

UNIVERSITY OF LONDON
SCHOOL OF ORIENTAL AND AFRICAN STUDIES

A CROSS-SECTIONAL ANALYSIS OF ECONOMIC, SOCIAL, AND
POLITICAL FACTORS AFFECTING ECONOMIC GROWTH IN
SUB-SAHARAN AFRICA : 1960-86

BY

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ABSTRACT

This thesis analyses the growth performance of Sub-Saharan African countries and the factors that appear to be most significant in the growth process. Regression analysis is the main research method employed. Data limitations restrict the sample to thirty-two countries, over the period 1960-86, and the empirical study consists of fifteen factors.

There are three main groups of equations : the growth rate, the investment ratio, and the incremental capital-output ratio (ICOR). The main conclusions were that the most significant influences on economic growth are the investment ratio, export and import growth, and political instability.

The main influences on the investment (saving) ratio were found to be per capita income levels, government consumption, and political instability. The most significant effect on the ICOR appeared to be the degree of market distortions, as proxied by the ratio of the black market to the official exchange rates.

**To My Father And Mother -
Without Whom Nothing Would Have Been Possible**

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ABBREVIATIONS

DAC	Development Assistance Committee
GDP	Gross Domestic Product
GNP	Gross National Product
ICOR	Incremental Capital-Output Ratio
IMF	International Monetary Fund
LDC	Less Developed Country
NICs	Newly Industrialised Countries
ODA	Official Development Assistance
OECD	Organisation for Economic Cooperation & Development
OPEC	Organisation of Petroleum Exporting Countries
SSA	Sub-Saharan Africa
SSAC's	SSA Countries
UNDP	United Nations Development Programme
WB	World Bank
WDR	World Development Report
WT	World Tables

CHAPTER ONE

INTRODUCTION AND OVERVIEW

1.1 Introduction

In their pursuit of economic growth and development, less developed countries have had to cope with many problems - some within and some beyond their own control. Those problems have affected different developing countries differently. In particular, the Sub-Saharan African countries appear to have fared worse than other less developed countries. Table 1.1 illustrates this, with SSA as a region experiencing the slowest growth rates of GNP per capita; the lowest life expectancy at birth; and the worst record of the growth rates of domestic investment.

Table 1.1
Selected Development Indicators Across Regions

	GNP Per Capita Average Annual Growth Rate (%) 1965-89	Life Expect- ancy at birth 1989 (years)	Average Annual Growth Rate of GDP (%) '65-'80 '80-'89		Average Annual Growth Rate of GDI (%) 1980-89
SSA	0.3	51	4.2	2.1	-3.9
East Asia	5.2	68	7.3	7.9	9.9
Latin America & Caribbean	1.9	67	6.1	1.6	-2.3
South Asia	1.8	58	3.7	5.1	4.1
OECD	2.5	76	3.8	3.0	4.3

Source : World Bank, World Development Report, 1991

In this thesis, an attempt is made at defining and quantifying those factors which appear to have most affected the growth process in the Sub-Saharan African countries.

Chapter two briefly surveys the various theories of growth and the different approaches to the problem of economic under-development. Chapter three examines SSA's social, economic and political problems in detail, providing a descriptive analysis of the continent's predicaments. The fourth chapter explains the econometric approach and methodology adopted in the analysis, detailing the data sources and identifying the main factors which will be included in the equations of the following chapters.

Chapter five is devoted entirely to the examination of the effects of political instability on economic growth. This also includes a regression equation to explore 'causality' between economic growth and political instability.

The main regression models comprise the majority of chapter six, with an accompanying descriptive analysis of the results. This chapter forms the main empirical econometric analysis of the thesis, with a growth equation, a savings-rate equation, and an incremental capital-output ratio equation being explored. Finally, chapter seven contains a summary of the main results of the previous chapters, particularly of the empirical work, and an overall assessment of the development problems of Sub-Saharan Africa is presented.

The remainder of this chapter gives an overview of Africa's past growth performance, and some comparisons are made with other developing countries in order to assess the continent's relative performance.

1.2 Growth performance in Sub-Saharan Africa since 1945

With the exceptions of Liberia and Ethiopia, all the other Sub-Saharan African countries (SSAC's) were colonised in 1945. The two largest occupying powers were Britain and France, with other European countries (mainly Portugal and Belgium) holding smaller territories. Thus the history

of those African countries was very closely associated with the policies that the colonising powers adopted towards their colonies. In general, there was more interest in the welfare of the African colonies after the Second World War, since the people of the colonies fought alongside their occupiers and the colonisers wanted to stave off potential upsurges of nationalism and independence power struggles (Davidson, 1988, and Killick, 1992).

During the period 1945-1960, the economic growth of most African countries was determined, to a very large extent, by the degree the colonising powers were exploiting those countries' resources and administering their colonies (Brett, 1973). This was nearly always geared towards the security of the White population that had settled in Africa, and the security of supplies of the major trading commodities of each country/region. The returns from this trade mostly went to the companies and individual traders who were engaged in trade, but some of it went towards the administration and development of the colonies. Railways and ports were set up, new crops and new technologies were introduced and educational facilities were established by charities and the various churches. All these factors, together with rising world demand for the primary products of Africa, ensured a fair growth rate of the African economies despite being subjected to occupation and exploitation (see Table 1.2 below).

The late 1950s and early 1960s saw drastic changes in most African countries, as it was a period of decolonisation and independence for most of them. Apart from twelve countries¹, South Africa and Namibia, the whole of Sub-Saharan Africa was independent by 1966. This, among other things, meant that the economic progress of those countries was now the sole responsibility of their respective governments. However, links with the colonising powers were not cut-off, and considerable economic and political support still came from those countries to their ex-colonies, as evident by the aid levels given, the number of expatriate workers remaining in the African countries, and trading links, such as France, for example, being the main trading partner for most of the Franc Zone countries and, to a lesser extent, Britain for the ex-British colonies (Africa South of the Sahara, 1988).

Table 1.2

Average annual growth rates of GDP and of GDI/GDP (Gross Domestic Investment ratio) for a selection of SSA countries, 1950-60.

	GDP(%)	GDI/GDP(%)
Botswana	2.9	8.4
Central African Rep.	2.6	19.6
Congo	1.1	52.9
Gabon	11.5	50.1
Ghana	4.1	19.7
Kenya	4.0	22.1
Mali	3.2	13.4
Mauritius	0.1	17.3
Mozambique	3.1	8.7
Nigeria	4.1	11.7
Sudan	5.5	7.0
Swaziland	8.4	12.9
Tanzania	6.0	14.4
Zaire	3.4	20.3
Zambia	5.6	25.8

Source : World Bank, World Tables, Third edition, 1984

The 1960s saw continuing economic growth in Africa, sometimes at very high rates (see Table 1.5). World demand for the exports of those countries was still high, and, according to the World Bank (1981), the net barter terms of trade grew at an average rate of 2.9% annually between 1961 and 1970 for SSA as a whole. Per capita income and output were growing, education, health and infrastructure spending was rising (see chapter three). Furthermore, the rest of the world was experiencing boom conditions with continually rising demand (Brett, 1984), and there was increased aid and loans (especially bilateral) to those African countries that needed them. This situation continued until the early 1970s.

The 1970s presented a completely different setting, particularly after the 1973/74 oil price rise and subsequent world recession. Output growth deteriorated and even became negative in some African countries, as Tables 1.4 and 1.6 show.

Table 1.3 gives some indication of the changes in the SSA economies. When examining the performance of those countries, it is often more fruitful to exclude the oil-exporters, particularly Nigeria and to study the performance of the latter separately. Nigeria is of particular significance due to its exceptionally large population, as well as its sizeable oil exports.

According to World Bank data, the volume growth rate of thirty main agricultural exports fell from 1.9 to -1.9% per annum between the periods 1961-71 and 1971-79 (World Bank, 1981). At the same time, the world bank maintains that imports of food and agricultural produce were rising markedly. Reserves were being drastically run down and a balance of payments crisis was in the making. Towards the end of the decade, this crisis was well entrenched. Debt levels were rising despite the falling ability of the borrowing countries to service or repay their loans. Falling import volumes (due to the lack of funds to purchase them) began to hamper any significant growth in exports and potential exports, as the machinery required to produce those exports were unaffordable on the scale that was necessary.

As Table 1.4 illustrates, the growth of food production was significantly lower than the population growth rates, which appeared to be increasing continuously. Food imports were rising reinforcing external food dependency. According to the World Bank (1981), incomes per head were being eroded to levels below poverty standards and access to basic needs was limited. Falling world demand for African products reduced further the market share of those countries, having also significantly reduced their export revenues. The agricultural sector was particularly severely hit by the recession as total agricultural output fell to levels below those of the 1950s. This fall was detrimental as agricultural output was, in many ways, the single most important determinant of overall economic growth in many Sub-Saharan African countries where agriculture forms the largest sector. The World Bank (1989) also states that over the past three decades, agricultural production in SSA has risen by only 2% a year, while agricultural exports have declined, and food imports increased at around 7% a year.

Table 1.3
Comparable Economic Indicators

	GNP per Capita, Average Annual Growth Rates(%)		Average Annual Growth Rate in Volume of Exports 1970-79	Average Annual Growth Rate of GDP (%)	
	1960-70	1970-79		1960-70	1970-79
All SSA	1.3	0.8	-0.8	3.9	2.9
Low income SSA	1.6	-0.3	-1.9	3.7	1.7
SSA excluding Nigeria	1.3	0.7	-0.8	4.1	1.6
Nigeria	0.1	4.2	-0.3	3.1	7.5
All low-income developing countries	1.8	1.6	-0.8	4.5	4.7
All Industrialised	4.1	2.5	5.9	5.1	3.2
SSA oil exporters	4.4*	0.5**	-0.1	3.4	4.6

Source : World Bank, "Accelerated Development in Sub Saharan Africa", 1981

* 1965-73

** 1973-80

The second oil price rise and world recession of 1978/79 also hit the African countries severely. It served to further deepen the effects of the former world recession and to further hamper any development efforts. While other less developed countries might have coped relatively well, the African countries were not well equipped (economically, politically or administratively) to deal with this second shock. Growth rates continued to deteriorate, output and export revenues continued to fall until the early 1980s, when some improvements started to occur (see chapter three).

Table 1.4

Food and Agricultural indicators in SSA over various periods

	61/63 to 69/71	69/71 to 77/79	
Rate of growth of ave. annual volume of production of total cereals	2.3	1.3	
	1965-73	1973-80	1980-87
Growth of production of total cereals (%) :			
total SSA	2.0	0.9	2.3
excluding Nigeria	2.3	2.0	1.7
Average annual population growth :			
total SSA	2.6	2.8	3.1
excluding Nigeria	2.6	2.9	3.1
	1965	1980	
% share of food in merchandise imports :			
total SSA	14	16	
excluding Nigeria	15	15	

Source : World Bank, 1981 and 1989

However, one of the heaviest loads that remain crippling the African economies is the debt burden. Many SSAC's are heavily in debt, and any increase in export revenues or in funds from other sources are being sucked in to pay the debt service as well as the debts themselves. More recently, however, many SSA countries have obtained some debt and debt-service relief and rescheduling programmes. Some argue that those measures

have been 'too little and too late'. This issue is further elaborated upon in chapters three and seven.

1.3 Comparisons of Economic Growth Performance

It is interesting to note how the growth rates of other Less-Developed Countries (LDC's) compare with those of the SSAC's. Table 1.5 below gives some indication of this.

Table 1.5
Average Annual Growth Rates (%) of GDP at Factor Cost

	1950-60	1960-70	1970-81	1980-86	Difference 1970s-60s
<u>Other Developing Countries</u>					
Algeria	6.5	4.3	6.9	3.4	+2.6
Argentina	2.7	4.3	1.9	-0.6	-2.4
Brazil	n/a	8.2	8.4	3.8	+0.2
Chile	4.0	4.4	2.1	1.8	-2.3
Egypt	n/a	4.3	8.1	6.8	+3.8
India	3.8	3.4	3.7	5.5	+0.3
Indonesia	n/a	3.9	7.8	4.4	+3.9
Rep. of Korea	5.1	8.6	9.0	6.7	+0.4
Malaysia	n/a	n/a	7.8	5.0	n/a
Morocco	2.0	4.4	5.2	3.2	-0.8
Pakistan	n/a	6.7	4.9	7.3	-1.8
Philippines	6.5	5.1	6.2	0.5	+1.1
Singapore	n/a	8.8	8.6	6.1	-0.2
Thailand	n/a	8.4	7.2	5.3	-1.2
Portugal	n/a	6.2	4.4	2.1	-1.8
Greece	n/a	6.9	4.4	1.4	-2.5
Cyprus	n/a	6.7	4.6	5.5	-1.2
<u>High Income Countries</u>					
Australia	n/a	5.6	3.3	2.6	-2.3
Canada	4.6	5.6	3.8	1.8	-1.8
France	4.5	5.5	3.3	2.5	-2.2
Germany	8.7	4.4	2.6	1.6	-1.8

(Table 1.5 cont.)

Ireland	1.5	4.2	4.0	1.5	-0.2
Italy	5.7	5.5	2.9	0.7	-2.6
Japan	6.4	10.4	4.5	2.0	-5.9
Spain	n/a	6.3	3.4	3.8	-2.9
Sweden	3.4	4.4	1.8	1.0	-2.8
UK	2.4	2.9	1.7	1.1	-1.2
USA	3.2	4.3	2.9	1.2	-1.4

SSA

Angola	n/a	4.8	-7.3	n/a	-12.1
Benin	n/a	2.6	3.3	3.6	+0.7
Botswana	n/a	5.7	12.6	11.9	+6.9
Burundi	n/a	5.2	3.2	n/a	-2.0
Cameroon	1.7	3.7	6.3	8.2	+2.6
Cape Verde	n/a	n/a	1.6	n/a	n/a
C.A.R	n/a	1.9	1.6	1.1	-0.3
Congo	1.1	3.5	5.5	5.1	+2.0
Ethiopia	n/a	4.4	2.2	0.8	-2.0
Gambia	n/a	6.2	4.5	n/a	-1.7
Ghana	4.1	2.2	-0.3	0.7	-2.5
Cote D'Ivoire	n/a	8.0	6.2	-0.3	-1.8
Kenya	n/a	5.8	5.8	3.4	0.0
Liberia	n/a	6.5	1.3	-1.3	-5.2
Malawi	n/a	4.9	6.2	2.4	+1.3
Mali	3.2	3.3	4.6	0.4	+1.3
Mauritania	n/a	6.7	1.7	1.0	-5.0
Mozambique	n/a	4.6	-2.1	-9.0	-6.6
Niger	n/a	2.9	3.1	-2.6	+0.2
Nigeria	n/a	3.1	4.5	-3.2	+1.4
S. Tome & P.	n/a	n/a	-2.5	n/a	n/a
Senegal	n/a	2.5	2.0	3.2	-0.5
S.Leone	n/a	3.6	1.9	0.4	-1.7
Sudan	n/a	-0.6	6.6	0.3	+7.2
Swaziland	n/a	8.6	4.5	n/a	-4.1
Tanzania	n/a	5.4	4.0	0.9	-1.4
Togo	n/a	8.5	3.1	-1.1	-5.4
Uganda	n/a	4.8	-1.6	0.7	-6.4
Zaire	n/a	n/a	-0.2	1.0	n/a
Zambia	n/a	n/a	0.4	-0.1	n/a
Zimbabwe	n/a	n/a	1.6	2.6	n/a

Source: World Bank World Tables , third edition.

To begin with, data for the period 1950-60 for most of the SSAC's is not available from World Bank sources (hence the changes calculated in the last column of the table are between the 1970s and the 1960s only). It is also very difficult to obtain from other sources (such as the IMF and the Economic Commission for Africa). However, nearly all countries have growth figures available for the 1960s onwards.

Apparent from the table is that many SSAC's appear to have fared relatively well in terms of the growth rates of GDP, when compared to the growth figures of the so-called the 'Semi-Industrialised' or Newly Industrialised Countries' (the NIC's - the Philippines, Korea, Singapore, Taiwan, Hong Kong, Brazil, Uruguay, Turkey, Yugoslavia), and even to those of the industrialised countries. Others, like Angola, Mozambique, Mauritania and Uganda have shown a much worse performance than the rest, mainly due to the fact that those countries have experienced wars and political instability to different degrees throughout the period under study.

The amounts by which the economic growth rates have fallen in the SSA countries are in many cases similar to the declines in the growth rates of the industrialised countries. Perhaps a more relevant comparison can be made between the performance of the SSA countries and the NIC's, as well as with other developing countries. However, it is not especially helpful to draw any comparisons between those groups, given the very different structures of their economies (even though there is clearly more similarity between the SSA countries and other developing countries than with the developed countries). This also brings us on to the complicated issue of the meaning of development, and whether the growth figures of average incomes per capita and of aggregate output are a sufficient measure, or a good indication of the state of 'development' of a country, or whether other indicators, such as education levels and health indicators, would give a better overall picture of a country's development level (Killick, 1980).

Looking at the 1960-70 and 1970-81 World Bank growth figures for developing countries other than the SSAC's, it is apparent that they have fared well and coped relatively better with the economic shocks of the 1970s, with most of them experiencing relatively small falls in growth rates,

and some, rather surprisingly, experiencing small rises in their growth figures (such as the Philippines, the Republic of Korea, India and Brazil). This may be due to a disproportionately high rise in the prices of their main export products, being high enough to counteract the costs of the increase in international oil prices. However, this is not a sufficiently strong reason accounting for the relatively good performance of those countries in the face of the world recessions of the 1970s.

Table 1.6 indicates that Africa did not suffer significantly more than other LDC's due to the changes in international commodity prices over the period 1972 to 1981. It also appears that SSA's terms of trade did not deteriorate as much as those of the other included groups, except the 15 heavily-indebted countries. Yet, what is apparent is that SSA's export and import volumes fell significantly more than those of the included Asian NICs and the heavily-indebted countries.

Table 1.6

Trade indicators for different developing-country groupings, 1972-81.
(Percent, average annual changes).

	Non-fuel commodity prices	Export volumes	Import volumes	Terms of trade
SSA ¹	9.2	0.3	0.9	-0.8
4 Asian NIC's ²	10.2	15.3	10.8	-2.9
Small low-income economies ³	8.7	-0.2	0.7	-1.4
15 heavily-indebted countries ⁴	9.1	2.4	7.6	4.9

Source : IMF, "World Economic Outlook", May 1990.

1 Excluding Nigeria and South Africa

2 Hong Kong, Korea, Singapore and Taiwan

3 Excluding India and China. This group comprises those countries whose GDP per person did not exceed the equivalent of U.S.\$425 in 1986. 31 out of those 45 countries are in SSA.

4 Those countries are Argentina, Bolivia, Brazil, Chile, Peru, Columbia, Cote D'Ivoire, Ecuador, Mexico, Morocco, Nigeria, Philippines, Uruguay, Venezuela, and Yugoslavia.

Furthermore, Table 1.7 shows that the terms of trade for the type of export did not favour the NICs or other exporters of manufactures, over the exporters of agricultural and primary commodities, as the average terms of trade for manufactures over the period 1972-81 appears to have deteriorated more than that for any other category. Thus, it is clear that factors other than terms of trade movements have contributed to making the economies of the NICs more resilient than those of the SSACs in the face of powerful economic shocks. Some of those factors are reviewed in the following discussion.

Table 1.7

Average Annual Changes (%) in the terms of trade (ToT) by predominant export, 1972-82

Category	Δ ToT
Fuel	17.8
Non-Fuel exports	-0.9
Manufactures	-2.1
Primary Products	-0.1
Agricultural products	0.2
Minerals	-0.6
Diversified Export Base	1.0

Source : IMF, World Economic Outlook, 1990

The degree to which individual economies were affected by the 1970s oil price rises depended on a number of factors, including dependence on imported petroleum, ability to obtain international capital, non-oil terms of trade, the composition of their international trade, the structural characteristics of their economies, the degree of diversification of their export base, and, perhaps most importantly, their policy response to the disturbances.

According to the world bank (1981), prior to 1973 (and for many years after it), the SSAC's followed development policies which, it has been argued, were narrow in their long-term perspective. The largest sources of revenue were mainly those attained from the country's main export products. For most of the SSAC's, these were usually one or two agricultural products which were the main foreign exchange earners. Major changes in the demand for those products or in their international prices were not anticipated or taken into account in policy formulation. Such changes were most probably similarly ignored by other countries world-wide, but many of those had sufficient diversification and flexibility in their economic structures to be able to somewhat cushion the 1973/74 and 1978/79 shocks to their systems. This is perhaps what other developing countries, such as Singapore, Korea, Brazil, Taiwan and Turkey managed to do better than the SSA countries (Chenery, 1986).

It appears that the main conclusion here is that some non-oil developing countries adjusted better than others to the shocks of the 1970s because of several factors. According to Chenery (1986) and the World Bank (1981), two important factors were their more diversified economic structure and more highly trained and flexible labour force. For other LDC's, the disturbances exposed underlying structural weaknesses which made them particularly vulnerable to external shocks. One of the most essential features of the NICs' approach to the first oil-price shock was the apparent maintenance of high levels of imports of essential intermediate and capital goods. This was aided by increasing the levels of their external borrowing and maintaining as high rates of growth of export earnings as possible (after 1975).

This was perhaps easier for the NIC's because of their apparent underlying structural strength, and their generally higher 'creditworthiness' with international financial institutions . They had also accelerated the diversification of their productive structure and adopted policies aimed at integrating their economies more closely with the world economy, and, particularly after 1973, policies were formulated taking into account the slow-down in world trade and the higher petroleum prices within their broader

development objectives, in an attempt to minimise the disruption to the growth of their economies.

Furthermore, the Semi-industrialised Countries had specialised more in manufactured exports; a sector which can be subjected to adjustment relatively easier than the agricultural sector, which provided many of SSA's exports. The latter exhibits more structural rigidity and difficulties in adjustment than the former (World Bank, 1989). The problems with SSA's agricultural sector are examined in greater detail in the third chapter of this thesis.

It is argued (World Bank, 1981 and 1989), that to be effective, measures to strengthen a country's external position by addressing short-term disequilibrium must be accompanied by restructuring of a longer term nature, with increasing shifts in resource use to production of tradable goods. That the NIC's were in general able to adjust in this way to a greater extent than other non-oil developing countries was related to their already more advanced economic structure, flexibility, higher levels of human capital, and their generally higher creditworthiness and greater access to external capital (OECD, 1988). Another important factor is the fact that these countries experienced relative political stability throughout this period of international economic upheaval. This stable environment provided the basis for investment and growth. The role of political stability in the growth process is explored further in chapter five.

It is, therefore, unfair to attribute the dismal economic performance of the 1970s in Sub-Saharan Africa completely to the misguided actions of the governments of those countries, since it can be said that the high rates of growth achieved by the NIC's in manufacturing production and exports is also due to a variety of historic circumstances, locational, geographic, climatic as well as physical and natural attributes which those countries have enjoyed. In addition, the African countries achieved independence later than the NIC's, who therefore had all the advantages of an earlier start, including earlier investment in human capital and education, the benefits of which appear after a time-lag of perhaps five to ten years.

Yet, it is argued that internal factors and government mismanagement have played a very significant role in Africa's economic plight (e.g. World Bank, 1981 and 1989, and Steel and Evans, 1984). For example, it could be said that among others, interest rate, incomes and exchange rate policies were used with increasing effectiveness by a number of NIC's as a means of managing aggregate demand. For instance, the maintenance of positive real interest rates have made financial intermediation by the banks and other institutions possible and successful in attracting private savings, thus contributing to a more efficient allocation of these savings among the alternative investment opportunities available. Furthermore, by allowing the exchange rate to depreciate slowly, while at the same time curbing domestic monetary expansion gradually rather than abruptly, some countries improved their balance of payments and simultaneously avoided a serious and prolonged adverse impact on economic growth and employment.

In addition, coordinated interest rate and exchange rate policies have made it possible for a number of countries with domestic rates of inflation above those of world inflation to maintain positive interest rates, and thus provide incentives for domestic savers, thereby discouraging capital flight and often attracting savings and investment from abroad. Overly expansive domestic fiscal and monetary policies were also avoided, and much needed cuts in areas of domestic expenditure were executed to suit the economic environment that was created in the 1970s, in a further attempt to avoid ever-escalating deficits and balance of payments crises (World Bank, 1981).

Yet, as mentioned above, it might be questioned as to how relevant or useful is the experience of the semi-industrialised countries, or indeed, of other less developed countries when studying the Sub-Saharan African growth record.

It is clear that acceptable rates of growth in GDP and GDP per head have been observed in countries with markedly differing overall strategies to growth and development. For example, some countries have adopted outward oriented paths to development, favouring trade and export-led development attitudes (such as Hong Kong, Korea and Taiwan). Others, like Yugoslavia, appear to have achieved good growth results under a socialist

worker-management regime. A third path to development that has been adopted by many LDC's and is more inward looking is that of import-substituting industrialisation. This was followed with varying degrees of success by Mexico and Brazil (Chenery *et al*, 1986), whose economies grew rapidly, but a high social cost was involved, such as increasing income inequality and environmental degradation.

The process is more one of matching policies to conditions - observing carefully the circumstances (both domestically and internationally) which face a country so that a change in conditions of, say, demand or supply is adequately and speedily dealt with. However, keeping a long-term perspective is also important, in addition to policy flexibility and pragmatism. Furthermore, the consequences of particular policies are not the same in all countries. Indeed, similar policy instruments may produce vastly different results in different countries, depending, among other things, on the interaction of the social and political forces prevailing.

Therefore, given the differences between the SSA and the NIC economies, it is apparent that no great benefit can be obtained from directly comparing the two together. Yet, this is not to say that studying the experiences and history of other developing countries is of no relevance to the African experience. To the contrary, comparisons are useful, even if only to examine and learn from the differences.

1.4 Summary

In analysing the economic problems of SSA, different analysts adopt different approaches. Apart from the traditional classical/neo-classical approach, the 'structuralists' approach, and the stages theories, recent debate has tended to concentrate on the influences of the internal (endogenous) vs. the external (exogenous) factors that appear to determine growth. Many recent World Bank reports are examples of this (e.g. World Bank 1989 and 1990). Wheeler (1984) and Killick (1992) have also followed that approach.

The approach adopted here consists of a mixture of the neo-classical factors, structural, and internal/external factors. It was thought best to concentrate on the Sub-Saharan African countries only, as within the continent, there appears to be sufficient diversity of experience and economic performance, with some countries showing great success, such as Botswana, while others exhibiting significant failure in managing their economies. There is also a commonality in the key characteristics of those economies to warrant such a specific approach across SSA. Examples of those characteristics are the comparatively recent experiences of independence, political fragility, generally small economic size, trade openness, the nature of agriculture, and human capital levels.

Therefore, this thesis is a descriptive and empirical cross-sectional examination of the African growth experience, and the factors that are thought to influence the continent's growth rates. However, before dealing specifically with the problems of SSA, we will review the main growth theories that have been expounded since the 1950s in the following chapter.

NOTES

- 1 Those twelve countries are Mauritius, Swaziland, Equatorial Guinea, Guinea-Bissau, Mozambique, Cape Verde, Comoros, Sao Tome & Principe, Angola, Seychelles, Djibouti and Zimbabwe.

CHAPTER TWO

ECONOMIC GROWTH THEORY

2.1 Introduction

This chapter is a review of the main theories and models that have been put forward to explain the economic growth process. The purpose of this review is to identify the factors that economic theory argues are significant in affecting the growth of aggregate output. These factors form the basis of the empirical work of later chapters.

A number of growth models have been developed, especially since the post-war years (after 1945), to explain an economy's long-run trend or potential growth path. The models that will be examined here are the (neo-classical) one-sector growth models, two-sector models, the structural theories and 'multi-sector' models, endogenous growth models, and foreign trade issues. Some strategic aspects of growth will also be briefly reviewed, such as the 'big push' theories, balanced vs. unbalanced growth, and the 'engine of growth' debate.

Finally, drawing on the theoretical discussion, we will summarise the key factors influencing African economic growth. These will be tested in the empirical work of chapter six.

Firstly, however, we will review the 'stylised facts' of African economic growth.

2.2 The 'Stylised Facts' of African growth

Kaldor introduced the concept of the stylised facts of growth in 1958 to describe the

'long term regularities in the relationships that seem to appear in most industrial countries, between growth rates of output and capital and labour inputs, and between factor prices and relative income shares'.

The African 'stylised facts', or empirical observations, that growth models need to explain are naturally different to those of the industrial countries. According to Branson (1979), in the industrial countries, the growth rates of capital appear to be fairly constant and greater than the growth rates of the labour force. This implies that the capital-labour ratio would be increasing through time. The growth rate of the capital stock also appears to be nearly equal to the growth rate of output, thus making the capital-output ratio fairly constant. Also, the growth rates of potential output (the product of average labour productivity and the total labour force) are greater than those of the labour input, both growing at a fairly steady rate through time, resulting in a positive growth rate of output per worker.

Finally, regarding the profit rate and relative income shares, it was observed that in the long term, the profit rate is fairly constant. Given that the capital-output ratio is also fairly constant, this indicates a relatively constant distribution of output between wages and profits in the long run. More on the theories relating to those observations is presented in the following sections.

In the case of Sub-Saharan Africa, the empirical observations, or stylised facts, are summarised in Table 2.1 below.

Table 2.1
SSA's 'stylised facts'. Average annual growth rates (%)

	1960-70	1970-80	1980-85
Labour force	2.0	2.1	2.3
Gross domestic investment	5.7	3.2	-8.2
GDP	3.9	2.9	0.5

Source : World Bank "Accelerated Development in Sub-Saharan Africa", 1981, and "Sub-Saharan Africa - from Crisis to Sustainable Growth", 1989.

The growth rate of the labour force appears to be fairly steady - around the 2% level. However, the growth rate of output appears to fluctuate markedly over time, resulting in a correspondingly significant fluctuation in output per labour force unit.

If we take the growth rate of GDI (Gross Domestic Investment) as a proxy for the growth rate of the capital stock, then from Table 2.1 above, it is clear that this has experienced severe fluctuations from the period 1960-70 to 1980-87. During the 1980s, this ratio became negative and less than the growth rate of the labour force. This indicates that unlike the case in the industrial countries, the SSA countries have experienced a period when the growth rate of the capital stock is slower than that of the labour force, implying that the growth of the capital-labour ratio was not always positive.

Another 'stylised fact' of African growth is that the growth rate of capital is not similar to the growth rate of output. Therefore, the capital-output ratio could not be constant over time.

Finally, given the data deficiency problems for SSA, it would be difficult to reach a conclusion regarding the profit rate and relative income shares. However, if we take the figures for the average annual growth rate of earnings per employee to indicate the share of labour from output, then the figure for SSA as a whole is -1.5% for the period 1970-80, and -4.8% for 1980-87 (UNDP, 1991). This indicates that wages were falling in the specified periods, implying a falling share of output of the labour input. This does not imply that the share of profits was rising (data availability was, again, very problematic). However, combined with the previous three facts, it may be deduced that the relative income shares were not constant in SSA.

The 'stylising' of some of the facts of SSA's growth experience along the lines of Kaldor, reveals that, for one thing, the continent's growth experience is somewhat different from that of the industrial countries. Africa's growth has not exhibited the stable features of the former. Thus, the empirical analysis will need to introduce factors to attempt to explain why this is so. These include government-induced distortions, political instability, and climatic factors, all of which are discussed in greater detail in the following chapter.

Growth models would, therefore, need to provide some explanation of the African experience specifically. Yet, as they stand, the traditional models of growth (as reviewed in the following section) appear somewhat deficient in explaining the lack of growth of developing countries, particularly SSA

(Todaro,1989, and Branson, 1979). This may be because, initially, they were formulated to explain the historical growth experiences of the industrial countries given their own set of conditions and special circumstances. However, they provide the basic foundations of the growth process. For SSA, the additional special problems of growth are described in section 2.8 below.

We will now review the various growth paradigms, starting with the neo-classical one-sector model.

2.3 One-Sector Growth Models

Growth models formulate functions of output growth (usually defined as growth of real GDP) as depending on inputs into the production process, which are Capital (K), Labour (L), and, in more detailed models, other factors such as land and technical progress are included.

A combination of three assumptions typically form the basis of growth models :

- (i) Labour supply is exogenously determined and it grows at some given rate: g_L . Thus the labour force at time t is given by

$$L_t = L_0 e^{g_L t} \quad (1)$$

where L_0 is the initial labour force.

This formulation has sometimes been made in terms of 'effective' labour units, E , as follows:

$$E_t = L_t e^{\lambda t} = L_0 e^{(g_L + \lambda)t} \quad (2)$$

where

- λ = rate at which each labour unit is becoming more productive in time, due to skill improvement
- = rate of increase of average labour productivity.

- (ii) A production function is incorporated, in which labour and capital inputs transform at any given time, t , into output Q_t :

$$Q_t = F(K_t, L_t) \quad (3)$$

Further assumptions of this function are that the marginal products of capital and labour are positive and decreasing as the relevant input increases. The function is also assumed to be homogeneous of the first degree in K and L , implying constant returns to scale.

- (iii) The last assumption in this single-sector growth model is a Saving (S) and Investment (I) relationship, which determines how much of current output will be saved and how much will be invested to add to the existing capital stock.

These models assume full employment with planned saving equal to planned investment. Thus the following static equation will hold:

$$S = I \quad (4)$$

where,

$S =$ income not spent on consumption (both public and private)

$I =$ total public and private investment = dK/dt

It follows that

$$dK/dt = S_t = I_t \quad (\text{the process of capital formation}).$$

In the simplest versions of the neo-classical model, it is assumed that a constant fraction of income is saved 's' and invested, raising K by sQ_t from one period to the following period :

$$I_t = S_t = sQ_t = dK/dt$$

The three basic functions above form a simple explanation of the growth process. Equations (1) and (2) determine the labour input at time t . Combined with the capital stock inherited at the beginning of period t , this produces a flow of output, Q_t , through the production function. The saving function then determines what fraction of output is invested in period t . This investment adds to the inherited capital stock to give a larger stock which is passed on to the next period. That stock then combines with the larger labour force in $t+1$ to produce an increased level of output Q_{t+1} .

Formalised growth models of this type will be discussed next, starting with the Harrod-Domar (H/D) model.

2.3.1 The Harrod-Domar Model

This is a simple model of the determination of the rate of economic growth. It emphasises saving behaviour, even though this may not be very stable in a developing country. It is often used to calculate the investment requirements necessary to achieve a target rate of growth of per capita income in a developing country.

The assumptions made in the basic model are:

- (i) A closed economy.
- (ii) Only two factors of production, capital (K) and labour (L).
- (iii) Fixed coefficients of production.
- (iv) No technical progress.
- (v) A single producing sector in the economy (used for consumption and for investment).
- (vi) A constant net savings rate (s).

If

I = amount of investment capital,

g = rate of growth, and

K = capital stock available,

then it can be said that

$$\begin{array}{ll} & I = gK \\ \text{or,} & I = g.v.Y \\ \text{where} & v = K/Y, \\ \text{and so} & K = vY \end{array}$$

'v' is thus the capital/output ratio.

By assumption

$$\begin{array}{ll} & I = S \\ \text{where} & S = \text{Savings, and} \\ & I = \text{Investment level} \end{array}$$

$$\text{Also,} \quad S = sY \text{ (savings are a constant ratio [s] of output)}$$

Thus,

$$g.v.Y = sY$$

or,

$$gv = s$$

Rewriting this in terms of the growth rate gives

$$g = s/v$$

which is the basic growth equation of the H/D model. This 'g' is called the "warranted growth rate". It is the rate of growth at which desired I is equal to desired S, i.e. it is the rate of growth that would maintain full employment of the capital stock.

Given an exogenous rate of growth of the labour force, g_L , and a fixed-coefficient production function of the type $Q_t = F(K,L)$, output Q_t , must grow at the same rate as effective labour input, so that :

$$Q^\circ = g_L + \lambda$$

where, $\dot{}$ denotes the rate of growth of that variable, and λ = rate of growth of average labour productivity. $g_L + \lambda$ is known as the 'natural rate' of growth of labour in the H/D model.

Thus, $g_L + \lambda = n$.

The condition $Q^\circ = L^\circ = E^\circ = g_L + \lambda$

must be satisfied if full employment of the labour force is to be maintained .

For both K and L to be fully employed as an economy grows, we have the H/D condition :

$$g_L + \lambda = s/v.$$

However, since $g_L + \lambda$, s ,and v were all independently fixed by assumption to begin with, the possibility of $g_L + \lambda$ to equal (s/v) is minimal.

If $(g_L + \lambda)$ is greater than (s/v) , there will be increasing unemployment of labour and violation of the initial equilibrium assumption.

Also, if $(g_L + \lambda)$ is smaller than (s/v) , excess capital will develop and the economy will also be out of equilibrium.

Thus the H/D condition does not guarantee full equilibrium, unless $(g_L + \lambda)$ is equal to (s/v) , which can only happen by chance. The initial assumptions are therefore, too rigid, rendering the model unstable. It is an "over-determined" model due to the assumptions of fixed production coefficients, fixed savings ratio, and a fixed effective labour force growth, which leave no freedom for movement towards equilibrium in the model.

However, this rigidity can be relaxed by :

- (i) changing the production function to allow substitution between K and L, permitting the equilibrium capital-output ratio (v) to be determined by the growth process itself, or
- (ii) making the savings ratio itself a function of the profit rate or the distribution of income between K and L, allowing 's' to also be determined by the growth process, or
- (iii) a combination of the above two alternatives.

The basic neo-classical growth model, formulated by Solow employs the first option.

