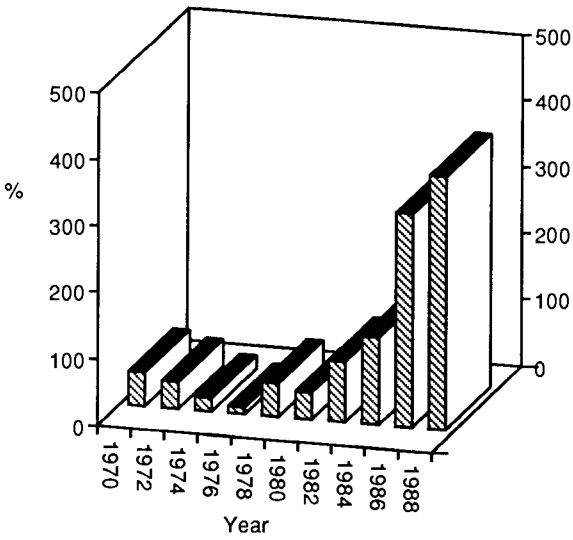


Figure 20 Total debt to export ratio for Nigeria, 1970–1988



Appendix 3

Real effective exchange rate¹

There are many methods of deriving the real effective exchange rate. One of the methods uses trade weights (exports plus imports), and also it can use varying trade weights or specific year trade weight. A specific year is chosen as the base in the latter case.

Another method utilizes import weights, which can be done using varying import weights or specific year import weights. Both of these methods capture the relationship between a country and its trading partner.

This study uses the real effective exchange rate defined as:

$$\pi \left(\frac{E_{it}}{E_{io}} \cdot \frac{CPI_f}{CPI_d} \right)^{w_i}$$

where:

- E_{it} = price of domestic currency in terms of the i^{th} trading partner country at time t .
- E_{io} = price of the domestic currency in terms of the i^{th} partner country in the base period.
- CPI_f = Consumer price index of the foreign country at time t relative to the base period.
- CPI_d = Consumer price index of the home country relative to the base period.
- W_i = the weight of the trading partner country included in the calculation of the index (the weights used are 1980 import weights) for seven of Nigeria's major trading partners.

We have two exchange measures defined as follows:

$$REER_1 = \left(\frac{E_{it}}{E_{io}} \cdot \frac{CPI_f}{CPI_d} \right)^{w_i}$$

$$REER_2 = \left(\frac{E_{it}}{E_{io}} \cdot \frac{WPI_f}{CPI_d} \right)^{w_i}$$

The additional variable WPIF is wholesale price index of the foreign country.

Appendix 4

List of variables for regression analysis

CGDP	=	growth rate of income of industrialized countries
TOT	=	Terms of trade
FRRI	=	Foreign real interest rate
REER _j	=	Real effective exchange rate index
CTOT	=	Growth rate of the terms of trade
LCTOT	=	Log of CTOT
LTOT	=	Log (TOT)
T	=	Linear time trend
FPY	=	Fiscal balance defined as revenue-expenditure to the GNP
FP	=	Fiscal balance defined as revenue minus expenditure
LREER _j	=	Log (REER _j)

Appendix 5

Debt viability model

Model used for the Debt viability: Growth-cum-debt model scenario in text (Solis and Zedillo, 1985).

The level of output is given by

$$Y = \sigma K \quad (1)$$

Define

$$\Delta Y = \sigma(\Delta K) \quad (2)$$

$$\Delta K = I_t - \delta K_{t-1} \quad (3)$$

Equation 1 becomes

$$Y_t = \sigma k_t + (1 - \delta)Y_{t-1} \quad (4)$$

Given the following identities

$$C_t + I_t + X_t - M_t = Y_t = C_t + S_t + r_t D_{t-1} \quad (5)$$

and

$$d_t = M_t - X_t + r_t D_{t-1} \quad (6)$$

Consequently $I_t = S_t + d_t$ (7)

