GROWTH AND FOREIGN DEBT:
THE UGANDAN EXPERIENCE

BARBARA MBIRE
and
MICHAEL ATINGI

AFRICAN ECONOMIC RESEARCH CONSORTIUM

CONSORTIUM POUR LA RECHERCHE ECONOMIQUE EN AFRIQUE

Growth and foreign debt:
The Ugandan experience

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.S. 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 by S. Ibi Ajayi, Research Paper 8.

The Real Exchange Rate and Ghana's Agricultural Exports by K. Yerfi Fosu, Research Paper 9.

The Relationship Between the Formal and Informal Sectors of the Financial Market in Ghana by E. Aryeetey, Research Paper 10.

Financial System Regulation, Deregulation and Savings Mobilization in Nigeria by A. Soyibo and F. Adekanye, Research Paper 11.

The Savings-Investment Process in Nigeria: An Empirical Study of the Supply Side by A. Soyibo, Research Paper 12.

Growth and Foreign Debt: The Ethiopian Experience, 1964-86 by B. Degefe, Research Paper 13.

Links Between the Informal and Formal/Semi-Formal Financial Sectors in Malawi by C. Chipeta and M.L.C. Mkandawire, Research Paper 14.

The Determinants of Fiscal Deficit and Fiscal Adjustment in Cote d'Ivoire by O. Kouassy and B. Bohoun, Research Paper 15.

Small and Medium-Scale Enterprise Development in Nigeria by D.E. Ekpenyong and M.O. Nyong, Research Paper 16.

The Nigerian Banking System in the Context of Policies of Financial Regulation and Deregulation by A. Soyibo and F. Adekanye, Research Paper 17.

Scope, Structure and Policy Implications of Informal Financial Markets in Tanzania by M. Hyuha, O. Ndanshau and J.P. Kipokola, Research Paper 18.

European Economic Integration and the Franc Zone: The future of the CFA Franc after 1996. Part I: Historical Background and a New Evaluation of Monetary

Cooperation in the CFA Countries by Allechi M'bet and Madeleine Niamkey, Research Paper 19.

Revenue Productivity Implications of Tax Reform in Tanzania by Nehemiah E. Osoro, Research Paper 20.

The Informal and Semi-formal Sectors in Ethiopia: A Study of the Iqqub, Iddir and Savings and Credit Cooperatives by Dejene Aredo, Research Paper 21.

Inflationary Trends and Control in Ghana by Nii K. Sowa and John K. Kwakye, Research Paper 22.

Macroeconomic Constraints and Medium-Term Growth in Kenya: A Three-Gap Analysis by F.M. Mwega, N. Njuguna and K. Olewe-Ochilo, Research Paper 23.

The Foreign Exchange Market and the Dutch Auction System in Ghana by Cletus K. Dordunoo, Research Paper 24.

Exchange Rate Depreciation and the Structure of Sectoral Prices in Nigeria Under an Alternative Pricing Regime, 1986-89 by Olu Ajakaiye and Ode Ojowu, Research Paper 25.

Exchange Rate Depreciation, Budget Deficit and Inflation - The Nigerian Experience by F. Egwaikhide, L. Chete and G. Falokun, Research Paper 26.

Trade, Payments Liberalization and Economic Performance in Ghana by C.D. Jebuni, A.D. Oduro and K.A. Tutu, Research Paper 27.

Constraints to the Development and Diversification of Non-Traditional Exports in Uganda, 1981-90 by G. Ssemogerere and L.A. Kasekende, Research Paper 28.

Indices of Effective Exchange Rates: A Comparative Study of Ethiopia, Kenya and the Sudan by Asmerom Kidane, Research Paper 29.

Monetary Harmonization in Southern Africa by C. Chipeta and M.L.C. Mkandawire, Research Paper 30.

Tanzania's Trade with PTA Countries: A Special Emphasis on Non-Traditional Products by Flora Mndeme Musonda, Research Paper 31.

Macroeconomic Adjustment, Trade and Growth: Policy Analysis using a Macroeconomic Model of Nigeria by C. Soludo, Research Paper 32.

Ghana: The Burden of Debt Service Payment Under Structural Adjustment by Barfour Osei, Research Paper 33.

Short-Run Macroeconomic Effects of Bank Lending Rates in Nigeria, 1987-91: A Computable General Equilibrium Analysis by D. Olu Ajakaiye, Research Paper 34.

Capital Flight and External Debt in Nigeria by S. Ibi Ajayi, Research Paper 35.

Institutional Reforms and the Management of Exchange Rate Policy in Nigeria by Kassey Odubogun, Research Paper 36.

The Role of Exchange Rate and Monetary Policy in the Monetary Approach to the Balance of Payments: Evidence from Malawi by Exley B.D. Silumbu, Research Paper 37.

Tax Reforms in Tanzania: Motivations, Directions and Implications by Nehemiah E. Osoro, Research Paper 38.

Money Supply Mechanisms in Nigeria, 1970-88 by Oluremi Ogun and Adeola Adenikinju, Research Paper 39.

Profiles and Determinants of Nigeria's Balance of Payments: The Current Account Component, 1950-88, by Joe U. Umo and Tayo Fakiyesi, Research Paper 40.

Empirical Studies of Nigeria's Foreign Exchange Parallel Market 1: Price Behaviour and Rate Determination by Melvin D. Ayogu, Research Paper 41.

The Effects of Exchange Rate Policy on Cameroon's Agricultural Competitiveness by Aloysius Ajab Amin , Research Paper 42.

Policy Consistency and Inflation in Ghana by Nii Kwaku Sowa, Research Paper 43.

Fiscal Operations in a Depressed Economy: Nigeria, 1960-90 by Akpan H. Ekpo and John E. U. Ndebbio, Research Paper 44.

Foreign Exchange Bureaus in the Economy of Ghana by Kofi A. Osei, Research Paper 45.

The Balance of Payments as a Monetary Phenomenon: An Econometric Study of Zimbabwe's Experience by Rogers Dhliwayo, Research Paper 46.

Taxation of Financial Assets and Capital Market Development in Nigeria by Eno L. Inanga and Chidozie Emenuga, Research Paper 47.

The Transmission of Savings to Investment in Nigeria by Adedoyin Soyibo, Research Paper 48.

A Statistical Analysis of Foreign Exchange Rate Behaviour in Nigeria's Auction by Genevesi O. Ogiogio, Research Paper 49.

The Behaviour of Income Velocity In Tanzania 1967-1994 by Michael O.A. Ndanshau, Research Paper 50.

Consequences and Limitations of Recent Fiscal Policy in Côte d'Ivoire, by Kouassy Oussou and Bohoun Bouabre, Research Paper 51.

Effects of Inflation on Ivorian Fiscal Variables: An Econometric Investigation, by Eugene Kouassi, Research Paper 52.

European Economic Integration and the Franc Zone: The Future of the CFA Franc after 1999, Part II, by Allechi M'Bet and Niamkey A. Madeleine, Research Paper 53.

Exchange Rate Policy and Economic Reform in Ethiopia, by Asmerom Kidane, Research Paper 54.

The Nigerian Foreign Exchange Market: Possibilities For Convergence in Exchange Rates, by P. Kassey Garba, Research Paper 55.

Mobilising Domestic Resources for Economic Development in Nigeria: The Role of the Capital Market, by Fidelis O. Ogwumike and Davidson A. Omole, Research Paper 56.

Policy Modelling in Agriculture: Testing the Response of Agriculture to Adjustment Policies in Nigeria, by Mike Kwanashie, Abdul-Ganiyu Garba and Isaac Ajilima, Research Paper 57.

Price and Exchange Rate Dynamics in Kenya: An Empirical Investigation (1970-1993) by Njuguna S. Ndung'u, Research Paper 58.

Exchange Rate Policy and Inflation: The case of Uganda, by Barbra Mbire, Research Paper 59.

Institutional, Traditional and Asset Pricing Characteristics of African Emerging Capital Markets, by Eno L. Inanga and Chidozie Emenuga, Research Paper 60.

Foreign Aid and Economic Performance in Tanzania, by Timothy S. Nyoni, Research Paper 61.

Public Spending, Taxation and Deficits: What is the Tanzanian Evidence? by Nehemiah Osoro, Research Paper 62.

Adjustment Programmes and Agricultural Incentives in Sudan: A Comparative Study, by Nasredin A. Hag Elamin and Elsheikh M. El Mak, Research Paper 63.

Intra-industry Trade between Members of the PTA/COMESA Regional Trading Arrangement, By Flora Mndeme Musonda, Research Paper 64.

Fiscal Operations, Money Supply and Inflation in Tanzania, by A.A.L. Kilindo, Research Paper 65.

Growth and foreign debt:
The Ugandan experience

Barbara Mbire
Makerere University
and
Michael Atingi
Bank of Uganda

Contents

List of tables

Acknowledgments

Abstract

This paper analyses Uganda's external debt problem. Like many other countries in the sub-Saharan Africa, Uganda is a severely indebted low-income country. Uganda's total debt stock at end June 1993 was estimated at US$2.64 billion, with a debt service ratio of nearly 80%. A look at Uganda's debt profile since the 1970s reveals a composition of debt mainly from multilateral creditors. The study particularly links debt to economic growth. A major observation is the acute debt servicing obligation of the country, and the fact that a large proportion of Uganda's debt is not eligible for rescheduling. Debt payments have been a fundamental cause of low economic growth. Of great concern is whether the economy can sustain its current growth rate of 5% per annum and at the same time maintain adequate domestic investment, given the heavy reliance on foreign import capital flows. Debt relief is not enough; continued government commitment to structural reforms and sound debt management are essential. The need to continue the ongoing restructuring of the economy and promote further growth is apparent. But how sustainable and possible is this challenging path without accumulating more debt?