2.3.2 The Neo-Classical-Solow Growth model and extensions

This model is based on the following assumptions:

- (i) The growth of the labour force is exogenously given as g_L .
- (ii) The production function is $Q = F(K,L)$. Its main properties being that the function exhibits constant returns to scale, it is homogeneous of the first degree, K and L are substitutable and diminishing marginal productivities exist, and,
- (iii) Investment (I) and Savings (S) are a fixed proportion of output.

$$I_t = S_t = sQ_t$$

Re-writing the production function in a per capita form :

$$q = \frac{Q}{L} = F(K/L, 1) = f(k/l) = f(k).$$

Output per man is a function of capital per man alone. As the growth process proceeds, substitutionality between K and L gives a way of varying the capital-output ratio.

$$\frac{q}{k} = \frac{Q/L}{K/L} = \frac{Q}{K} = \frac{1}{v} \quad (\text{the inverse of } v).$$

It can be shown that the above production function, $f(k)$, taken together with the assumptions made concerning the exogenous growth rate of the labour force and the Investment-Saving function, yield a dynamic system that tends towards equilibrium values of 'k' (the capital-labour ratio), 'q' (the output per man), and 'v' (the capital-output ratio). Furthermore, this equilibrium can be shown to be stable¹.

Thus this model explains the convergence of an economy towards a steady growth path where $Q^\circ = K^\circ$, and 'v' (the capital output ratio) is constant, but it is not consistent with the empirical long term observation of growth models that both Q° and K° are greater than L° . This discrepancy can be eliminated by adding a technical progress factor to the growth of the labour force, giving an effective labour force growing faster than L. Furthermore, by allowing 'v' to vary, this model explains how the economy will tend towards a growth path along which the H/D condition for balanced full employment growth is met.

The role of the savings rate 's' in this model can be seen by analysing the model if 's' increases (or decreases). If 's' increases, then the investment level will rise above the level needed to keep the capital stock growing as fast as the labour force at k_0^* (the initial capital stock equilibrium). It follows that the capital-labour ratio, K/L , begins to rise towards the new equilibrium k_1^* where, again, growth of that larger capital stock at the rate g_L will absorb s_1Q of investment. There will therefore be a departure from one equilibrium k^* to another. That is to say, there will be a movement from one equilibrium growth path to another - the equilibrium growth path will shift upwards, bringing a transitory period of output growth at a faster growth rate than g_L as output per man rises from q_0^* to q_1^* . The economy will finally settle at a new growth path with the same slope, i.e. the same growth rate, as the earlier one, equal to the growth rate of the labour force, but one with

the higher level output, due to the increase in the savings rate. This process is illustrated in the diagram below (Fig. 2.1). Similarly, the opposite occurs when a decrease in the savings rate takes place.

The neo-classical model also has implications for the profit rate, ρ , the real wage rate, w , and the distribution of output to relative factor income shares with competitive pricing assumptions.

To begin with, in a competitive economy with constant returns, the profit rate is the return on capital, which is equal to the marginal product of capital (MPK).

Thus,

$$\begin{aligned}\rho &= \text{MPK} = dQ/dK = Lf'(K/L) \cdot (1/L) \\ \rho &= f'(k) \quad ;\end{aligned}$$

Given that the per capita production function is

$$q = Q/L = F(K/L, 1) = f(K/L) = f(k),$$

and therefore, the total production function is

$$Q = Lf(K/L) = Lf(k)$$

Therefore, the profit rate, ρ , is the slope of the per capita production function.

As to the real wage rate, in a competitive economy, the return to labour is the marginal product of labour (MPL).

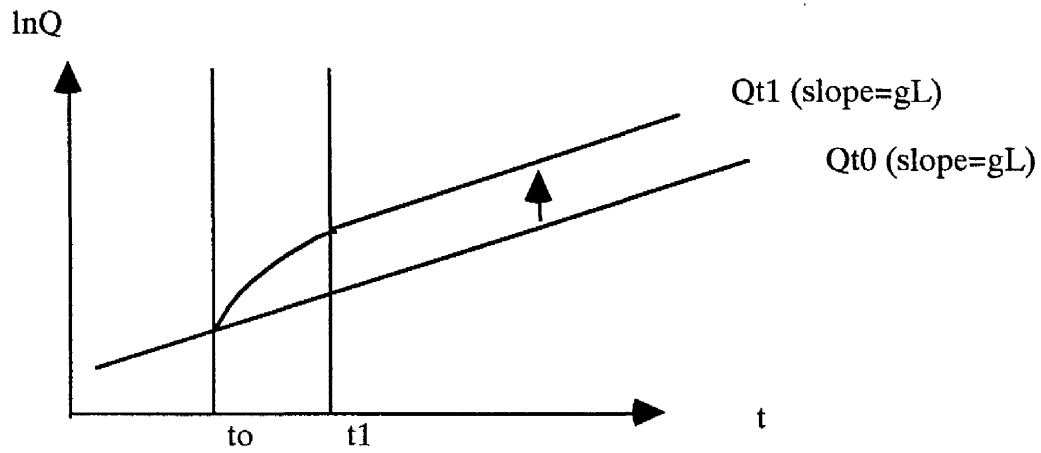
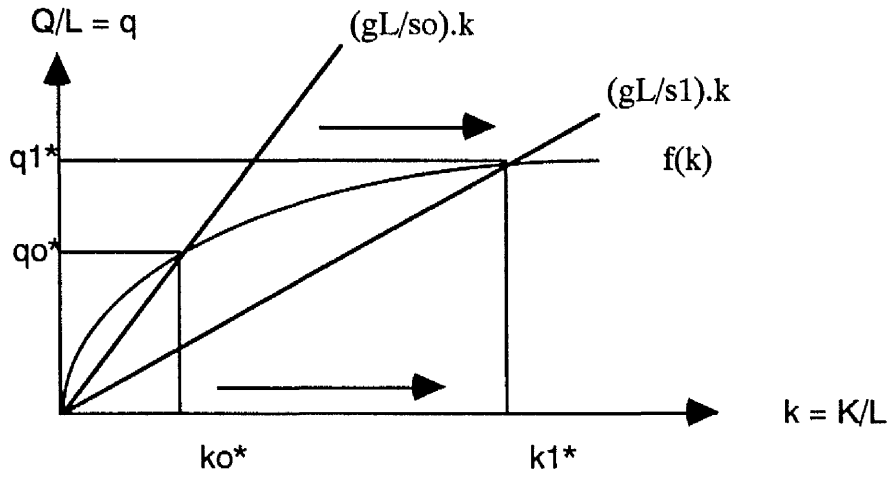
Thus,

$$w = \text{MPL} = dQ/dL = Lf'(K/L) \cdot (-K/L^2) + f'(K/L)$$

or,

$$w = f(k) - k f'(k)$$

Figure 2.1
Equilibrium growth paths before and after an increase in the saving rate.



That is to say,

$$\begin{aligned}\text{wages/man} &= (\text{output/man}) - (\text{capital/man})(\text{profits/capital}) \\ &= (\text{output/man}) - (\text{profits/man})\end{aligned}$$

which is true if $w + \rho = Q$, (i.e. we have constant returns to scale - Euler's rule²).

A further issue remains to be discussed relating to the neo-classical model, and that is the introduction of technical progress. This can be introduced in the form of a rate of increase in labour productivity, exogenously determined.

Redefining 'L' in the model as 'E' - the effective labour force, to include the number of workers and technical progress :

$$\begin{aligned}g_L &= \text{rate of growth of the labour force} \\ \lambda &= \text{rate of growth of the effective labour units per man.}\end{aligned}$$

Therefore,

$$E_t = L_t e^{\lambda t} = L_0 e^{g_L t} e^{\lambda t} = L_0 e^{(g_L + \lambda)t}$$

Again, having the production function in the form

$$Q_t = F(K_t, E_t)$$

or in per capita terms,

$$q = Q/E = Q/L e^{\lambda t} = f(K/L e^{\lambda t}) = f(k)$$

Where

$$k = K/E.$$

Thus the growth rate of 'k' is given by

$$k^{\circ} = K^{\circ} - E^{\circ}$$

$$\begin{aligned} \text{or } k^{\circ} &= s Q/K - (g_L + \lambda) = sq/k - (g_L + \lambda) \\ &= s f(k)/k - (g_L + \lambda) \end{aligned}$$

Again at equilibrium, $k^{\circ} = 0$,

Therefore at k^* ,

$$sf(k^*)/k^* = g_L + \lambda$$

or,

$$f(k^*) = [(g_L + \lambda) \cdot k^*] / s$$

At equilibrium, k^* and q^* can be obtained. Along the equilibrium path

$$K^{\circ} = E^{\circ} = g_L + \lambda \quad (\text{if } K/E \text{ is constant at } k^*)$$

and

$$Q^{\circ} = E^{\circ} = g_L + \lambda = K^{\circ} \quad (\text{if } Q/E \text{ is constant at } k^*).$$

Thus with $E = Le^{\lambda t}$, the fact that $Q^{\circ} = K^{\circ}$ which is greater than L° is explained, with ' λ ' as the rate of growth of labour productivity - λ is that rate by which Q° and K° exceed L° .

In a similar manner to the previously derived real wage rate and profit rate (the relative income shares), it can be shown that with technical progress the real wage rate is given by

$$w = e^{\lambda t} [f(k) - kf(k)]$$

and the profit rate by

$$\rho = dQ/dK = f'(K/Le^{\lambda t}) = f'(k)^3.$$

Furthermore, the relative income shares ($\rho K/wL$) are constant in the technical progress model.

The issue of technical progress is very central in the neo-classical explanation of the economic growth process. Essentially, this comes in three forms : neutral, labour saving and capital saving technological progress.

When an increase in output is achieved through equal increases of capital and labour, it is said to be 'neutral'. Labour (capital) saving technical progress occurs when an increase in output is achieved through the increase of capital (labour) alone, or the increase of capital (labour) by more than that in labour (capital).

Capital-saving technology is rare, indicating that, perhaps, new technology comes from labour-saving developed industrial countries, where a primary concern is the reduction of labour costs. It is often argued that given the abundant (unemployed and under-employed) labour in the developing countries, SSA included, there is an escalating need for more neutral, if not capital-saving, technologies. This argument is based not only on the abundant and relatively cheap labour in the developing countries, but also on the basis of high purchase, running and maintenance costs of the (mostly imported) capital.

Furthermore, the 'wrong' or inappropriate type of technology often reaches developing countries, thus adding to the difficulties of production. The choice of the production technique has always been a contentious point in the development process; would the less-developed countries be better-off using more labour-intensive techniques, given the major unemployment problems they suffer, or should they simply 'copy' the mostly capital-intensive techniques that the more advanced countries adopt. Many techniques are adopted with a heavy bias in the labour-saving direction. In many cases in SSA (see chapter three), the choice of technique is not determined by cost-minimising enterprises responding to prices which reflect scarcities, as is implied by the neo-classical models. Techniques have often been chosen by non-profit-maximising state-owned enterprises,

or in the context of distortions which raise labour prices and reduce capital costs.

Thus developed-country techniques are often inappropriate for the developing countries, exacerbating unemployment, perpetuating the dualistic structure of their economies, increasing income inequality, and perhaps worsening the foreign exchange position and increasing their dependence on the developed countries.

However, the choice of production techniques is not that simple. One factor that has to be borne in mind is that for a large number of goods there may not be a spectrum of techniques to choose from, (that is, the production function may not be smooth and certain techniques may not be profitable to operate). Another factor is that the market prices of the factors of production may not reflect their relative abundance or scarcity. Such common market imperfections often necessitate using economic rather than market prices in feasibility studies of projects. Furthermore, although labour in the developing countries may be abundant and its money price may be lower than that in the developed countries, it is not necessarily 'cheaper' or less costly to employ because its productivity may be lower.

A final factor which may prejudice the choice of technique is that in certain cases, capital intensity may be explained by a skill constraint. In many cases, labour intensive techniques require a great deal of skilled labour compared to capital-intensive technology, which requires a preponderance of semi-skilled labour to undertake routine tasks. In less developed countries short of skilled manpower, capital may substitute for skills and constitute a rational response on the part of decision-makers. However, it has often been the case that the downfall of many projects was the lack of appropriate and timely maintenance of the invested capital and machines, which, once malfunctioned, may render the whole project redundant thus turning it into an under-productive or even wasteful investment.

The role of capital in the development process depends on how capital is defined and whether it is inductive of technological progress. If capital is defined as 'any asset which generates an additional future stream of measurable income to society', many goods and services commonly

regarded as consumption goods ought, strictly, to be included in the country's capital stock. Expenditure on education, clothes and durable consumer goods would fall into that category.

Thus to increase the country's per capita income and to build up its productive potential, there is a need to expand the capacity for producing goods - not just physical capital but investment in 'human' capital and 'incentive' consumer goods. Another form of investment is that in 'social' capital which does not necessarily produce goods directly, but still expands the capacity to produce by facilitating the smoother operation of directly productive activities. Examples of such investments are those in communications, housing and transport facilities.

Finally, capital accumulation is also seen as an escape from the 'vicious circle of poverty'. Low productivity leading to lower per capita income, results in a low level of savings per head and low levels of capital stock per head, which again, results in lower productivity. Capital accumulation can be used to break this circle.

If we also consider technological progress applied to human (as well as physical) capital, then the value of education in the growth process would become clear. It may even be said that investment in human capital is as important as that in physical capital, particularly in Sub-Saharan Africa where the values of indicators of investment in people (such as literacy rates and school enrolment ratios) are among the lowest in the developing world. (World Bank, World Development Reports, 1978-91, and Todaro, 1989). It is argued that the effects of education primarily translate into increased labour productivity, especially through relieving the shortage of skilled and semi-skilled workers, and through increased awareness of the social and political aspects of development problems (such as population growth pressure and the need for populism and democracy in government).

In the main growth model of chapter six, these theories are examined empirically for SSA, and the effects of investment in both physical and human capital (the latter proxied by the literacy rates) on the economic growth rate are explored.

Returning to the growth theories, further extensions of the basic neo-classical model, with the emphasis on varying the savings assumption - that $S = sQ$, have been formulated. The three main propositions or model variations are :

1. The classical saving function, $s=s(r)$; $s'>0$, where r is the profit rate measuring future returns to investment (which equals savings in a full employment equilibrium). As r increases, 's' increases.

2. The Kaldor saving function,

$$S = s_W W + s_P P ; \text{ where } 1 > s_P > s_W > 0 ,$$

and,

P = Profits

s_P = proportion of profits which is saved

W = Wages,

s_W = proportion of wages which is saved.

3. The Ando-Modigliani (consumption) function

$$C = a_0 W + a_1 K ; \text{ Where } 1 > a_0 > a_1 > 0 .$$

Consumption (C) is presumed to depend on labour income (w) and consumer net worth which, in this model, is the consumer's capital stock, (K).

Each of these assumptions, combined with the previous two assumptions of the basic neo-classical model concerning the labour force and the production function, can be shown to produce a stable equilibrium k^* and q^* . The conclusion that is relevant to our analysis is that all these models emphasise the importance of savings in the growth process, primarily in shifting the trend growth path up or down, while maintaining the same growth rate as before the change in the saving rate occurred.

From the previous discussion of growth models, it has transpired that the *rate* of growth of output, consumption and investment in the long run equilibrium is determined by the growth rate of the labour force, g_L , plus the exogenous growth of labour productivity, λ . Whereas the *level* of growth, given by the equilibrium values of ' k^* ' and ' q^* ', is determined jointly by the natural growth rate, $n = g_L + \lambda$, and by the saving behaviour. If the savings ratio rises, then ' k^* ' and ' q^* ' will rise and the economy will shift on to a higher equilibrium growth path. Thus if ' s ' could be controlled by the governing authorities, a choice would have to be made as to which of the many equilibrium growth paths, each corresponding to a different ' s ', would be best.

Aggregate growth depends not only on factor accumulation and its sectoral allocation, but also on total factor productivity (TFP) growth.

Two issues concerning total factor productivity growth are especially relevant for development policy : the first concerns the range of TFP growth rates that can reasonably be expected, and the second relates to the causes or sources of TFP growth. One hypothesis suggested by Chenery is that a positive relationship exists between productivity change and the rate of growth of output.

Chenery (1979 and 1984) maintains that :

"identifying the source of increased productivity is the major conundrum for any attempt to explain growth".

These include technological change or scale economies, factor reallocation from lower to higher productivity sectors, and choice of trade strategy.

Dennison (1967) also stresses the role of technical progress in explaining the 'residual' factor in economic growth (that which could not be accounted for by the growth of the factor inputs alone). The extent to which this affects output growth depends, as discussed above, on whether this technical progress is input-augmenting, input-embodied, or totally disembodied or neutral.

To the Less Developed countries of today, growth models and theories do not seem to be able to provide the guidance they did three decades or more ago for the developing countries of that time. The conditions facing today's developing countries are different and somewhat more complex than before.

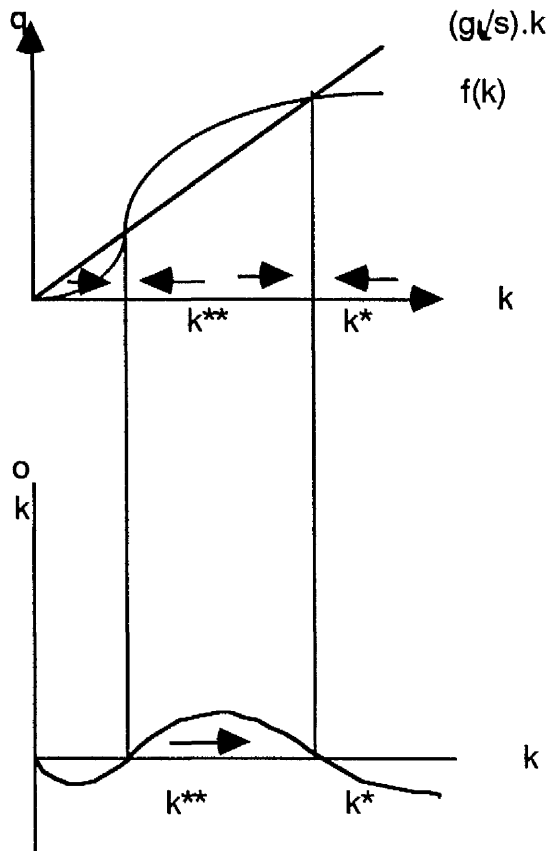
An example of the inconsistency between growth theory and practice is the neo-classical model with technical progress. That seems suitable for explaining the growth of developed industrial economies, but not for developing economies which could show increasing returns to scale, thus producing a different production function which may exhibit multiple equilibria. Also, the rate of growth of the population may depend on the level of per capita income, thus making the growth of the labour force a function of output and capital per man levels, and again, multiple equilibria would be possible.

If an economy exhibits increasing returns to scale, due to, perhaps, the need to provide social overhead capital - roads, dams, etc. - the production function could have the following shape (Fig.2.2 below) :

At low 'k' levels, output per man could grow with increasing returns to the capital-labour ratio, 'k'. As 'k' rises, eventually, output per man would reach a point of diminishing returns where $f'(k) < 0$. Thus the production function could have two intersections with the (g_L/s) line, intersecting from below at low 'k' levels (k^{**}) and from above at higher 'k' levels (k^*). Therefore, there are two possible equilibrium 'k' levels, but only one is stable (k^*). Only if the savings ratio 's' could be raised temporarily would we get rid of the low unstable equilibrium point, and gradually move towards the stable equilibrium at ' k^* '.

This multiple equilibria possibility provides a theoretical underpinning for the 'Big push' theorem and the 'returns to scale' argument, both of which are discussed in section 2.7.1 below.

Figure 2.2
Increasing returns to scale production function.



Before proceeding to the many sector, structuralist approach to the problems of economic growth, a summary of the different kinds of growth, as expounded by Branson (1979), is perhaps constructive in providing a framework for categorising the influences on economic growth which are employed in the empirical work of the following chapters.

Four different kinds of growth are identified :

1. Short-term growth.

This is essentially static in nature, whereby growth can only be increased by increasing the stocks of capital, labour, and technological progress. This

would involve increasing either or both the resources from a state of under-utilised capacity to a more fully-utilised capacity, where the economy could reach its potential output level (as described by the production function).

2. Medium-term growth.

This type of growth follows from short-term growth. Once the resources (capital, labour, and technical progress) are fully employed, the economy could grow along the production function towards its long-run equilibrium, by moving towards the long-run equilibrium growth path.

3. Long-term growth.

This would only eventuate if 'capital deepening' and 'capital-widening' occur, where capital-deepening involves the increase of the amount of capital per effective worker, and capital-widening involves maintaining the same ratio per 'effective' worker but providing new workers with capital. This is illustrated in figure 2.3 below.

4. The 'optimal' growth path.

This involves the movement from one to a higher long-term growth path. This can only be achieved by changing (increasing) the saving ratio (s), thereby determining which long-term path the economy should be on. ' s ' therefore, becomes the control or 'policy' variable with which the level of the long-term path would be determined. These movements between long-term paths are realised when full-employment of the resources is maintained.

This is illustrated in figure 2.3 by the move from 'D' to 'E' and beyond, on the higher equilibrium path $(Q/L)^{**}$.

Thus the important questions would be : how long will it take to move from one equilibrium path to another (from t_0 to t_1), or/and how steep is the growth path from 'D' to 'E' indicating the degree to which the growth rate of output responds to a change in the saving ratio. This 'steepness' depends

on what could be described as the 'saving-rate elasticity of output growth'. That is, the sensitivity of the growth rate of full-employment output to changes in the

growth rate of the capital stock, which is,

$$= \frac{\text{percentage change in output growth}}{\text{percentage change in capital stock growth}}$$

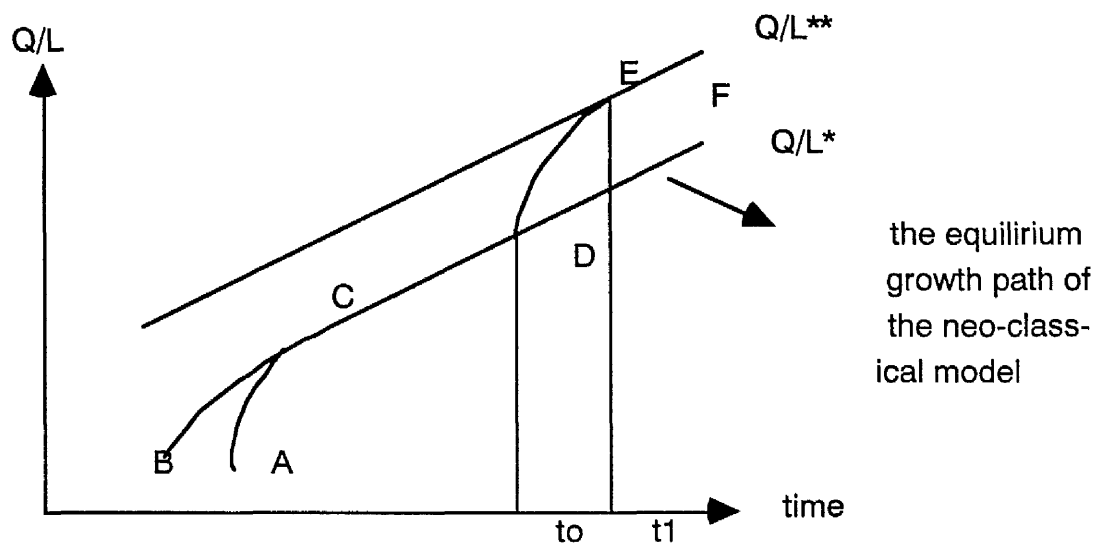
Given that

$$S_t = sQ_t = I_t$$

$$s = I_t/Q_t = K_t^0/Q_t$$

If this elasticity was greater than one (elastic), then that would imply that a given increase in the saving ratio (investment ratio) would produce an initially greater increase in the growth rate of output, thus resulting in a steeper 'D' to 'E' path (with full employment of the resources maintained).

Figure 2.3
The different kinds of economic growth



- A to BC path : Short-term growth,
under-employed resources becoming utilised
- Up to point C: medium-term growth
- Beyond C & : economy on a long-term equilibrium growth
before D path.
- (Q/L)** : The higher equilibrium growth path resulting from a
higher saving rate (its slope is equal to that of the
original path; (Q/L)*).

This elasticity or responsiveness of the growth rate of output to changes in the capital stock, depends on the source of technical progress in the economy. This relates to the previous discussion of technical progress. The success of policies using the saving (investment) ratio to influence growth depend significantly on whether technical progress is neutral (disembodied), labour augmenting (involving quality or skill upgrading of the existing labour force), or capital augmenting (more productive use of existing capital) (Solow, 1957, and Nelson, 1964).

For example, if it was the case that an economy's technical progress is mostly labour augmenting, then a policy such as a government-subsidised employee training scheme would produce a higher growth pay-off than if it was the case that technical progress was neutral or capital-augmenting.

Most of these theories were formulated to explain or describe the growth experiences of the industrial countries. In particular, the experience of SSA appears to be due to not only the factors discussed in the above models (saving, investment and technical progress), but to other factors not included in those models, such as political instability and external factors (both of which will be discussed in the following chapters).

It may therefore be concluded that according to one-sector growth models, optimal use of resources and factor inputs, saving and investment levels, population growth, and technical progress are considered to be the key

factors affecting economic growth. However, in the case of SSA, increased saving and investment are a necessary but insufficient condition for the realisation of economic growth. This will become clearer when the factors thought to be responsible for the continent's poor growth record are considered in greater detail in the following chapters.

2.4 Two-sector models

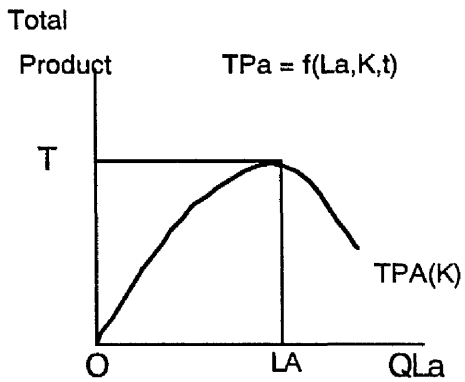
The relationship between the modern (industrial) sector and the traditional (agricultural) sector is the basis of those models. The basic two-sector model as expounded by Lewis (1954) is based on the assumptions of :

1. an overpopulated agricultural (subsistence) sector, where the marginal product of labour is very low or even zero (hence there exists surplus labour in this sector).
2. An industrial sector in which the marginal product of labour is higher than that in the agricultural sector, thus permitting the gradual transfer or re-allocation of labour from the lower to the higher productivity sector.
3. Capitalists re-invest their profits.
4. Wages in the modern sector are constant and higher than wages in the traditional sector, by a proportion high enough to induce the migration of labour from one sector to the other. At this wage, labour supply from the rural sector to the modern sector is assumed to be perfectly elastic.

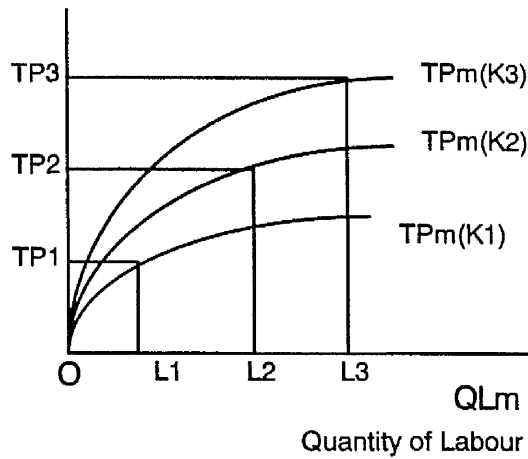
Investment and expansion of the modern sector output and employment is dependent upon this sector's profits, which are assumed to be re-invested by the capitalists. The speed of the sector's expansion is determined by the rate of this industrial investment and capital accumulation.

Figure 3. below illustrate the workings of the Lewis two-sector model.

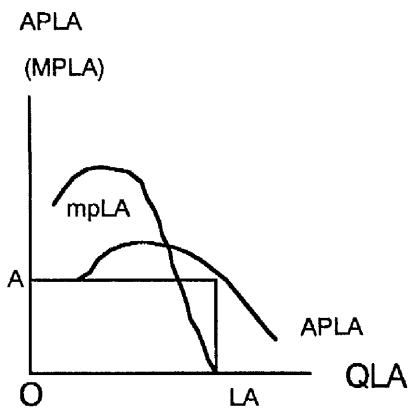
Fig. 3.
The Lewis two-sector model



3.1(a)
Agricultural sector

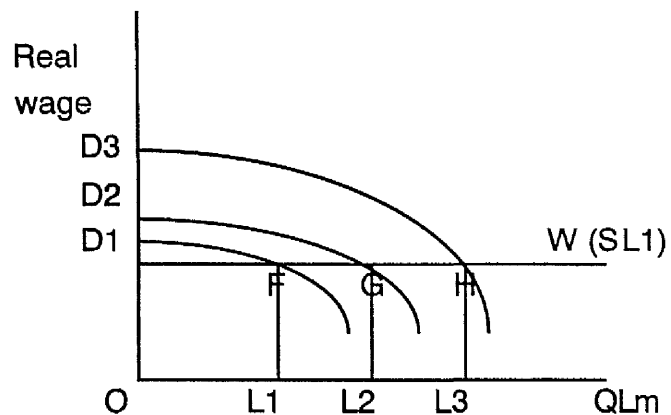


3.2 (a)
Modern sector



Quantity of labour
(millions)

3.1(b)



Quantity of Labour (thousands)

3.2(b)

Given a production function of the type $Q_A = f(K, L_A)$ in the agricultural sector, where capital is fixed and labour is the variable input, then any increase in 'L' would result in having the total agricultural output change in the way depicted in Figure 3.1(a) (Assuming no change in technology). The associated changes in the marginal and average products of labour are shown in Figure 3.1(b).

At maximum total product [OT in 3.1(a)], the marginal product of labour is zero and the average product of labour is equal to OA [3.1(b)]. This is due to the model assumptions of zero marginal product of labour, and that the rural wage rate is determined by the average, not the marginal, product of labour. (This is also assumed to be the case in the modern sector were $w = AP_L$ not MP_L).

As for the modern sector, again, output is assumed to be a function of the variable factor input, L, given fixed capital inputs and an unchanging technology :

$$Q_M = f(K, L_M)$$

The model assumes that the profits of the first period in this sector are re-invested. Therefore, capital is assumed to increase, say, from K_1 to K_2 . Furthermore, given the assumptions of a perfectly elastic supply of labour into this sector, and the traditional downward sloping demand curve of labour (where the demand for labour is a negative function of the wage rate), then with a K_1 amount of capital, OL_1 units of labour will be employed, at the OW real wage rate, producing OTP_1 units of industrial output [Fig. 3.2(a) and 3.2(b)].

Due to profit re-investment in the following period, capital would increase, say, from K_1 , to K_2 , to K_3 . Accordingly, total product would increase from $TP(K_1)$, to $TP(K_2)$, to $TP(K_3)$.

Figure 3.2(b) shows the MP_L curve, which is the actual demand curve for labour, given the assumption of perfectly competitive labour markets. From the diagram, it is apparent that wages in the modern sector (OW) are higher

than those in the traditional sector (OA). Hence, labour is assumed to migrate from the agricultural to the modern sector, in pursuit of this higher modern-sector wage rate, without pushing this rate higher than OW as it is assumed that labour supply from the agricultural sector is unlimited and perfectly elastic.

Given the assumption that employment in this sector would be where the marginal product of labour is equal to the real wage, the initial amount of labour employed with K_1 capital input is equal to OL_1 , and this produces OTP_1 industrial output - also equivalent to the area OD_1FL_1 . Out of this output, $OWFL_1$ would be paid as wages, leaving WD_1F as total profits accruing to the capitalist. This, if re-invested, would raise the capital stock from K_1 to K_2 , shifting the total product curve from TPK_1 to TPK_2 , thus raising the demand and marginal product of labour to D_2K_2 . The new equilibrium would therefore be established at G, with total output rising to OD_2GL_2 , of which $OWGL_2$ would be allocated to wage payments, and WD_2G would accrue as profits. Again, these would be re-invested increasing the capital stock to K_3 , and so on.

This process demonstrates how modern sector output and employment would expand, until all surplus rural labour is absorbed. If further rural labour migration were to occur beyond the point where all the surplus was absorbed, it would be at the cost of reduced food and agricultural output, (still assuming no technical progress). In this situation, the labour supply curve to the modern sector will no longer be perfectly elastic, but will become an upward positively sloping function of the wage rate.

This basic version of the Lewis model was extended and modified by Fei and Ranis (1964) and others. However, despite the model's apparent validity and proximity to the historical experience of the Western developed economies, some of its assumptions do not seem applicable to today's developing countries.

To begin with, there is the assumption of complete re-investment of profits by the capitalists creating modern sector employment at a rate proportional to that of capital accumulation. However, even assuming away the possibility

of capital flight, it is likely that those capitalists would re-invest their profits in a more labour-saving manner, as the real cost of labour could be relatively high if the productivity of labour is relatively low, rendering a capital-intensive process more lucrative.

Furthermore, the assumption of surplus rural labour but fully-employed urban labour has been questioned, and evidence points to the reverse situation in many of today's less developed countries (Todaro, 1989).

Finally, there is the tendency for modern sector wages to rise rapidly, rendering the assumption of a competitive modern sector labour market somewhat unreal. This is due to institutional factors, and forces such as union power, multinational corporation hiring practices, and civil service wage scales.

Overall, the Lewis model and its extensions are very valuable in the analysis of the development process, with emphasis on the rate of capital accumulation in the modern sector, surplus rural labour, and relative factor shares in each sector, as the key factors affecting economic growth. However, as mentioned above, some of its assumptions clearly need reviewing and adjustment in order for the model to become applicable to today's developing countries.

2.5 Many Sectors and the Structuralist approach to Growth

In the development process, some economists, such as Fisher (1933 and 1939) and Clarke (1940), have made the distinction between primary, secondary and tertiary production as a basis of a theory of development. Countries are assumed to start as primary producers, then, as the basic necessities of life are met, resources shift into manufacturing or secondary activities, and finally due to rising income, more leisure and an increasingly saturated market for manufacturing, resources move into services or tertiary activities, producing commodities with a high income elasticity of demand. This corresponds to a move from being a less developed country to a mature developed economy with a high proportion of resources in the services sector.

Having reviewed one and two-sector growth models, we now turn to the many-sector models, whereby extending consideration to more than one sector introduces factors and problems that arise when an economy's resources cannot shift effortlessly between sectors. This approach is an extension of the Lewis-type model. It focuses on the transformation of the structure of production, moving from a traditional-sector-based economy to a more industrial and modern-sector-based one, as per capita incomes rise. However, unlike the Lewis model, increased saving and investment are considered necessary but not sufficient conditions for economic growth.

In addition to the accumulation of both physical and human capital,

"a set of interrelated changes in the economic structure of a country are required for the transition from a traditional to a modern economic system" (Chenery, 1979).

These include changes in the composition of demand, international trade, socio-economic factors (e.g. urbanisation), and changes in resource use.

Thus the structural change economists emphasise that the growth and development of an economy depends on both domestic and external, or international factors.

In the neo-classical tradition, output would grow due to the long-term effects of capital formation, labour force expansion and technological change, all of which are assumed to take place under conditions of competitive equilibrium. Shifts in demand and the movement of resources from one sector to another, are considered relatively unimportant because labour and capital produce equal marginal returns in all uses.

In the other broader view, as described by Chenery (1984), economic growth is regarded as one aspect of the transformation of the structure of production that is required to meet changing demands and to make more productive use of technology. Given imperfect foresight and limited factor mobility, structural changes are most likely to occur under conditions of disequilibrium. This is particularly true in factor markets. Thus a shift of factors (L and K) from less productive to more productive sectors can

accelerate growth. These alternative views to the growth process are summarised in Table 2.2 below (adapted from Chenery et. al, 1984).

The structural approach has therefore, tended to concentrate on differences among sectors of the economy that may exhibit the equilibrating adjustments in resource allocation implied by neo-classical theory. Disequilibrium is more often manifested by the differences in returns to labour and capital in different uses, than by the shortages and surpluses that indicate the complete failure of markets to clear. In contrast, Neo-classical theory assumes that equilibrium is maintained over time, which limits the sources of growth to factors on the supply side.

Thus competitive equilibrium assumptions underlie Neo-classical theory. Growth of capital and labour inputs, as well as of productivity appear to be of comparable importance for all economies as sources of growth, but they vary significantly with the structure of an economy and the effectiveness of the policies to manipulate it.

The empirical work of the structuralist economists provides the main grounds upon which the theories are based. Chenery *et al.* (1984), attempt to identify the main differences in the sources of growth between developing and developed economies by focussing on the role of factor inputs compared with that of productivity growth. Thirty-nine economies were studied (including developed, developing and centrally planned economies), and three variables were calculated for each country (for available periods) : the growth of value-added, the growth of total factor productivity, and the combined contribution of the factor inputs (capital and labour).

Table 2.2

Summary of the neo-classical and structural approaches to economic growth.

Neo-classical Approach

Structural Approach

Assumptions

- Factor returns equal the marginal returns in all uses
- No economies of scale
- Perfect foresight and continuous equilibrium in all markets

- Income related changes in internal demand
- constrained external markets and lags in adjustment
- Transformation of productive structure producing disequilibrium in factor markets

Empirical Implications

- Relatively high elasticities of substitution in demand and trade
- Limited need for sector disaggregation

- Low price elasticities and lags in adjustment
- Segmented factor markets
- lags in adopting new technologies

Sources of Growth

- Capital accumulation
- Increases in labour quantity and quality
- Increases in intermediate inputs
- Total factor productivity growth within sectors

- Neo-classical sources plus :
- Reallocation of resources to higher productivity sectors
- Economies of scale and learning by doing
- Reduction in internal and external bottlenecks (the potentials for this are likely to be greater in developing rather than developed economies).



Their findings concluded that the developed countries were categorised by little growth of labour inputs, moderate growth of capital and output, and a relatively large contribution of total factor productivity to aggregate growth. By contrast, the developing countries had high rates of growth of labour inputs, a higher total factor growth, and a relatively small contribution of total factor productivity to aggregate growth. Finally, the centrally planned economies were, in most respects, closer to the performance of the "Semi-industrialised countries" of the Far East than to the developed economies. They appeared to rely more heavily on expanding factor inputs than on increasing productivity.