Let the savings function be

$$S_t = s(Y_t - r_t D_{t-1}) \quad (8)$$

Using equation (4), investment can be expressed

$$I_t = \left[\frac{s(1-\delta)}{1-s\sigma} \right] Y_{t-1} - \left(\frac{s}{1-s\sigma} \right) r_t D_{t-1} + \left(\frac{1}{1-s\sigma} \right) d_t \quad (9)$$

Equations (4) and (9) were solved for a number of possible paths of D and r_t . The rule used for D_t is the dynamic equation

$$D_t = D_{t-1}(1 + \gamma)$$

Notes

1. See Nills Borje Tallroth, 1986, "Structural adjustment in Nigeria". *Finance and Development*, December.
2. See Edward J. Frydl and Dorothy M. Sobol, 1988, "Prospects for LDC debt management: debt reduction versus debt forgiveness". Federal Reserve Bank of New York, Research Paper No. 8826.
3. It is assumed that only foreign earnings are used to meet debt obligations.
4. If $Z = D/X$, $x = \dot{X}/X$ and $g = G/X$ where Z is the debt-export ratio, x is the growth of exports and g stands for the resource gap as a proportion of exports, then

$$\dot{Z} = (i - x)Z + g \quad (A)$$

if Z is kept unchanged over time, then equation (A) implies a sustainable resource gap:

$$g = (x - i)Z$$

which is positive for $x > i$. In this case resource gap can be sustained indefinitely without the country being pushed into a position of relative over-indebtedness.

5. I thank Mohsin Khan for directing me to this source of statistics.
6. D , GNP refer to External Debt and Gross National Product, rt is the interest rate.
7. This section has benefited immensely from a different but similar analysis by Khan and Knight (1983) and also subsequent discussion with Khan. In what follows, we use DSR_8 and DSR_9 , the debt-export ratio and the debt/GDP ratio, respectively.

References

- Ajayi, S. Ibi. 1986. "Issues of overvaluation and exchange rate adjustment in Nigeria." Economic Development Institute. Washington, D.C.: The World Bank
- . 1989a. "Economic survival: The Third World in the international economy." Inaugural Lecture delivered at the University of Ibadan, 30 March 1989.
- . 1989b. *Exchange Rate Adjustment in Selected African Countries*. Economic Development Institute. Washington, D.C.: The World Bank.
- Aliber, Robert Z. 1980. "A conceptual approach to the analysis of external debt of the developing countries." *World Bank Staff Working Paper* 421.
- Bienen, Henry. 1983. "Oil revenues and policy choice in Nigeria." *World Bank Staff Working Paper* 592.
- Central Bank of Nigeria. *Annual Reports*. Lagos: CBN, several issues.
- . *Economic and Financial Review*. Lagos: CBN.
- Cline, W.R. 1985. "International debt: Analysis, experience and prospects." *Journal of Development Planning* 16.
- Cohen, Daniel. 1985. "Reassessing Third World debt." *Economic Policy*.
- Corden, W. Max. 1990. "Macroeconomic policy and growth: Some lessons of experience." World Bank Annual Conference on Development Economics. Washington, D.C., April 26–27, 1990.
- Cuddington J.T. 1986. "Capital flight: Estimates, issues and explanations." Princeton Studies in International Finance No. 58.
- Dhonte, P. 1974. "Quantitative indicators and analysis of external debt problem." *IMF Staff Papers* February. Washington, D.C.: International Monetary Fund.
- Dornbusch, R. 1985. "External debt, budget deficits and disequilibrium exchange rates." In G.W. Smith and J.T. Cuddington (eds.) *International Debt and the Developing Countries. A World Bank Symposium*, Washington, D.C.: The World Bank.
- . 1986. "International debt and economic instability." In *Debt, Financial Stability and Public Policy*. A Symposium Sponsored by the Federal Reserve Bank of Kansas City, Jacksons Hole, Wyoming.
- . 1986. "Third World." *Science* 234: 836–49, November.
- . 1986. *Dollars, Debts and Deficits*, Cambridge, Mass.: MIT Press.
- Dornbusch, R., and S. Fischer. 1985. "The world debt problem: Origin and prospects." *Journal of Development Planning*.
- Eaton, J., and Lance Taylor. 1986. "Developing country finance and debt." *Journal of Development Economics*.
- Feeder, G., and R. Just. 1977. "A study of debt servicing capacity applying logit analysis." *Journal of Development* 4.