I. Introduction

During the lost decade of the 1980s, the external debt facing the sub Sahara African countries received increasing attention. The immediate causes of the region's debt crisis in the 1980s were the economic slowdown and the sharp increases in international interest rates resulting from monetary contractions in some OECD countries and the fiscal policies that were pursued by the USA. The roots of these difficulties lay in the oil price shocks, however, and the resulting unprecedented increase in international lending to developing countries in the 1970s. The debt crisis of the 1980s was almost the mirror image of the previous decade. The failure of many SSA countries to adapt to the changed external environment — especially their domestic policies — tended to aggravate the debt servcing problem .

Many countries responded with structural adjustment programmes supported by the World Bank and the IMF that were aimed at inducing growth, restoring price stability and reducing external imbalances. Despite attempts by donors to avail debt relief and the continued provision of external assistance, the situation continued to deteriorate and by the turn of the 1990s the position of most of the countries in Africa had become precarious. As a result, most of these countries now look back at almost a decade of lost growth. Uganda is no exception. It is against this background of economic adjustment that Uganda's debt service payment problems are analysed.

In the Ugandan case the decline in the foreign exchange earning capacity of the economy was aggravated by the decline of international coffee prices and hence receipts. This adversely affected Uganda's ability to service its debt and led to the rapid accumulation of arrears. The urgent need to rehabilitate the war-torn economy amid declining export receipts forced the government to resort to external financing, which led to a sharp rise in the stock of debt in 1987. By June 1993, the stock of debt outstanding and disbursed stood at US$2.64 billion with arrears of US$253 million This stock of arrears, which had been reduced from the June 1982 level of US$586.3 million, had caused legal action against the government from some quaters and greatly jeopardized the government's ability to manage its foreign reserves effectively. Going by indicators, the debt outstanding and disbursed is estimated at 105% of GDP, with a debt service ratio of nearly 80% which constitutes a major bottleneck to Uganda's economic recovery process and future developments.

There is need to rehabilitate the economy into a growth path once agian and it is on these grounds that the government has developed an external debt strategy that involves prudent debt management.

II. Objectives of the study

The major aim of this tudy is to provide an analysis of the debt faced by Uganda, and its implications for sustainable economic growth. This paper therefore has the following objectives:

- To examine the magnitude of Uganda's debt, including the structure, source, type and composition of external debt.
- To assess emperically the internal and external factors influencing external debt accumulation.
- To analyse the debt servicing capacity and sustainability of debt; the Cohen model is used for debt sustDebility analysis.
- To draw policy implications for macroeconomic management.

III. Dimensions of the external debt problem

By the end of 1992 Uganda's total external debt was US$2.6 billion. Over 60% was outstanding to multilaterals, and the debt service to multilaterals alone in 1991/92 was 31%. Arrears stood at US$2253 million (117% of projected foreign exchange earnings). The debt services ratio did not fall below 34% in the next five years.

Given this situation, it is likely that Uganda will find it difficult to service even its multilateral debt in the future without a substantial reduction in the debt service obligations that it has to find from its own resources. It is in light of this that the Uganda government has developed an external debt strategy with the aim of restructing the country's debt. The hope is that creditors and donors will adopt a flexible stance in recognition of Uganda's exceptional circumstances.

The decade of the 1970s witnessed an average growth in the stock of debt of 18.5%; in the 1980s an average growth of 13.4% was recorded. The terms of trade (TOT) over the same period averaged 176.11 and 107.56 respectively (1987 = 100), which also resulted in dwindling export receipts. Export growth recorded a negative rate because of the decline of commodity prices in the world market. The arrears (part of debt stock) position grew from US$30 million in 1987 to US$5,858.5 million, largely because the persistently low level of foreign exchange inflows could not sustain the high debt service ratio.

Since the External Loans Act (1962) gave powers only to the Minister of Finance to contract loans, all loans contracted for the public sector were government guaranteed. The exchange control act, until 1990, did not allow any other agent except the central bank (Bank of Uganda) to transact external financial transactions. This meant that all external loans had a foreign currency guarantee by the Bank of Uganda. The non-guaranteed debt was contracted by the government on behalf of the private sector and is very small in magnitude. By the end of June 1992 the stock of debt to the private sector was estimated at US$51.95 million, which is only 1.96 % of the debt outstanding and disbursed. This rose to US$75 million, by the end of June 1993.

Magnitude of the debt

Table 1 shows the size of Uganda's external indebtedness in both current dollar and constant dollar values for the period 1970 to 1990. The growth of Uganda's external debt fell sharply in 1973. This was mainly due to the donor community's economic and financial retaliation after the declaration of the economic war in 1972, which led to the

expulsion from Uganda of the Asian community (backbone of the trade and commerce sector at the time). That resulted in both a slowing down of disbursements and a freezing of commitments to Uganda. The steep rise of nominal debt by 22.1% in 1974 reflects a single disbursement from a multilateral creditor. The external debt in constant dollars fell between 1973 and 1975.

Table 1: Uganda's external debt US$ millions 1970—1990

Year	Total external debt (EDT)	Growth in EDT %	Total EDT (constant dollars)	Growth in EDT (constant dollars) %
1970	138.4		443.6	
1971	160.7	16.1	448.5	10.1
1972	183.1	13.9	515.8	5.6
1973	189.0	3.2	432.2	-16.2
1974	230.8	22.1	377.8	-12.6
1975	240.3	4.1	357.5	-5.4
1976	278.1	15.7	408.9	14.4
1977	354.1	27.3	479.1	17.2
1978	426.0	20.3	524.8	9.5
1979	574.2	34.8	591.0	12.6
1980	732.7	27.6	621.3	5.1
1981	793.9	8.4	687.3	10.6
1982	933.4	17.6	851.3	23.9
1983	1016.1	8.9	973.2	14.3
1984	1031.1	1.5	1012.7	4.1
1985	1171.3	13.6	1171.3	15.7
1986	1286.6	9.8	1244.3	6.2
1987	1659.0	28.9	1456.4	17.1
1988	1799.0	8.4	1502.9	3.2
1989	1809.0	0.6	493.8	-0.6
1990	2200.0	21.6	1656.6	10.9

Source: World Bank (1996): World Debt Tables 1992.

The external debt constant dollar value is computed by deflating the nominal external debt value by the World Unit Import Value Index.

Most of the external financing that came from multilaterals during the 1970s was from the African Development Bank and the East African Development Bank. There was steady growth in nominal debt between 1975 and 1979. This was mainly debt from bilateral sources dominated by Arab creditors, who had a major influence on both political and economic trends in the country during that time. Between 1979 and 1987, a number of developments affected Uganda's level of indebtedness. The civilian regime that came into power in 1979 was quick to take advantage of re-established ties with the donor community.. The sharp declines of nominal debt (similar pattern of growth rate in constant terms) in 1984 and 1986 reflect the political and economic instability. In 1984 the stabilization programme adopted in 1981 was abandoned in the midst of intense civil

strife, and 1986 saw the coming to power of the current National Resistance Movement (NRM) government and the launching of the economic recovery programme. The government has had to resort to external borrowing (albeit on concessionary terms) to implement this programme and this has resulted in the rise in debt since 1987.

Debt profile

The financing of the debt contracted was largely through official sources at both multilateral and bilateral level (see Table 2). Between 1970 and 1980, the loans from multilateral institutions accounted for about 57.7% of the debt contracted, while the Paris Club share amounted to 4.9%, non Paris Club and commercial creditors' contribution was at 27.6% and 9.8%, respectively.

Table 2: Outstanding debt by category (percentage of total)

	1970—1980	1981—1990
Multilaterals	57.1	67.6
Paris Club bilaterals	4.9	9.5
Non-Paris Club bilaterals	27.6	14.7
Commercial	9.8	8.2

Source: Bank of Uganda

Table 3: Uganda's total external debt, Publicly guaranteed long-and medium-term and short-term debt, 1980-1990 (US$ million)

Year	Total external debt	Long-term debt				
		Publicly guaranteed		Non-guaranteed	
		Amount	Share(%)	Amount	Share(%)
1980	732.7	578.0	78.9	9.7	1.3
1981	783.9	543.0	68.4	7.7	1.0
1982	933.4	593.0	63.5	7.3	0.8
1983	1016.1	615.0	60.5	5.7	0.6
1984	1031.1	652.0	63.2	6.0	0.6
1985	1171.3	822.0	70.2	6.9	0.6
1986	12.866	966.0	75.1	8.0	0.6
1987	1659.0	1320.0	79.6	9.6	0.6
1988	1799.0	1455.0	80.9	9.1	0.5
1989	1809.0	1488.0	82.3		
1990	2200.0				

Source: World Bank (1990, p.579)

In the 1980s, the share contributed by the multilaterals increased to 67.6% and that of Paris Club creditors rose to 9.5%. The shares of non Paris Club and commercial creditors

declined to 14.7% and 8.2%, respectively . The changes in the percentage contribution by the different groups of creditors is explained by the current debt contraction portfolio, which reveals a preference for highly concessionary loans from the multilateral and Paris Club group of creditors. As a result of the governments' prudent debt management policy and the build up of arrears to non Paris Club and commercial creditors, less contraction of loans from the latter category is taking place.