Following that, a regression analysis was carried out of the differences in the growth processes of the three groups. An average growth equation was estimated for each group to study the relation of productivity growth to other elements in the equation. Allowance was made for the possibility that productivity growth may be affected by the rate of growth of factor inputs, by output growth or by unspecified differences among the country groups. It is also noted that productivity advances are at least partly embodied in additions to the stock of physical or human capital.

The results of this regression revealed that most developed countries fit within a small cluster defined by the relatively low factor growth, with total factor productivity accounting for between 50-70% of overall growth. Japan was the main exception, having double the average growth rate of a developed country, but also having a higher proportion being the result of higher factor inputs. The regression further showed the relative inefficiency of the growth process of the typical developing economies.

The main factors tested were:

1. The growth of the capital stock.
2. The growth of the labour force.
3. Improvements in the quality of labour (or a rise in education levels).
4. Reallocation of labour and capital.
5. Growth of exports.
6. Capital inflow.
7. Level of development.

The main conclusions to emerge from the regressions were:

- i. The growth of capital was still the most important single factor, but its relative contribution is reduced from over 50% of average growth in the neo-classical model to 30-40% in the structural formulations.
- ii. The growth of the labour force is similarly reduced in importance; in some developing countries it appeared to be no longer statistically significant. These findings are consistent with the evidence that many developing countries are characterised by surplus labour.
- iii. The reallocation of capital and labour from agriculture to more productive sectors accounted for nearly 20% of average growth.
- iv. The growth of exports made a significant contribution to growth for all developing countries in the period 1964-1973, however, it did not appear to be significant before 1960. If both factor reallocation and export expansion are included in the same regression, the latter appears to be more important.
- v. The capital inflow (excess of exports over imports) showed a significant effect on growth in two of the studies, in addition to its effects on investment and exports. This finding gave some support to the two-gap hypothesis that imports may constitute a limitation to growth.

The structural factors in the cross-country regressions appeared to be more significant for the developing countries than for the developed ones, whereas growth of the labour force had a more significant effect in the developed countries. Investment appeared to be the only important source of growth for both groups, although the relative importance of technological improvements is subject to speculation.

Chenery et al. emphasise the process of structural transformation. For the economy of a developing country, this may be defined as the set of changes in the composition of demand, trade, production and factor use that takes place as per capita income increases. To understand country differences in sources and rates of growth, the transformation as a whole must be analysed. More specifically, changes in demand and trade may affect the

sources of growth as much as the changes in factor supplies which are often stressed.

2.5.1 The Structural Transformation

The growth process of a developing country is sometimes explained in terms of being part of the overall transformation of its economic structure. This interdependence works in both directions : income growth causes changes in the composition of domestic demand and production, and conversely, rising investment rates and the reallocation of labour tend to increase aggregate growth. The transformation is by no means uniform across countries. It is affected by resource endowments and the initial structure of the economy, as well as by the choice of development policies. Indeed, in extreme cases, large structural changes may be associated with little or no growth.

The structure of the economy can be defined by its supplies of productive factors - labour, capital, and natural resources - and their employment in different uses or sectors. The term 'structural transformation' encompasses the changes in the economic structure that lead to, and are caused by, a rise in the national product, together with the proximate causes of these changes. A narrow definition of proximate changes would include the composition of demand and changes in comparative advantage. A broader definition would incorporate some aspects of productivity growth and the effects of government policies on resource allocation.

In the early stages of the structural transformation, the rate of productivity growth is quite modest and accounts for a small amount of total output growth. The initial acceleration of growth comes largely as a result of faster input growth - primarily, capital accumulation. However, the growth of the capital stock later stabilises or declines. Since output growth continues to accelerate for a considerable period, the growth rate of factor productivity must increase and must also account for an increasing proportion of growth. This is basically the argument that leads Kuznets (1971) to expect the rate of factor productivity growth in most countries to be higher in the twentieth century than it was in the nineteenth. Indeed, for most of the countries which

have long-term records, productivity growth did accelerate over time. Thus in the industrialising stage of an economy, productivity growth in manufacturing exceeds that in the services sector, whereas in the developed stage the situation is reversed.

Chenery *et al.* model the structural transformation in two parts, the first being an explanation of the rate of growth, and the second an explanation of changes in economic structure (both being inter-related). Their basic measure of the economic structure is the share of GNP originating in each sector of the economy. The most notable feature about the structural transformation is the increase in the share of manufacturing in GNP and the corresponding fall in the share of agriculture. The reallocation of labour from rural to urban areas, along with many aspects of industrialisation, stems from this basic change in the productive structure. The causes of the rise in the share of manufacturing in GDP differ considerably from those of the reduction in primary output. The decline in the share of primary outputs can be attributed to falls in domestic demand and shifts in net trade. Whereas the proximate causes of the rise in manufacturing are more the result of the increase in intermediate demand and use of industrial products, shifts in domestic demand, and the transformation of comparative advantage as factor proportions change. The relative importance of these factors varies according to each country's initial structure, natural resource endowment, and development policies.

Various hypotheses have been suggested to explain this process where the share of primary production falls, relative to that of manufactures, as income rises. These can be grouped as:

1. Demand explanations, based on a generalisation of Engel's law⁴.
2. Trade explanations, based on shifts in comparative advantage as capital and skills are accumulated, and
3. Technological explanations, which include the substitution of processed for natural material, and the effects of differential rates of productivity growth.

When modelling structural transformation two traditions of multi-sectoral analysis are used : either input-output analysis (as pioneered by Leontief), or the applied general equilibrium approach (pioneered by Johansen). The latter explicitly incorporates price effects, thus making the model more data demanding but potentially more useful for policy analysis, whereas the former is particularly useful as a planning and forecasting technique.

In their studies of the industrialisation process and the structural transformation that developing countries experience, Chenery & Syrquin propose two basic hypotheses (which they proceed to support empirically using their sample of 39 countries). The first hypothesis is that the long-run transformation of economic structure is found to be similar for all types of countries, and the second posits that differences in initial structure and development strategy have affected the timing of the industrialisation process and the sequencing of specific activities, more than they have affected the overall pattern.

In conclusion, the main premise of the structuralist approach is that there are identifiable structural changes in the process of the development of an economy, the main features of which are common in all countries. Yet, it is recognised that the pace and exact pattern of development are not the same among countries, but depend upon each country's particular set of circumstances. A country's initial resource endowment, size, government policies, external capital and technology availability, and the international trade environment all play a significant role in the development and growth process, and determine the timing and form of the structural transformation.

In the case of Sub-Saharan Africa, most countries remain highly dependent on the traditional (mining or agricultural) sector, with very weak industrial and/or service sectors. Botswana, Zimbabwe and Mauritius are perhaps the most notable exceptions, having a relatively more developed industrial base. The reasons behind the underdeveloped state of African economies are discussed in greater detail in chapter three, but are primarily due to factors included in the above conclusions. Table 2.3 below demonstrates the overall sluggishness of the structural transformation process in the continent over the period 1965-87, particularly for low-income SSA, excluding Nigeria.

Also notable is the reversal in the shares of agriculture and industry between 1987 and 1980, whereby the share of agriculture appears to have increased in 1987 (from 1980), and that of industry to have decreased. The share of the service sector exhibits little change over the period considered.

Table 2.3
The structure of production in Sub-Saharan Africa.
Distribution of Gross Domestic Product. (%)

	Agriculture			Industry			Services		
	1965	'80	'87	'65	80	'87	65	'80	'87
Total SSA	43	30	34	18	33	28	39	37	39
SSA excluding Nigeria	40	34	35	20	25	24	41	41	43
Low-income SSA excluding Nigeria	42	40	42	19	20	19	39	40	42

Source: World Bank, 1989

2.6 Endogenous Growth

The mid- late-1980s saw the emergence of a significant amount of literature on the subject of new or endogenous growth. These theories were developed and pioneered by Romer (1986) and Lucas (1988), to interpret the economic growth process of developed and less developed economies, and to understand the disparities between countries at various stages of development. Their main preoccupation was with how to maintain sustainable growth and why it occurs, rather than with how to start it.

Endogenous growth theories suggest that differences in economic performance between countries are a function of a number of factors not explicitly expounded in traditional neo-classical and other growth theories. Specifically, factors such as investment in human capital and technology are thought to play an important role in the development of an economy, equal in importance to that played by the "traditional" factors - the size and

distribution of factor inputs and their productivity. Thus new growth theories attempt to endogenise the sources of growth which are left out by the neo-classical growth models (investment in human capital and technology). These theories also attempted to get away from the traditional Solow-type conclusions that the majority of long-term growth in per capita incomes arose from exogenous technical progress.

One of the concerns of new growth theories is the failure of different economies to converge in the long term - both in terms of per capita income levels and the limited mobility of capital (and labour) between countries. Barro describes this as :

"In neo-classical growth models with diminishing returns, such as Solow (1956), Cass (1965) and Koopmans (1965), a country's per capita growth rate tends to be inversely related to its starting level of income per person. Therefore, in the absence of shocks, poor and rich countries would tend to converge in terms of levels of per capita income. However, this convergence hypothesis seems to be inconsistent with the cross-country evidence, which indicates that per capita growth rates are uncorrelated with the starting level of per capita product." (Barro, R., 1989).

Thus, proponents of endogenous growth models present them as alternatives to the neo-classical models, as the latter appear to fail empirically in explaining cross-country differences. In neo-classical models, the rate of return on investment and the rate of growth of per capita product are expected to be decreasing functions of the levels of the per capita capital stock and, over time, wage rates and the capital-labour ratios are expected to converge across countries.

However, others, such as Mankiw, D. Romer and Weil (1990), argue that an augmented Solow model which includes accumulation of human as well as physical capital provides a good description of cross-country data. In their model, which covers 98 countries over the period 1960-85, they conclude that

"...the Solow model is consistent with the international evidence if one acknowledges the importance of human as well as physical capital. The augmented Solow model says that differences in saving, education, and population growth should explain cross-country differences in income per capita. Our examination of the data indicates that these three variables explain most of the international variation." (Mankiw *et al*, 1990).

They further conclude that

"...Differences in tax policies, education policies, tastes for children, and political stability will end up among the ultimate determinants of cross-country differences."

To some extent, this latter conclusion seems to fit with our observed growth problems within SSA (see chapter three), but as cross-country comparisons cannot be performed in this study due to the enormity of the subject, the theory has not been tested here.

A primary premise of new growth theory is the assumption of a non-convex aggregate production function. Individual production functions may be convex, but at the aggregate level of the economy, convexity fails to exist throughout the whole function, because of market failures and, more specifically, because of the existence of externalities in investments in human capital and technology, deriving from the public good nature of technology and, to a lesser extent, education and health. These externalities are mostly positive and thus lead to an increase in the overall productivity of an economy, causing increasing returns to scale to exist at the aggregate macroeconomic level, when the individual at the microeconomic level faces a constant returns to scale production function.

Incorporating human capital in a production function creates the possibility of capital accumulation without an accompanying fall in the marginal productivity of capital, thus reducing, or ultimately eliminating, the reason for capital flows from more-developed to less-developed economies (Barros, A R , 1992). Furthermore, finance for some capital investments, such as those in human capital, are difficult to finance from international capital markets as they do not have a direct tangible return. There is therefore, a credit constraint which eventually results in, or necessitates, government intervention in the form of the procurement and provision of these funds and services.

King and Rebelo (1989), attempt to use the neo-classical model's transitional dynamics (the motion from a given initial capital stock to the steady state growth path-associated with growth in productivity and population) to explain cross-country differences in rates of economic growth,

but they find that diminishing returns to capital (physical capital) induce major counter-factual implications. They conclude that

"it is difficult to use the neo-classical model to explain sustained differences in growth rates".

Baumol (1986) analysed productivity growth and convergence, and concluded that for the industrialised countries, there appeared to be a tendency for productivity levels and per capita income levels to converge. Using Maddison's 1870-1979 data, he found a very high correlation coefficient, where the higher the country's productivity level at the beginning, the more slowly that level grew in latter periods. Furthermore, he arrives at the conclusion that there is more than one "convergence club", with the centrally planned economies and the other groups of countries somewhat inferior in performance to that of the industrialised market economies, exhibiting a weaker trend towards convergence. He refrains from explaining why the poorer developing countries of today have not benefited much from the public good properties of the innovations and investments of other nations, but infers that part of the explanation may lie in the product mix (for which technological innovations apply) and education.

However, De Long (1988) concludes that Baumol's results are not particularly solid, as they are founded on a biased sample, selected *ex post* of countries that are now successfully developed. Baumol's sample was primarily of countries that afterwards became successful, thus making convergence appear to have taken place. He also maintains that Baumol's results tell us nothing about the strength of the forces making for convergence among nations selected in his sample. The sample suffers from selection bias. Why some countries develop and others not may have something to do with the fact that countries such as Australia, New Zealand and some of the Latin American countries were built on European capital, labour and skills, at least as much as on natural resources. These countries did not lack the institutional and organisational frameworks and capabilities that are necessary to foster sustainable growth and long-term development. Also, the mode of government is relevant. De Long concludes that "Perhaps only industrial nations with democratic political systems converge. "

However, being a democracy is also partly determined by growth and economic development over the preceding period. De Long concludes that convergence may indeed happen, as technology is a public good, but that the capability to assimilate industrial technology appears to be surprisingly hard to acquire, and it may be "distressingly easy to lose". Indeed, the forces making for convergence are no stronger than the forces making for divergence. Technology transfer is by no means inevitable.

Endogenous growth theories have implications regarding, for example, the role of government in an economy, trade policies, intellectual property rights, and income distribution and growth.

To begin with the role of government, the existence of market failures and externalities, in traditional neo-classical theory as well as in new growth theory, forms the basis for government intervention, primarily in the form of taxation and subsidies. So long as these interventions are not excessive and do not substitute for private investments, then government intervention in a country which is still at the early stages of development should be welfare enhancing. However, there is great controversy regarding the optimum level of government intervention, but in an economy where it is very difficult to mobilise savings and hence, investment, the government must provide the substitute funds for the necessary social/human capital investments.

Thus, endogenous growth theories tend to suggest that investments in research and development and education are fields which could be subjected to government intervention to enhance economic growth and development. They further imply that public education promotes social equity more than private education, and social equity is often considered one of the main targets of economic development, particularly at the initial stages of development, where the disparity between incomes can become very severe if the provision of essential services, such as education and health, are left to the market system.

However, such conclusions must be qualified by focusing on the efficiency of the government and the capability of the public sector's institutions to manage such investments efficiently. For example, it is clear that in Korea,

Taiwan and Singapore, government institutions are far better equipped than the governments in SSA to handle public investments efficiently. Furthermore, after a certain point, increasing government intervention in the economy becomes counter-productive. However, that point has not been reached in SSA. Indeed, a major problem so far has been the striking inefficiency of many government investments in the continent. Whether that is directly related to the level of education of the policy makers is as yet undetermined, and the process of proof will be fraught with difficulties in discerning the impact of education and training in their own right, and other factors such as innate personal characteristics which might account for better policy-making capabilities.

As to the implications of endogenous growth theories for trade policies, the theory often assumes that the reduction of trade barriers improves communication across countries and thus avoids replication of research efforts. Technological cooperation programmes and the exchange of qualified personnel could have a similar effect to the reduction of trade barriers, if there were no barriers to such transfers and if it did not involve a prohibitively high cost. Furthermore, the removal of trade restrictions should lead to the concentration of resources in sectors in which the country has a comparative advantage.

Yet in new growth models, there is contention regarding the positive effects of specialisation according to the laws of comparative advantage. The assumptions made concerning the country's innovation capacity, its stock of human capital and whether the flow of information is perfect or not. New growth theories conclude that, indeed, protection should be reduced by the developed economies for the promotion of economic growth, but that less developed economies need to protect (or subsidise) those sectors which can generate more spillover to other sectors throughout the economy to enhance economic growth. Furthermore, the theories conclude that the improvement in technological (international) flows is beneficial for the development of all countries.

Intellectual property rights is a more important issue in relation to the Asian countries, where imitation and "patent -breaking" practices are common. The question here is whether such protection is welfare enhancing (for the whole

world), as it increases incentives for research and development. Such protectionism is clearly to the benefit of the more advanced economies where the original innovation may emanate from, and the cost of a more legal approach to imitation could be prohibitive to the less developed economies. Indeed, new growth theory concludes that an increase in the protection of intellectual property rights may have an adverse effect on the world economy. Imitation in LDC's, combined with lower real wages in those countries, transfers the production of these new products to the developing countries. Resources are thus freed in developed countries and could be moved into producing other goods. This mechanism, it is argued, will speed-up innovations and should have a beneficial long-term impact on the world economy.

Finally, on the issue of income distribution and growth, new growth theory is in contention with neo-classical theories, in introducing the idea that the higher the propensity to save, the higher will economic growth be. Neo-classical growth models assume that savings do not affect the equilibrium growth rate, but only the level. This subject remains controversial, and evidence can be found to support either theory.

Given the propositions of the theories of endogenous growth, can the developing countries adopt deliberate interventionist policies to expand human resources in order to speed-up their economic growth, and will such policies be effective. The clearest evidence regarding this issue emanates from the experience of the East Asian countries - and more specifically, from the newly industrialising economies of the Far East.

In general, there appears to be sufficient evidence to support the conclusion that there is a positive association between investments in human resources and economic growth, albeit with some exceptions, such as the Philippines (Behrman, 1990).

It is argued that

"...policies that increase the availability of knowledge beyond that which would occur with private production of knowledge are likely to lead to greater efficiency and greater national income at world prices for a given production possibility frontier." (Behrman, 1990).

Behrman then cites evidence that the newly industrialising countries had adopted an active interventionist stance to development, where the respective governments planned and directed the growth effort. The specific experiences of South Korea and Taiwan suggests that

"...Their successful industrial expansion was greatly facilitated by their educational systems....[however] Whether or not their [elaborate manpower] planning effort was a success is a matter of dispute, since many people were trained for careers that they did not pursue. The fact that they were trained and that the training was transferable to many different activities, however, is widely accepted." (Krause, 1989).

Therefore, the experience of these countries may not be applicable to that of other countries, particularly the African economies, because of the different historical, locational, and social circumstances. Investment in human capital is not, on its own, sufficient to foster economic growth. The general policy and economic environment has to be suitable to ensure a high rate of return to such investment. Indeed, it should be accompanied by an equal and sustained effort to invest in physical capital, in order for the investment in human capital to be sufficiently productive.

The extent to which investment in human capital has affected the growth rate of real GDP in the Sub-Saharan African countries will be tested in chapter five, using literacy rates as an indicator of education. Despite the problems associated with the choice of variable, this was the only variable for which there was a most comprehensive data set for the countries in the sample and for the years under study. The results of the cross-section regressions are presented in chapter six, and those of the panel regressions in Appendix IV.

2.7 Foreign Trade Issues

Section 2.8.3 expands upon the idea of trade as an 'engine of growth'. In this section, we will concentrate on the main aspects of the trade policy debate.

Traditionally, there have been three major strategies which countries have attempted to follow in their pursuit of growth. These are import substitution (IS - an inward oriented trade strategy), export promotion (EP - an outward

oriented strategy), and a balanced approach to growth using a 'sensible' mix of the first two strategies. Sometimes, increased foreign borrowing is used in conjunction with either policy. This is regarded as a complementary policy to any of the above mentioned three main routes to growth.

The main aim of the IS approach is to reduce imports by producing domestic substitutes for them. The main policy instruments for this would be tariffs, quotas and import rationing methods. Protectionism would be aimed at reducing the importation of certain commodities in order to attempt to set up local industries to produce those commodities. Typically, this involves cooperation with foreign companies. The economic rationale behind this strategy is usually based upon the 'infant industry' argument, or balance of payments improvements (as fewer commodities are imported), or a combination of both. Ultimately, it is hoped that the protected infant industry would become strong enough, not only to satisfy the demands of the domestic market, but also to begin exporting.

A different trade hypothesis is that opening up to international competition will induce increases in domestic efficiency. There is an implicit challenge-response mechanism induced by competition; domestic industries are forced to adopt new technologies, to reduce X-inefficiency ["the notion that individual firms are more likely to operate inside their production possibility frontiers than on them because producers do not exert sufficient effort at all time to maximise output ", (Herrick and Kindleberger, 1984) - this is essentially inefficiency resulting from managerial ineptitude and slack], and to generally reduce costs wherever possible. Thus export expansion and import liberalisation are always seen as beneficial.

Another possible link between trade and productivity is through the foreign exchange constraint. It is usually the case that developing countries cannot easily substitute domestically produced goods for the imported intermediate and capital goods. In a sense, these imported inputs embody technologies that are unavailable to domestic producers and can only be obtained through imports. Policies that limit the availability of such imports, or make them more expensive, will lead to poor productivity performance. Thus, for example, one of the reasons an export-led development strategy will be beneficial is because exports are an important source of foreign exchange;

they permit industries to buy inputs that can be produced domestically only at a much greater cost - if at all.

Import substitution strategies for growth may be appealing to governments of the developing world, because of their apparent simplicity and high pay-offs in the form of reduced imports, a greater industrial base and industrial export potential, (therefore, in practice, the distinction between IS and EP strategies appears less pronounced than theory suggests). This is especially the case when developing countries face difficult external factors, such as declining demand and price for their primary exports, growing balance of payments difficulties and the belief that the reason behind other countries' successes is the 'magic of industrialisation'.

However, it has been argued (Little *et. al* , 1970, and Schnitz, 1984) that a significant number of LDC's have been largely unsuccessful at industrialising through import substitution alone. One of the factors behind this has been the fact the benefits in the domestic market of import restrictions have tended to accrue to the foreign companies involved in the import-substituting industries. Furthermore, there has been a tendency for the foreign exchange rates to be over-valued in those developing countries pursuing an IS strategy, in order to facilitate the import of the capital and intermediate goods required for the infant industry. This is despite the fact that the industries concerned often never 'grow' to the planned size, and remain uncompetitive, hiding behind the protection policies imposed by the government.

Export promoting strategies aim at the penetration of world markets by the country's domestic exports (be they primary products or manufactures), and also the liberation of imports. One of the most important policy instruments in this case is the real exchange rate. That could be set (or left freely to settle) at levels which make the exports of that country attractive. In addition, domestic policies would be formulated so as to encourage exports and to stress the primary role of trade in the economy. The consequences of such policies, or the lack of them, are considered in chapter three.

Proponents of export-promotion, or outward-oriented policies base their arguments mainly on the efficiency and growth benefits of free trade, the

advantages to be gained from access to larger markets, the distortionary effects of protectionism and, more to the point empirically, the exceptional successes of the East Asian countries, especially Singapore, Korea, Taiwan and Hong Kong (Little *et al.* , 1970).

However, the hazards of an outward-oriented trade policy include being subject to large fluctuations in world demand for the country's exports. This 'trade dependency' is particularly detrimental for small countries whose exports are not large enough to form a significant force in determining the price of the exported commodity (most of the SSA countries fit into this category).

The expansion of exports can be in the primary commodities sector (agriculture and mining) or in the manufactures sector (industry). Difficulties in the promotion of exports of the primary commodities include the development of competing synthetic material (instead of, say, cotton, rubber and sisal), the tendency for the prices of primary products to decline relative to other traded goods (resulting from low income elasticities of demand for primaries relative to those for manufacturers), and the inherent rigidities in the rural production systems of most less developed countries. These rigidities include soil quality and climate on the natural side, and social and economic structural rigidities, such as those resulting from institutions like the marketing boards, particularly prevalent in SSA.

Also, the expansion of manufactured exports often faces the growing protectionism from the developed countries against the processed exports of LDCs in general (Taylor, 1982). Other problems associated with imports are concerning imported technology. These are discussed in section 2.3.

Citing the newly industrialised countries as an example of the successes of pursuing a free trade and market forces approach can be somewhat misleading, as evidence suggests that in most countries (particularly in Korea, Singapore and Taiwan), governments played a large and significant role in directing and carefully planning the production and composition of exports (Bradford, 1986).

Finally, some countries may opt for a 'balanced' trade strategy, combining elements of both IS and EP. Such a policy would reduce the inefficiencies and price distortions associated with the protectionism involved in a comprehensive IS strategy, without concentrating totally on encouraging the rapid growth of exports associated with the EP strategy. This may be achieved by combining successful IS with devaluation of the real exchange rate, which encourages exports and avoids the anti-export bias inherent in the IS strategy. Elimination of this bias encourages export growth, which permits substantially more rapid growth in imports.

In all policies however, the ability of the particular country to raise foreign capital (its credit-worthiness) in the international financial markets remains of great importance in the course of its development, acting as an extra source of finance if and when it is needed.

One direct impact of alternative development policies is reflected in the incentives to domestic producers to sell products in domestic rather than foreign markets. The policies that influence these incentives include instruments such as tariffs and subsidies, as well as the real exchange rate. One important implication of the choice of development strategy stemming from sectoral interdependence concerns the relative price of capital goods and its effect on capital accumulation and growth. Capital accumulation in an economy occurs as investors in each sector purchase capital goods.

The relative price of capital goods will determine the real investment resulting from a given investment expenditure. This capital goods price is, in turn, strongly influenced by trade policy since a large portion of the machinery purchased domestically is imported. Thus any policy that raises the domestic price of imported machinery will raise the price of capital goods, since substitution possibilities are limited. In an EP strategy, the relative price of capital goods should decline over most of the period, given that that is an essential factor in fostering a successful development of exports.

Therefore, the selection of a particular trade strategy requires a careful assessment of the forces involved and the timing of implementation. Flexibility and careful monitoring of the international trade environment are

also necessary, in order to be able to adopt suitable policies in the face of changing conditions, such as a contraction in world trade, for example, or a change in world demand for the output of a particular sector.

2.8 Strategic Growth Issues

In this section, four issues of growth associated with the choice of strategy will be discussed. These are the 'big push' theory, balanced and unbalanced growth, the 'engine of growth' theories, and income distribution. We will begin with the theories of the 'big push'.

2.8.1 The big push theory

Some economists (e.g. Rosenstein-Rodan, 1986) argue that a 'big push' is needed, mainly in the form of large investment expenditure, to get an economy started in its growth process. The economic rationale for the 'big push' forms part of the doctrine of balanced growth.

In the 'big push' theory, a large investment programme, promoting rapid industrialisation and building up economic infrastructure, is considered necessary (but not sufficient) as a first step towards sustained economic growth. This theory is primarily based on certain indivisibilities of inputs, and processes of output, which give rise to increasing returns to scale, and external economies. Another cited reasoning for the big push is the imperfect state of the markets, particularly for investment, which could give distorted signals sending the economy away from its 'optimal' growth path. This, combined with the indivisibility argument, would be one of the reasons calling for state intervention in the investment market, by setting up industries such as power, transport and communications (social overhead capital).

The third argument calling for a big push is demographic. It is argued that such an investment may be one of the main routes to escape the 'Malthusian population trap'. This would be done by giving income a 'big push' so that it would jump to such a level that exceeds the growth rate of the population. In this way, the Malthusian positive checks (Famine and natural disaster)

would be avoided. However, some argue that this is neither feasible nor particularly necessary for developing countries (Ellis, 1986). There is a contention that firstly, regarding the demographic aspect, it is argued that despite the interdependence between population growth, per capita income and income growth, the model conclusions appear to be unduly pessimistic and restrictive. Furthermore, historical experience (Hagen, 1959) suggests that, such a 'big push' was not necessary to raise per capita income to the level beyond which its further growth will not be dependent on income-depressing versus income-raising forces (e.g due to the role of technical progress).

The theory also appears to imply that once this large (typically governmental) investment is made, the developing economy could 'take-off' into its development process. Not enough emphasis appears to be placed on other, perhaps equally important, forces such as the productivity of such investment, the level of human capital and education and the general stability of an economy. This reverts to the overall role of investment in the growth process, and not simply of a "state engineered investment burst".

In the empirical work of chapter six, the effect of a 'big push' is proxied by the use of Gross Domestic Investment levels, relative to GDP, as a factor affecting growth. Despite not being an exact measure of a governmental investment intervention, the use of government consumption levels as another factor, gives an indication of the roles of investment and the government in the growth process.

2.8.2 Balanced Versus Unbalanced Growth

The term 'balanced growth' could be used to refer to two ideas. The first concerns the scale of investment necessary to overcome indivisibilities on both the supply and demand sides of the development process (as proposed by Rosenstein-Rodan). On the supply side, indivisibilities refer to the lumpiness of capital. One implication is that only investment in a large number of activities simultaneously can take advantage of various external economies of scale. This forms the basis of the big push theories discussed in section 2.7.1 above.

This is bound up with the assumed existence of external economies of scale - the nature of the production function in one activity may be altered by the existence of other activities, or the impact of a large investment program on the profit functions of participatory firms. Thus the private return of an activity is lower than the social return. Proponents for a balanced growth strategy argue that increasing investment in an overall program can eliminate this divergence. However, the cost of factor inputs may rise, thus offsetting the benefits of those external economies. Nevertheless, it is usually the case that certain investments must be of a minimum size to be economically viable.

On the demand side, indivisibilities refer to limitations imposed by the size of the market on profitability and hence, feasibility of economic activities.

The second interpretation of balanced growth refers to the path of economic development, and the pattern of investment necessary to keep the different sectors of the economy in balance so that the lack of development in one sector does not impede development in others. Absence of shortages and bottle-necks is implied here. Thus balanced growth has a horizontal and a vertical aspect to it.

Among the foremost proponents of this second version of the balanced growth doctrine emphasising the path of the development process and the pattern of investment are Nurske and Lewis (1955). In Particular, they emphasise achieving a balance between the agricultural and the industrial sectors of a less developed country, due to the interdependence between those sectors and the mutual assistance and stimulus that each can give the other.

A significant argument upon which Nurske's conclusions are based is the restricting part played by market size in the growth process. Given the fluctuations of world demand for developing-country exports (mainly, of primary commodities), expansion and growth through trade are not always possible. Therefore, he argues, alternative growth strategies should be found.

Increased productivity and increased domestic purchasing power is seen possible through "a balanced pattern of investment in a number of different industries, so that people working more productively, with more capital and improved techniques become each others' customers". This, it is argued, would result in an upward shift of domestic demand schedules, thus providing an incentive for further (mainly private) investments and growth.

A major criticism of the balanced growth doctrine is that it fails to come to grips with the fundamental obstacle to development in developing countries - namely, a shortage of resources of all kinds, especially, capital (Todaro,1989). Critics of a balanced growth approach do not deny the importance of a large scale investment program and the expansion of complementary activities. Their argument is simply that in the absence of sufficient resources, especially capital, entrepreneurs, and decision makers, the striving for balanced growth may not provide a sufficient stimulus to the mobilisation of resources, or the inducement to invest, and will certainly not economise on decision-taking if planning is required.

One of the foremost exponents of the doctrine of unbalanced growth is Hirschman (1958). In his view, the real scarcity in developing countries is not resources themselves but the means and abilities to bring them all into play. He maintains that preference should be given to that sequence of projects which maximises "induced" decision making.

Thus Hirschman's version of unbalanced growth appears to stress the importance of decision taking. Hirschman also points to two inducement mechanisms at work within a sector : the backward linkage effects and the forward linkage effects. The former concern the derived demand for inputs, and the latter pertains to non-final demand output utilisation.

To be most effective, what both balanced and unbalanced growth strategies seem to pre-suppose is planning - be that at private or state level (Streeten, 1986). It is the association with planning that has tended to polarise opinion on the two strategies. Unbalanced growth does not necessarily preclude planning. Both Nurske and Hirschman emphasise that this coordination or planning can be provided from the private investing sector, not only by the state. This planning debate is too vast to be considered here, but it has

been (and in many cases, it continues to be), a common feature of the development efforts of most developing countries (Todaro, 1971, Tinbergen, 1967, and Blitzer *et. al* , 1982).

An interesting reconciliatory view, notably by Mathur (1966), is to treat unbalanced growth as a means of achieving the ultimate objective of balanced growth. In this way, elements of both strategies could be combined to produce a possibly less extreme and more comprehensive policy for development.

It may not be easy to evaluate the balanced Vs. unbalanced growth debate. For one thing, it is difficult to test the theories empirically. In chapter six, one of the variables used in the regression analysis is a proxy for the size of the government sector. This is used as an indication of the effect of government intervention on economic growth.

2.8.3 The Stages Of Economic Development and the 'Engine of Growth'

The stages of economic growth is a theory most commonly associated with W. W. Rostow (1960). The essence of Rostow's theory is that it is possible to identify stages of economic development and to classify societies according to those stages. He distinguishes five such stages : traditional, transitional, take-off, maturity, and high mass consumption. Traditional societies are characterised by a ceiling on productivity imposed by the limitations of science, and having the majority of the work force engaged in the agricultural sector.

The main economic requirement in the transition phase is that the level of investment should be raised to at least 10% of national income to ensure self-sustaining growth. The preconditions to take-off are met in the transitional stage, and the take-off stage is a short stage of development during which growth becomes self-sustaining. Also important here is the establishment of what Rostow calls "leading growth sectors", such as grain in the United States, the Soviet Union and Canada, timber in Sweden, and to a lesser extent, textiles in Britain.

The Maturity stage is that when society has effectively applied the range of modern technology to the bulk of its productive sectors. In this stage, there would be a significant growth in the urban population and other changes in the industrial structure would occur (such as the increase in the proportion of white-collar workers).

High mass consumption is the final and most developed stage (which none of the developing countries are likely to reach in the foreseeable future). In this stage, the leading sectors shift towards the production of consumer goods and services.

Furthermore, a close association appears to exist between the growth of industry and the growth of output as a whole, giving more support to the proposition that "manufacturing is the engine of growth". In a study by Thirlwall (1983) of 81 countries over the period 1970-1977, a regression equation is calculated relating average growth of GDP (g_{GDP}) to average growth of manufacturing industry (g_I). The resulting equation is :

$$g_{GDP} = 1.414 + 0.569 g_I \quad r^2 = 0.610 \\ (0.051)$$

(Other studies produce similar results, see for example, Journal of Post-Keynesian Economics, Spring, 1983, symposium on Kaldor's growth laws). The regression coefficient is significantly less than one, implying that the manufacturing rate of growth is typically faster than the overall growth rate of GDP.

This link between manufacturing growth and the growth of GDP is based on two main arguments. The first is that the faster the industrial growth rate, the faster is the transfer of labour from the lower productivity traditional sector to the higher productivity industrial sector, thus increasing the returns from the previously unemployed (surplus) labour. The second argument is that increasing returns are thought to exist in the manufacturing sector, due to factors such as economies of scale and technical progress.

However, the stages theories, as expounded by Rostow, are not without shortcomings. A common criticism of those theories is that the stages are

very blurred - no distinct phases are definable, and plenty of overlap in the definitions exist, especially between 'transition' and 'take-off', (Kuznets, 1965, and Cairncross, 1961). Moreover, the theories prove empirically untestable (Fishlow, 1965). Even the suggestion that the rise in investment to 10% of national income is virtually non-existent historically (Morgan, 1975). The stages theories appear not to have taken into account the complications introduced into the growth process by the external international environment, from which severe disturbances could arise. Too little attention is given to the fact that the historical records of today's industrial countries do not necessarily form a suitable learning basis for today's less developed countries, who face immensely different and complex inter-relationships with their external environment. Finally, the theory appears to give too much attention to physical capital and not enough to the human capital element, institutional factors and the transfer of technological progress.

Yet, while stages of growth theories may be lacking in analytical power, Thirlwall (1986) summarises their purpose as to

"distinguish the situations in which an economy may find itself, not that the stages distinguished should necessarily have parallels in history, or be rigidly distinct".

2.8.4. Growth and Income Distribution

Higher economic growth is not always associated with greater equality in the distribution of income. Indeed, the link is controversial and subjective, with some arguing that faster growth precedes and produces higher income equality ('Grow first, redistribute later' and not vice-versa), (Galenson and Leibenstein, 1955), while others stress the weakness of the perceived automatic link between the two variables, arguing that faster economic growth would not always lead to greater equity in income distribution (Todaro, 1989).

The traditional argument for prioritising growth over the income-equality objective is based upon the concepts of factor shares, savings and investment. It is assumed that increased inequality means increased

income for the rich, higher saving, classes. This (primarily neo-classical) argument stipulates that capitalists, or the rich classes in an economy would save and invest a large proportion of their surplus capital or profit, thus creating greater employment and faster output growth, which, in time, should 'trickle-down' to the masses in the form of higher incomes and living standards. This process, it is argued, would be assisted by taxation and subsidy programmes. The poor are assumed to spend all (or the majority) of their income on consumption goods (Galenson and Leibenstein, 1955).

Looking at today's less developed countries, this argument could be faulted on a number of premises. Firstly, empirical evidence suggests that the rich elites of developing countries do not appear as 'devoted' to domestic re-investment of profits as theorised (Lessard and Williamson, 1987). Instead, they appear to prefer spending their surplus capital on imported luxury goods, real estate and 'safe havens' abroad constituting capital flight. Clearly, such behaviour could only be an added drain on a country's resources, rather than an addition to its productive resources.

Another counter-argument (Dasgupta and Ray, 1987) is based upon the effects of low income levels and living standards on the output and productivity of the poor masses, with lower growth resulting from the lower productivity which could be brought about by poor health, nutrition and education. Furthermore, the low incomes of the poor would depress demand for domestic output, such as food and clothing (given that they cannot afford expensive imports as the rich can). This reduction in demand for domestic output would then reduce employment, investment and ultimately, growth.

Large income disparities within a society could also lead to a politically unstable situation, especially by the more educated sections of the population, whose aspirations to higher living standards may not be fulfilled. This political instability could act as a strong suppressant of growth. (The association between economic growth and political instability is examined in chapter five).

Perhaps one other factor is that, even assuming the traditional argument for 'grow first, re-distribute later' holds, today's less developed countries seem

to have an inefficient tax-collecting system, in which the assets of the rich are minimally 're-distributed', as many methods of tax evasion are employed.