- Fleleke, N.S., 1984. "The budget deficit: Are the international consequences unfavourable?" *New England Economic Review*. Federal Bank of Boston; May/June.
- Filatove, V.S., and R.P. Mattione. 1985. "Latin America's recovery from debt problems: An assessment of model based projections." *Journal of Policy Modelling*.
- Fishlow, A. 1985. "The debt crisis: A longer perspective." *Journal of Development Planning* 16.
- Frenkel, Jacob A. *et al.* (eds.). 1989. *Analytical Issues in Debt*. Washington, D.C.: International Monetary Fund.
- Greene, J.E. 1989. "External debt problem of Sub-Saharan Africa." In Jacob A. Frenkel *et al.* (eds.).
- Greene, J.E., and Mohsin S. Khan. 1989. "The Africa debt crisis." Paper presented at the meeting of the African Economic Research Consortium, Nairobi, May 27–30 1989
- Guttentag, Jack M., and Richard Iterving. 1985. "Commercial bank lending to developing countries: From overlending to underlending to structural reform." In Gordon W. Smith and John T. Cuddington (eds.) *International Debt and the Developing Countries. A World Bank Symposium*. Washington, D.C.: The World Bank.
- Helleiner, G.K. 1986a. "Balance of payments experience and growth prospects of developing countries: A synthesis." *World Development* 14 (8).
- . 1986b. "Outward orientation, import instability and African economic growth: An empirical investigation." In Lall Sanjaya and Frances Steward (eds.) *Theory and Reality in Development: Essays in Honour of Paul Streeten*. Macmillan
- . 1989. "The Sub-Saharan African debt problem: Issues for international policy." Paper presented at the Second World Scientific Banking Conference Dubrovnik, Yugoslavia, June 7–10.
- Husain, Ishrat, and I. Diwan. 1989. *Dealing with the Debt Crisis*. A World Bank Symposium. Washington, D.C.: The World Bank.
- International Monetary Fund. *International Financial Statistics Yearbook 1980, 1988, 1989*. Washington, D.C.: International Monetary Fund.
- . 1986. *World Economic Outlook*. Washington, D.C.: International Monetary Fund.
- Khan, Mohsin S., and Malcolm D. Knight. 1983. "Determinants of current account balances of non-oil developing countries in the 1970s: An empirical analysis." *IMF Staff Papers* 30(4). Washington, D.C.: International Monetary Fund.
- Khan, Mohsin S., and Peter J. Montiel. 1988. "Growth oriented adjustment programmes: A conceptual framework." *IMF Working Paper*. Washington, D.C.: International Monetary Fund.
- Khan, M., and N. Ul Haque. 1987. "Capital Flight from Developing Countries." *Finance and Development*, March.
- Klein, Thomas. 1987. "Debt relief for African countries." *Finance and Development*, Washington, D.C.: International Monetary Fund and The World Bank.
- Krueger, A.O. 1987. "Origins of the developing countries debt crisis." *Journal of Development Economics* 27.
- Krumm, K.L. 1985. "The external debt of Sub-Saharan Africa: Origins, magnitude and implications for action." *World Bank Staff Working Papers*, No. 741. Washington, D.C.: The World Bank.
- Lessard, O.R., and John Williamson. 1987. *Capital Flight and Third World Debt*. Washington, D.C.: Institute for International Economics.
- Maddala, G.S. 1977. *Econometrics*. Tokyo: McGraw-Hill and Kogakusha Ltd.
- Mistry, Percy S. 1988. *African Debt: The Case for Relief for Sub-Saharan Africa*. Oxford: Oxford International Associates.