External debt can further be broken down into public and publicly guaranteed, private non-guaranteed, and short-term debt. As can be seen from Table 3, public and publicly guaranteed debt forms over 60% of total external debt. Short-term debt has generally been at low levels – below 10%.

Uganda's debt-export ratio was significantly high at over 1000% between 1990 and 1993 due to poor terms of trade and fall in coffee prices (Table 4); consequently the debt service ratio was also high over most of this period at over 60%. This heavy debt burden further strains the weak balance of payments position and Uganda's quest for external viability. According to Sharer et al. (1995), given Uganda's initial weak external situation, its frequent inability to meet all contractual debt service obligations and the lack of access to commercial financing beyond normal trade credits, the traditional criterion of spontaneous access to commercial borrowing as an indicator of external viability is not relevant. Under these circumstances, one can best assess Uganda's movement towards external viability in terms of the extent to which debt service ratios and reliance on exceptional donor financing can be reduced.

We argue in this paper that the composition and profile of Uganda's debt outstanding and disbursed (DOD) and debt service obligations reveal an increasingly difficult external financial position largely due to the following reasons:

Table 4: Debt burden indicators for Uganda (%)

	1980	1987	1988	1989	1990	1991	1992
Ratio of external debt to expors of goods and services (%)	212.3	4791	610.0	744.8	1,084.6	1,436.5	1,549.3
Ratio of external debt to GCP (%)	55.7	31.4	30.7	43.6	63.3	87.9	109.6
Ratio of debt service to export of goods and services	17.3	39.9	62.7	61.8	60.7	75.5	59.6

Source: World Bank, (1996).

- The persistent low levels of foreign exchange inflows cannot sustain the high debt service ratio.
- The preponderance of multilateral debt limits the benefits Uganda could obtain through traditional rescheduling.

- A large proportion of debt owed to the Paris Club group of creditors was contracted after the cut-off date (1 July 1981) and is therefore not eligible for rescheduling.
- Little precedence existed for rescheduling debt owed to non OECD bilateral creditors, who account for the largest portion of non-multilateral DOD.
- Of the uninsured commercial debt, 26.78% cannot be rescheduled on favourable terms as a number of loans were owed to contractors with work in progress or were secured on specific terms.

Perhaps the most significant underlying factor in Uganda's debt crisis has been poor debt management.

IV. Debt management

Debt management involves the deliberate and planned acquisition, deployment and retirement of loans for the purpose of promoting economic growth and development. This entails articulation and formulation of policy for external borrowing, control and surveillance of external borrowing, and keeping comprehensive and accurate data on external borrowing. These crucial aspects of debt management have not been well undertaken in Uganda's case.

Prior to 1982, very little information existed on external debt and there was no basic institution in place to effectively manage debt through efficient data collection, assess the sustainability of debt and offer advice on existing international resources. The Treasury Department in the Ministry of Finance and the Public Debt Section, Accounts Department, in the Bank of Uganda, handled both internal and external debt, and the composition, stock and payment schedule was not clearly known.

The responsibilities for aid coordination and debt management were shared in varying degrees by the Aid Coordination Unit in the Ministry of Finance, the Commissioner/ Treasury Officer of Accounts; the External Debt Management Office (EDMO) and the Foreign Exchange Operations in the Bank of Uganda; the Aid Coordination Unit in the Prime Minister's Office; and the Aid Coordination Unit in the former Ministry of Economic Planning. The exact role of each institution was not clearly defined or backed by full legislative authority. This led to a weakened flow of information among the concerned units, which in turn resulted in poor coordination and record keeping, and inefficient verification and monitoring of debt. The External Loan Act of 1962 and the Loans (Guarantee) Act of 1958 jointly vest legal authority for the contraction and management of external debt with the Minister of Finance (MOF). The Ministry of Finance divided its management role between the Aid Coordination Unit in the MOF, which assists in the negotiations of new loans and facilitates the flow of aid-related funds into the country. The Treasury, as stipulated by the Loans Act, authorizes all disbursement requests and all debt service payments; it therefore has comparative advantage in maintaining up-to-date external debt related information. Despite this comparative advantage, the Treasury is institutionally weak and does not have adequate capacity to perform this debt reporting function. As a result, the External Debt Management Office (EDMO) in the Bank of Uganda has taken over this responsibility. Dependence on EDMO has been further increased by the capacity constraints within the Ministry of Finance's Aid Coordination Unit and its apparent inability to take charge of the country's aid portfolio, as authorized by the law.

As a result of insufficient information and poor coordination, the government has not been able to ensure that all new debt is contracted on terms compatible with the country's external debt burden and its ability to service and repay this debt in the future. Effective in the mid 1980s, the government succeeded in ensuring that the implementing ministries do not sign loans independent of the Ministry of Finance, although in some instances the implementing ministries have conducted negotiations with lenders and suppliers without earlier involvement of the ministry or the central bank. This has led to acceptance of financial commitments on unfavourable terms.

There was also no clearly articulated policy defining the order of priority in which creditors should be paid, although maturities falling due to the IMF and World Bank group were always serviced on time. As a result, creditors who persistently pressured but who had not necessarily provided the maximum future benefits to Uganda were sometimes paid in preference to other creditors. On some occasions, Bank of Uganda has had to resort to borrowing under short-term commercial facilities to make payments to key multilateral creditors.

Given the lack of coordination it became almost impossible to keep accurate records of the volume and structure of Uganda's external debt and to devise the time profile of the debt projections. Poor debt management created a problem of debt servicing for the country.

Owing to these weaknesses, government in 1991 conducted an extensive debt management exercise within the Bank of Uganda and as a result the total national stock of debt has been derived, verified with the creditors and recorded centrally; the debt records have been computerized, and staff involved in debt management are being trained in the principles of debt management and the use of computer software related to debt.

Effective July 1992, government centralized all functions of various units by creating a Central Debt Unit in the Ministry of Finance, although EDMO in the Bank of Uganda still has the duty of keeping all records pertaining to monitoring of disbursements, maturities and other data related to debt. This move has improved the control and the coordination of policy, eliminated duplication of effort, and ensured efficient transfer of information.

V. External debt strategy

Given Uganda's debt crisis, government decided to immediately develop and is currently implementing an external debt strategy in order to try to resolve the country's debt problem. The aims of the debt strategy include the following:
- Clearing the bulk of the accumulated arrears, which were causing legal actions against government and threats to seize assets to satisfy claims. This has resulted in an embargo on disbursements and hence project disruptions.
- Stopping increase in the accumulation of penalty and late interest charges.
- Reducing contractual debt service due to a level commensurate with Uganda's ability to pay.

The components of the strategy include rescheduling, debt buy back and restructuring of uninsured commercial debt, implementation of the fifth and sixth dimensions facilities, and possible cancellations. Our major focus will be on debt rescheduling, which forms an integral part of the debt strategy.

Paris Club reschedulings

Uganda has benefited from a number of debt cancellations granted by the Paris Club creditors, in addition to the reductions obtained under the 1989 rescheduling on Toronto terms and the 1992 rescheduling on enhanced Toronto terms. These include cancellations from France, Germany, UK and USA on loans originally provided on concessionary terms.

As at end June 1992, approximately US$279 million was outstanding to the Paris Club creditors, of which US$81 million represented arrears and penalty interest, and US$26 million was principal and interest falling due in 1991/92. The Paris Club does not reschedule or reduce any debt that has been contracted after a particular date, which in the case of Uganda was set at 1 July 1981 (the cut-off date). Of the total amount outstanding to the Paris Club, 42% (US$118 million) was contracted before the cut-off date. Consequently, only about US$50 million in arrears and pre cut off-date current maturities was eligible for rescheduling in the June 1992 agreement reached with the Paris Club.

Uganda was permitted to reschedule all arrears of principal, interest and penalty interest coming due by end November 1993. This was exceptional in that the Paris Club usually grants rescheduling of maturities due during the current IMF programmes only (which

for the case of Uganda was due to expire on 30 November 1992). The concession enabled Uganda to budget for the fiscal year 1992/93 on the basis of this agreement. The amount rescheduled totalled nearly US$36 million in arrears and US$14 million in current maturities. The impact of this has been to reduce the debt service in this category to only US$2 million in amount due and moratorium interest. Under the enhanced Toronto terms granted to least developing countries, penalty interest is not usually permitted to be rescheduled but this was conceded for Uganda.

Debt incurred after 1 July 1993

Since half of the debt owed to Paris Club creditors was contracted after the cut-off date, a conventional rescheduling of pre cut-off date debt would have a limited impact on the country's debt burden. Uganda will therefore have to seek annually the maximum deferral of debt ineligible for the usual Paris Club rescheduling. The arrears on the post cut-off date debt amounted to approximately US$34 million; the Paris Club initially insisted that this be paid in full by November 1992, which was the guaranteed consolidation period, but ultimately conceded that Uganda's domestic and foreign exchange budget would not permit this and agreed with the IMF that half could be paid by November 1992.