Table 2.4
Economic growth rates and inequality

Country	Year	Percentage share of Household income by percentile group of households			Growth of GDP
		lowest 20%	highest 20%	highest 10%	
Botswana	1985-86	2.5	59.0	42.8	13.0
Cote D'Ivoire	1986-87	5.0	52.7	36.3	2.2
Ghana	1987-88	6.5	44.6	29.1	1.4

Source : World Bank, World Development Reports, 1986-91

The effects of per capita income on the savings ratio are explored empirically for Africa in Chapter six. In the case of SSA, data on inequality is scarce, but from table 2.4 above, and for the countries for which data was available, it appears that it is not necessarily the case that higher economic growth is associated with greater equality in the distribution of income (e.g. Botswana). It further illustrates that higher inequality is not necessarily associated with high growth rates (Cote D'Ivoire and Ghana).

2.9 Summary

This chapter has reviewed the main theories of economic growth, starting with one-sector models and gradually covering all the major issues that have traditionally been associated with growth. The empirical work in chapter six, in which the explanatory variables of growth will be tested, is an attempt to assess the influence of different factors on the growth of aggregate output in SSA.

From the above review of the traditional theories of growth, certain factors emerge dominant in the growth process. The most influential factors appear to be the capital, saving and investment levels. In the empirical work, the factors affecting the saving rate will be explored, and the effect of the saving (and investment) levels on the growth rate of GDP will be tested.

Another related problem that will also be tested is that of the productivity of capital in SSA. The factors thought to affect the Incremental capital-output ratio (ICOR) will be included in a separate regression model of the ICOR (or 'v' in the Harrod- Domar model).

Human capital investments have also emerged as a factor affecting growth. This factor is difficult to be precisely captured, but literacy rates are used as a proxy in the empirical analysis for the effect of this factor on economic growth.

From the foreign trade debate, the impact of exports and imports emerges of great importance. This is tested by the use of the ratios of export and import volumes to GDP, export and import growth rates, and the change in the terms of trade. These appear of particular importance to SSA, given the important role that trade plays in those countries.

Many of the theories reviewed above stressed the effect of population growth on economic growth. Two types of equations will be used to analyse this effect. One will include population growth as an explanatory factor of the growth of GDP, and the other will test the effect of population growth on the savings ratio. It is important to test the role of population growth in the growth process of SSA, since those countries have experienced relatively high growth rates of population throughout the period under study.

Other factors that will be tested as explanatory variables in the African growth experience are the size of the public (or government) sector, political instability, foreign aid and the debt levels. These factors appear to have had great influence on the development of the African economies (see chapter three), and will therefore be included in the empirical analysis.

Finally, given the general stress on the role of the free operation of the market system by many theories, particularly that of the neo-classicals, a variable will be included in the analysis as a proxy for this factor. This will be the ratio of the black market to the official exchange rates in the SSA countries considered. This is of particular importance in Africa, as the informal sector appears to be relatively large in many countries (see chapters three and six).

This completes the coverage of the theoretical background to economic growth. Given the theoretical expectations regarding the factors affecting the growth rate of aggregate output, the following chapters will discuss each factor as it manifests itself in Sub-Saharan Africa. The discussion will first be descriptive, then it will be followed by a detailed econometric analysis, assessing each factor's role and putting the theoretical propositions to the test using an OLS regression model.

NOTES

$$(1) \quad k_t = K_t / L_t$$

$$\ln k_t = \ln K_t - \ln L_t$$

Differentiating,

$$\begin{aligned} k_t^{\circ} &= (dk/dt)/k = (dK/dt)/K - (dL/dt)/L \\ &= K_t^{\circ} - L_t^{\circ} \end{aligned}$$

Furthermore, the change in the capital stock = investment, that is,

$$dK/dt = I = sQ$$

Since

$$L^{\circ} = gL, \quad (\text{exogenously given}),$$

it follows that

$$k_t^0 = sQ/K - g_L \quad / \text{ dividing by } L$$

$$\begin{aligned} k^0 &= sq/k - g_L \\ &= sf(k)/k - g_L \end{aligned}$$

= the rate of growth of k in terms of k itself.

The equilibrium K/L ratio is that value of k which makes $k^{\wedge} = 0$.

If it reaches that value it will remain there, since k^{\wedge} will then be equal to zero.

Thus,

let $k^0 = 0$ to find k^* :

$$sf(k)/k - g_L = 0$$

or

$$sf(k^*)/k^* = g_L, \text{ which defines } k^*.$$

Or

$$q^* = f(k^*) = (g_L/s) \cdot k^*$$

This is a stable equilibrium to which the economy will move and stay, if it begins at a different K/L ratio.

$$\text{If } k < k^*, \quad f(k) > [(g_L/s) \cdot k]$$

$$\text{or } sf(k)/k > g_L.$$

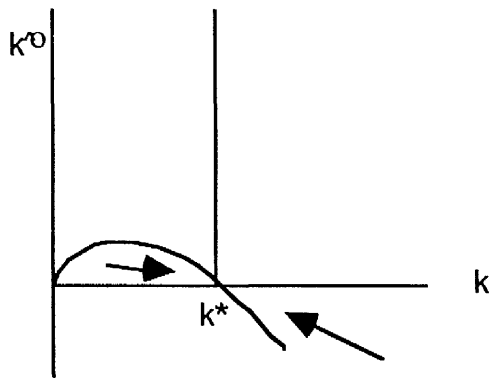
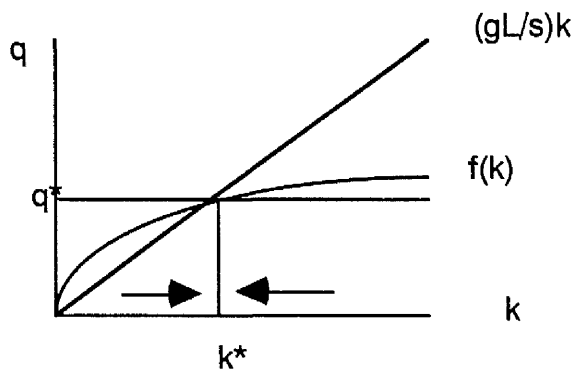
From the equation

$$\begin{aligned} k_0 &= sq/k - g_L \\ &= sf(k)/k - g_L. \end{aligned}$$

In this case, $k_0 > 0$, and so k is increasing if $k < k_0$.

If $k > k^*$ and $sf(k)/k < g_L$, $k_0 < 0$ and k is decreasing.

Fig.2.5
Neo-classical growth equilibrium



- (2) Euler's theorem states that for a production function with constant returns to scale,

$$Q = (dQ/dL).L + (dQ/dK).K$$

Where,

$$dQ/dL = MPP_L \quad \text{and} \quad dQ/dK = MPP_K$$

Thus, for the special case of constant returns to scale, the marginal productivity theory satisfies the 'adding up' condition :

$$[\text{Share of Labour}] + [\text{share of capital}] = 1$$

- (3) Income shares with technical progress :
 Re-write production function as

$$Q = E f(K/E) = Le^{\lambda t} f(K/E) = Le^{\lambda t} f(k)$$

differentiating, to get the marginal product of capital, MPK, under competitive conditions, the profit rate would be

$$\rho = dQ/dK = Le^{\lambda t} f'(K/Le^{\lambda t}) \cdot (1/Le^{\lambda t}) = f'(K/Le^{\lambda t}) = f'(k)$$

profit rate = slope of production function = constant in equilibrium.

The wage rate is given by

$$\begin{aligned} w = dQ/dL &= Le^{\lambda t} f'(K/Le^{\lambda t}) \cdot (-K/e^{\lambda t} L^2) + e^{\lambda t} f(k) \\ &= e^{\lambda t} [f(k) - kf'(k)] \\ &= \text{the real wage rate.} \end{aligned}$$

In equilibrium, at $k = k^*$, w grows at rate λ , which is the rate of growth of the average labour productivity $Q_0 - L_0$.

The capital share of income is given by ρK , and the labour share by wL .

If the ratio $(\rho K/wL)$ is constant, then the income shares would be constant :

$$K/E = K/Le^{\lambda t} = k^* = \text{constant in equilibrium.}$$

That is

$$K/L = k^* e^{\lambda t} \quad \text{and} \quad (K/L)_0 = \lambda .$$

Therefore,

$$\begin{aligned} \text{K share/L share} &= \frac{f(k^*)}{e^{\lambda t} [f(k^*) - k^* f'(k^*)]} \cdot k^* e^{\lambda t} \\ &= \frac{f(k^*)}{f(k^*) - k^* f'(k^*)} \cdot k^* \\ &= \text{constant at equilibrium ratio } K/E, k^*. \end{aligned}$$

- (4) Engel's Law being that with increases in income, the structure of demand moves strongly in favour of manufactures and against primary products, or in other words, the share of food in consumption expenditure declines as income rises, while the share of all other components rises.

CHAPTER THREE

ECONOMIC PROBLEMS AND GROWTH PERFORMANCE IN SUB-SAHARAN AFRICA

3.1 Introduction

Prior to the wave of independence movements in Sub-Saharan Africa, the economies of those countries were conditioned by their relationship with the colonising powers (with the exceptions of Liberia and Ethiopia), who were using their colonies as a source of the raw materials and primary commodities they required (see chapter one).

Agriculture, which had been mainly concerned with food production for local consumption, became geared towards the production of cash and export crops by a variety of methods and incentives (Brett, 1973). There was little industry or manufacturing. Whatever was made was mainly for the satisfaction of the demands of the local settler communities. Industry was generally not viable, except where it formed part of the colonial pattern of trade, assisting the export process of primary commodities in exchange for European manufactures.

The manufacture of simple consumer goods such as beverages, shoes, textiles, tobacco and some timber products was sometimes possible. In countries where there was a relatively large settler community, such as Kenya and Zimbabwe, local manufacturing prospered relatively more than in other African countries, again, in order to satisfy the settlers' needs. However, most of the trade and industrial activity was owned and undertaken by non-African nationals, particularly Asians. Africans were generally excluded by the lack of access to education and capital - sometimes even by the law (Rweyemamu, 1980 and Hazlewood, 1979).

In this chapter, there is first an examination of Sub-Saharan Africa's growth record in the post-independence period. This is followed by an assessment of the general trends and the orientation of economic policy. The rest of the chapter is devoted to an examination of the internal and external factors that,

it has been argued, have been responsible for the deterioration of the African economies.

3.2 Sub-Saharan Africa's Growth Record

In the first chapter, Table 1.2 compares the growth rates of the Sub-Saharan African and other countries giving some indication of the difference in growth rates between the African countries South of the Sahara and other countries of the developing and the developed worlds. Although the 1960s indicated comparatively good growth rates for the majority of the Sub-Saharan African countries, the 1970s showed a marked deterioration and a few countries experienced negative growth rates. However, some countries, namely Botswana, Cameroon, Congo, Cote D'Ivoire, Kenya, and Nigeria, did maintain a good record, with growth rates either rising or remaining more-or-less constant (on average, for the decade 1970-79). Those countries are the ones often cited as Sub-Saharan Africa's more successful economies due a variety of reasons, such as being oil exporters, or generally better at economic management than others.

Table 3.1 below presents the growth rates for forty-five Sub-Saharan African (SSA) countries for the periods 1960-69, 1970-79, and 1980-86.

From the table, it can be seen that for 22 countries out of 45 (seven countries unknown), there was a deterioration in average growth rates from the 1960s to the 1970s, but an improvement for the rest. This was not surprising due to the generally deteriorating economic climate world-wide and the shocks of the 1970s.

The deterioration in economic growth rates continued into the 1980s. At a time when other developing countries were experiencing better economic performances (see chapter one), the majority of the SSA countries appeared to be performing worse than in the 1970s. This deterioration is reflected in Table 3.2, which compares the annual growth rates of per capita incomes of different regions over the past three decades.

Table 3.1
Growth rates of GDP for SSA countries (%)

Country	1960-69	1970-79	1980-86
Angola	4.80	-9.61	...
Benin	2.80	3.16	3.60
Botswana	4.49	12.53	11.90
Burkina Faso	2.79	3.70	2.50
Burundi	3.55	2.73	...
Cameroon	3.90	4.89	8.20
Cape Verde	...	0.75	...
C.A.R.	1.46	2.28	1.10
Chad	0.83	-0.22	...
Comoros	...	-3.81	...
Congo	4.65	4.05	5.10
Cote D'Ivoire	7.05	6.26	-0.30
Djibouti	...	0.67	...
Eq. Guinea	...	-19.43	...
Ethiopia	3.58	1.83	0.80
Gabon	6.93	7.38	1.50
Gambia	7.29	5.95	...
Ghana	1.75	-3.15	0.70
Guinea	3.16	3.50	0.90
Guinea Bissau	...	3.36	...
Kenya	6.17	6.04	3.40
Lesotho	6.44	7.40	0.90
Liberia	5.18	1.72	-1.30
Madagascar	2.51	0.32	-0.10
Malawi	5.50	6.04	2.40
Mali	3.75	3.25	0.40
Mauritania	8.16	12.64	1.00
Mauritius	2.01	7.67	4.40
Mozambique	4.60	-0.29	-9.00
Niger	2.78	1.89	-2.60
Nigeria	1.65	5.66	-3.20
Rwanda	1.64	7.64	1.80
Sao Tome & P.	...	-7.97	...
Senegal	1.10	2.95	3.20
Seychelles	...	7.87	...
Sierra Leone	3.82	1.72	0.40
Somalia	1.09	3.33	4.90
Sudan	1.72	7.20	0.30
Swaziland	8.84	4.53	...
Tanzania	5.86	4.49	0.90
Togo	8.84	3.52	-1.10
Uganda	5.84	-0.99	0.70
Zaire	3.36	-0.21	1.00
Zambia	5.13	1.01	-0.10
Zimbabwe	4.30	1.60	2.60
Average*	3.90	2.90	2.10

Source : OLS regressions of GDP over time. GDP data was obtained from the World Bank, World Tables, all editions.

Where this was not possible, the growth of GDP figures were obtained from :
World Bank , "World Development Reports", 1978-1991.

World Bank, 1981, and 1991.

... Unavailable

Table 3.2
GNP per capita, Average annual growth rates, %

	1960-70	1970-79	1980-88
SSA	1.3	0.8	-2.2
Industrial countries	4.1	2.5	3.0
South Asia	1.5	1.5	3.0
Latin America & Caribbean	2.7	3.5	-0.4
East Asia & Pacific	4.9	5.6	6.2*

Source : World Bank, World Development Reports, 1978-91.

* Figure for 1980-89

The African economies were, therefore, on a continuing downward trend, even when the rest of the world was recovering. Naturally, there were some years of relative recovery, such as the mid-1980s, when, for example, GDP grew at -2.8% in 1984 for SSA as a whole, but recovered to 5.1% in 1985 and was 3.1% in 1986. However, this recovery was neither sustained nor sustainable for most of the countries. This raises the question of what have been the main factors responsible for the deterioration in SSA's growth rates.

Before embarking on a discussion of the 'exogenous' and 'endogenous' problems of the SSA countries, we will discuss the progress of general policy orientation in the continent.

3.3 Evolution of Economic Policy in Africa

In the past, the general view (particularly of the African governments themselves) was that given the African countries' circumstances at independence; being mostly small open economies with a scarcity of a highly trained and educated labour force - thus lacking the various technical,

organisational and managerial skills, and with a very large dominant agricultural sector, it was widely believed that the market system alone was not particularly well suited and could not solve their economic problems. A certain amount of government intervention was necessary to give their economies the required 'push' towards development (Steel and Evans, 1984).

It was also believed that for many African countries, import substitution was the correct strategy to start with. The strongest evidence for this case came from what was perceived as an extremely high degree of import dependence of that region - amounting to more than a third of GDP during the period 1954-62. However, it was also acknowledged that the feasibility of import substitution could not be justified solely through such evidence on the level of overall import dependence. It is also necessary to investigate the viability of individual industries.

Some of the conditions necessary for import substitution to be successful are the existence of a domestic market large enough to consume more than the minimum output necessary for the viability of at least one plant, the possession of simple necessary technical capabilities, the acceptability of protection for that type of product (e.g. cotton and textiles), and adequacy of the industrial infrastructure. As development proceeds, possibilities for import substitution will diminish (having been primarily in basic consumer industries such as food processing, shoes and textiles), and the next course of action could be export expansion. This would be necessary as a means of increasing the amount of foreign exchange earned and of diversifying the structure of export earnings.

This approach can link domestic production of inputs and competitiveness in world markets. It also has the advantage of de-linking the (possibly small) demand of the domestic markets from the production of potentially high foreign exchange-earning goods. However, the possibilities for export expansion in SSA may not be so wide. Processing of primary products would be one possibility to begin with, but foreign protection and breaking into oligopolistic international markets would limit that possibility, as they could for other possible venues of export expansion.

An alternative is the production of simple manufactures for world markets. The pace of industrialisation in some African countries was relatively good

(such as in Kenya, Zambia and Ghana), at least before 1975. However, it lagged behind that of other developing regions (Steel and Evans, 1984). From 1960 to 1975, Africa's share of world manufacturing value added rose only from 0.7% to 0.8%, whereas the Asian countries combined grew from 2.2% to 3.0%, and Latin American countries from 4.1% to 4.8% (see Table 3.3. below). Therefore, the arguments for import substitution are based upon the terms of trade deterioration, the perceived benefits of the shift of production from agriculture to industry (Chenery and the structural transformation), the sectoral linkages and instability in the output and prices of primary products.

Table 3.3

Share of developing country regions in World manufacturing value added and exports (percentage)

Year	Africa	Latin America	Asia*
Share in Value Added			
1960	0.7	4.1	2.2
1970	0.7	4.2	2.4
1975	0.8	4.8	3.0
Share in Exports			
1970-71	1.1	1.5	3.4
1975-76	0.6	1.6	5.4

Source : W.F. Steel & J.W.Evans, "Industrialisation in Sub-Saharan Africa - Strategies and performance", 1984

* This includes South, East and other Asia

According to Steel and Evans (1984), most of the SSA countries have not taken advantage of the growing world markets for manufacturing exports from the developing countries during the 1970s. Their share of total manufacturing exports fell from 1.1% in 1970-71 to 0.6% in 1975-76, whereas that of other developing regions, especially the Asian countries, grew. This suggests a lack of competitiveness of African manufactures in world markets. At the same time, SSA has lagged behind other developing countries both in raw material exports and in processed commodities based on them.

However, there are several reasons for Africa failing to expand manufactured exports. These include wars and civil strife, lack of appropriate levels of skill, management, and organisation, foreign exchange constraints, and the effects of domestic policies.

Industrialisation strategies and policies in SSA have often introduced new distortions into the markets, and have failed to achieve the objectives of sustained industrial growth, low-cost production and productive employment. They did not appear to be based on comparative advantage. Declining growth in the 1970s was associated with the inability to move beyond the initial stages of import substitution and with continued high overall dependence on imports. This resulted largely from policies that tended to orient industrial production primarily towards domestic consumer demand rather than export markets, and ventures that required imported materials and capital rather than domestically produced inputs.

Industrial growth is, to a large extent, dependent on the generation of surplus resources (material inputs, investment funds, and foreign exchange) by other sectors, particularly agriculture, and on the continued growth of markets once import substitution demand is largely satisfied (World Bank, 1989). Sustained industrial growth in SSA requires a favourable economic environment consisting of steadily growing agricultural production and incomes to provide both inputs and an expanding market, human resources (especially intermediate technical, supervisory and managerial skills), reliable infrastructural facilities and greater inter-regional trade flows, especially in key intermediate and key goods industries, so that costs of production are sufficiently reduced and quality raised enough to be able to penetrate the international markets (as the experience of the East Asian countries suggests).

All those problems and others plague the Sub-Saharan African countries, and despite the individuality of each of those countries, it is possible to isolate certain common problems that are thought to have retarded their growth rates. Those problems apply to most, if not all, of these countries to different degrees. They will be discussed below and will be categorised as either internal (endogenous) or external (exogenous).

3.4 Internal Problems

In this section, problems which are thought to be the result of misguided policies and general economic mismanagement, or of factors endogenous to the SSA countries will be examined to determine the extent of their effect on the growth of output. These are perceived to be within the control of African governments, and so their alleviation is presumed to be within their powers and responsibilities.

3.4.1 Population growth

One of the most often discussed problems that face the African (and other developing) countries is that of rapid population growth. In the period 1960-70, population in SSA grew at an average rate of 2.5% per annum. In the decade 1970-79, this figure was 2.7% per annum, and for 1980-86 it was 3.1%. Within those periods, the corresponding figures for average output growth of total cereals per annum were 2.3% for 1960-69, 1.3 % for 1970-79, and 2.3% for 1980-86 (World Bank, 1981 and 1989). Therefore, population has been growing at a faster rate than domestic food production. This has resulted in increasing food imports which have not only been very costly, but have also had negative price and demand effects in the domestic markets facing the domestic food producers (as well as the potential producers).

This problem has been accentuated by the worsening budgetary positions of the treasuries of African countries. With their growing debt and debt-service problems, and the general mismanagement of resources, governments have tended to neglect the problems resulting from the rapid population growth and the increasing population pressure on land, especially given the fact that fertile cultivable land is in short supply in most African countries. However, since the late 1970s and the early 1980s, there has been a growing concern and awareness by those governments, and some steps have been taken to ease the problem. More emphasis is being placed on the importance of using birth control methods and better and more careful family planning is being advocated. A concurrent problem is that despite improvements in education and health care throughout the continent, on average, life expectancy is still the lowest and infant mortality the highest in the world.

Growing populations also mean that greater spending is needed on services such as health, education and housing. As a World Bank Report puts it, "people are both the ends and the means of development" (1989), thus governments need to take the existing and projected rates of growth of the population into account in policy formulation. Despite an improvement in the access to health care and education in most African countries since independence, there has been a recent set-back in this field due to governmental fiscal difficulties (Table 3.18 below).

Essentially, there are three main issues when considering the growth of population and economic growth. The first concerns the way in which population growth affects economic development, the second, how development affects the rate of population growth, and the last, how development could occur without improving living standards (see below). The issue of how population growth affects the growth of aggregate output is tested econometrically in chapter six.

As to the way in which development and economic growth affects the rate of population growth, it has been observed that there is a negative association between economic growth and population growth (World Bank, 1989). This, it is argued, is due to the fact that higher levels of development are associated with increased levels of education and changing perceptions regarding family size and birth control, both of which combine to produce a lower rate of population growth.

Higher rates of population growth are often associated with falling per capita income levels, if the growth of aggregate output was lower than that of the population. In SSA, even though there appears to have been significant human development gains since independence, with falling infant mortality rates rising life expectancy levels, and higher adult literacy rates, economic growth has been slow in the 1980s, while population growth has been rising by about 3.2% a year. As a result, per capita incomes have been falling at an average of 2.2% a year (UNDP, 1991). Thus development in the region appears to have taken place without a corresponding increase in per capita incomes and living standards.

According to the World Bank (1981 and 1989), SSA has suffered and still suffers from a serious lack of a skilled and trained workforce which could cope with the challenges of growth and development. Managerial and

technical expertise appears to be imported in most countries, or made available from the expatriate population. There is a clear and direct link between investing in people and economic growth (this is investigated econometrically in chapter six). One must be accompanied by the other. Indeed, the number of people with access to various levels of education and healthcare may be a better indicator of a country's level of development than any other yardstick, such as the growth rate of GDP.

Table 3.4 below compares education indicators (primary, secondary, and tertiary school enrollment rates) in various regions. It is clear that the SSA rates are the lowest throughout. It is argued (e.g. World Bank, 1989) that increased investment in education is needed, as it can accelerate growth in many ways. For example, educated farmers in SSA have been found to achieve higher productivity levels than those who have not acquired any formal schooling. It was also found that increased female access to education improves the survival chances of infants and young children.

Table 3.4
Percentage of age group enrolled in education at different levels (Totals)

	Primary		Secondary		Tertiary	
	1965	1988	1965	1988	1965	1988
SSA	41	67	4	18	0	2
East Asia	88	128	23	46	1	5
South Asia	68	90	24	37	4	..
Latin America & Caribbean	98	107	19	48	4	17
Oil Exporters	50	87	11	40	1	12
OECD	104	103	63	95	21	41

Source : World Bank, World Development Report, 1991.

On the whole, it is argued that increased education should improve living standards. However, it was also found that if the levels of education increased without the anticipated corresponding increase in living standards, then this could fuel political instability and dissatisfaction by those

who had expected to improve their lives as they increased their education (chapter six).

At this point, it is worth noting that population growth need not always be that major problem it is often perceived to be in the literature, since, in theory, if a country has excess resources that are capable of feeding and providing for a larger population, then a growing population might well have a positive effect on economic growth (as long as the population growth rate does not exceed the rate of resource utilisation).

In other words, if the marginal benefits from an increased population (in the form of a larger labour force, larger market, and greater demand) exceed the marginal costs of an increased population (in the form of greater consumption of natural resources and government services - education, health, infrastructure, etc.), then population growth should be beneficial.

However, in practice, Sub-Saharan Africa has not put its resources to the most efficient use, and therefore the population growth has tended not to enhance economic growth. Naturally, it is expected that there would be a negative association between population growth and the growth of per capita income, and as mentioned above, greater pressures would be created on the provision of services such as health, education, and housing, all of which would be more thinly spread unless expenditure on them is increased.

Another consequence of the rapid population growth and the lack of good public amenities, particularly in the rural areas has been the continuing urban concentration and the rapid growth of cities in the African countries (Table 3.6 below). Despite the fact that most African societies are still primarily agricultural, migration from rural to urban areas has been increasing. From the table, it appears that one in every 3.7 people resided in urban areas in 1985, compared with about one in 4.5 in 1980 and one in 7 in 1965.

Table 3.5
Health, Education and Nutrition indicators in SSA (Totals)

	1965	1980	1984	1986
Population per Physician	33,390	-	23,610	-
Population per nursing person	5,420	-	2,100	-
Daily Calorie Supply per capita	2,092	2,152	-	2097
% of age group enroled in primary education	41	79	-	73
% of age group enroled in secondary education	4	16	-	20
% of age group enroled in tertiary education	0	1	-	2

Source : World Bank, World Development Reports, 1978-91

- not available

This increase was due to a variety of social, political and economic reasons, but perhaps it was mainly due to the belief of the rural populace that urban areas provide more and better facilities - mainly, more employment. Although it is not usually long before the migrants realise that city living has considerable drawbacks, they never-the-less appear to prefer urban living to their rural origins. This is because the living conditions in the rural areas are often even worse.

Table 3.6
Urbanisation indicators, SSA, Totals

	1965	1980	1985
Urban population as a percentage of total population	14	22	27
	1965-73	1973-80	1980-87
Average annual growth rate of urban population	5.5	5.7	6.9
	1960	1980	
Percentage of the Urban population in the largest city	28	36	
Number of cities over 500,00 persons	3	28	

Source : World Bank, 1989.

However, social living conditions are by no means the only factor affecting rural dwellers' decisions concerning the source of their livelihood. Another, and perhaps more important factor, is the availability of farm aids such as fertilisers, pesticides, simple technologies (e.g. oxen or tractors), agricultural advisers, and last but not least, financial aid and guarantees if the market prices paid to those farmers for their produce are particularly low. Furthermore, despite the social problems in the cities, urbanisation is associated with the structural changes argued by Chenery (1984) to be an important factor in the growth process. All of these are usually a consequence of government policy towards the agricultural sector. This is the subject of the next section.

In summary, the effects of rapid population growth on economic growth are expected to be either negative or positive, depending on the relative sizes of the previously mentioned opposing forces. This is empirically tested in chapter six, where the effects of the growth of populations on both the growth rates of GDP and the savings ratio are explored.

3.4.2 Agricultural Policies

This brings us on to another particularly problematic area that exists in many African economies; state policies regarding agriculture. After independence, some African countries chose to incorporate the agricultural sector (the major agricultural activities) within the state sector. Many governments fixed the prices of agricultural goods and products, as well as the prices of inputs into this sector. Accordingly, incentives to farmers were greatly affected.

This was carried out by some countries with the ultimate aim of socialising the whole of the agricultural sector and running it under socialist principles (e.g. Tanzania), while others have experimented with it for the simple purpose of improving productivity given the limited resources that farmers have access to individually. The results of those experiments are mixed. Some countries have had a certain degree of success, while others succeeded initially, but then failed due to a host of different reasons (de Wilde, 1984). This failure, whether due to misguided policies, external factors, or a combination of both, has proved very costly to the Sub-Saharan African countries in terms of lost output and income, since agriculture accounts for between 30-60% of national output, and between 60-90% of employment in most countries (World Bank, 1981 and 1989).

This particular bias in government policies was manifested in the agricultural investment and pricing policies adopted by the authorities. The latter will be discussed in detail below, but the former, investment, has been well below what is required for this leading sector, and often, mismanagement and inefficiency would render what funds were invested unproductive, especially given the excessive emphasis on large-scale government operated schemes (de Wilde, 1984, and World Bank, 1981 & 1989).

Agricultural pricing policies will be discussed below in conjunction with exchange rate policies. Other factors affecting agricultural production and

farmers' incentives include the effectiveness of agricultural research and extension, the availability of land and labour, and the impact of weather and climatic conditions.

The first factor holds the key to finding means for increasing agricultural and livestock output that can be demonstrated to be both profitable and feasible from the standpoint of producers. Both research and extension can have important impact on yields which, in turn, affect the price level at which a product is profitable to the farmer. Some efforts have been undertaken by the authorities to increase and improve existing agricultural research and extension services, but the improvements have not been anywhere on the scale that is needed. According to the World Bank (1981), yields in Africa are substantially lower than in other continents. Little money has gone into research and extension, which is reflected in the continuing problems that face agriculture in the continent. Expenditure in the mid-1970s was estimated at 1.4% of the value of agricultural output in SSA, about half the proportion of industrialised countries.

More recently, some countries have taken steps to improve their research and extension services. In Kenya, for example, Maize yields increased by up to 59% by some farmers as a result of the improvement in national extension services. Similarly, positive results could also be found in Cote D'Ivoire, Senegal, Nigeria, and Togo (World Bank, 1989).

Research into food crops appears as necessary, if not more so, as that into export/cash crops. More specifically, there appears to be a greater need for more investment in and maintenance of irrigated cultivation, as well as to drought resistant crops, given the great vulnerability to climate, disease and world market fluctuations which this sector is subject to (World Bank, 1989). In food-deficit countries, there is a greater need to give food crops priority attention through policies providing the producers with similarly favourable conditions which have supported the success of certain export crops. Those policies which have acted as a disincentive to farmers are discussed in more detail below, under the heading 'agricultural pricing and exchange rate policies'.

As to the agricultural extension services, whereby extension workers spread new technologies and transfer the results of research into the fields, often as instructed by the agricultural ministries or parastatals, these have produced

very limited results due to an inappropriate incentive structure, an inability to deliver what the farmer needs (due to organisational weaknesses and poor infrastructure and transport facilities), and the unattractive 'package' that is often offered to farmers who are generally very hesitant to accept new crops or new technologies if they cannot actually see the consequences of introducing them (World Bank, 1981 & 1989).

Security of food supply and of income are still extremely important considerations in many parts of Africa, particularly for subsistence farmers. One particular source of insecurity is the price that they are likely (not guaranteed) to receive for their 'new and improved' product, and the prices they will face in the markets when they go to spend their newly acquired income. This aspect is particularly important when governments try to convince the farmers to switch from the production of food crops to the production of export crops, or vice-versa.

As to the second factor, labour has been, and continues to be, an important constraint to increases in production. The situation gets worse as rural-urban migration increases, whereby the potentially most productive members on the farm (males aged from 16 to 30-35) depart, leaving a workforce consisting mainly of women and young children to run the farms. Also, suitable agricultural land is becoming increasingly scarce in many countries, with the increasing pressure of population growth pushing cultivation into less productive areas.

One other problem with agricultural policies in SSA is the over-emphasis on large mechanised farms and on large, centrally organised, irrigation schemes (de Wilde, 1984). Mechanised agriculture requires (the very scarce) skilled management, specialised maintenance and capital, all of which render it import intensive. This directs government expertise, personnel and funds away from addressing the central problems of peasant agriculture. These include the lack of basic amenities and simple technologies, easier access to markets, and extended credit facilities to small-holders. To significantly increase the output of the agricultural sector in the SSA countries, many analysts, including the World Bank, have emphasised the need for better opportunities and greater attention to be given to the small-holders who form the nucleus of this sector, and who should therefore, be the main target of the authorities in their attempts to increase the sector's output and efficiency.

Agricultural Pricing Policies and Exchange Rate Policies

Pricing and exchange rate policies affect the industrial and export sectors as well as the agricultural sector. The former is discussed in section 3.4.3 below. These policies are very often the ones emphasised by analysts as some of the most important of SSA's problems (e.g. Whetham & Currie, 1967, de Wilde, 1984, Rose, 1985, and Killick, 1992).

The agricultural pricing policies are carried out by the state via its institutions or agricultural marketing boards. These set the pricing and marketing policies according to the government's instructions. A particular feature of most SSA countries with respect to their pricing policies of (domestic) agricultural produce is the low price that they pay to producers for their output. This low producer price has been the source of many economic and incentive problems. Since the price that producers receive is low, they (the farmers) are discouraged from producing food for the domestic market. Not only are producers receiving artificially low prices for their output, but they also face relatively high prices for their inputs. Furthermore, they often have the added disadvantage of not being able to put their prices up in line with domestic inflation. Indeed, several African countries find that producers of traditional export crops cannot be paid enough to cover the costs of production. In some countries, such as Kenya, Ghana, Nigeria, Tanzania and Zambia, producers frequently receive less than half the real value of their crops (World Bank, 1981).

Potentially more damaging than the low producer prices farmers receive, are the food import policies that many African governments have pursued. Pressures from the urban population and other factors have led many governments to continually increase food imports, particularly of wheat and rice (substitutes to the local cereal staples). These have become available to the (urban) consumers at relatively cheaper prices than the domestic produce due to the generally overvalued exchange rates and government subsidies. Governments feel the need to keep food prices low for the urban population - potentially the most politically and economically disruptive to stability (Bates, 1981). Food aid appears to have also made matters worse for the local producers adding more competition and substituting for their products.

It has been argued that the African countries are increasing their dependence on food imports and neglecting the development of their own vital agricultural base, at a time when they must ensure high domestic food supplies, given their problems of obtaining sufficient foreign exchange to pay for the goods which they have very little ability of producing (such as machinery and essential capital goods) (World Bank, 1989). It will therefore relieve some of their foreign exchange difficulties, if they can conserve in spending on food imports which they can produce relatively easily, it is argued, if agricultural prices reflected world prices.

Farmers also have little incentive to produce their capacity of cash or export crops, due to the fact that they have no direct access to the foreign markets, instead, for most of the period under discussion, they have had to sell their produce to the marketing boards at the boards' set price, not the actual market price. Furthermore, the situation is compounded by the fact that export crops are often heavily taxed in SSA countries. For example, agricultural export taxes provided more than 5% of the government's tax revenues in Zambia in 1984. This figure was just over 10% in Cote D'Ivoire (1980), and more than 20% in Ethiopia (1980) and Ghana (1985) (World Bank, 1988). However, the government does subsidise some of the inputs and services provided to the farmers, but in most cases, this does not compensate for the low final price they receive for their product.

Trade and exchange rate policies help set the pattern of incentives for economic growth. These are composed of policies on the official exchange rate, import duties, export taxes, subsidies, food prices, quantitative restrictions on imports and exchange controls. As discussed above, in many of the SSA countries these have been set in such a way that has hampered the development of the agricultural sector. Another consequence of those policies has been the resort to extensive black market activities and smuggling throughout most of the continent (de Wilde, 1984, and Hazlewood, 1979). The gap between the official and the unofficial exchange rates are sometimes as wide as 100% and evidence of overvaluation is widespread. Table 3.7 below illustrates the gap between the official and unofficial exchange rates for a number of African countries which clearly shows the scale of the problem.

In the empirical analysis of chapter six, the effects of the size of the government sector and its exchange rate policies are tested using the ratio

of government consumption to GDP, and the ratio of the black market to official exchange rates, over the period 1960-86. The latter is used as a proxy for distortions in the operation of the price mechanism, and are therefore, a good indication of the effects of government intervention.

Table 3.7

Ratios of the black market (BM) to the official (E) exchange rates for selected SSA countries. Averages for each decade (%).

	BM/E	
	1970-79	1980-86
Burundi	128	124
Ethiopia	138	173
Gambia	210	154
Ghana	180	178
Kenya	120	120
Lesotho	130	150
Mauritania	152	196
Nigeria	156	113
Sudan	160	129
Tanzania	199	314
Zaire	277	108
Zimbabwe	160	158

Source : calculated by using the BM rate from 'Pick's Currency Yearbooks', 1965-1987, and the official rates from the IMF - IFS yearbooks.

3.4.3. The effect of Pricing, Trade and Foreign Exchange Policies on Exports and Industrial Development

High import duties, while protecting import-substituting industries, make it very costly for domestic producers to produce for the export markets. Instead of using cheaper imported inputs (available before the imposition of import duties), they have to use the locally produced substitutes into their manufactures. In many cases these duties can be refunded to exporters in principle, but in practice, bureaucratic inefficiency prevents this taking place. This makes it more profitable for them to produce for the local markets because their prices would be too high to compete with other, cheaper, Asian products in world markets, since they themselves face higher costs of production at home. These higher costs are later transmitted to consumers in the domestic markets, a large part of whom are the farmers who will

further experience a fall in real income. Exporters are therefore at a disadvantage from the start, even before reaching the stage of considering the difficulties of competing with other producers in world markets.

Thus, deliberately or not, government policy in favour of import substitution and protected domestic markets have tended to discourage production for exports by providing more favourable conditions to producers for local markets. Import substitution does not necessarily have to take place at the expense of exports. A thriving export sector could ultimately be the main source of growth for SSA. The imposition of export taxes further worsens the situation. Thus there appears to be an inherent bias against exports in government policies in most of SSA.