- Muns, Joaquin. 1984. *Adjustment, Conditionality and International Financing*. Washington, D.C.: International Monetary Fund.
- Nelson, Joan M. (ed.). 1990. *Economic Crisis and Policy Choice: The Politics of Adjustment in the Third World*. Princeton: Princeton University Press.
- Officer, L.H. 1976. "The purchasing power parity: Theory of exchange rates." *IMF Staff Papers*, Washington, D.C.: International Monetary Fund.
- Ortiz, G., and J. Serra-Puche. 1986. "A note on the burden of the Mexican foreign debt." *Journal of Development Economics* 21.
- Pfefferman, Guy. 1985. "Overvalued exchange rates and development." *Finance and Development* 22(1).
- Remolona, Ell M., et al. 1986. "Foreign debt, balance of payments and the Phillipines in 1983-84." *World Development* 14(8).
- Rhomberg, R.F. 1976. "Indices of effective exchange rates." *IMF Staff Papers*. Washington, D.C.: International Monetary Fund.
- Sachs, J. 1985. *Theoretical Issues in International Borrowing. Princeton Studies in International Finance* 54. Princeton, N.J.
- . 1988. "External debt and macroeconomic performance in Latin America and East Asia." *Brookings Papers on Economic Activity* 2: 523-64.
- (ed.). 1989. *Developing Country Debt and the World Economy*. Chicago: University of Chicago Press.
- Selowsky, Marcello, and Van der Tak, H.G. 1986. "The debt problem and growth." *World Development* 14(9).
- Solis, Leopoldo, and Ernesto Zedillo. 1985. "The foreign debt of Mexico." In Gordon W. Smith and J.T. Cuddington (eds.), *International Debt and the Developing Countries. A World Bank Symposium*. Washington, D.C.: The World Bank.
- Svedberg, P. 1990. "The export performance of Sub-Saharan Africa." *Economic Development and Cultural Change* 38.
- Sweet, L.M. 1987. "Currency composition of developing country debt: The impact of dollar depreciation." Research Paper No. 8702. New York: Federal Reserve Bank of New York.
- Tanzi, Vito, and Mario I. Blejer. 1984. "Fiscal deficits and balance of payments disequilibrium in IMF adjustment programmes." In Muns Joaquin (ed.) *Adjustment, Conditionality and International Financing*. Washington, D.C.: International Monetary Fund.
- World Bank. 1986. *World Debt Tables: External Debt of Developing Countries, 1985-86*. Washington, D.C.: The World Bank.
- . 1989a. *World Development Report*. Washington, D.C.: The World Bank.
- . 1989b. *World Debt Tables, 1988-89*. Washington, D.C.: The World Bank.
- . 1990a. *World Tables, 1989-90*. Washington, D.C.: The World Bank.
- . 1990b. *World Debt Tables: External Debt of Developing Countries, 1989-90*. Washington, D.C.: The World Bank.
- World Bank and UNDP. 1989. *Africa's Adjustment and Growth in the 1980s*. Washington D.C.: The World Bank.



AFRICAN ECONOMIC RESEARCH CONSORTIUM

P.O. BOX 47543
NAIROBI, KENYA

TELEPHONE (254-2) 228057 225234
215898 212359 332438 225087

TELEX 22480

FAX (254-2)

The principal objective of the African Economic Research Consortium (AERC), established in August 1988, is to strengthen local capacity for conducting independent, rigorous inquiry into problems pertinent to the management of economies in Sub-Saharan Africa.

In response to special needs of the region, AERC has adopted a flexible approach to improve the technical skills of local researchers, allow for regional determination of research priorities, strengthen national institutions concerned with economic policy research, and facilitate closer ties between researchers and policymakers.

Since its establishment, AERC has been supported by private foundations, bilateral aid agencies and international organizations.

SPECIAL PAPERS contain the findings of commissioned studies in furtherance of AERC's programmes for research, training and capacity building.

RESEARCH PAPERS contain the edited and externally reviewed results of research financed by the AERC.

It is AERC's policy that authors of Special and Research Papers are free to use material contained therein in other publications. Views expressed in the Special and Research Papers are those of the authors alone and should not be attributed to the AERC's sponsoring Members, Advisory Committee, or Secretariat.

Further information concerning the AERC and additional copies of Special and Research Papers can be obtained by writing to: African Economic Research Consortium, P.O. Box 47543, Nairobi, Kenya.