These deferrals are associated with stringent terms — no grace periods, short repayment periods, and no reduction of principal and interest. The debt service that falls due is not deferred and arrears once deferred are not eligible for any future deferrals. This serves to intensify the debt overhang that the country is already experiencing, as it will not be possible to re-defer these payments. It was also agreed that maturities up to 30 November be restructured under this agreement. The year-by-year rescheduling approach adopted by creditors under these terms will require Uganda to return to the Paris Club on a regular basis for the foreseeable future.

Table 5: Uganda, Paris Club history

	Amount consolidated	Maturity (years)	Grace (years)	Length (months)
November 1981	63	9	4.5	12
December 1983	16	9	4.5	12
June 1989	105	14	6.0	12
January 1989	86		Toronto terms: 1/3 write off	
June 1992	50		Enhanced Toronto: 1/2 write off	

Source: Bank of Uganda

Uganda benefited from the "Toronto terms" plan, which offered a menu of alternatives to choose from when the consolidated amount of US$86 million was rescheduled in January 1989 (See Table 5). One-third of the eligible maturities was forgiven, while the

maturity of the remaining debt was extended to 14 years with an eight-year grace period. These terms have only partially addressed the problem, however, because(1) the entire debt was never rescheduled in this single meeting and (2) the burden of debt is postponed only to intensify the overhang. In June 1992, the enhanced Toronto terms saw a write off of debt worth 50% in terms of net present value. It included the exceptional element of rescheduling maturities outside the then running IMF programme, rescheduling of penalty interest and 50% of the post cut-off arrears.

Non OECD bilateral creditors

Uganda's non-Paris Club creditors are owed a significant amount of arrears and penalty charges, totalling US$185.49 million as at end June 1992 with the 1992/93 maturities totalling US$47.31 million. Government in the course of the financial year 1992/93 entered agreements with some of these creditors that saw the rescheduling of US$17.6 million of arrears in the financial year 1992/93.

This resulted mainly from the acceleration of maturities totalling nearly US$17.6 million, while arrears amounting to US$60 million were rescheduled. There was also a downward adjustment to the stock of arrears, totalling US$14.68 million. The impact of these measures was to reduce the stock of debt outstanding and disbursed (including arrears) as at end of June 1993. In the meantime, all other creditors have been asked to reschedule their stock of arrears and maintain the concessional or semi-concessional interest rates that they apply to the underlying loans for rescheduling.

It should be noted that there are few precedents for rescheduling with some of these creditors but it is proposed that the most favourable terms possible be requested from them.

Buy back and restructuring of uninsured commercial debt

A total of US$242 million of debt was outstanding to uninsured commercial creditors at 30 June 1992, of which US$226 million represented obligations to non-bank commercial companies mostly suppliers and creditors. Supervised under the debt reduction, a plan concluded on 26 February 1993 saw Uganda buy back US$151.89 million of eligible debt of its US$2.6 billion DOD at 12 cents to the dollar. This represented 6% of the total DOD, one third of the total arrears and three-quarters of the commercial debt. The impact of this was a debt forgiveness amounting to US$133 million using a grant provided by the IDA (under the debt reduction facility) totalling US$10 million by Switzerland (US$0.7 million), Netherlands (US$2.68 million) and Germany (US$4.62 million). This deal provides some relief for government to come up with longer-term debt restructuring strategies. It is worth noting that Uganda became the fourth country to benefit from this facility after Niger, Mozambique and Guyana.

The amount to be converted into equity, approximately US$13.1 million, mainly

includes arrears to the private sector joint venture partners. The government is currently in discussion with these creditors to swap these arrears for government assets in accordance with the privatization programme. East African Holdings and Shell are two cases in point with which government has already concluded debt-equity swap agreements.

Given the relatively small stock of debt owed to commercial creditors, the London Club has not featured much in the restructuring of the Ugandan debt. The availability of the IDA debt restructuring facility and the OECD bilateral grants made the buy-back operation more significant with regard to commercial debt.

Multilateral debt service

Government aims at soliciting bilateral donor assistance for servicing multilateral debt. Under the ongoing fifth dimension facility, Norway and Sweden have provided the government with resources equivalent to IBRD repayments and the government has requested these donors to extend similar facilities for ADB maturities. The response to this has been positive because ADB maturities estimated at nearly US$3.57 million of arrears and US$1 million owed to IDB were rescheduled. Government successfully negotiated with EADB on restructuring amounts owed to it and to date arrears guaranteed by government at 30 June 1993, are estimated at US$15.263 million, down from US$48.1 million a year earlier. Government committed itself to a payment of nearly US$6.8 million every financial year in order to clear this arrears over the next two and half years and has divested itself of US$33 million arrears owed to EADB; this is now to be paid by the private sector, which benefited from these loans. Other creditors in this category of divestiture include Commonwealth Development Corporation, Commonwealth Technical Corporation, EXIM (India) and IFC; together they amount to US$51 million of arrears.

During financial year 1992/93, US$385 million of arrears was settled, of which exceptional financing accounted for US$335 million (rescheduling alone contributing US$141.32 million) and direct cash payment US$50 million.

VI. Impact of debt strategy

Much as the strategy has assumed the maximum feasible rescheduling and accepts the accumulation of arrears to certain creditors, the minimum debt service requirement remains high, over 60% of projected foreign exchange earnings. There is still a high financing gap as shown in Table 6. The success of the debt strategy therefore depends on limiting the extent to which the gap identified is financed through the accumulation of arrears. The financing gap has widened especially because foreign exchange earnings have fallen well below projected levels. Nonetheless, we hasten to mention the likely positive impacts of the debt strategy, mainly the reduction of arrears through rescheduling. Arrears could be reduced from the level of US$585 million in June 1992 to US$76 million. This takes into account the debt buy-back operation that was successfully executed in February 1993 and also assumes that all rescheduling, restructuring and cancellation in the various categories of debt are achieved in a timely manner. It is also estimated that the arrears build up would be US$650 million US$ 675 million at end 1992/93 fiscal year and over US$1 billion by end 1995 if the strategy were not implemented.

The impact of the debt strategy was largely realized during fiscal year 1992/93, which saw US$385 million of arrears restructured, of which exceptional financing accounted for US$335 million (rescheduling alone contributed US$141.32 million) and direct cash payment US$50 million. The consequence of this was to reduce the stock of arrears by over 50% from the end June 1992 level of US$585.3 million to only US$253.7 million a year later.

The rescheduled maturities in this financial year are estimated at US$45.74 million, while the impact of the debt strategy on maturities falling due in 1994 — 2000 is a reduction of interest and amortization amounting to US$105.42 million (see Table 7). Using the growth cum debt model described below, the impact of rescheduling on growth and debt indicators is shown in Table 8.

Although the impact of rescheduling is marginal, there is a saving on resource transfer amounting to an annual average of 0.06% of GDP, a reduction of the potential debt-GDP ratio by 2.5 percentage points and an increase in economic growth by 0.01% on a yearly basis.

However, the impact of arrears cancellations totalling nearly US$) million during the financial year 1992/93 had the fairly substantial effect of raising the growth rate of GDP by 0.79 percentage points, lowering the debt-GDP ratio by 6.98 percentage points and realizing a savings on resource transfer of 8.5% of GDP in calendar year 1993.

Table 6: Uganda's external financing requirments 1989/90—1993/94 (US$ millions)

	1989/90	1990/91	1991/92	1992/93	1993/94
Requirements	867	772	724	898	626
Imports (goods)	584	550	441	572	122
Services (net)	56	85	82	106	170
Scheduled debt service	197	185	249	1786	80
Amortization	77	86	125	74	80
Interest, net	77	62	90	84	10
IMF repurchases	43	37	34	18	19
Settlement of arrears	19	-65	-141	30	15
Reserve build up	11	11	35	15	0
Other items net	0	6	58	-1	377
Own resources	337	260	286	325	262
Export (goods)	210	177	173	196	168
o/w coffee	159	126	119	127	116
Private transfers	78	80	111	114	-1
Other items, net	49	3	2	5	575
Financing gap	530	512	438	583	
Foreign financing					
Existing commitments	530	512	438	466	375
IMF purchases	42	89	89	0	0
Project aid	249	236	236	236	240
Import support	196	186	186	180	135
Debt rescheduling	43	1	1	50	-
Disbursement from new sources	0	0	0	91	158
Individual financing gap	0	0	0	26	42

Source: Bank of Uganda

Uganda's economic reform is highly dependent on external financing. Given the collapse of the International Coffee Agreement (ICA) in July 1989 and the accompanying fall in coffee prices, which greatly affected the foreign exchange earning capacity of the economy, attempts to increase non-coffee export may take time to increase exports earning sufficiently to cover the fall in coffee prices. At the same time, the economy needs a minimum level of imports to meet its growth and stabilization targets and this calls for considerable donor assistance, together with the economic and structural reforms currently being implemented by government. Even though non-coffee export earnings are picking up, given the extremely small base of these exports, their impact on financing requirements has so far been minimal and a significant quantitative impact on the balance of payments can only be achieved over the medium term. It may thus be the case that Uganda will continue to depend heavily on donor support for some time to come, requiring substantial disbursements from the donor community to cover the loss of coffee export earnings.