These factors affect imports and import growth as well as exports. This is because of the clear and strong link between imports and exports, with exports generating the foreign exchange necessary for intermediate and capital goods imports which would increase production and improve productivity, thus increasing exports and obtaining even more foreign exchange, and so on.

Another consequence of the typical trade and exchange rate system in SSA is that it encourages high-cost, capital-intensive and import-intensive industry, as well as discouraging the development of domestic industries that consume local raw materials and labour. Protection often favours packaging or assembly-type industries which consume scarce foreign exchange, do not provide many economic benefits to the economy, and often operate well below capacity.

One further point should be mentioned concerning the trade and exchange rate policies of most African countries; since import controls are used to reduce to a minimum (or sometimes even eliminate) the imports of the goods deemed 'unnecessary' or 'luxurious' by the authorities, then presumably, only the 'necessities' are left unrestricted. Supposing however, there was a foreign reserves crisis, or that there was a need to cut down further on foreign exchange spending (which often happens in African countries), then under such circumstances, the only option left to the authorities would be to restrict the import of those necessities and to impose even tighter controls on currency movements. Thus the result of imposing so many restrictions at the beginning is that the authorities, within the context of the domestic policy

regime they have chosen, have left themselves no room for emergency measures if and when a crisis arises.

On the whole, pricing, trade and foreign exchange policies were often determined more in reaction to events than as an integrated industrialisation and trade strategy. For example, price controls were often instituted in response to rising price inflation and shortages of goods due to lack of foreign exchange, or to soften the impact of a devaluation. However, it is not always possible for the government to act in an economically rational manner when faced with continuous external shocks (such as droughts and oil-price rises) on the one hand, and potentially disruptive domestic interests (particularly of urban workers, the military, and civil service) on the other. Still, reform to pricing, trade and exchange rate policies is seen to be crucial in SSA, especially given the negative effects of the current policies on the two most important sectors: agriculture and industry (World Bank, 1989).

From the previous discussion, it appears that the negative influences of government policies on export and import expansion, both from the agricultural and industrial sectors, have retarded the growth of exports and imports. In chapter six, in addition to the impact of the black market exchange rates, the impact of the growth of exports and imports on growth is empirically tested, in order to assess the importance of both in the growth process.

Before proceeding to the problems of the public sector, it is necessary to discuss the special circumstances of the Franc Zone countries in SSA, as they do not appear to share the same circumstances and problems as the rest of SSA.

Francophone Africa

It is argued that Francophone Africa has been more successful than other African countries (e.g. Hodd, 1991). This is primarily due to the fact that those countries still have political and economic links with France. This is mainly manifested in the fact that those countries belong to the CFA (Communaute Francaise Africaine) zone, all having a fixed exchange rate in terms of the CFA to the French Franc (FF), and the CFA Franc is fully convertible (at a rate of CFAfr50:FF1). Table 3.8 below shows the average

values of the CFA in terms of the U.S. dollar and the French Franc over the period 1960-86.

Table 3.8
Average Values of CFA currency

	1960-70	1971-80	1981-86
CFA/US\$	253.1	234.1	369.0
French Franc/US\$	5.1	4.7	7.4
CFA/FF	49.6	49.8	49.9

Source : World Bank - World Tables, various editions.

The real exchange rates are tied to those of France, and devaluation as a cure for over-valuation is therefore prevented except under special circumstances. This poses a problem for the SSA CFA countries, given the diversity in economic structure and the different problems that face each country, compared to France.

Nevertheless, the rules of the Franc Zone impose limits on budget deficits and this has resulted in somewhat greater price stability (Rose, 1985). Yet, it also allows for greater use of short-term and medium-term external credits. Also, the banking system in the CFA countries has deteriorated in recent years. One of the main reasons for this is that governments, unable to print money, have forced the commercial banks to finance expenditures that would normally have been met by government subsidies. Governments have also interfered with the allocation of credit in several ways, for example, by forcing banks to extend credit to public enterprises that were not creditworthy.

Exchange controls against France are not permitted, and the African central banks have strict limits on fiduciary issues. They are basically French-run in terms of policy, and French personnel as well as French treasury funds are provided to cover approved state and external balance deficits. Also, as mentioned above, changes in currency parities against the French Franc or against each other are only permitted under exceptional circumstances.

However, Table 3.9 indicates that, on the whole, the Francophone countries as a group have not performed better economically than other SSA countries, particularly since 1980, except where inflation is concerned. Other countries have done comparably well, or even better. Much depends on which indicators of economic performance are chosen. Some of those countries which have done comparably well were Botswana, Mauritius, Gambia and Kenya. However, what remains clear is that the majority of Francophone African states have usually avoided overt recurrent budget deficits, open detailed quantitative import controls and, less markedly, sustained high rates of inflation. The reason for this is, of course, their above mentioned monetary and exchange rate systems, and the associated restrictions imposed by France (Rose, 1985).

In the empirical analysis of chapter six, a regression equation is performed testing the growth performance of the non-CFA zone countries separately, due to the above-mentioned special circumstances of the Francophone countries.

3.4.4 The size of the Public Sector

After independence, it was widely believed that the public sector should play a major role in the development process, providing the much needed financial resources and expertise to contribute to economic growth (Wickens, 1986). Accordingly, many governments started their nationalisation programmes of what they considered to be industries and sectors vital to the well being of the national economy. Development plans were formulated and more emphasis was laid on public investment and participation.

During the 1960s and 1970s, the public sector greatly extended its economic role in Africa, as it did elsewhere. Table 3.10 illustrates this growth as indicated by the ratio of government consumption to GDP. This growth has come from the expansion of government per se, as well as by the extension of the state into commercial or productive activities including mining, transport, manufacturing and marketing activities which were primarily in private hands before independence (World Bank, 1981 and 1989).

One particular field where the government has extended its authority is in the operation of parastatal marketing organisations, which are responsible for the marketing of farm produce and the supply of production requisites. Their operation could be faulted on a number of issues. For instance, standards of accountability have been seriously inadequate, their costs and margins have frequently been excessive and are often inflated by over-staffing, they regularly face high over-head costs and rising losses in marketing, storage, and transport. Furthermore, the financial situation of many parastatals has deteriorated, causing shortages in funds needed for the purchase of farm products and, in many cases, serious delays in the payment to farmers for their deliveries. Also, those that have monopoly in supplying inputs have often failed to ensure the timely delivery of necessary inputs (Bates, 1981, and World Bank, 1981 and 1989).

The problem of high levels of government expenditure was also compounded by donors and/or lenders who were willing to finance projects without assessing their viability and impact on budgets, or their value as public investment programmes.

Table 3.9

Economic indicators for a selection of CFA and other countries in SSA

	Average annual growth rate of GDP (%)			Average annual growth rate of GNP per capita		
	'65-73	73-80	80-87	'65-73	'73-80	80-87
CFA Zone countries						
Benin	1.9	2.3	2.8	0.0	-0.3	-0.6
Central A. R.	2.6	2.1	2.0	1.5	-0.5	-0.7
Cote D'Ivoire	8.6	4.7	2.2	4.5	1.2	-3.0
Congo	7.0	4.7	5.5	4.2	1.1	1.7
Gabon	7.4	3.6	0.6	4.9	-1.2	-3.5
Togo	5.5	4.1	0.5	2.0	1.5	-3.9
Niger	-1.2	5.6	-1.9	-3.7	2.6	-4.9
Mali	2.7	6.3	3.4	...	4.3	0.7
Senegal	1.6	2.3	3.3	-0.8	-0.5	0.1
Cameroon	2.4	8.9	7.0	-0.4	5.7	4.5
Unweighted Average	3.9	4.5	2.5	1.4	1.4	-1.0
Non-CFA countries						
Ethiopia	3.9	1.6	0.9	1.1	0.0	-1.6
Botswana	14.7	10.5	13.0	9.3	7.3	8.0
Nigeria	8.4	3.4	-1.7	5.3	1.2	-4.8
Ghana	3.4	-0.3	1.4	1.0	-2.1	-2.0
Gambia	4.4	2.0	5.0	1.7	0.2	0.8
Mauritius	2.4	5.7	5.5	0.8	3.9	4.4
Mauritania	2.6	2.6	1.4	1.2	-0.6	-1.6
Sudan	7.9	4.8	3.8	-1.7	3.5	-4.3
Liberia	5.4	2.0	-1.3	2.4	-0.7	-5.2
Kenya	7.9	4.8	3.8	4.7	1.3	-0.9
Tanzania	4.8	2.3	1.7	2.0	-0.9	-1.7
Zaire	3.6	-2.0	1.6	0.3	-4.7	-2.5
Unweighted Average	5.7	3.1	2.9	2.3	0.7	-0.9

(Table 3.9 cont.)

	Average Annual Inflation Rate (%)		
	1965-73	73-80	80-87
CFA- Zone Countries			
Benin	2.9	11.6	8.2
Central A.R.	3.0	14.8	7.9
Cote D'Ivoire	2.7	16.0	4.4
Congo	4.4	9.2	1.8
Gabon	5.8	15.8	2.6
Togo	2.9	8.2	6.6
Niger	4.1	8.5	4.1
Mali	...	10.8	4.2
Senegal	3.0	8.8	9.1
Cameroon	7.5	10.4	8.1
Unweighted Average	4.0	11.4	5.7
Non-CFA Zone Countries			
Ethiopia	2.0	5.7	2.6
Botswana	4.4	11.6	8.4
Nigeria	9.1	16.2	10.1
Ghana	8.1	45.4	48.3
Gambia	3.0	13.5	13.8
Mauritius	5.5	12.5	8.1
Mauritania	4.1	8.5	9.8
Sudan	7.2	15.3	31.7
Liberia	1.6	9.1	1.5
Kenya	2.4	11.6	10.3
Tanzania	3.4	15.4	24.9
Zaire	19.0	42.1	53.5
Unweighted Average	5.8	17.2	18.6

Source : World Bank, World Development Reports, and 'Accelerated Development in SSA', 1981, and 'Sub-Saharan Africa - From Crisis to Sustainable Growth', 1989.

Table 3.10

Ratio of General Government Consumption to GDP in Selected SSA countries (%).

	1950-60	1960-70	1970-81
Botswana	14.8	21.4	19.8
Burundi	2.7	6.5	12.9
Ethiopia	7.8	9.8	13.5
Gabon	9.9	12.4	12.2
Gambia	14.6	14.8	20.4
Ghana	7.8	13.2	10.5
Cote D'Ivoire	9.6	11.6	16.6
Kenya	10.1	14.1	18.8
Liberia	7.3	11.6	14.0
Mali	11.5	15.9	21.4
Mauritania	25.4	18.3	28.5
Mauritius	10.0	12.6	12.4
Nigeria	4.9	7.1	10.1
Senegal	17.3	16.7	17.8
Tanzania	8.9	10.8	15.2
Zaire	13.7	22.3	18.0
Zambia	9.5	14.3	25.3
Zimbabwe	11.3	12.3	16.0

Source : World Bank, World Tables, Third Edition.

Furthermore, in most countries, the tendency has been for the government sector to significantly expand during 'boom' periods without giving sufficient attention to what would happen when the boom ended. In periods of relative prosperity (due, for example, to a rise in world demand for African exports), there was a tendency to increase spending on the various sectors of the economy, such as health, education, and infrastructure, with increased staffing levels, materials, and equipment. Inevitably, when the boom ended, many of those commitments have had to be abandoned or reduced, with serious effects resulting from those cuts (Greene, 1989). Staffing levels were not usually affected, but the provision of materials, equipment, and maintenance suffered significantly.

Perhaps the most notable exception to such financial mismanagement has been Botswana, who, according to the World Bank (1989), has attempted not to overspend in periods of boom and, instead, to build sufficient reserves to be able to cope better during recessionary periods. Other factors such as real exchange rate devaluation when necessary (eg. 1980-87) and the

continuity of leadership since independence have contributed to Botswana's relative prosperity. Sound financial management by the government is clearly an essential factor in the growth process.

Tables 3.11, 3.12 and 3.13 below give indicators of public sector employment and growth rates for selected countries in selected years. According to the World Bank (1981), in all of the SSA countries, public employment as a percentage of formal employment is high and has risen significantly for the periods under consideration with the exception of Uganda, which has had a 'steady', relatively high rate over the whole period.

The public sector employs between thirty-five and seventy per cent of those recorded in paid employment, and employment in this sector is (and has been) growing at a much faster rate than of the private sector (Table 3.11). Furthermore, during the 1970s, Table 3.12 indicates that the growth of the government sector itself has also been rapid, compared with most of the other (non-SSA) selected countries in Table 3.13, of spending on public administration and defence.

Total resources available to governments in SSA typically exceed 25% of GNP, sometimes reaching as much as 40% (World Bank, 1981 and 1989). This is a high share compared to other regions. In India, for example, in 1977, taxes of central and state governments combined totalled 15% of GDP, foreign aid was 1.1% and expenditures by central and state governments were 26%. Therefore, African governments have been relatively successful at mobilising economic surplus for public use. With output rising so slowly, it is important to compare the resources allocated each year to basic government services (defence, administration, health, education, roads, etc.) with the use of resources to support, say, agriculture or industry.

Also according to the World Bank (1989), it is not the size of the government sector itself that is so much under criticism, but the way that the public sector resources have been utilized. It is argued that the sector would benefit from decreasing in size, (as difficult as this may be politically in some countries), but more importantly, the resources available to it must be more efficiently managed, and the unnecessarily large degree of intervention and direct control exercised by the authorities needs to be reduced. It is also argued that another vital role for the government is to set guidelines and provide

direction as to what is needed for the better operation of the economy. Decisions at the micro-economic level are better left to the individual farmers, traders and industrialists, since they will be the ones who ultimately increase output and growth.

Table 3.11
Public sector employment and growth rates, selected countries

Country	Year	Formal employment as a percentage of Working age Population	Public employment as a percentage of formal employment	Formal employment Growth Rates		
				Public	Private	Total
Ghana	1957		51.4	4.9	-2.2	2.3
	1972	10.1	73.9			
Tanzania	1962		27.0	10.7	-4.8	2.3
	1974	6.3	66.4			
Cote D'Ivoire	1970	10.2				
Kenya	1963		29.6	6.0	2.4	3.7
	1977	12.4	41.7			
Malawi	1968		33.4	9.0	8.0	8.6
	1976	9.6	39.2			
Uganda	1962		41.8	4.0	4.8	4.5
	1970	5.9	42.2			

Source : World Bank, 1981

The discussion so far was of the main internal and policy-induced problems facing the SSA countries. To summarise, these include rapid population growth, relatively under-developed human resources (lacking skilled, organisational, technical, managerial, and administrative powers), insecurely rooted and ill-suited institutions which have been a drain on scarce resources, poor health, educational and infrastructural services, trade and exchange rate policies, agricultural pricing, marketing, and distribution policies, and the large size and inefficient operation of the public sector. Clearly, other problems exist. One such problem is the sizeable rural-urban

migration that has resulted primarily from poor agricultural policies and the resulting social problems in urban areas (discussed in section 3.4.1.). Another is the unbalanced regional development, that has left many of the rural areas largely deprived from whatever development effort was taking place in and around the cities, which has led to increased urban migration,

Table 3.12
The growth of public administration and defence relative to GNP

Country	Expenditure on Public Administration and defence as a percentage of GDP, annual average, 1970-79	Average annual growth rates, 1970-79		
		Expenditure on public admin & defence	Relative to GDP	Expenditure on Public admin.
Mauritania	18.0	13.9	1.8	12.1
Kenya	17.1	8.4	6.5	1.9
Sudan	16.1	4.5	4.3	0.2
Tanzania	14.9	10.2	4.9	5.3
Chad	14.2	6.1	-.2	6.3
Somalia	13.7	6.5	3.1	0.2
Congo	12.7	2.3	2.9	-.6
Botswana	12.1	16.3	13.5	0.5
Madagascar	12.1	16.3	13.5	0.5
Benin	11.0	4.8	3.3	1.5
Rwanda	10.3	6.5	4.1	2.4
Lesotho	9.2	3.3	7.0	-3.7
Upper Volta	9.1	6.2	-0.1	6.3
Uganda	9.1	5.9	-0.4	6.3
Sierra Leone	8.3	9.6	1.6	8.0
Cote D'Ivoire	8.1	8.9	6.7	2.2
Liberia	8.0	6.7	1.8	4.9
Cameroon	7.1	6.2	5.4	0.8
Nigeria	6.4	13.3	7.5	5.8
Mauritius	4.7	12.9	8.2	4.7
Burundi	4.4	5.9	3.0	2.9
Unweighted Average	9.9	7.4	3.9	3.3

Source : World Bank, 1981

as well as to the production of a 'lower than potential' rural output. This is a consideration of equitable development and is beyond the scope of this thesis.

Another set of problems of a different nature have also formed obstacles to growth in SSA. These are external to the African economies. Due to the heavy dependence on external trade, the African economies have become very exposed to world trade shocks and international disturbances. What made the matter worse for some countries is their virtually complete dependence on the income generated from one or two main primary commodities. Changes in the international conditions of supply and demand, via their direct effect on the prices of those commodities, are of great importance to those economies. Kenya, Uganda, and Tanzania for example, suffer tremendously when world prices for coffee, tea, or sisal fall markedly. Conversely, their economies enjoy (temporary) prosperity when the prices of these commodities rise.

This problem, as well as others, will be discussed below as the 'external' problems facing SSA.

Table 3.13

Expenditure on Public Administration and Defence, selected non-SSA countries, 1970-81

Country	As percentage of GDP	Average annual growth rate
Peru	4.8	3.8
India	4.7	8.1
Indonesia	6.9	n/a
Republic of Korea	4.5	2.0
Pakistan	7.6	10.3
Paraguay	3.7	5.5
Singapore	3.3	n/a
Thailand	4.0	6.6
Brazil	7.8	n/a
Algeria	10.8	5.9
Greece	9.3	5.0
France	11.3	2.7
Norway	4.6	4.3

Source : World Bank, World Tables, third edition

3.5 External Problems

As mentioned above, these are the factors that appear to have impaired the African economies due to no fault of their own. They are external factors,

upon which the African countries have no control, but whose effects may have been severe and significant on their economies. (An attempt at quantifying their effect can be found in chapter six). We will start with the export markets.

3.5.1 Export Revenue Instability and the Terms of Trade

Given that most SSA countries depend on the foreign exchange generated from one or two main export products (eg. coffee in Kenya , cocoa in Ghana, copper in Zambia, and tea in Tanzania), fluctuations in the prices of these products in the international markets could be extremely harmful for their exporters. The consequences of a marked fall in world prices of any of these products are severe not only in their effect on the producers of these commodities, but also in their indirect effect on all other sectors in the economy.

Once the world price of coffee falls, for instance, then the country exporting it will receive less foreign exchange than it previously did. This will erode the incomes of coffee producers, who will spend less money on other goods in the economy, thus lowering the incomes of other traders and producers. Lower foreign exchange earnings will also mean less resources will be available for the purchase of capital and intermediate goods imports, which are necessary for the operation of certain industries, such as the often protected import-substituting industries. If those capital goods are not available, then the operation of those industries will cease or they will function well below capacity. Again, incomes will be eroded, goods will be in short supply, and the economy's growth rate will be lowered. In chapter six, the degree to which lower export prices relative to import prices, (the external terms of trade), affects growth will be further examined and quantified in a regression model.

During the 1970s, not only did the growth of world trade in primary commodities slow down considerably, but oil prices also soared (1973/4 and 1978/9) and so many mineral and agricultural commodity exporters suffered severe deterioration in their terms of trade (with the exception of the oil producers and exporters, such as Nigeria and Gabon). The SSA countries appeared to be amongst the worst hit of the developing world. However, as was discussed in chapter one (see also Tables 1.6 and 1.7), Africa as a

whole did not suffer from a more severe deterioration in its terms of trade than did other regions. There were some years during the 1970s when the prices of some of the leading agricultural exports were high (such as coffee and Cocoa, 1977). Yet, according to the World Bank (1989), there is little hope of a significant increase in world demand for primary commodities, and in areas where Africa has a comparative advantage.

In the early to mid-1980s, the African economies suffered a further set-back due to the fall in commodity prices. Table 3.14 below shows the decline in the prices of the primary commodity exports of SSA. However, in 1985 and 1987 there was some improvement in the prices of some commodities, but not all (for example, Cocoa and Coffee in 1985, and Groundnuts in 1987). Not only are there frequent fluctuations in international commodity prices, but the actual share of commodities in world trade has steadily declined from 47% in 1960 to 35% in 1986 (United Nations, 1988). This has significantly added to the economic problems of SSA, for whom commodity prices still determine their capacity to import and to service their external debt. This also illustrates the need for SSA countries to diversify their export structure, and to increase the share of manufactures in exports if possible.

There is conflicting evidence regarding the role of the deterioration in the external terms of trade in the growth process. Some argue that there is a very close relationship between economic growth and the improvements in the terms of trade (e.g. Wheeler, 1984, and Svedberg, 1991), while others (such as Pickett, 1990 and Sparks, 1988) have found that the African countries have, on the whole, not suffered a greater deterioration in their terms of trade than did other developing countries. The effects of terms of trade movements on growth is examined empirically in chapter six.

Therefore, the influence of this factor on economic growth may not be as large or as significant as previously thought, especially since other regions have experienced similar terms of trade deterioration, but a relatively faster growth of aggregate output. This tends to indicate that SSA's problem was more related to the slow growth of exports and imports, reflecting domestic policy failings, than to terms of trade deterioration and export price fluctuations. Again, this is all examined in chapter six.

Table 3.14
Selected Commodity Prices

	1980	1982	1985	1987
Aluminium (US cents/pound)	80.51	44.98	47.21	70.99
Cocoa Beans (US cents/pound)	126.86	85.54	107.87	93.88
Coffee (US cents/pound)	147.15	111.04	121.24	102.34
Copper (US cents/pound)	101.40	72.91	65.57	81.17
Groundnuts (US\$/metric ton)	485.57	383.2	349.85	933.02
Palm Kernels (US\$/metric ton)	344.5	264.83	284.83	181.42
Sisal (US\$/metric ton)	765.0	593.17	524.67	511.67
Tea (US cents/pound)	101.06	87.62	89.98	77.45
Tin (US cents/pound)	761.03	581.95	523.16	315.61
Iron Ore (US\$/metric ton)	27.25	26.21	22.66	22.23
Sorghum (US\$/metric ton)	128.86	108.35	102.97	72.82
Petroleum (US\$/barrel)	28.67	33.47	30.15	18.52

Source : IMF, International Financial Statistics Yearbook, 1988.

The share of SSA's major crop exports also fell during the 1970s and early 1980s. According to the World Bank (1989), the share of African exports in all world trade fell from 2.4% in 1970 to 1.7% in 1985. Another, more serious deterioration has been that of SSA's share of non-oil primary

commodities, from 7% in 1970 to less than 4% in 1985. The Bank concludes that :

" If Sub-Saharan African countries had maintained their 1970 market share of non-oil primary exports from developing countries and prices had remained the same, their export earnings would have been \$9 billion to U.S. \$10 billion a year higher in 1986-87. The difference is approximately equal to the region's total debt service payments in this period".

All of the above demonstrates the importance of the export sector in SSA, and the figures in Table 3.15 below indicate the degree to which export and import growth have deteriorated from 1965-73, until 1980-87.

Table 3.15
Average Annual Growth Rates (%)

	Exports			Imports		
	1965-73	'73-80	'80-87	1965-73	'73-80	'80-87
SSA (Total)	15.1	0.2	-1.3	3.7	7.6	-5.8
SSA (excluding Nigeria)	5.7	2.0	1.7	3.4	2.9	-1.5

Source : World Bank, 1989

Many reasons have been suggested for this poor export performance. World trade in most primary products grew more slowly than world trade in manufacturing over the period 1970-80 (World Bank, 1981). Africa is more dependent on exports of primary products than any other region (hence policy mismanagement and the inherent bias against exports in Africa may have had more damaging effects than in other countries). This has inhibited product diversification and expansion of manufacturing.

However, there have been exceptions, such as Kenya and Mauritius, both of whom diversified slightly away from primaries and toward manufactures (World Bank, 1989). Yet the majority have not acted to take advantage of the changing structures and emphasis of world markets. Primary commodity exports accounted for 93% of total export earnings in 1970, declining to 88% by the mid 1980s.

Also, most SSA countries did not take advantage of the expanding South-East Asian and middle-Eastern markets, selling over 50% of their exports to Europe throughout the considered period (up to 1986) (Africa South of the Sahara, 1988). This is despite the fact that those markets have expanded rapidly, and their economies achieved high growth rates, with a corresponding increase in income.

There are other explanations for the slow growth of exports in Africa. One is the fact that for certain mineral products (eg. copper in Zambia), exploration had reached a mature and fully-developed phase, whereby significant further expansion in output was not possible. For other crops, drought and civil strife seriously affected production of food and export crops. Finally, trade restrictions imposed by the developed countries, such as tariff structures which escalated with the degree of processing of the product, agricultural price support for their own products and non-tariff barriers to trade, further impeded the growth of African exports.

Thus even if they had adopted more appropriate policies, African economic growth rates would still have suffered to an extent due to the world recession and stagflation of the 1970s. Falls in world demand for primary products, and the creation of alternative synthetic and fabricated products (eg. polyesters and cheaper fabrics) which compete with the African primary commodities also negatively affected their exports.

In chapter six an attempt to assess the strength and significance of export (and import) growth on economic growth is made. The role of the terms of trade in the process is also investigated.

3.5.2 Climate and Geography

In most SSA countries, climatic and geographic conditions have given rise to soils which are deficient in organic materials, and in general are only moderately fertile. Well-watered areas are only about one quarter of the total; elsewhere, rains are inadequate in volume and highly variable in time. Problems of weed and pest control are also rife. Soil-erosion, population pressure, over-grazing and shorter rotations have resulted in falling productive capacity of land (World Bank, 1981 and 1989). Mineral

exploration is also more difficult in such areas than in temperate zones, where rock formations are well exposed. Also, human energy and productivity are adversely affected because the tropical climate is particularly receptive to bacterial and parasitic diseases such as malaria, schistosomiasis, and onchocerciasis.

The role of drought has also been large and negative in many SSA countries. In particular, the Sahel experienced a quick succession of drought years between the late 1960s and the mid 1970s, with only a year or two of recovery in between. After another short period of recovery after 1974, another succession of very poor conditions followed, starting 1977/8 both in the Sahel and North-Eastern Africa. For example, Lele (1984) concludes that the droughts of the mid-1970s have significantly affected agricultural output in Tanzania during that period. Another severe drought occurred in 1984/5. These droughts resulted in a very sharp drop in crop production, severe losses in livestock, and immense human misery.

Evidence is not yet conclusive as to whether this indicates a long term process of the 'advance of the desert'. There are many indications of over-grazing and expansion of cleared land areas and over-population, all negatively affecting the evaporation and rainfall (World Bank, 1981 and 1989 and Africa South of the Sahara, 1988). If however, this desertification process proves to be under way as a long-term phenomenon, then the consequences will clearly be catastrophic. Unless corrective measures, such as research into and the introduction of drought-resistant crops, and keeping a check on population movements are taken, it is argued that SSA's underdevelopment will be aggravated and extended into the twenty-first century.

Another difficulty related to Africa's geographical nature is due to the continent's large physical size and dispersed population. These create special transport needs and problems. Fourteen countries in Africa are landlocked (of the world's twenty developing countries) - that is, almost a third of the SSA countries, often being more than 1000 kilometres from the sea by the shortest land route. This creates obvious financial and practical difficulties in providing transport facilities for the country's imports and exports. Regional integration and cooperation have been suggested as factors contributing to a solution to this problem (Todaro, 1989, and World Bank, 1989).

Therefore, it may be said that the climatic and geographical conditions in SSA have somewhat retarded output and income growth. The scarcity of fertile land and water resources, frequent occurrence of droughts, and lack of easy access to the sea have all acted together, adversely affecting any development efforts undertaken during the last two decades. How sizeable this effect may be is difficult to assess but it seems plausible to conclude that climate is not largely responsible for Africa's poor growth record. To a degree, these problems can be alleviated by irrigation, conservation and flood control and they are as much a symptom of the lack of the development, as a cause.

The above discussion has outlined the major factors that are thought to have retarded Africa's growth during the period 1960-1986. These have been divided into two categories : Internal Factors, being mainly the following: population growth, agricultural policies, pricing policies, trade and exchange rate policies and the size of the public sector. The other category was a set of external factors, including fluctuations in world export prices for African products, world recession, and climatic and geographical conditions. All these facts together have, to varying degrees, contributed to impair Africa's growth record. In the following chapters, the degree to which each factor has contributed to Africa's dismal growth record will be explored in a regression model. Next, however, a very serious problem facing all SSA countries will be examined - that of the growing debt and debt-service burden.

3.5.3. Africa's Debt Problem

Incurring a national debt is a situation which arises due to both internal and external factors. Internally, factors such as balance of payments problems, government policy mismanagement, and budget deficits may force the resort to external finance and loans. Externally, unforeseen interest rate changes exacerbate the debt problem by raising the costs of the loans and the debt-service payments. (The lending rate is determined as a mark-up on the LIBOR - the London Inter-Bank Offer Rate, and it depends on the creditworthiness of the borrower, and on the general conditions existing in financial markets at the time the credit is initially extended) (McKenzie and Thomas, 1992).

During the 1960s, when various third world countries were starting their development programmes, bilateral and multilateral loans were in operation to a limited extent. In the following decade, the international debt market changed substantially. The 1973/4 oil price hikes presented most developing countries with very difficult economic problems - the 'easiest' solution for which appeared to be the resort to borrowing in sufficiently large quantities to cover their budget deficits and development needs. Obviously, the more developed the country, or the richer its prospects looked, and the greater was its debt bearing capacity.

At that time, the international lending institutions viewed such lending as not abnormal banking business, and not particularly unsafe, as they thought that lending governments of countries, be they third world or otherwise, was a safe enough venture as it was difficult to perceive that whole countries could go bankrupt, rendering their investment irretrievable (Eichengreen and Lindert, 1989). Thus lending to developing countries was expanded. The largest borrowers were the South American countries as well as the South-East Asian countries. The SSA countries also had their share of the emerging loan industry.

In the subsequent few years, the South East Asian countries proved to be not so risky for the lending banks, as they grew fast and earned the title of the 'Newly Industrialised Countries'. The South American countries also achieved some success at industrialisation, but to a much more limited degree than the Asian countries. Consequently, they turned out to be some of the world's most heavily indebted countries, and they have helped create what has become known as the world 'debt crisis'. As for the SSA countries, the story was somewhat different. Table 3.16 shows the size of the SSA debt burden and it illustrates how the problem had escalated since 1970.

Despite the fact that it is not the absolute size of the debt that is important, rather, it is the debt/GDP or debt/exports ratios which indicate the relative size of a country's debt problem, Africa's debt in absolute size is about one quarter of that of Latin America and the Caribbean, and just over a half of that of East Asia and the Pacific. Africa's debt crisis has been more prolonged and severe than that of other developing countries, due to the difficult set of chronic problems that SSA faces. The debt burden is a large constraint on the regions' economic growth, and often undermines the

effectiveness of its development efforts. Within SSA itself, the low-income countries face even more severe problems. Revenue generation through exports is too small to cover the service payments on loans, as well as maintain domestic living standards. Living standards in those countries have been declining steadily over the last ten years, and are now lower than they were in the 1970s (World Bank, 1989).

In 1979, of the principal borrowers in the developing world, no African countries were included. Latin American and South East Asian countries dominated the scene. In 1988, Cote D'Ivoire and Nigeria were among the world's seventeen highly indebted countries (the rest being mostly South American, Yugoslavia, Morocco and the Philippines [World Bank, World Development Reports, 1978-91]).

Declining commodity prices and higher energy import bills led many SSA countries to heavy external borrowing, in order to maintain levels of expenditure experienced in earlier boom times. By 1988, the regions' debt was nearly equal to three and a half times its export earnings. Since 1980, SSA 's debt has also grown faster than that of other developing regions.

One of the main factors that has rendered debt more of a constraint on growth in SSA is the slow growth of exports and export revenues (World Bank, 1989). The share of African exports in all world trade fell from 2.4 % in 1970 to 1.7 % in 1985. Its share of non-oil primary commodities fell even more dramatically from 7% to less than 4% over the same period. By and large, the expansion of world trade since the 1960s appears to have bypassed SSA (World Bank, 1981 and 1989).

It is often argued that given the existing structure of SSA's exports, the most viable option for SSA seems to be to pursue a more aggressive exports promotion strategy, combined with diversification of exports and markets. Eliminating biases against exports and the adoption of appropriate marketing, tariff, and exchange rate policies are seen as important first steps in such a programme (Killick, 1992, Rose, 1984, and World Bank, 1989). This does not necessarily mean a shift from agricultural exports, but a more concentrated effort to raise agricultural production to begin with, and to use the foreign exchange generated for the production of other, non-agricultural commodities. Some countries have already started this process, the most

notable of which has been Mauritius which appears to have successfully diversified into light manufacturing industry (World Bank, 1989).

Again, with regards to markets, African countries need to look more seriously to the Asian and American markets as the potentially large importers of their products. The traditional European markets have seen a general contraction in developing country imports from 34% to 20% over the period 1970 -1985.

Low investment levels have contributed to poor export performance and diversification. However, it also seems that domestic financial mismanagement is responsible to a large extent, for these low investment levels and the low returns on many projects. For example, the role of banks and other financial institutions as financial intermediators has been negligible in most of the SSA countries (Hanson and Neal, 1985). It appears to be mostly the case that the allocation of funds and the determination of the levels of interest rates are a role assumed by the governments, rather than the markets, or a combination of both. A major cause of debt accumulation was investment in ill-considered and ill-conceived projects, with 'over-invoiced' capital costs. Furthermore, for the developing countries as a whole, approximately 20% of their debt (OPEC excluded) can be attributed directly to arms purchases (George, 1988).

Table 3.16
External Public Debt and Debt-Service Ratios

	1970	1980	1987
<u>External Public Debt Outstanding and Disbursed :</u>			
-US\$(mill.) :			
SSA (total)	5,373	41,273	105,949
excl. Nigeria	4,921	37,069	78,180
East Asia	5,654	52,583	147,605
South Asia	11,327	33,062	68,696
Europe, Middle East, & N. Africa	8,832	56,570	227,861
Latin America & Caribbean	15,878	129,325	338,331
-% of GNP :			
SSA (total)	13	21	81.0
excl. Nigeria	18	38	74.0
East Asia	15	10	24.9
South Asia	15.1	16	21.6
Europe, M. East, & N Africa	13.5	17	47.9
Latin America & Caribbean	10.5	19	45.5
<u>Interest Payments on External Public Debt US\$(mill.) :</u>			
SSA (total)	168	1,919	2,428
excl. Nigeria	148	1,479	1,906
East Asia	566	3,613	27,904
South Asia	724	768	5,355
Europe, M. East, & N. Africa	1,197	3,365	32,355
Latin America & Caribbean	2,430	12,870	31,256
<u>Debt-Service as % of GNP :</u>			
SSA (total)	1.2	2.1	4.1
excl. Nigeria	1.5	3.6	4.2
East Asia	1.5	1.4	4.7
South Asia	1.0	0.9	1.7
Europe, M. East, & N. Africa	1.8	2.3	6.6
Latin America & Caribbean	1.6	4.0	4.2
<u>Debt-Service as % of Exports of goods and services :</u>			
SSA (total)	5.3	7.2	14.7
excl. Nigeria	5.5	12.3	16.1
East Asia	7.9	13.6	17.2
South Asia	17.9	12.1	20.8
Europe, M. East, & N. Africa	12.3	19.0	26.7
Latin America & Caribbean	13.1	38.5	26.5

Source : World Bank, 1989, and World Development Reports, 1978-91.

Table 3.17
Total External Debt, various regions, US\$ millions

	1980	1982	1984	1986	1987
SSA	55,982	69,740	81,713	109,399	128,779
East Asia & Pacific	90,531	127,176	150,669	189,109	206,347
Latin America & Caribbean	242,633	333,210	377,429	406,031	442,481
% SSA debt to East Asia & Pacific	61.8	54.8	54.2	57.8	62.4
% SSA debt to Latin America & Caribbean	23.1	20.9	21.6	26.9	29.1

Source : World Bank, World Debt Tables, 1988-89

Another factor that has accentuated the debt burden in the 1980s is the level of world interest rates, since external debts are usually denominated in U.S dollars. According to McKenzie and Thomas (1992), the industrial countries' responses to the oil-price rises of the 1970s have greatly affected the debtors' ability to re-pay, and more importantly, to service their debts. The developed (lender) countries adopted contractionary policies designed to defeat inflation. These included a reduction in the demand for non-oil developing country primary commodity exports, and due to the monetary contraction, real interest rates rose sharply. Increases in those rates has meant that debtors had to pay extra millions or hundreds of millions due in debt service. New loans were necessary to pay off old loans. Thus indebtedness accelerated beyond rates conceived possible during the 1970s.

Some action is being taken by both the borrowers and the lenders to improve the situation. More debt relief rescheduling has been granted to an increasing number of SSA countries by the World Bank and the IMF, in return for the implementation of adjustment programmes by the borrowers (IMF, World Economic Outlook, 1990). Other measures include more

concessionary loans to help service previous loans, and some degree of swaps of debt for equity is taking place.

However, until recently, the SSA debtors have received much less attention than the Asian and/or the Latin American borrowers, primarily because of SSA's small share in total developing country debt (nearly 10%) and because of the relatively small exposure of the private financial institutions in Africa, thus forming no significant threat to the international financial system (Greene, 1989). Furthermore, the debt crisis is not uniform across the African countries. The low-income countries face the most severe difficulties among the SSA countries, and the middle-income African borrowers suffer a more severe debt-burden than other developing countries, despite having a smaller debt total (in absolute terms).

According to the World Bank (1989), the

"debt service obligations [of SSA] rose in the 1980's to a point where they could not be metNo more than a dozen SSA countries have serviced their debts regularly since 1980Altogether, during 1980-88, twenty-five SSA countries rescheduled their debt one hundred and five times".