Table 7: Impact of debt restructuring on maturities falling due, (1994— 2000 (US$ millions)

Before restructuring

Creditor	1994	1995	1996	1997	1998	1999	2000	Total
Multilateral	72.02	85.05	102.15	120.05	117.99	110.99	96.95	705.16
Bilateral								
Paris Club								
Pre cut-off	17.39	16.81	16.24	18.01	22.93	21.89	22.63	135.90
Post cut-off	13.14	8.36	5.97	5.26	8.13	7.88	8.49	57.23
Non-Paris	26.5	39.89	41.11	39.95	46.66	40.06	37.23	271.40
Commercial								
non-bank	5.99	3.04	2.78	2.93	3.08	3.01		20.83
Other loan								
loan category	8.323	11.15	6.82	3.6	2.94	2.73	2.42	37.89
Grand total	143.27	164.3	175.07	189.8	201.69	186.56		1228.41

After restructuring

Creditor	1994	1995	1996	1997	1998	1999	2000	Total
Multilateral	73.32	84.58	99.71	109.54	102.96	94.82	82.16	647.07
Bilateral								
Paris Club								
Pre cut-off	17.15	16.49	15.83	17.61	22.72	21.47	20.23	131.50
Post cut-off	9.08	8.44	5.98	5.3	8.29	8.03	8.3	53.42
Non-Paris	22.69	35.07	31.81	32.61	31.2	30.52	27.95	211.85
Commercial								
non-bank	13.74	12.84	12.34	12.79	12.46	12.1	2.47	78.74
Other loan								
loan category	0.131	0.122	0.113	0.053	-	-	-	0.42
Grand total	136.09	157.54	165.783	177.90	177.63	166.94	141.11	1123.00
Reduction in								
debt service	7.18	6.76	9.29	11.90	24.06	19.62	26.61	

Source: EDMO Department, Bank of Uganda (September, 1993).

Table 8: Impact of rescheduling on maturities falling due 1994—2000

Variables	Before rescheduling (annual average)	After rescheduling (annual average)
Growth rate	5.73	5.74
Debt-GDP ratio	114.02	112.47
Resource transfer (as percentage of GDP)	0.16	0.22

In addition to the increase in the level of external assistance, there has been a change in the pattern of aid allocation. Much of the 1980s saw project related aid accounting for over 80% of gross disbursements; this has declined in the 1990s to less than 60% as donors increasingly assist the government through import support aid, which not only provides much needed balance of payments support but also counterpart funding for the budget.

VII. Causes of Uganda's debt crisis

The growing problem of debt accumulation in sub-Saharan Africa has received considerable attention in the literature and is now recognized as a serious global economic issue. Greene (1989) attributes this debt problem to both domestic policies and external factors. Besides expansionary fiscal policies and borrowing against exports to maintain consumption levels, many of these countries pursued other policies that weakened their external positions — maintenance of high levels of imports, over - valued exchange rates, government subsidy policies and external financing of over — ambitious development projects. From the late 1970s the shift in terms of trade against African countries and the decline in export earnings has been a major external influence and has greatly hampered the countries' ability to meet their debt obligations. Another factor that contributed to sub-Saharan debt burdens was the decline in net capital inflows. The rise in foreign interest rates, although less important because of the predominantly official character of sub-Saharan debt, may have affected a number of countries that made significant use of commercial borrowing.

The international economic environment has an important impact on SSA economies. It drives the prices of African exports, the demand for those exports and the effective interest rates countries pay. The terms of trade of developing countries are also indirectly affected by economic trends in industrialized countries.

A major external factor in Uganda's debt crisis is the dramatic decline in export receipts due to declining coffee prices and unfavourable terms of trade. The price of coffee (the major export) decresed steadily from 1985 to 1993 and Uganda suffered annual declines in its terms of trade every year from 1986 to 1992. The decline in the terms of trade resulted in a sharp increase in Uganda's debt service to exports ratio, which was over 60% between 1988 and 1993.

A major cause of debt has been the high level of donor financed development expenditures. The reliance of the adjustment effort adopted in 1987 on external financing has created a larger debt burden for Uganda, with the external debt more than doubling during the adjustment period from US$1,659 million to $2.9 billion as of June 1994. Most of this increase was attributable to credits obtained from multilateral institutions to support the balance of payments and finance development projects. Multilateral debt as of June 1994 accounted for about 71% of the total debt stock, compared with about 43% in 1987.

Ajayi (1991) argues that the division of the factors into two seemingly water tight compartments is quite misleading. External factors do impinge crucially on domestic

factors — for example changes in terms of trade may influence the real effective exchange rate. Hence the major factors contributing to Uganda's debt crisis can be summarized as:

- of the world, price shocks in the 1970s. This was mainly reflected through increase in import prices due to oil shocks.
- Deterioration in the terms of trade and decline in export earnings particularly in the 1980s. There was a growth in arrears caused by the fall in coffee prices and this greatly affected not only the foreign exchange earning capacity of the economy but also the ability to sustain the servicing of debt obligations.
- Resulting from the above, interest on late payments built up to US$34.4 million at end of June 1992; this is contributory factor in the increase of debt.
- The highly expansionary fiscal deficits

Having identified the internal and external factors influencing Uganda's debt accumulation, an empirical assessment is presented here using regression analysis to estimate these factors. The model (based on Ajayi, 1991) has the following general form:

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

where
DSR_i = the debt-export ratio
TOT = terms of trade
$CGDP$ = growth rate of income in industrialized countries
$FRRI$ = foreign real interest rate
$REER$ = real effective exchange rate (developed in Appendix B)
FP = fiscal performance (fiscal deficit)
T = linear time trend

Table 9 shows the regression results. We find that a worsening of the terms of trade significantly worsens the debt-export ratio. An increase in the foreign interest rate would tend to worsen this ratio just as an appreciation in the real effective exchange rate would. From our equation estimations, however, the worsening of terms of trade appears to have had the most significant impact given that much of Uganda's experience over the period of study was characterized by a decline in its terms of trade. Despite the insignificant results for the fiscal performance variable, it is expected that a deterioration of the fiscal position will also have a negative impact on the debt export ratio. The linear time trend variable is included to capture the likely influence of other external factors. The results in Table 9 (excluding the time trend and constants) show that the most important variables are the terms of trade and to a lesser extent the real effective exchange rate. This confirms the fact that external factors have contributed significantly to Uganda's debt situation.

Table 9: Empirical results for the debt-export ratio

Variable (log values)*	1	2
Constant	4.117 (7.880)"	4.082 (18.651)"
TOT	-0.535 (-3.256)"	-0.565 (-5.339)"
CGDP	-0.012 (-1.011)	-0.005 (-0.594)
FFRI	-0.071 (-1.038)	-0.073 (-1.346)
FP	-0.014 (-0.228)	
T	0.058 (4.322)"	0.053 (19.526)"
REER	-0.096 (-1.680)	-0.093 (-1.829)
$\bar{R}^2$	0.979	0.983
D.W.	2.641	2.269

Note: * Log values of all variables except CGDP.
The "t" values of the coefficients are in brackets below the relevant values.
    " Significant at more than 5%.

VIII. Debt and economic growth

Since 1981, Uganda has pursued stabilization and structural adjustment policies in an attempt to stimulate the recovery of the economy. These have attracted a substantial amount of foreign resources in the form of loans, given that the required investment level could not be met by domestic savings. The reliance on foreign savings is justified by the fact that gross domestic savings (GDS) expressed as a percentage of GDP was negative for most of the sample period (1980—1995). (See Table 10.) The savings rate is seen to lag behind the rate of investment (and this pattern is exhibited in both public and private sectors). From 1989, however, the savings-GDP ratio did improve, largely because of high private unrequited transfers reflected in the current account of the balance of payments.

An analysis of data on consumption and investment reveals that the economy absorbed more than it produced and saved, which may have led to the suggestion that external financing and accumulation of arrears sustained the Ugandan economy during the period under review.

This gloomy situation is largely attributed to a narrow tax base, which shrank during the years of economic decline, and inefficient financial intermediation resulting from financial repression. A substantial percentage of the budget deficit was monetized, which resulted in accelerated inflation and a fall in the real deposit rate of interest in the formal financial institution. At the same time an increasing proportion of the declining supply of real domestic credit was being expropriated by government to finance current expenditures. Consequently funds for both working and fixed capital investment, which had mainly been financed by the banking system, were doubly squeezed.

The stock of external debt doubled, from US$1.29 billion in 1986 to US$2.65 billion in 1993. This is largely attributed to the implementation of the economic recovery programme of rehabilitation investment and policy reforms that was adopted in 1987. The continuous rise in debt was further aggravated by the accumulated effects of unpaid debt service, interest costs and rescheduling. Economic liberalization and restructuring have accompanied this programme, resulting in a 5% average real GDP growth rate, with a 2% rise in per capita real incomes over the period 1987—1993.

The question then arises as to the sustainability of this economic growth and current stock of debt. In spite of more than ten years of implementing economic recovery and SAP, the economy remains fragile, the export sector is struggling to recover and the import capacity is largely sustained by the donor community.

A number of models have been constructed in an attempt to show the impact of capital imports on aggregate performance of sub-Saharan African economies. The

Table 10: Selected national accounts data (% of GDP)

	Non factor services	Exports of goods & nfs	Imports of goods & nfs	Foreign balance	Domestic savings	Domestic investment	Domestic balance	Incremental capital output ratio
1970	24.62	21.10	-3.52	18.76	15.24	3.52	-
1971	20.75	24.90	4.15	12.45	16.60	-4.15	19.85
1972	20.77	17.80	-2.97	11.17	8.20	2.97	4.71
1973	17.19	13.75	-3.44	12.89	9.45	3.44	6.45
1974	17.37	17.37	0.00	13.42	13.42	0.00	-43.71
1975	8.68	11.09	2.41	5.78	8.19	-2.41	-5.46
1976	11.64	9.56	-2.08	8.32	6.24	2.08	10.30
1977	9.30	7.88	-1.41	7.48	6.06	1.41	3.14
1978	13.60	18.79	5.19	3.04	8.23	-5.19	-2.68
1979	19.35	17.49	-1.87	8.39	6.53	1.87	-0.50
1980	19.52	26.13	6.61	-0.40	6.21	-6.61	-1.35
1981	21.25	29.44	8.19	-0.74	7.45	-8.19	1.49
1982	21.51	33.25	7.73	1.43	9.17	-7.74	1.54
1983	18.97	24.65	5.68	4.26	9.94	-5.68	1.27
1984	9.75	30.95	21.20	-14.25	6.95	-21.20	-1.06
1985	9.60	30.40	20.80	-13.05	7.75	-20.80	3.90
1986	9.55	32.00	22.45	-12.50	10.00	-22.50	15.58
1987	8.40	35.20	26.80	-13.10	13.70	-26.80	2.04
1988	8.75	36.35	27.60	-14.85	12.70	-27.55	1.68
1989	9.15	32.35	23.20	-12.40	10.80	-23.20	1.48
1990	7.20	25.00	17.80	-5.75	12.00	-17.75	2.97
1991	6.90	21.50	14.60	-1.85	12.75	-14.60	3.08
1992	6.90	21.10	14.20	0.01	14.20	-14.19	2.04
1993	6.80	22.50	15.70	-1.10	14.55	-15.65	3.34
1994	7.05	22.00	14.95	-1.35	13.60	-14.95	3.20
1995	7.25	21.30	14.05	-1.05	13.00	-14.05	3.43

Source:World Bank (1990); Ministry of Finance and Economic Planning, Bank of Uganda.

majority of these models deal with labour surplus economies and emphasize growth of capital stocks. The model used for analytical purpose in this paper emphasizes incremental capital-output relationships, which suggest that the rate of economic growth increases if the ratio of investment to national income rises and that an increase in capital imports increases the investment ratio (see Cherney, 1966).

We use the two-gap theory of Cherney and Bruno (1962), which suggests that growth is limited by two constraints. First, the savings gap constrains the country's ability to save and invest. Second, the foreign exchange gap accruing from limited export revenues and the targeted growth rate of the economy causes imports to exceed the economy's ability to finance them. We also use the Harrod growth equation of the type

$$g = sk$$

where g is the real growth rate of national income, s is the ratio of savings to national income and k is the incremental capital output ratio.

It is observed that gross savings in Uganda have been negative for most of the latter part of the sample period and when gross domestic investment is taken into consideration, the savings gap is seen to be extremely large. This has in most cases been accompanied by positive real growth rates and suggests that growth has been driven by aid. Thus:

$$g = (s + a)k$$

where a is the ratio of aid to national income. If g^* is the targeted growth rate and k is the assumed constant over time, the rate of capital accumulation necessary to achieve the target growth rate is denoted by

$$g^* /k = s + a$$

let $s+a = c$ and $a = c-s$. Hence, $c-s$ represents the savings gap.

This analogy implies that aid inflows to Uganda should have the following potential effects: (1) supplementing domestic savings, hence capital accumulation and (2) increasing the proportion of income saved.

If this is the case then aid increases the capacity for economic growth and should be able to lead the country to self-sustaining levels that subsequently reduce the amount of aid contracted. The assumption is that the increase in aid is greater than the increase in consumption.

On the foreign exchange gap, the assumption is that the value and volume of exports is given as exogenous $(X = X_o)$, while the demand for imports largely depends on the targeted rate of economic growth. Imports of capital goods depend on the level of investment, and intermediate goods are a derived demand of capacity utilization rate. Since domestic inputs are an imperfect substitute for imported intermediate goods, the latter increase/decrease with an increase/decrease in production (Khan and Knight, 1988). The cost of financing such imports in most cases has exceeded the earnings of foreign exchange by exports. A foreign exchange gap arises, which — if not closed by aid resources — reduces the targeted economic growth.

Given that $M = mY$, where m is the marginal propensity to import and Y is national income, the size of the foreign exchange gap is then denoted as $mY - X_o$ and can be denoted in terms of aid (a) as:

$$a = m - (X_o /Y).$$

The implication of the foreign exchange gap is that the potential domestic savings are being frustrated because the required capital goods necessary to undertake the desired investment can neither be produced locally nor be acquired externally. Additional foreign exchange when availed would raise the level of investment and subsequently the rate of economic growth; this would imply that aid not only raises the level of investment but also permits an increase in domestic savings.

In the expost accounting sense, the two gaps are exactly equal, so that

$$a = c - s = m - (X_o / Y)$$

The domestic and foreign imbalances are shown in Table 6 and the changes in the domestic balance each year have a strong bearing on the changes in the external balance. By linking the internal and external imbalances, the sources of financing the domestic balance are seen to be changes in the external balance. Available data seem to identify the capital account of the balance of payments as the source of financing this overall domestic imbalance, and this is made up of medium-and long-term loans. This appears to justify the contraction of debt particularly during the period of stabilization and structural adjustment of the Ugandan economy.

Debt viability: Growth cum debt model scenario

A growth cum debt model developed by Solis and Zedillo (1985) and used by Ajayi (1991) is adopted in this paper for the analysis of debt sustainability. The model focuses on how debt affects the growth prospects of a debtor country. (Details of the model are in Appendix C.)

Using a growth dynamic equation denoted by

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

where D_t is the total external debt and its growth rate (t) is varied for values between -0.03 and 0.07 and interest rates of 0.02, 0.04 and 0.07 are used. These values are chosen in accordance with the external debt strategy currently being implemented by the government of Uganda.[1]

The incremental capital output ratio (ICOR) of 2.375 is the average for years 1987— 1995 the period under ERP[2] (see Table 10) and s = 0.42 (the reciprocal of ICOR).

For different rates of interest and contraction of external debt, simulations were ran for the period 1993—2000; the following indicators were used:

g = growth rate of GDP
DB_1 = Debt-GDP ratio
DB_2 = resource transfer

The variables DB_1 and DB_2 are further defined as

$$DB_1 = \frac{D}{GDP}$$

$$DB_2 = \frac{(D_t - D_{t-1}) - (rtD_{t-1})}{GDP}$$

Table 11: Simulation results of the growth cum debt model

$(\gamma = 0.02; \sigma = 0.42)$

	g	DB$_1$	DB$_2$
0.07	0.0533	136.53	0.0638
0.06	0.0538	130.63	0.0493
0.05	0.0542	125.01	0.0357
0.04	0.0547	119.65	0.0230
0.03	0.0551	114.53	0.0111
0.02	0.0555	109.66	0.0000
0.01	0.0559	105.01	-0.0104
0.00	0.5562	100.57	-0.0201
-0.01	0.0666	96.33	-0.0292
-0.02	0.0570	92.29	-0.0377
-0.03	0.0573	88.44	-0.0456

$(\gamma = 0.04 \ \sigma = 0.42)$

	g	DB$_1$	DB$_2$
0.07	0.0377	145.78	0.0409
0.06	0.0387	139.14	0.0263
0.05	0.0398	132.84	0.0127
0.04	0.0407	126.86	0.0000
0.03	0.0416	121.19	-0.0180
0.02	0.0425	115.79	-0.0227
0.01	0.0434	110.67	-0.0329
0.00	0.0442	105.80	-0.0423
-0.01	0.0450	101.17	-0.0511
-0.02	0.0457	96.77	-0.0592
-0.03	0.0464	62.58	-0.0668

$(\gamma = 0.07 \ \sigma = 0.42)$

	g	DB$_1$	DB$_2$
0.07	0.0107	163.28	0.0000
0.06	0.0129	155.07	-0.0146
0.05	0.0150	147.36	-0.0281
0.04	0.0170	140.12	-0.0404
0.03	0.0189	133.30	-0.0510
0.02	0.0207	126.88	-0.0622
0.01	0.0207	120.83	-0.0718
0.00	0.0240	115.12	-0.0806
-0.01	0.0256	109.72	-0.0887
-0.02	0.0271	104.63	-0.0963
-0.03	0.0285	99.82	-0.1029

The results of these simulation are shown in Table 11. Specifically, the results reveal that Uganda cannot at this time sustain debt that attracts interest rates of more than 7% per annum with a growth of more than 2% per annum on average. This permits a real growth rate of only 2%; per annum considering a population growth rate of slightly more than 2%, per annum there is a zero or negative growth in real per capita incomes.

Accompanying it are debt-GDP ratios that are seen to be high for every rate of growth of stock of debt and there is no positive resource transfer noted in this scenario. The scenario with interest rates of 4% shows that a zero growth rate in stock of debt is consistent with a 4.42% growth in GDP and a positive transfer of resources is only possible at a rate of growth of debt above 4% per annum.

The simulation also shows that low interest rates, e.g., 2%, attract higher rates of economic growth as greater resource transfer is permitted for every level of t; this is consistent with low DB_1 and high DB_2.