Therefore, by all accounts, the debt burden can (and has) impaired Africa's development efforts. The impact of the debt burden on economic growth is tested empirically in chapter six, using TDS ratios and the size of total debt stocks as independent variables in the growth equations.

3.5.4 Aid

Eventhough aid is not a 'problem' facing SSA, the basis of its provisions and uses have frequently been subjects of discussion (e.g. Mosley, 1987, Riddell, 1987, and Bauer, 1979 and 1984). The aid controversy itself is discussed at much greater lengths in chapters six and seven. This section mainly deals with the levels of aid received by the SSA countries.

On top of their considerable access to domestic resources, African governments received sizeable aid flows. Table 3.18 gives an indication of ODA received by the SSA countries.

From Table 3.18, it is clear that SSA as a region has received more aid (in terms of net ODA disbursements and as a percentage of GNP) than any of the other regions included in the table. This, perhaps, reflects the fact that over the reported years, SSA as a whole (in terms of per capita income levels, World Bank, 1991), was the least developed region, and accordingly, received the highest aid levels. The fields in which these funds were invested are difficult to identify, and it is often suggested (e.g. by Mosley, 1987, and Riddell, 1987) that the impact and benefits of aid depend, to a large extent, on the attitudes and judgments of the recipient government, the extent of rent-seeking, the domestic political power distribution (e.g. the urban-rural divide), the manner in which it is used, and the form in which it is provided. The latter is often a function of the donor country's motives in giving aid (such as securing political or strategic leverage).

Table 3.18
Aid Indicators for SSA.

	ODA (Millions of US \$)			
	1975	1980	1985	1987
SSA (total)	3,237	7,126	8,222	11,066
SSA (excluding Nigeria)	3,155	7,091	8,190	10,996
East Asia	..	3,451**	3,577	5,548
South Asia	..	4,761**	4,655	5,630
Latin America & Caribbean	..	1,965**	3,328	4,116

Source : World Bank, 1989, and WB, World Development Reports, 1978-91

	Bilateral Aid (% of Total)		Grants as % of net ODA	
	1980	1987	1980	1987
SSA (Total)	68	66	71	66
SSA (Excluding Nigeria)	68	66	71	66

Source : World Bank, 'Sub-Saharan Africa - From Crisis to Sustainable Growth', 1989, and WB-WDRs, 1978-91

(Table 3.18 cont.)

	ODA from all sources as a percentage of GNP	
	1984	1989
SSA (Total)	9.0	7.9
SSA (exc. Nigeria)	9.3	8.1
East Asia	0.8*	0.7
South Asia	1.7*	1.7
Latin America & Caribbean	0.4*	0.4

Source : WB, 1989, and WDRs, 1978-91

* 1987

** 1981

It is not easy to reach a definite conclusion regarding the effect of aid on economic growth. However, aid is incorporated in the empirical analysis of chapter six in order to assess its significance (or the lack of it) in the growth process.

3.6 Political Instability

Very few African countries have enjoyed an uninterrupted stretch of political stability. Most have experienced an upheaval of some kind (coup, attempted coup, border dispute or civil war) every few years. Clearly, this does not help a government, however well meaning, to implement smoothly an economic programme. Instead, immediate (short-term and temporary) measures may need to be taken so as to prevent further political deterioration. This undoubtedly interferes with the progress of any long term plans adopted in advance. Yet, there are some countries which have had impressive stability records. Botswana, Mauritius and Senegal have been the most obvious exceptions, with uninterrupted political stability records.

The pluralism of African societies, multiplicity of cultures, languages and ethnic diversity have all heightened the difficulties of post-colonial political consolidation and the process of national integration. Chapter five is completely devoted to the examination of political instability and its influences on economic growth. Reverse causality between economic

growth and political instability is also investigated. In chapter six, a political instability index is incorporated in the econometric analysis as a factor affecting growth. Therefore, the discussion in this section will be brief.

Political instability most often means that the regime in power spends vast sums of foreign exchange on arms and defence - funds that could have been spent on development.

Table 3.19 below illustrates how government expenditure was divided amongst different services for selected years and for selected countries world-wide. For most of the SSA countries (except Mauritius and, perhaps, Botswana), defence expenditure was generally much greater than expenditure on any other sector except education. In some years, it even surpassed educational spending. Clearly, this seriously affects the pace of development and perhaps reflects misplaced priorities among those African governments who appear to spend far more on defence than on the betterment of the population's living standards.

Thus insecurity of a regime will most likely cause the diversion of large amounts of funds into military spending purposes, and the defence of the country would be reduced to the defence of the regime in power.

Comparing the central government expenditure rates of the SSA countries with those of other countries (Table 3.19 above) reveals that in the sector of defence, non-African countries exhibited variable rates, some higher (e.g. India and Pakistan) and some lower (e.g. Mexico and Spain) than the African countries. Clearly, that is a mainly political choice, and it depends on many factors, the main one being whether a particular country is involved in a domestic or border conflict.

In the sector of education, other countries' expenditure was not particularly higher than that of the African countries. However, that may reflect the higher initial education levels of those other countries. Expenditure on the health sector is similar to that of the African countries.

Finally, expenditure on housing and other services appears to be generally higher in other countries than in the African countries, with the clear exception of Mauritius.

Table 3.19

Central Government Expenditure, 1972,1980 and 1987
(Percentage of Total Expenditure spent on each sector)

	Defence			Education		
	'72	'80**	'87	'72	'80**	'87
Malawi	3.1	12.8	6.6	15.8	9.0	10.8
Tanzania	11.9	9.2	15.8	17.3	13.3	8.3
Uganda	23.1	25.2	26.3	15.3	14.9	15.0
Kenya	6.0	16.4	9.1	21.9	19.6	23.1
Nigeria	40.2	23.5	2.8	4.5	4.5	2.8
Ghana	7.9	3.7	6.5	20.1	22.0	23.9
Liberia	5.3	5.8	8.9	15.2	11.9	16.2
Botswana	0.0	9.8	7.9	10.0	22.2	18.4
Mauritius	0.8	0.8	0.8	13.5	17.6	12.4
Togo	...	7.0	7.6	...	12.6	13.1
Cameroon	...	9.1	8.1	...	12.4	12.7
Cote D'Ivoire	...	3.9	16.3	...
India	26.2	21.5	21.5	2.3	1.9	2.7
Pakistan	39.9	34.8	29.5	1.2	3.1	2.6
Indonesia	18.6	11.7	8.6	7.4	9.4	8.8
Philippines	10.9	13.6	9.2	16.3	25.6	18.0
Venezuela	10.3	5.2	5.8	18.6	19.1	19.6
Mexico	4.2	2.0	1.4	16.4	11.0	8.7
Morocco	12.3	14.6	14.5	19.2	18.6	16.9
Thailand	20.2	19.8	18.7	19.9	20.7	19.3
Yugoslavia	20.5	...	55.1	0.0	...	0.0
Spain	6.5	4.4	5.6	8.3	6.0	5.5
New Zealand	5.8	4.9	4.7	16.9	11.9	11.1
Singapore	35.3	18.5	19.0	15.7	21.6	18.2
Italy	6.3	3.5	3.2	16.1	8.6	7.4
UK	16.7	...	12.9	2.6	...	2.2
Australia	14.2	9.7	9.3	4.2	7.9	7.0
Uruguay	5.6	12.7	10.2	9.5	6.5	7.1

(Table 3.19 cont.)

	Health			Housing, etc*		
	'71	'80**	'87	'72	'80**	'87
Malawi	5.5	5.5	7.1	5.8	1.6	2.3
Tanzania	7.2	6.0	5.7	2.1	2.5	1.7
Uganda	5.3	5.1	2.4	7.3	4.2	2.9
Kenya	7.9	7.8	6.6	3.9	5.1	1.7
Nigeria	3.6	2.5	0.8	0.8	6.6	1.5
Ghana	6.3	7.0	8.3	4.1	6.8	7.3
Liberia	9.8	5.2	7.1	3.5	4.3	1.9
Botswana	6.0	5.4	5.9	21.7	7.9	10.1
Mauritius	10.3	7.5	7.6	18.0	21.4	17.4
Togo	...	5.6	3.8	...	5.2	9.9
Cameroon	...	5.1	3.5	...	8.0	11.9
Cote D'Ivoire	...	3.9	4.3	...
India	1.5	2.4	1.9	3.2	4.6	5.7
Pakistan	1.1	1.0	0.9	3.2	9.3	8.7
Indonesia	1.4	2.2	1.5	0.9	1.4	1.7
Philippines	3.2	6.8	5.5	4.3	4.9	3.8
Venezuela	11.7	8.6	10.0	9.2	9.7	11.7
Mexico	5.1	1.2	1.3	25.0	12.5	8.5
Morocco	4.8	2.9	2.9	8.4	7.1	6.9
Thailand	3.7	5.1	6.1	7.0	4.6	5.2
Yugoslavia	24.8	...	0.0	35.6	...	11.2
Spain	0.9	0.6	12.7	49.8	64.2	40.4
New Zealand	14.8	12.6	12.4	25.6	30.2	29.7
Singapore	7.8	6.4	4.1	3.9	5.6	15.9
Italy	13.5	11.5	9.6	44.8	34.3	36.3
UK	12.2	...	13.1	26.5	...	31.6
Australia	7.0	7.1	9.5	20.3	30.0	28.6
Uruguay	1.6	3.4	4.8	52.3	52.1	49.5

Source : World Bank, "Sub-Saharan Africa, From Crisis to Sustainable Growth", 1989.
World Development Reports, 1978-91

... Not available

* This includes amenities, social security, and welfare.

** For all the countries from India downwards (to Uruguay), 1980 figures were not available, therefore, 1982/83 were used instead

3.7 Summary and Concluding Remarks

This chapter is intended to give an overview of the main problems facing the Sub-Saharan African countries. These problems have been categorised as either 'internal' or 'external'.

The internal problems were population growth, domestic agricultural, pricing, trade and exchange rate policies, slow export and import growth, and the size and mismanagement of the public sector.

As to the external problems, these were primarily concerned with export price fluctuations and the changes in the terms of trade, world stagflation, climatic, goeographic and regional conditions.

Political instability was more difficult to categorise. It was thought better to regard it as more of an external or exogenous problem, rather than an internal one, because it was not particularly within the control of the authorities of a country. It results from various factors, some of which are policy induced by the government and some are not. These will be examined in much greater detail in chapter five.

The debt problem of SSA Africa was also examined due to the large and important role that it plays in retarding the continent's economic growth. As mentioned before (section 3.5.3), it is regarded as a partly internal and partly external problem. Finally, the special circumstances of Francophone Africa were discussed because of the effect of the special links they have with France.

The purpose of this descriptive analysis of the internal and external factors affecting SSA's economic growth, is to provide a background to the econometric work of chapter six, in which these factors (or proxies to them) will be incorporated into a regression equation, in an attempt to quantify the effect of each on the growth of aggregate output. The following chapter (chapter four) will provide the background to the econometric work, including data sourcing, definitions and methodology.

Notes

- 1 CFA zone countries in 1988 are : Benin, Burkina Faso, Cameroon, Central African Republic, Chad, Comoros, Congo, Cote D'Ivoire, Equatorial Guinea, Gabon, Mali, Niger, Senegal, and Togo.

CHAPTER FOUR

MODEL & METHODOLOGY

4.1 Introduction

Before embarking on the econometric work which assesses the impact of different factors on economic growth in SSA, the methodology and the model which have been employed in chapter six are described. The factors isolated as independent explanatory variables in the equations as a result of the discussions in chapters two and three are defined. The sources of the data are also detailed, and, finally, the potential problems associated with the statistical analysis are examined.

The discussion is regarding all three main groups of regressions; the growth function, the saving-rate function (I/GDP), and the incremental capital-output ratio function (ICOR).

4.2 The model

Regression analysis is used, with the first group of equations containing growth as the dependent variable and a group of fifteen factors as the independent variables determining the growth rate for a cross-section of forty-five Sub-Saharan African (SSA) countries (where it was possible to assemble a complete set of data). These factors are defined below, along with the proxies used for those difficult to estimate directly.

The two other dependent variables tested are the investment ratio (I/GDP , assumed equal to S/GDP - the savings ratio), and the ICOR.

Regression as a tool of analysis is considered to be suitable for the kind of cross-sectional analytical exercise to be performed here. One problem is the difficulty of obtaining complete and reliable data for all the countries involved and for the period in question.

The sample started with 45 Sub-Saharan African countries, but after a survey of the reliable data sources (section 4.4 below), it was only possible to assemble a comprehensive data set that included most of the explanatory variables required for 32 countries. The 1960s proved to be the most difficult decade, and data for this period is relatively patchy. However, for the 1970s and 1980s, the data available appears more reliable and comprehensive.

Another common problem with regression analysis is that it is not always clear whether changes in the independent variables are a cause or an effect of the movement in the dependent variable. Certain tests can be carried out (namely those based on the work of Granger and Sims) to attempt to clarify the direction of causality. This is done for selected dependent variables.

The main equation for this part of the work is, therefore, of the form

$$y = a_0 + b_1 x_1 + b_2 x_2 + \dots + b_n x_n + u ,$$

and is estimated by ordinary least squares.

The relationship is assumed to be linear as this was found to be a good approximation of the nature of the relationship and of the effects of the factors x_1 to x_n .

Separate regressions are performed for separate decades (1960-69, 1970-79, and 1980-86) as well as for the period as a whole. Decade averages are employed in order to reduce the possibilities of measurement errors. Running separate regression equations for each decade is considered useful in order to assess the changing strength and significance of each factor over each sub-period, while the overall impact is made clear from the whole-period equations.

Data deficiency problems for the 1960s, regarding the real rates of interest, debt indicators and black market exchange rates were mentioned previously. These indicators were also excluded from the whole period regressions, but not from the 1970s and 1980s equations.

In chapter three, a table of the growth rates of GDP was presented (Table 3.1). For most countries, these rates were obtained by running a regression of GDP over time. The equation was of the type :

$$\ln \text{GDP} = a + b \ln t + e$$

where t = time, and ' e ' represents the random error term.

These compared well with World Bank figures for the growth rates of aggregate output. The World Bank rates were employed for the dependent variable in the regression equations for economic growth.

The majority of the econometric work of chapter six consists of multiple regression analysis. However, one of the factors, political instability, exhibited possible signs of reverse causality with economic growth, after the Granger-Sims test of reverse causality was performed. This indicated the possibility of simultaneity bias. Therefore, the equations which included instability as an independent variable were not only performed using multiple regression analysis, but they were all performed again using the method of two-stage least squares (Gujarati, 1988, and Johnston, 1985).

Furthermore, the graphic representations of the relationships between economic growth and each of the independent variables, were performed using the method of partial regression and not standard regression analysis, in order to obtain a more 'true' picture of the association between the two variables. This occurs because a partial regression plot of 'Y' on ' x_i ' is a two-way scatter plot of both variables, after removing the linear influence of all other regressors on each of them (Gujarati, 1988).

4.3 Explanatory factors

A detailed discussion of the explanatory factors which affect growth (both internal and external) was given in the previous chapter. These are now defined as they appear in the regression model.

Fifteen factors are involved in this study of growth performance in SSA. The factors, or indicators used are the following:

1. Gross Domestic Investment (GDI) as a percentage of Gross Domestic Product (GDP).

This factor was calculated as the ratio GDI/GDP to examine the effect of domestic investment on growth. In terms of the Harrod-Domar model, this was taken to be the savings ratio 's' in the equation $g = s/v$. Neo-classical theory argues that in long-term growth equilibrium, a rise in 's' does not raise the growth rate, but it leads to a shift to a growth path with a higher level of GDP. However, a rise in the saving rate will raise the growth rate for a period during the transition, and the assumption here is that the African economies are in this transitional period (see chapter two), and none have achieved equilibrium.

Thus in the growth equations, GDI/GDP is included as an explanatory variable which is expected to have a positive effect on the growth of aggregate output. However, this variable is also tested as a dependent variable in the saving ratio function, where the extent to which other factors affect it is assessed.

2. The ratio of the black market exchange rate to the official exchange rate - BM/E - was formulated as an index of price distortions in the economy. It is expected that the relationship of BM/E to growth will be a negative one (the higher the ratio, the more distorted the markets and the less efficient the distribution of resources between tradables and non-tradables, and therefore the lower the rate of economic growth). This variable was also included in the ICOR equations, where it is expected to have a positive effect, with the productivity of capital lowered due to market price distortions.

3. An inflation indicator was obtained ($\Delta P/P$) - that being the implicit overall GDP deflator. It is expected that this will be negatively related to growth at 'high' levels of inflation but the effect will diminish at low levels of inflation. The main argument being that high inflation rates waste resources through an increase in 'shoe-leather' and 'menu' costs (see chapter six). High inflation may also be associated with high public sector spending, financial repression, and overvalued currency. These three latter factors are included as explanatory variables, and as a result of this, the equations are examined for multicollinearity.

4. The growth of each country's export volumes (X-gr) was obtained to examine the effect of export growth on economic growth. The two variables (the growth of exports and that of GDP) are expected to be positively related, the argument resting on the allocation benefits of production specialisation

and comparative advantage, with exports providing the necessary foreign exchange to stimulate import and GDP growth.

5. An index of import volume growth (M-gr) was obtained from the same source to assess the effect of the growth of imports on economic growth. The relationship of imports with growth can be either positive or negative depending on the type of goods imported. However, the usual argument in SSA is that there is strong complementarity between domestic production and imports. It is argued that there are fixed coefficients between domestic inputs and imported inputs which cannot be produced domestically (such as fuels, spare parts, agricultural and industrial raw materials). It is therefore, expected that the overall effect of imports on growth is positive.

6. A weighted political instability index was formulated (Pol-In), taking the values of one for any year in which a coup, coup attempt, war, civil war occurred (all of which are serious enough to pose a threat to the stability of the system or regime in power), and zero otherwise. Greater weight was placed upon the more serious events (such as a war or a successful coup d'etat), than on less serious events. This examines the effect of political instability on economic growth. It is anticipated that there will be a negative relationship between this index and growth (i.e. the more unstable the country the lower the growth rate) primarily due to the effect of political instability on savings, investment and capital flight. Chapter five examines this factor and the formulation of this index in greater detail.

7. Another factor considered to affect economic growth is the size of the public sector. The indicator for this incorporated in the equations is the size of General Government Consumption in millions of the domestic currency, for each country, as a ratio to GDP (G/GDP). A negative relationship between G and the growth rate is expected, since it is argued that government production leads to inefficient resource allocation, through lack of efficiency incentives in the public sector.

8 & 9. It is argued that the size of the debt-burden also affects growth. Two indicators are used to assess the impact of this. The first is the total debt service ratio relative to GNP (TDS/GNP) on official public loans for each country. The second is the size of the actual debt (public and publicly guaranteed) relative to GDP. The two variables are not included in the same equation together, as they are clearly correlated. However, they are

interchangeably included to assess which of the two has a greater impact on economic growth. It is expected that these will have a net negative influence on growth through two effects : the first, by lowering the ability to import (as the TDS to exports ratio rises as debt size increases), and the second, by lowering the ability to invest as the ratio of TDS to GNP increases.

10. Another factor included in the study is aid. This is related to the 'two-gap' constraints on growth, with aid acting as a supplement to increase the savings level or import capacity, whichever is the constraining factor. This effect is tested here by using as an indicator for aid levels the ratio of Official Development Assistance to GNP (ODA/GNP), given in the equation as ODA.

11. A terms of trade index (Δ TOT) is obtained to assess the effect of export prices relative to import prices on growth. The indicator used in the analysis is the annual change in the TOT index. There are two effects of an improvement in the terms of trade : the first being the general increase in the access to resources, and the second is raising the ability to import thereby reducing the constraint this constitutes. A positive relationship between the terms of trade index and the growth rate of GDP is expected.

12. It is argued that interest rates have an effect on investment and saving behaviour, which in turn strongly affect growth. Real lending and deposit rates were obtained, but it was found that this was an indicator for which the data available was very patchy during the 1960s. However, data availability improved significantly for the 1970s and 1980s. Higher real interest rates are expected to raise domestic savings rates with a positive effect on growth. Furthermore, in Africa it is argued that negative real interest rates have lead to unproductive investments. It is therefore, expected that higher real interest rates will raise capital productivity and economic growth.

The last three indicators are social factors:

13. An education indicator, assessing the quality of labour, is obtained. Literacy rates were used for this indicator (LIT). It is expected that there will be a positive association between literacy and growth.

14. It is argued that high rates of population growth affect economic growth. Average growth rates of population were included in each equation for each country (POP). The arguments are that, on the one hand, an increase in population growth rates should lead to a more rapidly growing labour supply and should increase economic growth, as well as create a larger market, thus allowing sizeable enterprises to benefit from economies of scale. On the other hand, it raises the dependency rates and lowers savings and the ability to invest in human capital. Thus the relationship between this variable and economic growth could be positive, negative, or it could cancel out, depending on whichever effect is the stronger one.

15. Finally, an health indicator (life expectancy at birth) was included to capture the impact of the state of health on labour productivity. Initially, we expected a positive impact of life expectancy on growth rates. However, reverse causality between the two variables proved strong, as it is clear that faster growth allows higher life expectancy, as it raises per capita incomes. Therefore, this variable was excluded from the equations reported in chapter six.

4.4 Data Sources

Data on each of the indicators was collected and properly manipulated to fit the requirements (for example, reproducing the data for a common base year where the series differed in time periods). The data sources varied from The World Bank - WB, The IMF, The UN Economic Commission for Africa, and others (see Appendix I after chapter seven), depending on availability. The study was initially of forty-five SSA countries, some of which were too small and not included in the larger, more reliable and better known data sources (such as the WB or the IMF statistical books), and so research had to be done elsewhere. Eventually, the sample had to be reduced to thirty-two countries because of such data problems. To an extent, this variability of data sources produces some inconsistency. However, upon examination of general trends for each country, this problem was not found to be significant and the data was taken as relatively reliable from whichever source. Most of the data was eventually obtained from two sources only : the World Bank and the IMF statistical books.

The data obtained covers the period 1960-1986. For many countries, data for the whole period was obtainable. However, this was not the case for all the indicators and for all the countries. Clearly, this produced a problem of completeness. However, for our purposes, what was available was found to be sufficient, as we are trying to determine the factors that affect the economic growth in SSA, and the size of such effects in a continent of very different countries, but which seem to fall within groups that exhibit similar trends and behavioural patterns. For the factors that were listed above, sufficient data was available for the whole period and for the thirty-two countries.

As mentioned above, Appendix I provides greater detail and defines exactly the variables employed in the analysis.

4.5 Measurement Errors and Other Related Problems

In this section, statistical problems associated with regression analysis will be briefly discussed.

To begin with, autocorrelation is not regarded as a problem applicable to cross-sectional studies.

The main problem concerned data availability and reliability. This problem is particularly acute for many Sub-Saharan African countries. As previously mentioned, this study began with forty-five countries and, after eliminating those countries for which there were severe data availability problems, thirty-two countries remained for which the data was relatively reliable. For those 32 countries, some problems still persisted, particularly for variables such as interest rates throughout the period, and Black market exchange rates and total debt service ratios for the 1960s. In general, data reliability improved as we moved in time, with the 1960s providing the weakest data, but significant improvements in both the quantity and quality of the data occurred in the 1970s and 1980s.

This problem is particularly important given that measurement errors in the independent variables tend to bias the estimates of the coefficients. Furthermore, the World Bank data was checked against the IMF and other data to eliminate inconsistent observations. Also, the main reason for

grouping data (decade averages) was to reduce the bias problem from measurement errors.

Multicollinearity, often a matter of degree not of kind, did not appear to be a serious problem, (high R^2 were not often associated with insignificant t-values). However, there were some occasions when multicollinearity appeared a problem, and these are discussed in the results section of chapter six.

Finally, the possibility of heteroscedasticity exists. Residuals from the equations were computed, and where heteroscedasticity appeared a possibility, a Spearman test was employed (Pindyck and Rubinfeld, 1985, and Steel and Torrie, 1981).

4.6 Summary

This chapter summarised the methodology and the econometric approach which was used in the analysis of the growth, savings and ICOR functions. These functions comprise the majority of chapter six, concentrating mostly on the factors determining economic growth.

The empirical work seeks to explain growth rates, savings rates, and incremental capital-output ratios of a cross-section of African countries, using fifteen explanatory variables. Linear regression analysis is the main research method employed.

The sources and limitations of data were discussed, and in order to reduce the impact of the problem of measurement errors, decade averages of the data were employed.

CHAPTER 5

POLITICAL INSTABILITY AND GROWTH

5.1 Introduction

During the period under study (1960-86), the majority of the Sub-Saharan African countries experienced political instability of one kind or another and to varying degrees of seriousness, ranging from riots and demonstrations to bloody coups d'etat and civil wars. The effects of such instability can be expected to be detrimental to economic growth, particularly in cases of long-running civil wars.

Many political scientists (e.g. Huntington 1965 & 1968, and Sanders 1981), argue that political instability is more likely to arise under a system of authoritarian, autocratic rule, than under a democratic style of government.

Yet whether the system of government in itself has been sufficient to ensure stability in SSA is another matter. Democratic institutions generally tend to perform well as vents for popular discontent, but they are not common in Sub-Saharan Africa, and it is possible to have political stability (in the limited sense considered here) within an authoritarian framework. However, the matter of political structure is beyond the scope of this paper and is not discussed at any length.

This chapter is directed towards an examination of the role of political instability in the economic growth process of SSA and some of the different ways that have been used to capture its effects. Three indices measuring political instability are examined, and then one is formulated to include the elements argued to be most relevant in relation to economic growth (this 'modified' index is incorporated into the econometric work of the next chapter). An attempt is also made to determine the direction of causality between political instability and economic growth.

We will first examine briefly the causes and consequences of political instability.

5.2 Causes of Political Instability in SSA

The roots of political instability have often been traced back to the colonial heritage in SSA (e.g. Onimode, 1989, and Nafziger, 1983). It has been argued that the economic and social structures implanted by the colonising powers were of such a nature as to benefit the regions which were resource-rich generating tropical agricultural exports or minerals, or were of strategic importance, such as being a prime trading post or port. This regional concentration within the colonised country naturally led to unbalanced development and unequal wealth distribution in that country. After political independence, it is argued that neo-colonialism tended to prevail whereby the development pattern of the colonial times remained in effect, although with an indigenous elite cooperating with the former colonial powers. In time, the populations of other under-developed regions became dissatisfied with the situation as certain groups dominated economic as well as political life and wealth became concentrated in their hands. The establishment of certain institutions and restrictions by one-party governments lead to rent-seeking activities. Examples of such government-imposed restrictions are import licensing, credit rationing, public investment licensing, and access to foreign exchange. As these licences would be relatively difficult to obtain, they became a valuable commodity to possess and, perhaps, trade (Krueger, 1974).

This 'institutional' corruption would be further exacerbated by the political reality of the importance of the urban population to the survival of a one-party state system. It has been argued that the political relationship between governments and their urban constituents often determined agricultural policy (Bates, 1981). To avoid the dangers of strikes, riots and worker unrest, many SSA governments have had to appease the urban workers and the military, in order to maintain their political support. This involved adopting policies to keep the cost of living (essentially food costs) low. This was done at the expense of the rural population, whose interests were often neglected.

Therefore, government restrictions and the political pressures of the urban population and the military, as well as the protection of elite interests (the owners of capital, the large employers of urban populations, and the large investors), all lead to greater rent-seeking and corruption.

Often the dissatisfaction of the poorer areas and their peoples culminated in public disorder, and perhaps riots and demonstrations. Severe repression was the normal reaction by the authorities in most countries, but eventually, a coup attempt might surface, unless something was done to improve the fortunes of the less privileged people. Still, in Sub-Saharan Africa some countries did experience apparently uninterrupted stability over long periods. Botswana and Mauritius for example, had no reports of coup plots or coup attempts throughout the period 1960-1986⁽¹⁾.

It has been argued (Nafziger, 1983), that education is important in politicising African populations. As the younger sections of the population became better educated, they saw more clearly the failures of the authorities and the corruption that was widespread among the ruling elite. It is not the mere fact of observing corruption that led to outright demonstrations and rioting. It was exacerbated by not being able to fulfil their expectations of what higher education should bring: primarily, a higher income level. Jobs, particularly in the civil service, were highly desirable but becoming increasingly scarce and lower paid in real terms. Furthermore, the wealth gap between the top civil servants with access to rent-seeking, and the lower echelons was widening. Naturally, this dissatisfaction, if not remedied, could lead to unrest. Dissatisfaction and unrest could also arise when income and wealth distribution gaps exist between non-native nationals (expatriates and immigrants), such as the Asians in East Africa, and the native population, where the former own and control many commercial and business activities, giving them a higher living standard.

A more important factor leading to political instability relates to the morale of the army, given that many of the political upheavals in Sub-Saharan Africa are of a military nature. It is clear that without the loyalty of the army, the ruling elite cannot survive. Often, low morale among the junior sections of the army, due to low pay and promotion conditions, produced resentment, especially if the top ranks and positions in the army were primarily filled by a favoured ethnic group to which, say, the president of the country belonged. This has often been a strategy aimed at keeping the army loyal to the ruler, as their favoured position depended upon the continued rule of their kinsman.

Even more dangerous army unrest is that emanating from senior officers. If it was the case that they were receiving low wages or that they could not command a high enough budget (Nafziger, 1983), or if they believed that the recessionary state of the economy was due to direct action from the president (as Flight-Lt. Rawlings often claimed in Ghana), then they may well initiate a military coup d'etat believing, perhaps, that they could improve the economic situation. Failing that, they might simply desire more personal power and greater access to rent-seeking.

Another factor which has led to instability in many less developed countries, SSA included, is the application of IMF economic short term stabilisation programmes. Countries that resort to the IMF for loans and assistance usually have to adhere to a set of conditions which the IMF imposes upon the acceptance of the loan. Some such conditions would be the reduction of the size of the civil service, and the removal of price subsidies, all aimed at improving the balance of payments situation. Beneficial as such policies may be for the long-run alleviation of a country's economic problems, it is almost certain that in the short-run the higher prices and lower employment would lead to dissatisfaction and hardship among the population.

This sometimes leads to serious political upheavals. That is often why the recipient countries stop such a programme soon after its implementation. However, IMF conditionality programmes in themselves have rarely been the cause of the downfall of a particular regime, (with the exception of Nimeri's regime in Sudan in 1985), and any riots or demonstrations ensuing due to such programmes are typically harshly and speedily dealt with. However, another (more cynical) view concerning the role of IMF programmes is that riots in response to structural adjustment programmes have sometimes been encouraged by governments as an excuse for abandoning the programme (e.g. Zambia, 1986).

Yet, in the last few years, the IMF appears to have become aware of the political difficulties of imposing these short term programmes. Accordingly, they have recently moved to more long-term adjustment programmes, similar to those of the World Bank (Killick, 1991).

Finally, the most often-cited factor for political instability, and indeed for the general state of under-development of an economy is, as mentioned above,

the mode of government in a particular country. Many observers argue that the lack of democracy and multi-party ruling systems are the roots of instability (Sanders, 1981). The obvious reason being that under an authoritarian regime which is unwilling to relinquish power, any desired change to the system would have to be implemented by resorting to non-constitutional means, as the opposition to the regime have no alternative but to plot against the ruler. Change cannot be implemented by the vote - the most peaceful instrument of change. However, there have been situations in SSA whereby even an elected government suffered a coup attempt for one reason or another and the power-hungry opposition seized the rule by force. Such incidents are relatively common in Africa, and the importance of democracy and multi-party ruling systems, within the context of secure institutions, remains paramount as the primary means of ensuring peaceful political change.

In summary, the main causes of political instability are seen as the lack of a democratic style of government, the inheritance of a markedly inegalitarian society at independence, ethnic and tribal rivalries, the concentration of wealth in the hands of a privileged minority (such as expatriates or other migrants - e.g. Asians in East and Southern Africa or the Lebanese in West Africa), the implementation of severe economic reforms, domestic policy mismanagement, and bad pay and promotion conditions in the civil service or the army.

5.3 Consequences of Political Instability

The social and economic consequences of instability depend on the form in which it is expressed - a coup attempt, a successful bloodless coup, a successful bloody coup d'etat, outright civil war (e.g. Nigeria 1967-1970), or cross-border wars (such as that between Tanzania and Uganda in the 1970s, and the frequent Somalian-Ethiopian Conflicts).

Clearly, the least severe consequences in terms of human life, arises in the first two cases - an attempted or a bloodless coup d'etat. However, in many instances in SSA, the discovery of a plot or an attempted coup d'etat have been followed by severe recriminations and executions - clearly a heavy cost in terms of human lives.

If it is the case that a bloody coup occurs to dispose of the ruling elite, then the consequences tend to be more severe, but the most devastating event is an outright civil war or cross-border war.

To begin with, the human costs; the loss of lives, starvation, displacement and misery are compelling enough reasons for seeking a more stable political system.

As to the economic consequences, they are also crippling. The more widespread the conflict, the greater the loss of production that can be expected. Some countries (e.g. Angola) have managed to a degree to insulate their export sectors from instability, but this leads to an economy with a relatively high-income enclave sector, and a stagnant subsistence sector for the rest. Infrastructure can also be destroyed during instability, investment levels fall, and export market shares drop.

Furthermore, there tends to be a deterioration in the balance of payments position and a reduction in the foreign exchange earnings of the country, not only because exports fall, but also due to the expected increase in government expenditures overseas, primarily for defence purposes. This links to another problem. The increased defence expenditure is often accompanied by reduced expenditure on other sectors of the economy, and this, along with the destruction and neglect of infrastructure, will put back previous development efforts and retard economic growth even further.

Finally, domestic political instability discourages investment, both from domestic and foreign sources. Given the traditional view of the prime importance of investment in the growth process, this is a very significant factor hampering growth efforts. There is also increased capital flight and loss of valuable foreign exchange. This is all further exacerbated if political instability is a frequent occurrence in a country, leading to a more general loss of confidence in the economy.

The above discussion of the economic consequences of severe political instability have been in terms of the macro-economy. On the micro-economic level, there will also be severe disruptions in the operation of the markets (financial, capital, goods and labour markets.). In summary, most aspects of the social and economic life will be disrupted if serious political

upheavals eventuate, especially if those upheavals are frequent or long-term in nature. Inevitably, this will negatively affect economic growth.

5.4 Measurement of Political Instability

There have been many different attempts at measuring political instability. Three of those will be examined here, including the TMIS and Wheeler indices. The other one will be the Euromoney country risk Index.

5.4.1 The Wheeler Index

In an article in "World Development" (1984), David Wheeler set out to investigate the "Sources of Stagnation In Sub-Saharan Africa." In that article, several policy and environmental variables were considered, such as trade and exchange rate policies, climate, export prices, foreign aid, export diversification, and violence. Wheeler attempted to assess the impact of each variable on economic growth using reduced-form econometric estimation methods. He concluded that

"...The results suggest an extremely close relationship between movements in export prices and average [economic] performance.... A primary finding is that the environmental variables seem to have had more impact on growth as a group than the policy variables...Among the policy variables....those identified with retrenchment during periods of declining commodity prices seem most significant The results [also] suggest that some 'success stories' may owe much to good luck, while some 'failures' may well be due less to bad management than to adverse circumstances".

It is only with one of Wheeler's environmental variables that we are here concerned - what he terms 'violence'.

Wheeler distinguished between four distinct types of violence : coups, colonial wars, post-colonial wars and armed incursions by mercenaries or opposition forces across national frontiers. Further experimentation with the violence variables in a pooled time-series cross-section model, relating annual GDP growth to the environmental variables yielded three major conclusions:

. Colonial wars had no significant impact on output change .

. The separate impact co-efficients for coups and post-colonial wars were not significantly different from one another, so that aggregation was possible.

. A composite dummy variable whose value was one for a year in which any violent event occurred and zero otherwise, performed better than the aggregated violence Index mentioned above (Wheeler, 1984, p.5).

When computing his index, Wheeler considered the period 1970-1980 (a total of eleven years inclusive). He arrived at the final Index by subtracting the composite dummy variable from 11 (the total number of years considered) to produce a measure of the number of stable years for the period he studied.

In order to assess this index, Wheeler's basic methodology was employed but to slightly different variables and to a longer time period. The events that were included in the formulation of the index were expanded to include attempted coups d'etat, successful coups, wars and armed border incursions. An index was then formed for each sub-period 1960-1969, 1970-1979 and 1980-1986 (the latter being normalised to make it comparable to a ten year period instead of the actual seven).

Thus the index was formed by assigning a value of

- 1 for a year in which a violent event occurred, and
- 0 otherwise.

Similar to Wheeler's method, the total incidence of violence was taken to be the sum of ones in the composite dummy variable defined above. It was then subtracted from ten to produce a measure of the number of stable years. Thus, it is a stability (not instability) index. The results of these calculations are shown in Table 5.1 below, where our index is termed the 'modified Wheeler' index (MW).

From the table, it can be seen that all of the countries in the 1960s were relatively stable (having $D \geq 7$), except Nigeria (the Biafran war) and Ghana (several known attempts at Nkrumah's life, a coup attempt, and a successful coup in 1966) .

Table 5.1

Stability Index per decade over the period 1960-86 for 32 Sub-Saharan African countries¹.
 MW = number of stable years.