The simulation results are compared with the balance of payments (BOP) projections for the fiscal years 1993/94—2002/03 as provided by the Ugandan authorities. The projections assume that all interest and amortization falling due are fully externalized just as the model used here assumes. The projected average annual growth rate of external debt up to the fiscal year 2000/01 is 3.44% with a computed average interest rate of 1.64% per annum. Table 12 gives the Ugandan authorities' projections and these are compared with those simulated by the model used in this paper.

Table 12: Comparison of Uganda authorities' projections with simulated variables generated by the model

Variable	Ugandan authorities' projections	Growth cum debt simulation
g	5.00	6.27
DB_1	121.13	112.94
DB_2 (as percentage)	2.1	2.0

The higher growth rate of 6.27% per annum simulated by the model is based on the assumption that all foreign resources are fully used for investment. This is one major problem about the two-gap model because it assumes that all foreign capital is used to complement domestic savings, thereby raising investment and economic growth. Some of the foreign capital is used to finance consumption (Griffin, 1970), however, and capital inflows may affect relative prices by changing the sectoral balances of the economy (through changes in production patterns) hence income distribution and the domestic savings function. The Ugandan authorities' projections appear to have given allowance for current consumption because some of the foreign resources are actually used for budgetary support that ends up for current consumption.

Both scenarios (see Table 12) show that there will be a net transfer of resources to Uganda from the donor community averaging 2% of GDP annually for the period 1993—2000. This is largely on the grounds that the rate of loan contraction is projected to be higher than the computed interest rate for this sample period. A simulation of economic growth rates, debt-GDP and resource transfer ratios is carried out for the period 1993—2000; this involves changing the domestic savings and incremental capital output ratios used to generate the variables in Table 12. The numbers simulated for the different

macroeconomic variables are then compared with their base value, i.e., zero growth rates in savings ratio and an ICOR of 2.375.

The results specifically reveal that policies designed to increase the efficiency of capital, i.e., lower the ICORs for any given level of domestic savings ratios, do generally raise the economic growth rates, and lower the debt and resource transfer ratios expressed as a percentage of GDP. Similarly, any increase in the domestic savings ratio for any given level of ICOR has the same effect as noted above.

It is then suggested that government pursue policies that will increase the capacity utilization of existing capital stock and the aggregate domestic savings ratios. These policies are analysed in the latter part of this paper.

A major problem of aid extended to Uganda is noted in its fungibility. Even the World Bank,[3] which used to take pride in the soundness and high rate of economic return of its projects, has of late funded projects that could be ranked very low on the list of economic priorities and even now World Bank financing is not necessarily geared to the most attractive projects. Bilateral aid has also tended to promote fungibility because of the "sourcing" conditions attached to these lines of credit — requiring, for example, that a good proportion of the raw materials and technical assistance has to originate from the donor country.

Another impact of aid on Uganda's investment pattern is the extent to which it has stimulated the consumption of importables. To date, nearly 30% of the tax revenue is generated from external trade sources of which a good proportion is financed by the donor community. Efforts to stimulate domestic savings through tax incentives have proved unsuitable for mobilizing domestically generated resources. It would then appear that Uganda can only continue recording positive growth rates with the funding of the donor community, a situation that is nationally very discouraging.

An analysis of the type of investment funded by the donor community reveals that nearly 60% of it is allocated to social overhead capital and economic infrastructure.[4] Directly productive activities such as factory construction have only succeeded in attracting a relatively small proportion of total aid. True as it is said that infrastructure deserves priority, the general bias against directly productive activities has tended to lower the aggregate-output of the economy. This point is important in relation to debt-servicing, which is at crisis proportion in the country. The gestation period of these projects is seen to exceed the grace period and consequently, debt servicing has become a problem. To date, the government borrows from bilateral sources in order to make payments to multilateral creditors like the World Bank who have financed such projects. Private investment, on the other hand, is relatively low and cannot on its own be relied on to make optimum use of the massive investment in overhead capital and economic infrastructure.

The relationship between the investment and economic growth rates shows that the latter in relation to the former is low. Ndulu (1991) suggests that in a situation where capacity underutilization obtains, a high investment growth rate could result in a low real economic growth rate; that is:

$$g = g_p + g_u$$

where g_p is the sum of capacity growth driven by investment

g_u is the rate of capacity utilization

g is the actual economic growth rate

From this definition it is possible to observe that high investment (g_p) rates can co-exist with declining or relatively low actual economic growth rates as long as capacity is underutilized. It is noted that the statistics from the index of industrial production show an average of less than 50% utilization of Uganda's installed capacity.

It could then be argued that the process of growth should not only influence the capacity growth but also the rate of capacity utilization. One way to enhance growth is to emphasize resource allocation between capacity expansion and utilization given that savings — and hence investment — ultimately depend on actual income growth.

An analysis of the components of investment reveals that foreign savings have contributed the largest proportion to it. Its elasticity with respect to output is much higher when compared with domestic savings elasticity. This is largely on the grounds that domestic resource mobilization is inelastic to policies designed to mobilize it; external capital may then be a key force propelling any growth accruing from investment.

The Cohen model

The main issue addressed by the Cohen model is the trade deficit that is feasible if the D/X^5 is to be kept from rising — i.e., what trade deficit (b) gives us $D/X^o = 0$ (see Appendix A for details of the model).

Table 13 gives the values for b, D/X; the 1982 D/X ratio is chosen as a starting point and D/X^o is then kept constant. As an example, it would have required the economy to have run a trade deficit of US$29.13 million on its current account instead of the recorded surplus of US$114 million in 1985 if D/X was to be kept constant. Further, b* compares with b in that b* is the computed trade deficit that should have been run given (1) D/X, (2) rate of growth of exports and (3) the interest rate on the stock of DOD; b is the actual trade deficit recorded (or expected to be recorded for the period 1993—2000).

Table 13 suggests the trade deficits recorded for the years 1983, 1984, 1987, 1988, 1990, 1990, 1991 and 1992 are not consistent with the stock of debt and this therefore required the economy to have run a surplus on its trade account through either exporting more or cutting down on imports, if the D/X was to be held constant. The rest of the years in the sample period 1980—2000 suggest that a trade deficit could be run on the current account not because of the good performance in the export sector but rather on grounds that the computed rate of interest on the stock of DOD happens to be lower than the growth in exports. The years 1993 to 2000 permit the running of a trade deficit on the current account largely because the implementation of the external debt strategy calls for contraction of highly concessionary loans, reduced stock of DOD through restructuring of debt and reduced growth in the stock of debt.

Table 13: Uganda data for the Cohen model

Year	D	r	r*	x	dx	m	d/x	b	b*
1981	793.9	13.2		345		293		-52	30.01
1982	933.4	26.3	0.03	396.86	15.03	379.69	2	-17.17	-18.75
1983	1016.4	41	0.04	367.7	-7.35	421.1	2.54	60.4	-20.78
1984	1031.1	65	0.06	342.2	-6.94	407.9	2.97	65.7	29.13
1985	1171.3	53	0.05	379	10.75	264.1	2.72	-114.9	21.02
1986	1286.6	43	0.03	406.8	7.34	438.2	2.88	31.4	-69.48
1987	1659	36	0.02	333.6	-17.95	591.3	3.86	264.7	-125.8
1988	1799	35	0.02	266.3	-20.17	658.2	6.23	391.9	27.57
1989	1809	46	0.03	277.7	4.28	710	6.48	462.3	-366.2
1990	2200	47.8	0.02	177.8	-35.97	617.6	10.17	439.8	-28.88
1991	2300	73.8	0.03	173.8	-2.25	474.4	12.66	300.6	-208.5
1992	2592	97.8	0.04	150.2	-13.58	512	15.31	361.8	236.6
1993	2652	53.1	0.02	174.1	15.91	591.5	14.89	417.4	300.75
1994	2783.1	52.8	0.02	218.4	25.45	629.3	12.14	410.9	199.73
1995	2880.8	51.8	0.02	250.05	18.61	666.4	10.74	487.35	121.76
1996	2969.9	51	0.02	290.95	12.31	707.3	9.9	416.35	85.06
1997	3053	49.6	0.02	317.45	9.11	755.9	9.36	438.45	75.31
1998	3143.5	47.4	0.02	344.5	8.52	808.4	8.86	463.9	71.41
1999	3252.7	44.3	0.01	373.8	8.51	864	8.41	490.2	68.13
2000	3395.8	40.7	0.01	405.6	8.51	925.1	8.02	519.5	

Source: World Bank (1990); Ministry of Finance, Uganda; Bank of Uganda; own analysis.

Definition of variables
D   = debt stock
r   = interest rate
r* = computed interest rate
x   = exports
d/x = debt export ratio
b   = trade deficit (recorded and projected)
b* = computed trade deficit
m   = imports
dx = growth of exports

The Cohen and growth cum debt models can be compared for the period 1993—2000. With the Cohen model, the interest rate computed from Table 13 lies between 1% and 2% (average 1.75% for the sample period) with an average annual growth rate in the DOD of 3.44%; per annum, which permits a net resource transfer as reflected by b*. The growth cum debt model that uses interest rates of 1.64% and a growth in stock of DOD of 3.44% also suggests a positive net inflow of resources averaging 2% of GDP annually. The two models therefore seem to suggest that net resource inflows are possible at least up to the year 2000 largely because of the grounds of the external debt policy pursued by the government.

IX. Summary and policy implications

This paper analyses the external debt burden of a severely indebted low income country and raises the crucial issue of growth and debt sustainability. As at end June 1993, Uganda's total debt stock was estimated at US$2.64 billion, with a debt service ratio of over 80%.

Uganda's external debt from the 1970s has remained predominantly multilateral debt, with institutions such as the World Bank, the African Development Bank and the IMF representing over 70 % of the total debt stock. Uganda's debt-export ratio also remains high — over 1000%. The fact that much of the debt accumulated is from multilateral creditors limits Uganda's flexibility in reducing its debt service burden through traditional reschedulings.

Uganda's accumulation of external debt is due to both domestic and external influences. The external causes include the shift in terms of trade and resulting decline in coffee export earnings. The domestic causes include poor macroeconomic policies arising from fiscal indiscipline, exchange rate misalignment, overall economic mismanagement and poor debt management.

The multilateral debt problem is one that has to be tackled specifically if Uganda is to experience any meaningful debt relief. The international financial institutions' main strategy for dealing with the huge debt claims has been concessional lending. Indeed, the international community has been generous in providing debt relief to Uganda, reflecting its adjustment record and its status as an SILIC. The burden of its debt to multilateral creditors remains extremely heavy, however, and it is in view of this that a multilateral debt fund is to be set up specifically to address multilateral debt relief.

The accumulation of arrears is a serious problem. The successful implementation of the debt strategy depends on negotiating reschedulings in all categories of debt, on the achievement of a number of cancellations and the availability of funds to institute buy-backs. Uganda is also receiving considerable concessional debt relief.

Debt relief is only part of the answer. Continued government commitment to structural reforms and sound debt management are essential. The Ugandan government is currently implementing adjustment policies with the prime objective of restoring investment and economic growth. Increased domestic savings financed by resource mobilization through appropriate monetary policies could also raise the estimated growth rate, without any increase in external aid inflows.

The two models used in this paper (The growth cum debt model and the Cohen model) show that Uganda is in a position to run a trade deficit between 1993 and 2000 of up to 6% of GDP on its current account while maintaining a constant debt-export ratio. This can be largely attributed to a debt strategy that has greatly reduced the interest rate of

loans contracted and further decreased the overall size of the debt through restructuring and debt reduction techniques.

The target growth rate of 5% per annum as estimated by the Ugandan authorities could be raised to 6.27% per annum for the period 1993-2000. This is only possible if the resources devoted to current consumption funded by aid are reduced. Any policy that limits the estimated current consumption to domestically generated revenue while devoting external finance to investment could enable achievement of higher economic growth.

Finally, Uganda has already made significant progress as a result of rescheduling agreements and more favourable lending terms over and above recent improvements in export prices, hence resulting in a declining trend of its debt-export ratio. The overall increase in capital inflows has improved the prospects for less reliance on exceptional financing in the form of net accumulation of arrears, rescheduling and gross use of IMF resources. The sustainability of a favourable balance of payments without exceptional financing very much depends on domestic performance. For growth to be sustained, strong and persistent adjustment efforts by the government must be continuously maintained. These efforts should particularly address the productive base and reduce structural bottlenecks in the economy, while at the same time adapting appropriate macroeconomic policy to avoid the re-emergence of uncontrollable inflation rates and encourage the flexibility in the clearing of financial markets.

Notes

1. The debt strategy calls for contraction of highly concessionary loans and maximum possible reduction in the stock of debt. The rates of interest and growth of debt stock chosen for this analysis are therefore in line with the government debt strategy.
2. The methodology used in computing ICOR in this paper is derived from the Central Bank of Ecuador in *Financing Economic Development* by Fitzgerald and Vos (1989). The impact of a foreign exchange boom (derived from exports) accompanied by average or lower growth rates of GDP is a high ICOR, and for Uganda, the years 1976 and 1986 typify this. The ICOR, is of course undermined or less meaningful when the economy is in a downswing with zero or negative growth rate.
3. The World Bank is the single largest source of credit to Uganda. In 1992, it accounted for 60.76% and 41.04% of the total DOD from multilateral and all sources, respectively.
4. This includes transport facilities, electric energy, education, health and road construction.
5. D/X is the debt stock-export ratio, where the debt stock is of the preceding year and exports are for the current year.

References

Ajayi, S. Ibi. 1991. *MacroEconomic Approach to External Debt. The Case of Nigeria.* AERC, Research Paper.

Bank of Uganda. 1991. *External Debt Strategy.*

Bank of Uganda. *Quarterly Economic Reports* (various issues).

Chenery, H. and M. Bruno. 1962. "Development Alternatives in an Open Economy: The Case of Israel". *Economic journal,* vol. 72, no. 285.

Chenery, H. 1966. "Foreign Assistance and Development". *American Economic Review,*vol.56, no.4.

Cline, W.R. 1988. "International Debt: Progress and Strategy". *Finance and Development,* vol. 25 no. 2.

Cohen, D. 1985. "Reassessing Third World Debt". *Economic Policy.*

Fajana, O. F. 1993. "Nigeria's Debt Crisis". UNECA, Development Research Papers, No. 5.

Fitzgerald and Vos. 1989. *Financing Economic Development.*

Giovanni, A. 1993. *Finance and Development: Issues and Experiences.*

Greene, J. 1989. "The External Debt Problem of Sub-Saharan Africa". *Finance and Development,* vol.27, no. 2.

Greene, J.E. and M.S. Khan. 1990. "The African Debt Crisis". African Economic Research Consortium, Special Paper No. 3.

Griffin.1970. "Foreign Capital, Domestic Savings and Economic Development". *Bulletin of the Institute of Economics and Statistics* (University of Oxford), vol. 3, no. 2.

Lipumba, N. and E. Noni. 1992. "Foreign Debt and Economic Growth in Tanzania. Work in Progress, Report, AERC.

Ndulu, B. J. 1991. *Growth and Adjustment in Sub-Saharan Africa.*

Ng'eno, N.K. 1991. "The External Debt Problem of Kenya". Paper presented to AERC.

Osei, B. 1992. "Ghana: The Burden of Debt Service Payment Under Structural Adjustment". African Economic Research Consortium, Research paper 33.

Sharer, R.L., H.R. De Zoysa and C.A. McDonald. 1995. "Uganda: Adjustment with Growth, 1987—94" *IMF Occasional Paper 121.* Washington D.C.:International Monetary Fund.

Solis, L. and E. 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.

World Bank. 1991. *African External Finance in the 1990s.* Isharat Husain and Underwood, J. (eds).

World Bank. 1990. *World Debt Tables, 1989—1990.* Washington, D.C.: The World Bank.
_____. 1996. *World Debt Tables: External Finance for Developing Countries.* Washington,
    D.C.: The World Bank.

Appendix A

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

Where

DSR_i	=	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 Appendix B)
FPY	=	fiscal performance (fiscal deficit/GDP) or fiscal deficit
T	=	linear time trend

Appendix B: Real effective exchange rate

There are many methods of deriving the real effective exchange rate. One of the derivation methods uses trade weights.

The derivation method used for this study is outlined below.

$REER \quad = \lambda_i\, e_i\, (P_i/P_d)$

Where: $\lambda_i \quad$ = trade weight of Uganda's i^{th} trading partner

$e_i \quad$ = Nominal exchange rate between Ugandan shillings and the respective currencies of the major trading partners

$P_i \quad$ = Consumer price index (CPI) of trading partner country i

$P_d \quad$ = Ugandan domestic CPI

Appendix C: 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

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

Define

$$\Delta Y = \sigma\,(\Delta K) \qquad (2)$$
$$\Delta K = I_t - \delta K_{t-1} \qquad (3)$$

Equation 1 becomes

$$Y_t = \sigma I_t + (_{1-\delta})Y_{t-1} \qquad (4)$$

Given the following identities

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

and

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

Consequently $I_t = S_t + d_t$ $\qquad (7)$

Let the savings function be

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

Using Equation 4, investment can be expressed

$$I_t = \frac{s(1-\delta)}{1-s\sigma}Y_t - 1\frac{s}{1-s\sigma}r_t D_t - 1 + \frac{1}{1-s\sigma}d_t$$

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

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

Appendix D: The Cohen model

The stock of debt at the end of previous year is given by

$$(D/X^o) = d(D/X)/d \qquad (1)$$

$$(D/X') = (D/X^o)/(D/X) \qquad (2)$$

Equation 2 becomes

$$(D/X^o) = (D/X') * (D/X)$$

$$= (D/X')d: \quad \text{Where } d = D/X$$

Given that,

$$(D/X') = (D' - X')$$

$$(D/X^o) = (D' - x')d$$

$$= D^1d - X^1d \qquad (3)$$

Where x = growth of exports

$$(D/X^o) = (D^o/D)d - xd \quad 3'$$

If r = world real interest rate, and B = trade deficit

$$(R-X)d+B$$

$$(D/X^o) = (D^o/D)d - xd$$

If $\quad D^o/D \quad = (rD+B)/D$

$$= r+(B/D)$$

Then

$$(D/X^o) = (r - x)d + (B/D) * (D/X) \qquad (4)$$

$$(D/X^o) = (r - x)d + B/X$$

Let $B/X = b$

Equation 4 becomes

$$(r - x)d + b$$

For $(D/X^o) = 0$

$$b = (r - x)d \qquad (5)$$

AFRICAN ECONOMIC RESEARCH CONSORTIUM

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 policy makers.

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 62882, Nairobi, Kenya.