Country	MW(60-69)	MW(70-79)	MW(80-86)	MW(60-86)
Benin	7	7	10	8.0
Botswana	10	10	10	10.0
Burundi	8	8	10	8.6
Cameroon	10	6	7	7.7
Central A. R.	9	8	6	7.7
Congo	9	5	9	7.7
Cote D'Ivoire	8	10	9	9.0
Ethiopia	8	6	0	4.7
Gabon	10	10	8	9.3
Gambia	10	10	8	9.3
Ghana	6	3	2	3.7
Kenya	9	10	7	8.7
Lesotho	10	8	4	7.3
Liberia	10	10	4	8.0
Madagascar	10	7	6	7.7
Malawi	10	10	10	10.0
Mali	9	9	7	8.3
Mauritania	10	8	3	7.0
Mauritius	10	10	10	10.0
Niger	9	8	9	8.7
Nigeria	6	8	6	6.7
Rwanda	10	8	9	9.0
Senegal	10	10	10	10.0
Sierra Leone	9	9	9	9.0
Sudan	9	7	2	6.0
Swaziland	10	10	5	8.3
Tanzania	9	8	9	8.7
Togo	7	6	10	7.7
Uganda	9	4	3	5.3
Zaire	9	3	10	7.3
Zambia	10	10	7	9.0
Zimbabwe	9	8	7	8.0
SSA Unweighted Average	9	8	7	8.0
SSA Weighted Averages**				
including Nigeria	8	7	6	
excluding Nigeria	9	7	6	
No. of countries with				
D < 7	2	7	11	5.0
D ≥ 7	30	25	21	26.0
D = 10	14	11	8	4.0
No. of countries experiencing a				
fall in stability	—	16	18	
rise in stability	—	3	9	
no change	—	13	5	

1. The countries included were those for which data availability throughout the period was sufficient and reliable (same as those listed in chapter 5)

** Weighted by populations

For the 1970s, the situation became slightly worse, with many countries showing a fall in 'MW' and so experiencing more political instability. Over the period 1980-1986 the overall situation, again, became slightly worse than the 1970s (eleven countries had $D < 7$ in the 1980s whereas the corresponding number was seven in the 1970s).

The unweighted and weighted averages reflect those trends. Excluding Nigeria, the weighted averages show more stability in the 1960s, but the results are unchanged when Nigeria is included in the weighted average for the 1970s and 1980s. The unweighted averages indicate falling stability over the period 1960-86 (9 to 8 to 7).

The Wheeler index has certain shortfalls, the main one being that it gives equal weighting to all violent events. In the index, a successful bloodless coup d'etat, which might be a palace revolution, for example, has the same impact on the index as a debilitating civil war.

A second limitation is that, in seeking to use the index to measure instability effects on the economy, it does not pick up conditions which reflect potential instability, and this discourages investment or trading relations. An example would be Rhodesia (later Zimbabwe) in the 1960s. Zimbabwe's index is high for this decade, as few instability incidents occurred. However, the circumstances in Zimbabwe of minority rule and the unilateral declaration of independence led to a condition of incipient instability which affected the economy.

5.4.2 TMIS

Another attempt at measuring political instability in SSA was given by Johnson, Slater and McGowan (1984) in formulating an index based on Jackman's work (1978). The instability index they devise is called the TMIS - Total Military Involvement Score. This was based on Jackman's model used to predict coups d'etat, but extended in time period (to 1960-1982) and sample size (35 SSA countries). They also limit their analysis to military - not civilian - coups and coup-related events. Their major findings indicate that :

"Black African states with relatively dynamic economies whose societies were not very socially mobilised before independence and which have

maintained or restored some degree of political participation and political pluralism have experienced fewer military coups, attempted coups and coup plots than have states with the opposite set of characteristics."

The formulation of TMIS involved according each state one point for each reported coup plot, three points for each attempted coup and five points for each successful coup. The final index ranged from zero to forty-eight. This scoring system clearly accorded more importance to the seriously destabilising events, such as a successful coup, and less weight to the relatively less serious events, such as a coup plot.

Table 5.3 below was formulated employing Johnson *et al'*s basic methodology but the following modifications were made, in an attempt to make the index more comprehensive :

1. The time period was extended to 1960-1986, and divided into the three sub-periods: 1960-69, 1970-79 and 1980-86.
2. Civilian events (coups, attempted coups and coup plots), civil wars and border wars were included, as well as military events. The weighting system was therefore also changed. (See Table 5.2 below).

The sample size used was 32 and is the same as that used throughout the analysis of chapter six.

Table 5.2

The weights assigned to every destabilising event in formulating the Modified Jackman (MJ) index

Event	Weight
Coup plot	1 point
Unsuccessful coup attempt	2 points
Successful coup attempt	4 points
Civil or external (border) war	6 points (per year of war)

Table 5.3

Pol-In scores.

The higher the score, the more unstable the country, in terms of the occurrence of politically destabilising events.

Country	1960-69	1970-79	1980-86	1960-86
Benin	12	8	0	6.7
Botswana	0	0	0	0.0
Burundi	8	6	0	4.7
Cameroon	0	6	3	3.0
Central A.R.	4	6	7	5.7
Congo	4	11	0	5.0
Cote D'Ivoire	2	0	1	1.0
Ethiopia	8	18	42	22.7
Gabon	0	0	6	2.0
Gambia	0	0	6	2.0
Ghana	10	18	21	6.3
Kenya	2	0	3	1.7
Lesotho	0	2	18	6.7
Liberia	0	0	10	3.3
Madagascar	0	7	6	4.3
Malawi	0	0	0	0.0
Mali	4	0	8	4.0
Mauritania	0	10	16	8.7
Mauritius	0	0	0	0.0
Niger	1	6	2	3.0
Nigeria	26	8	9	14.3
Rwanda	0	6	2	2.7
Senegal	0	0	0	0.0
Sierra Leone	4	2	2	2.7
Sudan	4	6	38	16.0
Swaziland	0	0	5	1.7
Tanzania	1	7	1	3.0
Togo	10	5	0	5.0
Uganda	2	20	26	16.0
Zaire	1	17	0	6.0
Zambia	0	0	8	2.7
Zimbabwe	2	12	7	7.0
No. of countries with score				
<10	28	25	25	27.0
10 - <20	3	6	3	4.0
20 - <30	1	1	4	1.0
Total	32	32	32	32.0
SSA Weighted averages				
inc. Nigeria	9.5	8.9	12.4	
exc. Nigeria	3.3	9.4	13.7	
SSA Unweighted averages				
inc Nigeria	3	6	8	17.0
exc. Nigeria	2	6	8	16.0

Above is Table 5.3, containing the values of our modified Jackman index, termed "Pol-In".

From the table, it is clear that according to this index, the most stable countries over the whole period (with a score of zero) are Botswana, Malawi, Mauritius and Senegal, while the least stable have been Ethiopia, Ghana, Nigeria, Sudan and Uganda. Breaking down the data per decade reveals that in the 1960s, Nigeria was the most unstable country, followed by Ghana and Benin. During the 1970s, instability increased but only marginally, as all countries scored 20 or less, the highest scorers being those for Uganda, Ghana and Ethiopia. In the 1980s, most countries still scored less than 20, except Ethiopia, Sudan, Uganda and Ghana.

The weighted averages excluding Nigeria indicate a relatively stable environment during the 1960s (average of 3.3), but the situation deteriorates in both the following decades (9.4 and 13.7 for the 1970s and the 1980s respectively).

5.4.3 The Euromoney Index

The Euromoney magazine (a specialist banking Journal) started publishing what they call the "Country Risk League Tables" annually, from 1979 onwards. According to Euromoney, these ratings show how the international banking community, through its lending activities, rates the countries that borrow from it in terms of the general 'risk' that is attached to each loan. The ratings therefore reflect how, primarily, the international commercial banking sector and the market views investment in each country.

The index is the result of Euromoney's statistical analysis of the terms and conditions for all sovereign borrowers that have tapped the Eurodollar and floating rate Deutschmark syndicated loan market. This measure includes some economic indicators, thus implicitly assuming that economic performance has an effect on stability - a proposition we test later on.

The calculation of this index was essentially unchanged throughout the years since 1979 except for slight changes in the weights accorded to each

factor. The total scores were out of a possible 100, and these were arrived at as follows :

Market indicators :

Access to bond markets	15%
Selldown	10%
Forfeiting	15%
	<hr/>
	40%

Credit indicators :

Payment Record	15%
Reschedulling	5%
	<hr/>
	20%

Analytical indicators :

Economic Indicators	15%
Economic Risk	10%
Political Risk	15%
	<hr/>
	40%

Each country was accorded a subjectively assessed score for each indicator by the surveyed bankers/economists, according to how their own institution handled that country's debt (e.g. 8 out of 15 for Access, 6 out of 10 for selldown, etc.), and the final score that each country amassed was out of 100. That reflected the total risk associated with investing in or lending to each country. The index was calculated for all countries (industrial, East European and developing countries). The Industrial countries, such as Japan, U.S.A., U.K, etc., scored highest. SSA countries scored very low. Table 5.4 below shows the final annual scores accorded to each SSA country over the period 1980-86, and Table 5.5 exhibits the final average scores given to each of the countries included in the sample.

Table 5.4
The Euromoney index
Individual Country scores, 1980-86

Country	80	81	82	83	84	85	86	Ave- rage of observations
Angola	-	18	26	20	34	26	26	23.1
Botswana	-	-	26	31	44	31	33	34.7
Cameroon	-	-	25	33	42	31	36	34.9
Congo	-	27	30	38	41	32	33	33.5
Cote D'Ivoire	19	21	54	49	37	19	27	32.7
Ethiopia	-	-	24	20	30	7	16	19.8
Ghana	5	-	23	10	9	20	26	18.9
Gabon	19	-	43	44	42	35	43	36.0
Kenya	-	-	46	39	38	19	38	37.5
Lesotho	7	-	25	20	10	10	21	19.7
Liberia	-	-	30	10	13	15	19	26.0
Madagascar	19	-	25	-	-	-	-	22.3
Malawi	19	-	24	26	11	15	24	21.8
Mauritania	-	-	28	10	16	16	17	20.1
Mauritius	-	-	30	15	27	21	40	30.8
Mozambique	7	-	27	29	38	28	26	24.9
Niger	7	25	30	25	10	15	17	19.6
Nigeria	31	35	59	43	39	10	17	33.1
Senegal	-	16	24	10	9	24	23	19.3
Seychelles	-	-	42	-	-	-	-	42.0
Sudan	-	-	24	16	9	10	6	13.9
Swaziland	-	-	25	10	32	20	36	23.7
Tanzania	-	-	25	10	15	11	27	20.3
Uganda	-	-	-	9	5	10	17	11.0
Zaire	-	-	-	-	-	20	21	20.7
Zambia	19	24	27	16	9	12	20	18.4
Zimbabwe	-	23	27	44	39	25	34	32.5
South Africa	19	41	74	-	73	71	41	49.4

Source : Euromoney Magazine, 1979-1990.

Table 5.5
The Euromoney Index, 1980-86
Total scores for SSA countries out of 100

Country	Average Score	Rank
South Africa	53.2	1
Seychelles	42.0	2
Gabon	37.7	3
Kenya	36.0	4
Congo	33.5	5
Cameroon	33.4	6
Nigeria	33.4	6
Botswana	33.0	8
Cote D'Ivoire	32.3	9
Zimbabwe	32.0	10
Mauritius	26.6	11
Mozambique	25.8	12
Angola	25.0	13
Swaziland	24.6	14
Madagascar	22.0	15
Zaire	20.5	16
Malawi	19.8	17
Ethiopia	19.4	18
Niger	18.4	19
Zambia	18.1	20
Senegal	17.7	21
Tanzania	17.6	22
Mauritania	17.4	23
Liberia	17.4	23
Lesotho	15.5	24
Ghana	15.5	24
Sudan	13.0	24
Uganda	10.3	25
Unweighted Average (all countries)		25.4
Unweighted Average (excluding Nigeria and S.Africa)		24.0

Source : Derived from Euromoney Magazine, 1979-1990

The index frequently fluctuates from year to year for each country, making no individual country a consistently best or worst performer. Table 5.4 above shows the individual and average scores for the period 1980-86. The averages for the whole period in Table 5.5 indicate that the Seychelles,

Gabon, Kenya, Cameroon and Congo were the most favoured countries in the commercial banking sector, whereas Uganda, Sudan, Ghana, Lesotho and Liberia were the least favoured, indicating that the international banking community were most reluctant to lend to those African economies due to a variety of economic and political factors.

In examining the Euromoney Index, it has to be kept in mind that in its calculation, political and economic indicators have become more prominent in the later years than in the earlier, when the market and credit indicators were more significant. This is reflected in the modifications of the weights accorded to each set of indicators. For example, in 1986, The weight given to market indicators was 60%, that given to credit indicators was 20%, and that to analytical indicators was 20%. In 1987, the respective weights became 40%, 35%, and 25% respectively.

Furthermore, many SSA countries have been left out by Euromoney, regardless of their economic or political records. Examples of these are Togo, Gambia, and the Central African Republic. Furthermore, there was no consistency in country coverage, whereby some countries were included in some years but not in others. For example, Madagascar was included in the index in 1980 and 1982, but excluded from the survey in other years.

Another point is that the index is highly subjective. This subjectivity is particularly reflected in the assessment of the political situation in each country, as the market and economic indicators are cardinal measures to which numbers can be assigned. It was clear that a country's score for the political stability indicator was more dependent upon that country's international reputation instead of definite research into each country's circumstances.

In order to see if the three examined stability indices give the same general outlook of the political environment in SSA, it is useful to look at the country rankings of each index. This is summarised in Tables 5.6 and 5.7 below, where all the indices were re-calculated for the period 1980-86, in order to make them comparable.

Table 5.6

The 7 most stable countries as indicated by each index.

Modified Wheeler (1980-86)	Pol-In (1980-86)	Euromoney (1980-86)
Botswana	Botswana	Seychelles
Mauritius	Mauritius	Gabon
Senegal	Senegal	Kenya
Zaire	Zaire	Congo
Benin	Benin	Cameroon
Burundi	Burundi	Nigeria
Malawi	Malawi	Botswana

Table 5.7

The 7 least stable countries as indicated by each index.

Modified Wheeler (1980-86)	Pol-In (1980-86)	Euromoney (1980-86)
Ethiopia	Ethiopia	Uganda
Ghana	Sudan	Sudan
Sudan	Uganda	Ghana
Mauritania	Ghana	Lesotho
Uganda	Lesotho	Liberia
Lesotho	Mauritania	Mauritania
Liberia	Liberia	Tanzania

Tables 5.6 and 5.7 indicate that the Euromoney Index gives different results from the Wheeler Index and Pol-In (both of which give very similar results), regarding the best performers. This perhaps reflects the subjectivity of the Euromoney index, since, as mentioned before, it is based heavily on commercial banker's opinions. However, the results of all three indices are very similar regarding the worst performers.

In order to test the correlation between the three indices, Spearman's Rank correlation coefficients were calculated. Table 5.8 presents the results.

Table 5.8
Spearman's correlation coefficient values

	MW	Euromoney
1960-69:		
Pol-In	-0.75	-
1970-79 :		
Pol-In	-0.77	-
1980-86 :		
Pol-In	-0.90	-0.55
MW	-	0.47

The table indicates a strong correlation between the modified Wheeler index (MW) and the modified TMIS (Pol-In), but a weaker one between both and the Euromoney index. Again, this strengthens the conclusion that the difference in calculation of the indices, and the higher subjectivity of the latter render the indices different in their conclusions.

Before we continue in the chapter, it is worth mentioning that there are other methods that we could have used to quantify the effects of political instability in a country. Some of those are more sophisticated statistical methods (such as factor analysis), and some not (such as the rate of turnover of government ministers). However, it is felt that for the purposes of this study, the Wheeler index and TMIS, have an advantage in simplicity, straight-forwardness and data availability. Finally, when a choice between the two was made for the regression work in chapter six, the modified TMIS (Pol-In) was the preferred measure as it was more comprehensive in its coverage, and a weighting system was employed to distinguish between the events in their degrees of seriousness and effects on the economy and growth of the countries in question.

5.5 Instability and Economic Growth

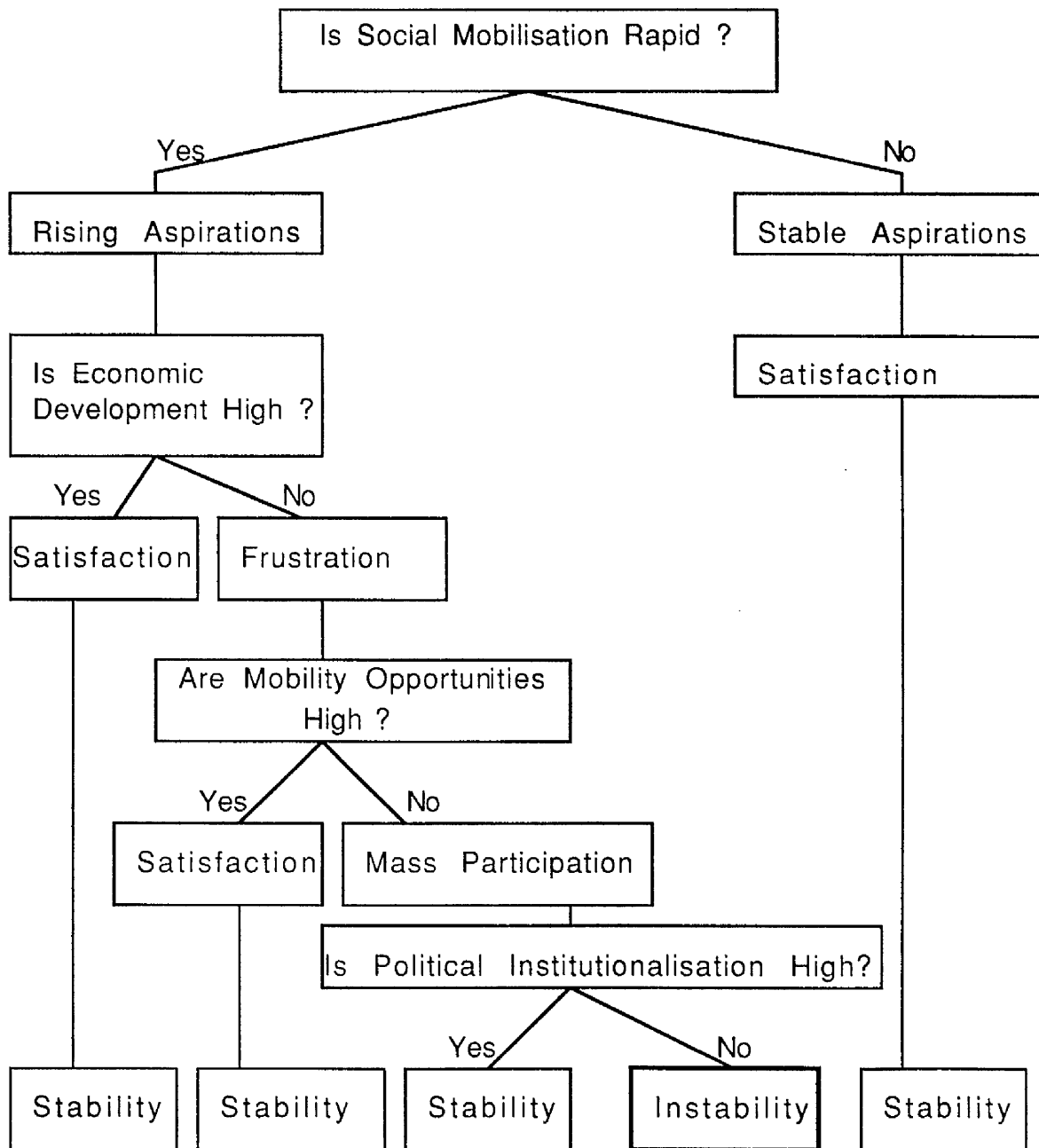
It could be argued that an environment of stability is a necessary but not sufficient condition for economic growth and development. It is in its ability to contribute to growth by encouraging investment, savings and fostering confidence in the economy that stability appears important. Furthermore, frequent regime changes, even of the non-violent variety, render the formulation of long-term or even medium-term plans by investors and businesses a very difficult, and sometimes useless task, as the new government is highly likely to adopt a different set of rules for businesses compared with its predecessor.

From the previous discussion of the causes of instability, it became clear that it is not a purely random phenomenon. There are factors and events that precede political instability which can be used as possible predictors of, say, an attempted coup. Naturally, there can never be complete certainty in the process, and indeed, many predictive models have failed to explain more than 50% of the variance of different aspects of instability (see Sanders, 1981).

This section is concerned with the link between economic growth and political instability. Given the possibility of a two-way relationship, it would be beneficial to attempt to test the direction of causality between the two variables.

Low or negative growth and economic hardship breeds discontent and dissatisfaction with the governing authorities, but whether this translates into a coup or an attempted coup is less clear, and far less certain. Some political scientist support the view that economic hardship could lead to political instability. Many of these arguments are based on what Huntington (1965 and 1968) termed social mobilisation, social frustration, and political participation. Sigelman (1979) summarised Huntington's argument in a simple schema, reproduced below in Figure 5.1.

Fig. 5.1
Summary of Huntington's approach



The diagram demonstrates how instability could result in one scenario where rising aspirations, combined with low economic development, result in public frustration. If that country has a particularly low level of mobility, then mass participation with the absence of suitable political institutionalisation could lead to instability, or, in Huntington's own words, (1968, p.47) :

"Urbanisation, increases in literacy, education and media exposure all give rise to enhanced aspirations and expectations which, if unsatisfied, galvanise individuals and groups into politics. In the absence of strong and adaptable political institutions, such increases in participation mean instability and violence."

Despite its apparent simplicity and logic, Huntington's approach has been accused of being vague, using all-encompassing concepts, and based more on 'intuitive observations than on empirical evidence' (Sigelman, 1979).

The possibility of a two-way relationship between economic growth and instability in Sub-Saharan Africa, can be explored by using the Granger-Sims approach. According to Sims (1972, p.545) :

"...We can always estimate a regression of Y on current and past X. But only in the special case where causality runs from X to Y can we expect that no future values of X would enter the regression if we allowed them. Hence we have a practical statistical test for unidirectional causality : regress Y on past and future values of X, taking account by generalised least squares or prefiltering of the serial correlation... Then if causality runs from X to Y only, future values of X in the regression should have coefficients insignificantly different from zero as a group."

Thus, if we regress growth on past and future values of instability, and apply the appropriate significance tests, we could obtain an indication of the direction of causality. If the coefficient of the future variable is significant (as indicated by the t-values), then, according to Sims and Granger (1972 and 1969) , we could conclude that a two-way causality exists. If, however, the future coefficient is insignificant then the causality would run in one direction only⁽³⁾.

To test this two- way process, OLS regressions were performed using this approach. The results are shown in the equations below:

Equation (1)

(t-values in parenthesis)

$$\text{gr}_{70} = 1.13 + .23 \text{GDI} + .11 \text{X-gr} - .81 \text{TDS} - .02 \text{Pol-In}_{60} - .04 \text{Pol-In}_{80}$$

(3.1) (1.3) (2.2) (.20) (.94)

$$R^2 = .53$$
$$n = 31$$

gr₇₀ = growth of GDP over the period 1970-79
Pol-In₆₀ = instability over the period 1960-69
Pol-In₈₀ = instability over the period 1980-86
GDI = Gross Domestic Investment
X-gr = the growth of exports, and,
TDS = Total Debt Service payments

Equation (2)

$$\text{Pol-In}_{70} = 8.66 - .51 \text{gr}_{60} - .29 \text{gr}_{80}$$

(.88) (.75)

$$R^2 = .05$$
$$n = 30$$

Equation (1) includes instability as well as other independent variables, in order to minimise the possibility of misspecification, as it is clear that other factors play an important role in the growth process (this will become clear in the following chapter).

The equation indicates that future instability has an insignificant and negative effect on growth, and that past instability has a negative and insignificant effect. This tentative evidence suggests that there may not be reverse causality between economic growth and political instability for the sample of countries used in this analysis and for the definition of instability given here.

The results of the second equation further support the conclusions of the first, as the t-value of the future instability coefficient is not significant.

The results of equations (1) and (2) are not surprising. Slow or negative economic growth is ultimately expected to breed discontent, but not necessarily any serious upheavals such as coups. Yet, further experimentation with these two variables has shown that there is a possibility of reverse causation (Appendix I at the end of this chapter). This suggested feedback or reverse causality, as given by the Granger test, implies that if political instability was used as an explanatory variable in a growth equation, simultaneity may bias the results. Therefore, in the following chapter, OLS is not entirely relied upon in estimating those equations in which instability enters as an explanatory variable, Two-Stage Least Squares (TSLS) is used as an additional method of regression. This is further discussed in chapter six.

Applying the Granger-Sims test using growth as the dependent variable, and past and future instability as the independent variables, yielded the following results :

$$gr_{70} = 4.94 - .06 Pol-In_{60} - .09 Pol-In_{80}$$

(0.6) (2.0) $R^2 = .14$
 $n = 32$
(t-values in parenthesis)

- gr70 = growth of GDP over the period 1970-79
- Pol-In60 = instability over the period 1960-69
- Pol-In80 = instability over the period 1980-86

This equation indicates that reverse causality appears to exist between these two variables in SSA, as the t-statistic of Pol-In₈₀ is significant at the 5% level. In chapter six, this has lead to the use of TSLS (Two-Stage Least Squares) instead of OLS, in estimating the equations in which political instability is used as one of the independent variables, to guard against the consequences of simultaneity. However, as will be seen in the following chapter, the results of employing TSLS are not too dissimilar from those resulting from the use of OLS.

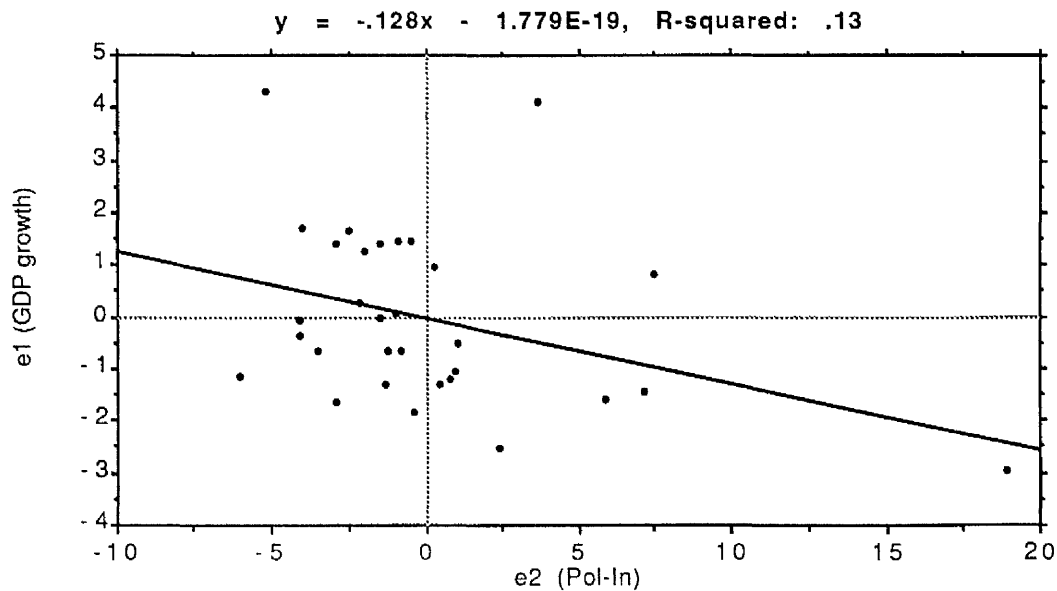
It must also be borne in mind that the period for which the regression was performed is the 1970s; a decade of unusual economic shocks and strong recessions. This might explain why, for this particular decade, economic hardship was reflected in political instability. Still, for more certain conclusions the tests need to be performed for other periods.

Finally, for additional illustration of the relationship between political instability and economic growth, Pol-In was plotted against growth for each sub-period and for the period as a whole. These plots were estimated using the partial regression method, as it produced a more 'pure' reflection of the association between the two factors involved (Gujarati, 1988). Equation (1) from chapter six was used for this purpose, as it related growth to a variety of factors, one of which was instability. The graphs all confirm the positive link between stability and economic growth throughout the period considered. This relationship is further expanded upon in section 6.3.4 of the following chapter.

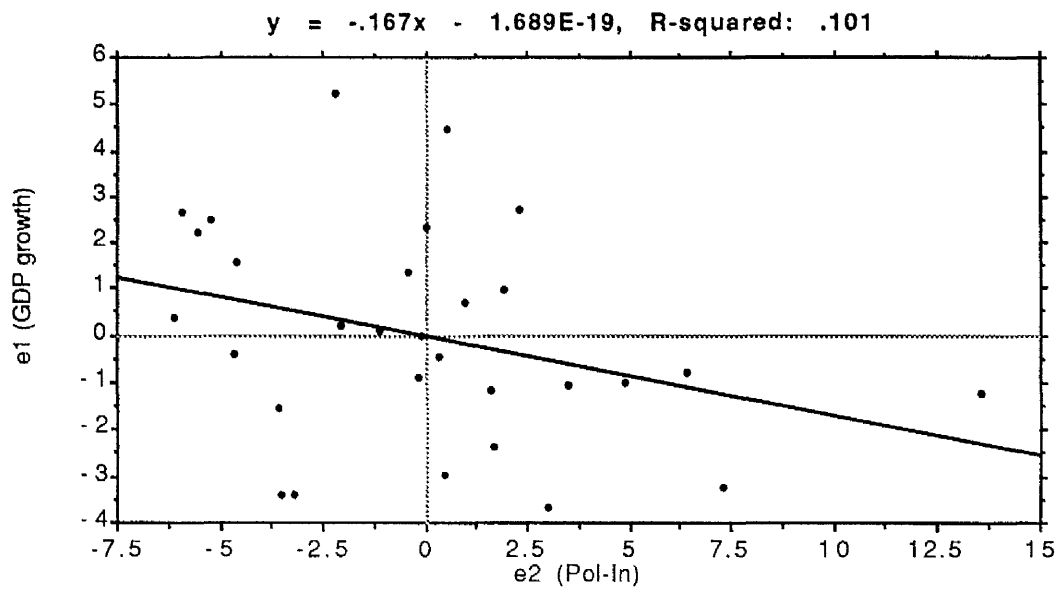
Figure 5.2

Partial regressions of political instability and economic growth

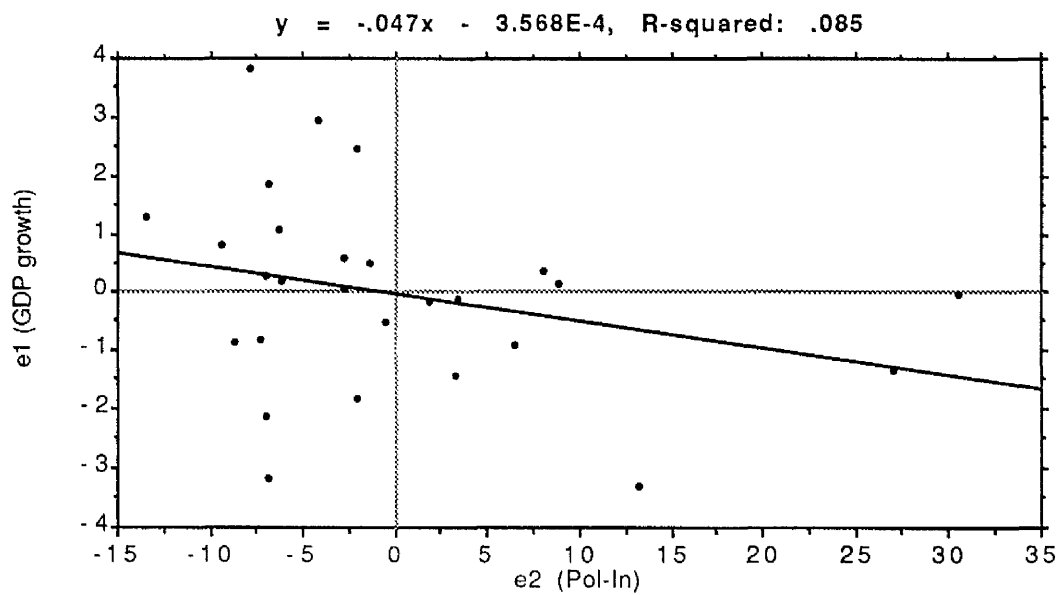
(a) 1960-69



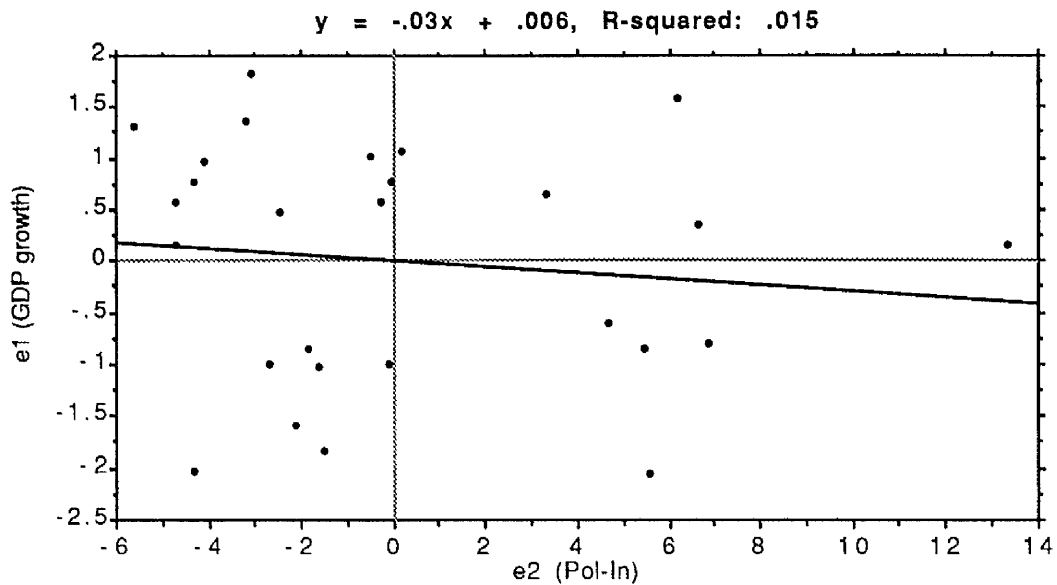
(b) 1970-79



(c) 1980-86



(d) 1960-86



5.6 Democracy and development

At independence, it was thought that the newly-independent states of SSA would pursue a relatively democratic style of government, as most of the leaders at the time were charismatic nationalists who took part in the independence struggles. Democracy was seen as the only alternative to colonialism. In many countries, the leaders appeared to believe that socialist ideology was better-suited than the free-market/capitalist approach to deal with SSA's economic problems at that time. This tendency towards socialism did not necessarily preclude the operation of the market system, but it also resulted in a great expansion of the role and size of the state in most African countries.

It is argued that this tendency towards socialism also resulted in the emergence of predominantly single-party, authoritarian rule throughout SSA, with the exceptions of states such as Botswana and Mauritius. However, it is clear that the belief in socialist ideology does not necessarily result in authoritarian rule. There is a clear distinction between communism

and socialism, and it is only the former that would necessarily result in authoritarian rule. Other, personality-related and power-seeking explanations lie behind the tendency of most African rulers towards authoritarianism and the subsequent elimination of political competition, either gradually, constitutionally, or by force (Jackson & Rosberg, 1982).

There are many important aspects of the choice of a particular mode of government, the causes behind it, and the political, social, economic and developmental consequences of such a choice. However, in this paper, we will focus on the consequences of the choice of a particular style of government - authoritarian or multi-party/democratic - on economic growth and development in Sub-Saharan Africa, and whether a move to increased political democracy will necessarily produce increased economic development (Healey & Robinson, 1992).

With the exception of Botswana and Mauritius, the predominant style of government in post-colonial SSA has been authoritarian of one form or another. "Authoritarianism" is used here to describe single-party rule, monarchic rule and military rule. Naturally, the despotic nature of each varies considerably, and depends to a large extent on the personality of the ruler and the limits (or the lack of them) of his power ambitions. For example, Kenneth Kaunda's single-party rule in Zambia was one of relative liberty compared to that of Bokassa in CAR, Mobutu in Zaire or Biya in Cameroon. However, since the late 1980s, there has been a strong movement at grass roots level to introduce more democracy throughout the continent.

Indeed, these demands for a "second independence" have succeeded in many SSA countries and have resulted in the re-introduction of Multi-party Democracy (MPD) in many countries, such as Zambia, Congo, Gabon, Kenya, Cameroon, and Benin, and a move towards MPD in many of the rest (Decalo, 1992). There are some countries in which MPD has not yet been introduced, such as Malawi, but it is clearly a matter of time before such democracy is forced upon the ruling elite.

Historically, the rise of authoritarian rule in post-colonialist Africa has been attributed to several factors, some of which are the following : firstly, the significant ethnic divisions which exist in many countries and the failure of

appeasing and incorporating different ethnic groupings into the mainstream political process. Secondly, the weakness of the political institutions, administrative structures and technical capacity of the state sector which dominates economic and political life. Thirdly, significant economic dependence on external markets and powers. Fourthly, the perceived high returns from rent-seeking and the sustainability of such activity. Fifthly, while the cold war existed, and while alternative external powers competed for the continent's resources and strategic loyalties, some foreign powers found it in their interests to 'nurture' loyal autocratic rule (e.g. in Zaire). Finally, the ease with which dictatorial rule and its financial benefits to the ruling elite could be maintained, against the background of a generally uneducated, uncohesive, and easily subdued population (by force or by 'rewards' for loyalty). All of these factors can be said to be both the result and the cause of the economically underdeveloped states of most African economies, relative to the economically more advanced states of many non-African countries.

What the above also suggests is that the stage of economic development at which a country is in, is closely related to the degree of political democracy it experiences. In other words, some observers have argued that democracy must be preceded by the development of a strong and vibrant capitalist class and a corresponding market economy. It is argued that once such a class exists, the economic growth and prosperity it generates, by and for itself, will mean a higher level of education and expectations of political freedoms and political choice, in addition to the freedom of economic choice. The strength of this class and its economic significance in the economy is thought to provide the impetus for political change and the introduction of a more democratic style of government - one which would allow this class even more economic freedom and greater prosperity. Taking this argument into the African context, it is clear that such a class does not exist in the most of the African countries, and thus the existing surge of democracies in the continent must have an alternative base for its durability and sustainability, until such a class develops.

It is necessary at this stage to define "democracy" as related to the African experience. Historically, it may be concluded that since independence, very few countries in the continent have experienced democracy, in the sense of

having the power to choose the political leadership from a number of candidates every given number of years, whereby such candidates are not chosen by a ruler but are elected through a free and fair electoral process, and are representative of alternative parties or independent political/economic ideology. Since 1990, there has been a strong move towards the introduction of MPD throughout the continent. In some countries, these have been successful and have resulted in the actual introduction of a MPD constitution and elections (such as Zambia), while in others (such as Malawi) the demands for political democratisation have not yet met with success.

This upsurge in demands for democratisation has arisen as a result of both internal and external pressures. External pressures to democratise have come from the multilateral and the bilateral aid agencies, who are increasingly making political democratisation an important part of loan and aid conditionality. As to the internal factors, these have been manifested in strong and frequent riots and demonstrations in many countries, demanding political change. The political demands of the domestic population cannot be separated from their demands for economic change. Many sections of the African populations have reached a level of economic hardship and deprivation where only radical political and economic change can have any impact. At that point, it appeared that they had reached a stage where they have very little to lose and everything to gain from pressing for change in their governance.

However, coercion into political democracy has not always worked, no matter how much internal and external pressure was applied. The results seem to depend on the intrinsic nature and actual "personality" of the leader under pressure. For example, in Zambia, Kenneth Kaunda accepted demands for MPD and held free and fair elections in which he was defeated by Frederick Chiluba - the latter taking office in October 1991. He then gracefully accepted the results of the elections and proceeded with life as an opposition leader (now resigned from the party's leadership). However, in other countries, such as Zaire, Mobutu Sese Seko still refuses to hand power to the elected prime minister Etienne Tshisekedi, and the country is now in near total chaos. Thus the historical role of how and when the particular leader came to power (whether immediately after independence

or as a result of military coup d'etat, for example), plays a role in impeding or assisting the success of political change.

This brings into question the type of democracy which is relevant to Africa and its predicaments. The traditional Western orthodox notions of liberal democracy relate to a situation when "the powers of government are limited by law and citizens enjoy freedom of association to compete for office in free elections at regular intervals", and which could take the form of a "direct democracy", whereby all citizens participate in decision-making, or "representative democracy" (not to be confused with 'proportional representation' in government), whereby people elect representatives who then take decisions on their behalf. Western democracy is also seen to be one in which it is increasingly the case that individualism and self-interest determines political choice.

In Africa (at the risk of generalising) Western notions of democracy seem unapplicable, as most of the African countries are still at a pre-industrial stage of development, in which the majority of the population are subsistence rural dwellers. For Western-type democracies to survive and be stable and sustainable, it is not only necessary to have a well developed, strong and large capitalist class, but it is also imperative that at least a minimal level of education and political awareness is spread throughout the social spectrum and the majority of the population. This is necessary so that the voting process is understood and participation is increased.

It is a fact that more widespread and higher levels of education are a definite cause of increased politicisation and demands for civil rights. Demands for political democracy increase as the spread of education widens and its levels increase. One example of this progression is South Korea, where an autocratic regime pursued industrial and economic growth targets, including an education and manpower development policy, for more than thirty years, until the late 1980s, when demonstrations and riots forced the introduction of labour and civil rights, and free elections were finally held in 1992 (The Economist, various issues, 1992-93).

African countries are now at a critical point in their history. The "second independence" stage can be said to have started. There is increased education and understanding of political, civil and economic rights

throughout the population. However, there is no accompanying strong 'capitalist' tradition which would allow the democratisation process in those countries to follow a similar trend to that in Western countries in the transition to democracy. Therefore, it may well be the case that democratisation has to be tailored to suit the particular set of African conditions.

This may mean that a "socialist" democracy will have to be introduced - a representative democracy in which citizens can vote for representatives who must follow economic policies which are more socialist in nature. This could send the wrong signals in the sense that it may be a *deja vu* of post-colonialist independent Africa. However, given the set of economic problems facing Africa, there may not be an alternative. Pursuing pure market-oriented policies seems too early for economies which are not yet developed or industrialised. Given these conditions, the quality of the elected rulers will be one of the deciding factors in the speed and success of economic and political development in Africa. Indeed, it has been argued that at this level of development, "too much" freedom of choice can hinder economic growth, as is the case in India.

Thus while democracy does not necessarily lead to growth, there is a strong case that growth leads to democracy. Authoritarianism cannot survive indefinitely. It lacks the legitimacy in the eyes of the population. Yet, there is evidence of rapid economic growth under a totalitarian regime, primarily exemplified in the case of China. At best, the most "tolerable" case of dictatorship - that of a benevolent dictator - can achieve growth and development and keep his people 'contented' for only a given time period.

By allowing freedom of economic activity, trading, profit-making, physical mobility, financial and capital accumulation, and general prosperity and no deprivation at grass-roots level exist, then the population will remain content (provided, of course, that there is no severe brutality in dealing with dissent). However, at some point, all their basic economic needs will be fulfilled and the level of their education and political awareness will be such that it will lead them to demand more civil rights and political freedoms. Their demands will be further strengthened by the fact that communications technology is now at such a developed phase that it is easy to "know how the other half lives". If democracy is seen to be spreading in neighbouring countries then it would be very difficult to prevent it from spreading into that

particular country. Therefore, at this point, a flexible and prudent ruler will have to begin introducing gradual political freedoms. Otherwise, evidence shows that the removal of even the most benevolent dictator would be imminent. However, evidence also shows that the rapid unprepared-for introduction of democracy can lead to chaos and a deterioration in the economic and political environment (as seen in the former Soviet Union and, in the extreme, Yugoslavia).

What, then, are the economic consequences of authoritarian rule in SSA ? These can be discussed in two sections : Policy making and policy implementation.

Policy making

Under an authoritarian ruler, there is very little or no policy debate and discussion. The ruler or a small group of the ruling elite determines what policies to pursue, subject to the constraint that these policies must not conflict with their power ambitions. Thus there is no pressure to "get it right" first time as the political leaders cannot be removed as a result of policy failures (except by non-constitutional means). Thus the lack of policy debate, feedback and learning will result in formulating inferior policies, which are likely to be short-term in nature, and determined more by crises than by long-term perspective and design. Furthermore, the nature of dictatorial rule is such that even if some of the advisers to the ruler knew of the policy failure, it is likely to be the case that they would refrain from, or at best would delay, informing the ruler of the failure and the need to change policy, out of fear for their lives or their livelihoods. Furthermore, the 'quality' of the decision makers would be inferior in the sense that the policy maker would not necessarily be appointed for his merits as, say, an economist or a scientist, but it is more likely to be the case that he would be 'politically' appointed.

Furthermore, the process of policy-making is determined to a large extent by the relative importance of the various interest groups in society. Five main interest groups can be defined and are common to all African countries.

1. The press.

The role of a vibrant and free press is very important under a system of democracy. It creates public awareness and discussion of political, policy-making and economic development issues. Individual members of the ruling elite can be scrutinised for failures to perform their public duties. Greater debate of policy requirements and policy implementation creates the need for a suitable reaction from the policy-makers, either justifying their decisions or changing them in response to constructive criticism. This dynamic process was, until very recently, missing from all the African economies, and has now begun to take hold in countries where MPD has already been introduced and effected.

2. Trade unions and industrial workers.

Trade unions (TU) have traditionally existed in many African countries, but have often been persecuted and unempowered. Yet their role and influence on policy-making has always been relatively strong. Their role was strong long before that of the press. Many of the already converted democracies of Africa were built on a strong active movement of trade unionism, whereby trade union pressure, in the form of strikes and demonstrations, has been an effective force in the transition to democracy. Indeed, Zambia provides an example where a former trade union leader is now president as a result of the introduction of MPD (Riley, 1992).

However, trade unions usually tend to represent the industrial, predominantly urban population, whose demands are often in conflict with those of the majority of the population, which is usually concentrated in rural areas and is often engaged in subsistence farming. As a result of TU pressure, governments have often had to adopt policies to meet their demands - usually to the detriment of other sections of society. For example, protectionism may be introduced to allow 'infant industries' to grow, regardless of the fact that the output of these industries is often permanently uncompetitive, and the indigenous business class is often weak or nonexistent. Furthermore, there is no incentive to become more efficient, as the system of rent-seeking renders it profitable to maintain the status quo.

3. Medium peasants versus large farmers.

The interests of these two groups and their relative influence on policy-making is contradictory. It is usually the case that large farmers produce cash crops for the export markets, while small-scale farmers produce predominantly food crops for the domestic markets. The influence of the former group is usually very strong in the policy-making circles. This results in policies that favour exports of primary products (such as undervalued exchange rates) and discriminate against food crop producers (such as low producer prices). Thus a bias is created against small-scale farmers - traditionally, the most underprivileged sections of the population and the most in need of social help and development.

Thus in the absence of an authoritarian regime, agricultural policy would be more egalitarian and efficient, as democracy would ensure policy debate and ultimately, increased votes for the elected government who should act in favour of the more numerous and least-advantaged group. A democratically elected government can therefore, survive if the number of voters it benefits from a change of policy is larger than the number of voters which lose out from a new policy. This would be democracy at work and would ensure that policies are made to benefit the larger underprivileged sections of society, while employing other policies to minimise the harm to the rest.

4. Urban force Versus rural force.

Under an authoritarian regime, the ruler can only maintain his position of power by the appeasement of the more organised and politically aware and active urban population, whose demands are therefore given preference over those of the less organised, more geographically scattered rural population. This is linked to the strength of the trade unions in directing economic policy. If a ruler fails to satisfy the minimum demands of the urban population, then the political instability likely to arise due to the dissatisfaction of the urban population and the urban labour force can undermine the regime and its hold in power.

Therefore, policies are undertaken to appease the urban population at the expense of the rural population (Sandbrook, 1982). Examples of such policies are the allowance of cheap food imports which would be further

subsidised to be afforded by the urban population, thus substituting for the output of farmers. Another consequence of inefficient and biased government policies against agriculture is the increased marginalisation of large sections of the rural population, and their gradual "exit" from the official sectors into the informal sectors, as the benefits accruing to them from remaining in the official sectors are continuously being eroded under an authoritarian system which takes account of the politically organised and more wealthy sections of the populations only.

Finally, budgetary allocations will tend for the provision of more social services to the urban areas than to the rural areas due to the political power of the former, and despite the greater need of the latter. This urban skewness in the policy-making process in many African countries has very negative implications on their economies, as the current state of many African economies is such that economic growth and recovery depends to a large extent on reviving the agricultural sector. Thus policy mistakes and biases have cost the African economies many years of development. The introduction of political democracy will again balance the power scales giving more rights and attention to the more numerous sections of the country, which often tend to be the rural population.

5. External forces.

The main external forces affecting African policy-making are the multilateral donors, primarily the World Bank and the IMF, and bilateral donors. The environment and the power play can be separated into two distinct periods : Before 1989, i.e. during the the cold war, and after 1989 - after the end of the cold war.

The influence of the multilateral aid agencies became stronger in line with the increase in influence of Western bilateral donors since the late 1980s, following the demise of the Eastern communist bloc. Their main effect on policy-making in a predominantly authoritarian Africa was the imposition of the well-known set of conditions which accompany their lending activities. These tend to be centred around trade and foreign exchange liberalisation for the ultimate aim of improving the balance of payments.

However, before the demise of the Eastern bloc, conditionality was very loosely adhered to, as sources of funding were not restricted and it was rarely the case that the African policy-makers agreed with or strictly adhered to the policies of retrenchment demanded by the IMF, and to a lesser extent, by the World Bank. However, as communism collapsed, the sources of funding became more limited, and even the funds available from multilateral and bilateral sources were diminishing as there was increased competition for development funds from the newly-market-oriented Eastern economies. This made it easier for both the multilateral and bilateral lenders to insist upon the adoption of those policies which they regarded as the best policies for the African economies, including demands for more democratisation. Despite apparent faults in some of the policy demands of the multilateral institutions, African leaders had to at least begin implementing the policies recommended by those institutions, and some were forced to introduce MPD.

The impact of bilateral lenders before 1989 was somewhat different, and in many ways, American, Soviet, French and British governments pursued a foreign policy in Africa which consolidated Authoritarian rule in the process of increasing their strategic and economic gains from Africa. The situation changed dramatically since 1989, as there is now very little power-play and strategic competition from the former Soviet Union/Eastern bloc in Africa. This resulted in an increasing isolation of the African authoritarian rulers, and rising demands, both domestically and internationally, for the introduction of democracy in Africa.

Therefore, the changing international political environment and power play can be argued to have formed an added source of pressure for political reform in Africa, albeit for reasons that are not necessarily motivated by the good of the African people. Western governments and their donor institutions tend to favour democratically elected governments because of the fact that such governments are more likely to implement their policy demands of greater trade and foreign exchange liberalisation, as they are likely to meet with less resistance from the population and the voters who have 'elected' them as their representatives, and are therefore legitimately in power for a given term of governance.

Therefore, for those reasons and due to the conflicting interests and influences of the different interest groups, the process of policy-making under authoritarianism in Africa has been and is inferior to that under democracy, where it should be the case that the interests of the majority prevail, but not to the detriment of the minority. In addition, there is the important aspect of policy flexibility and ease of adjustment to a changing economic environment. This flexibility of policy-making is likely to be more prevalent under a more democratic system of government than under authoritarianism, as policy failures will be scrutinised and publicly discussed under a democracy, thereby affecting the elected government's re-election hopes, whereas an autocratic ruler does not have to consider this aspect or worry about his hold on power (except by unconstitutional means).

Policy-implementation

The other impact of the system of government on the economic sphere is that related to policy implementation. Once the policies have been decided upon by the ruling political elite, the implementation of these policies is again likely to be inefficient and inferior to policy implementation under democracy. To begin with, the apparatus which is used to implement government policy under authoritarianism is inefficient. Nearly all of the African countries have a very large state sector, both in size and extent (Sandbrook, 1985). The actual size of the government sector is not in itself a problem, if it were efficient and productive. However, this is nearly never the case in Africa or anywhere else.

The public sector has often been a tool of hindrance rather than of help to the working of the economy. The quality of decision-making in public sector institutions from the top downwards is typically poor, and again, appointments are politically motivated (rather than merit-based) and rent-seeking activities are commonplace (such as in the system of issuing import licences). Furthermore, the burden of the parastatals is often extended into the financial sector, where investment and lending decisions are made on political grounds rather than efficiency grounds. An added problem of implementation is that it is often the case that even if there is potential for efficiency in policy implementation, this is frequently not realised as public institutions do not have autonomy in implementation, and 'short-termism' of

policy dominates, according to the wishes of the ruling elite. The will of the elite dominates and there is no transparency or accountability. Thus, in all, policy implementation is also more inefficient under an autocratic system of government than under a democratically-elected one.

One of the most important consequences of living under a democratic system of government is the confidence and political stability generated by the knowledge that, while there may be changes in government every four years or so, the changes in the fundamentals of economic activity are likely to be minimal. That is to say, there will not be totalitarian rules abruptly imposed regarding, for example, the mobility of people or capital, or the ownership of capital and property rights, as the government in power can be peacefully voted out at the following election - without devastation or violence. Furthermore, there will be more predictability, more transparency and less abruptness and erraticness in policy making under democracy than under authoritarianism.

Conclusion

It can be said that the recent surge of popular democracies in many SSA countries has come from a dissatisfied urban and rural population so hardened by economic deprivation that any change is seen as a good change. The demands for political change are thus inextricably linked to the demands for economic change - economic and social rights are demanded with as much fervour as the demands for legal and political rights. This may be dangerous in that it may generate new "democracies" which might well revert to the old ways of government once they are somewhat established in office and once they have introduced some seemingly beneficial economic policy changes.

The desirability of multi-partyism in government should not be an end in itself, but a means to achieving prosperity. Indeed, a multi-party system of government is not a guarantee of increased prosperity and economic and social development. What is essential, however, is the political stability generated by a democratic system of government. The continuity and

confidence inspired by such an environment can enable economic activity to proceed in pursuit of faster development.

A very important question concerning the emerging African democracies is that of their sustainability, and how democratic culture can become a permanent feature in those countries. The existence of markets and a strong 'capitalist' sector is seen as a necessary but not sufficient condition for this purpose. Strong institutions are also regarded as necessary, as well as the institution of constitutional checks and balances to prevent the re-emergence of autocrat. For example, one such check should be made regarding the relationship between the military and the government.

It is worth noting at this point that there is no conclusive evidence one way or another: political democracy and pluralism does not necessarily generate economic development, and economic development does not necessarily generate political democracy. However, it is more likely that the latter assertion will hold, implying that an autocratic system of government cannot prevail once a certain 'threshold' of economic development has been achieved, due to the illegitimacy with which it is viewed.

The process of democratic transition in Africa has so far not been peaceful in all of the countries where MPD is being demanded. For example, it was peaceful in Zambia but far less so in Zaire. One of the lessons which can be observed is that for the opposition to authoritarianism to be effective, it must be completely united - otherwise what happened in Kenya and Cameroon would prevail throughout most of the continent, and democracy could be used to re-instate the ex-ruling single-parties for a further term in government, resulting primarily from a successful "divide and rule" policy by the old autocratic regimes. Another historical observation is that the transition process and what follows is significantly affected by the strength of the institutions upon which the whole system is built. A good government is a strong government, but one which emanates from popular choice, consultation, negotiation and consensus politics, and not from dictatorship, as the latter is inherently unstable in the long term. Thus democracy may not be perfect, but it is certainly preferable to autocracy.

5.7 Summary

This chapter has dealt with one specific relationship - that between economic growth and political instability (or stability) in Sub-Saharan Africa. Political science provides a considerable literature attempting to explain the causes and consequences of instability (e.g. Sanders, 1981, Huntington 1965 and 1968, and Hibbs, 1973). Furthermore, various models have attempted predictions of instability.

The discussion here has centred around three different measures of instability, and the statistical relationship between those and growth. The results of the regression equations and the graphs presented earlier indicate that instability has a negative effect on economic growth in Sub-Saharan Africa, and as will be seen in the following chapter, this effect is frequently significant. Furthermore, there appeared to be a negative but insignificant effect of growth on instability, i.e. reverse causality appears not to have existed in the 1970s.

It seems plausible (logically) to conclude that if it was the case that slow (or negative) growth persisted for a continuous number of years, with no upturn in sight and with no reprieve from a downward trend over all the (long) period in question, then regime-threatening instability is highly likely to result in this context, and economic growth is expected to significantly affect political instability. There is also evidence (chapter six) that the successful pursuit of economic growth and development requires a politically stable environment, wherein economic agents are able to concentrate on improving their living standards, instead of avoiding the cross-fire between the various power-seeking factions.

NOTES

(1) Botswana, in particular, has attracted great attention due to its apparently exceptional stability record. The debate over the reasons for this record has been divided into the 'exceptionalists' arguments - those who argue that Botswana's circumstances are indeed exceptional and are unlike those of any other SSA country, (such as Goldsworthy, 1986, and Jackson & Rosberg, 1985 and 1986), and the 'typicalists' arguments - those who maintain that Botswana's stability is due to a common African pattern of bureaucratic control rather than an exceptional pattern, (such as Allen, 1986, and Parson, 1984).

However, the main conclusions regarding Botswana's stability record are that it is a small country with a small population (of around one million), and is therefore, relatively easier to govern than bigger countries. Furthermore, there is no clear and wide ethnic diversity, as the Botswana form about 90% of the population. Even for those who argue that this is only because the Tswana minority has successfully imposed its culture on the majority of the ethnically diverse people (Charlton, 1985), it is still widely agreed that very few ethnic problems exist in the country.

Another factor cited as enhancing the country's stability is the low level of politicisation of the population, and the unusually high degree of elite unity. Political participation is strictly controlled, and potentially fierce ethnic competition was not allowed to materialise. Furthermore, the advantages of a windfall natural resource - diamonds, has helped maintain stability (Charlton, 1987).

(2) It should be mentioned that the Granger-Sims test has its critics. According to Jacobs, Leamer and Ward (1979, p.409),

"The Sims test for causality is often incorrectly viewed as a test for exogeneity.... We also demonstrated that the Sims test for causality is actually a test of the informativeness hypothesis(3) and is not a test for exogeneity or causality as is generally believed.... evidence that apparently casts doubt on the causality hypothesis can be attributed to the slightest misspecification"

(3) The informativeness hypothesis, according to Jacobs *et al* , is one of the hypotheses that describe the extent to which X influences Y. This posits that an optimal prediction of Y does not depend on X. That is to say, X is informative about Y, but the relationship is not necessarily causal.

CHAPTER SIX

EMPIRICAL FINDINGS

6.1 Introduction

In chapter three, a descriptive analysis of social, economic and political factors affecting growth was presented. Some of those factors are now examined in the context of regression analysis and efforts are made to quantify their relative effects. This exercise concentrates on examining theories previously presented, particularly those in chapter two, which stress the primary role of saving and investment in the growth process.

Three main sets of regressions are estimated : the first is for the growth of GDP, the second, the saving-ratio function, and the third is the Incremental capital-output ratio (ICOR) function. Following the results, a discussion and a graphic representation of the regression results is presented, and finally, the implications and policy conclusions of those results are discussed.

6.2 Explaining GDP Growth

The first regression model contains growth of GDP as the dependent variable (Y) and a total of fourteen explanatory variables were used in the different regressions. These variables are the following :

POP	The population growth rates
X-gr	The growth rates of the volume of exports
M-gr	The growth rates of the volume of imports
ΔP	The rate of inflation
ΔToT	The change in the terms of trade

GDI/GDP	Gross domestic investment as a percentage of GDP
LIT	Literacy rates
G/GDP	Government consumption as a percentage of GDP
ODA/GNP	Aid as a percentage of GNP
Pol-In	Political Instability Index
i-lend, i-dep	Lending and deposit rates of interest in real terms
BM/E	The black market exchange rate as a percentage of the official exchange rate
TDS/GNP	Total debt service as a percentage of GNP
D/GDP	Debt Stocks as a percentage of GDP

Due to the lack of data for some variables in the 1960s, some regressions were performed only for the 1970s and the 1980s. The missing variables (from the 1960s) were the rates of interest, total debt stocks and debt service ratios, and the ratio of the black market to the official exchange rates.

A number of regressions were performed, with different variables included in each. The results are listed in Table 6.1 below.

The total sample size is thirty two. Of the original forty-five SSA countries, thirteen had great data deficiencies on a large number of factors, it was therefore, thought better to exclude them altogether. The countries included in the sample are listed in Appendix II. Chapter four also described the methodology employed in estimating the equations and the partial regression graphs, where some of the equations were estimated employing TSLS (Two-Stage Least Squares), and others using OLS. TSLS was employed to estimate the regressions which included political instability as one of the independent variables, in case simultaneous equation bias existed, if instability and growth were interdependent. Below are the results

of the OLS equations only, and Appendix III contains the results of the TSLS equations and the corresponding partial regressions.

The period under study was 1960-86. This was divided into three sub-periods : 1960-69, 1970-79, and 1980-86. Each regression equation was performed for each decade as well as for the period as a whole in order to see how the effects of the variables included seemed to change over time.

6.3 Results

Table 6.1 below presents the results of the regression equations performed with the growth of GDP as the dependent variable. The equations, (1) to (12), contain various groupings of the explanatory variables. When equations for particular periods are omitted, it is because data on the variables is not available.

Table 6.1
 Determination of GDP
 Results of OLS regressions
 Dependent Variable : Growth of GDP
 Values of t-statistics in parentheses.

Equation 1

	Const.	Pop	GDI	G	ODA	LIT	ΔP	X-gr	R ²	n
1960-69	-.13	1.34	.15	-.10	.18	-.02	-.29	.06	.62	26
	(2.05)	(2.19)	(1.19)	(1.12)	(.71)	(2.30)	(1.64)			
1970-79	3.21	.05	.15	-.14	.15	.01	-.11	.15	.46	30
	(.07)	(2.23)	(1.29)	(.86)	(.38)	(1.20)	(1.64)			
1980-86	-3.58	.81	.05	-.10	.01	.06	-.01	.42	.75	27
	(1.21)	(1.87)	(1.20)	(.25)	(2.44)	(.30)	(5.92)			
1960-86	1.03	.13	.12	-.05	.005	.01	-.07	.21	.62	22
	(.20)	(1.76)	(.42)	(.40)	(.49)	(1.03)	(2.14)			

Equation 2

	Const.	GDI	Pol-In	LIT	G	ΔP	X-gr	R ²	n
1960-69	5.17	.14	-.13	-.03	-.15	-.06	.06	.39	31
	(2.12)	(1.89)	(1.38)	(1.96)	(.90)	(1.70)			
1970-79	4.36	.10	-.17	.007	-.08	-.06	.14	.50	30
	(1.60)	(1.60)	(.29)	(.88)	(.61)	(1.74)			
1980-86	-1.85	.06	-.05	.06	-.06	-.01	.37	.75	27
	(1.90)	(1.37)	(3.04)	(.74)	(.51)	(5.66)			
1960-86	1.61	.14	-.03	.008	-.07	-.04	.21	.72	27
	(2.79)	(.55)	(.47)	(1.06)	(.90)	(3.58)			

Equation 3

	Const.	ΔToT	Pol-In	Pop	ODA	ΔP	LIT	R ²	n
1960-69	.94	.005	-.05	1.67	.15	-.41	-.02	.49	25
	(1.3)	(.70)	(2.1)	(1.1)	(2.5)	(.50)			
1970-79	2.8	.001	-.19	.40	.17	-.07	.03	.54	26
	(2.5)	(2.0)	(.60)	(1.2)	(.90)	(1.1)			
1980-86	-.27	.001	-.08	-.01	.02	-.01	.06	.27	29
	(.90)	(1.6)	(.01)	(.3)	(.3)	(2.1)			
1960-86	.36	.001	-.02	.60	.18	-.11	.03	.35	22
	(.04)	(.2)	(.8)	(1.7)	(1.6)	(1.1)			

Equation 4

	Const.	D	GDI	Pol-In	LIT	X-gr	ODA	R ²	n
1970-79	1.5	-.1	.16	-.18	.009	.1	.3	.60	31
		(1.99)	(2.4)	(2.2)	(0.4)	(1.1)	(1.6)		
1980-86	-1.7	-.01	.05	-.04	.06	.35	.02	.77	29
		(1.8)	(1.6)	(1.5)	(3.3)	(6.2)	(.5)		

Equation 5

	Const.	BM/E	TDS	GDI	Pop	ΔToT	R ²	n
1970-79	.06	-.009	-.96	.24	.76	.0002	.36	26
		(1.4)	(1.7)	(2.0)	(1.0)	(.7)		
1980-86	-.31	-.009	-.14	.21	.22	.002	.32	30
		(1.0)	(1.7)	(2.7)	(.2)	(1.4)		

Equation 6

	Const.	LIT ₋₁	Pol-In	GDI	Pop	M-gr	TDS	ΔP	R ²	n
1970-79	.99	.02	-.15	.20	.13	.15	-.68	-.02	.69	31
		(.56)	(1.75)	(3.28)	(.25)	(2.42)	(2.1)	(.25)		
1980-86	-1.51	.03	-.09	.19	.21	.24	-.25	.04	.52	30
		(1.05)	(2.02)	(2.50)	(.28)	(3.01)	(1.69)	(1.26)		
1970-86	-.91	.01	-.07	.23	.04	.21	-.42	-.03	.62	30
		(.43)	(1.3)	(3.5)	(.07)	(2.18)	(2.00)	(.70)		

Equation 7

	Const.	i-lend	Pol-In	TDS	M-gr	GDI	R ²	n
1970-79	1.6	-.08	-.16	-.31	.19	.14	.63	22
		(.80)	(2.1)	(.80)	(3.0)	(1.9)		
1980-86	.29	-.05	-.1	-.25	.24	.20	.48	28
		(1.1)	(2.0)	(1.4)	(2.8)	(2.5)		

Equation 8 (Non - Franc-Zone countries only)

	Const.	BM/E	TDS	GDI	Pop	ΔToT	R ²	n
1970-79	4.1	-.01	-2.0	.4	-.9	.0002	.54	17
		(1.2)	(2.5)	(2.5)	(.6)	(.5)		
1980-86	-1.3	-.01	-.14	.12	1.2	.005	.58	20
		(1.4)	(.5)	(1.4)	(1.3)	(2.9)		

Equation 9

	Const.	Pop	G	Pol-In	ODA	LIT	R ²	n
1960-69	-4.9	1.1	.07	-.23	.27	.03	.32	25
		(1.3)	(.8)	(2.6)	(1.8)	(.8)		
1970-79	3.1	-.5	-.13	-.19	.3	.03	.38	31
		(.9)	(1.8)	(2.4)	(2.3)	(1.4)		
1980-86	1.98	-1.6	-.04	-.12	.02	.07	.37	27
		(1.8)	(.3)	(2.3)	(.3)	(2.1)		
1960-86	1.5	-.3	-.05	-.07	.03	.03	.17	23
		(.4)	(.5)	(1.0)	(.2)	(.8)		

Equation 10 (Internal factors only)

	Const.	Pop	GDI	G	LIT	X-gr	ΔP	R ²	n
1960-69	.42	1.1	.1	-.06	-.01	.06	-.03	.38	31
		(1.8)	(1.5)	(.8)	(.4)	(1.7)	(.4)		
1970-79	4.1	-.06	.14	-.1	.002	.17	-.12	.44	30
		(.1)	(2.1)	(1.0)	(.1)	(2.1)	(1.4)		
1980-86	-3.9	.87	.05	-.1	.06	.42	-.01	.75	27
		(1.5)	(1.9)	(1.3)	(3.0)	(6.1)	(.2)		
1960-86	1.3	-.03	.14	-.07	.009	.22	-.04	.71	27
		(.1)	(2.9)	(.9)	(.5)	(3.6)	(1.0)		

Equation 11 (External Factors only)

	Const.	ODA	Pol-In	ΔToT	R ²	n
1960-69	4.2	.08	-.08	.0001	.07	25
		(.5)	(.9)	(.2)		
1970-79	4.19	.16	-.25	.001	.49	26
		(1.4)	(3.6)	(2.6)		
1980-86	3.3	-.03	-.07	.001	.13	29
		(1.4)	(1.6)	(1.0)		
1960-86	3.1	.15	-.12	.004	.22	23
		(1.4)	(1.9)	(.6)		

Equation 12 (Oil-importing countries only)

	Const.	Pop	M-gr	ΔToT	R ²	n
1960-69	-2.4	2.5 (2.4)	.008 (.05)	.0001 (.3)	.29	23
1970-79	2.7	.02 (.03)	.26 (3.1)	.0002 (.3)	.39	23
1980-86	-5	1.1 (1.3)	.13 (1.3)	.004 (2.1)	.28	26
1960-86	1.4	.26 (.4)	.30 (2.8)	.02 (1.7)	.34	26

Following is a description and analysis of those results, taking each variable (or group of variables) in turn.

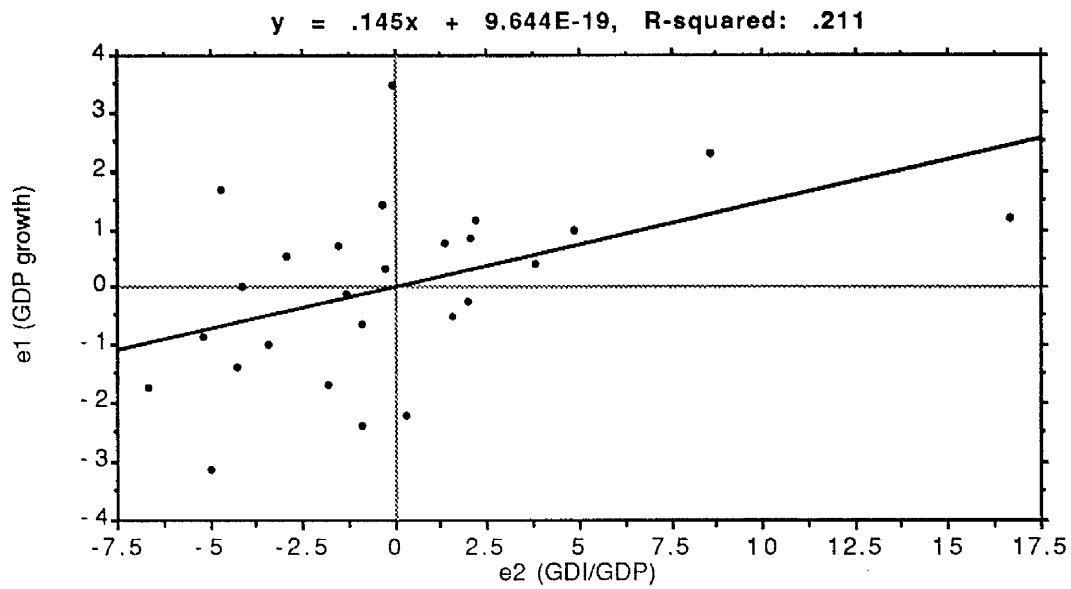
6.3.1 Investment

As expected, gross domestic investment appears to be one of the strongest factors affecting growth, having a coefficient value of between 0.1 and 0.2 (being significant at the 10% or 5% level). This is apparent from the two main equations {(1) & (2)} and also from others where it was included. Some equations have been designed to study the effects of certain factors and not others {e.g. equations (4) & (6)}. These also indicate a strong effect of GDI. The effect appears most significant in the earlier part of the period, even though it remains significant throughout. This result was expected and fits with what traditional theory predicts regarding the importance of investment in the growth process, when an economy is accelerating from a lower growth path to a higher one. The declining impact of investment is consistent with the view that poor domestic policies reduced the productivity of capital in later decades (see Lele, 1984).

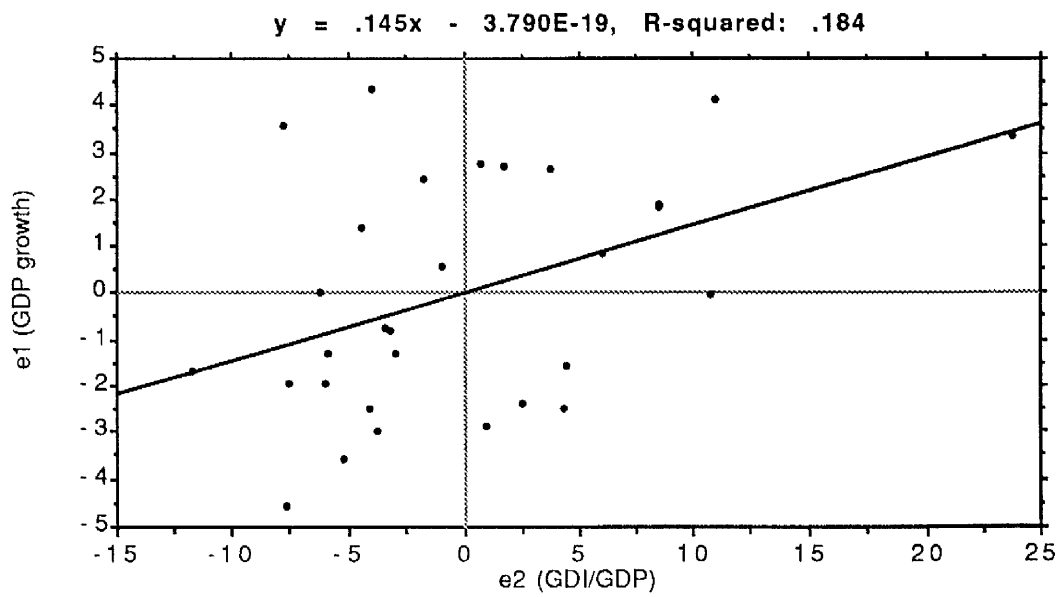
Partial regression graphs are presented below in Figure 6.1 (a - d), showing the relationship between growth and GDI more clearly. All the graphs which

Fig. 6.1
GDI & Growth 1960-69

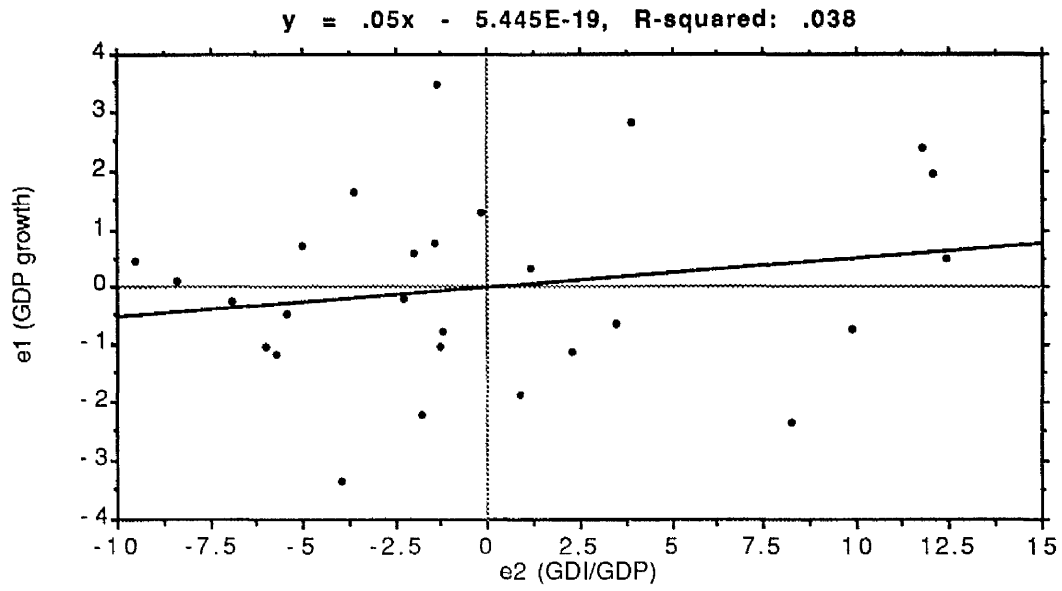
(a) 1960-69



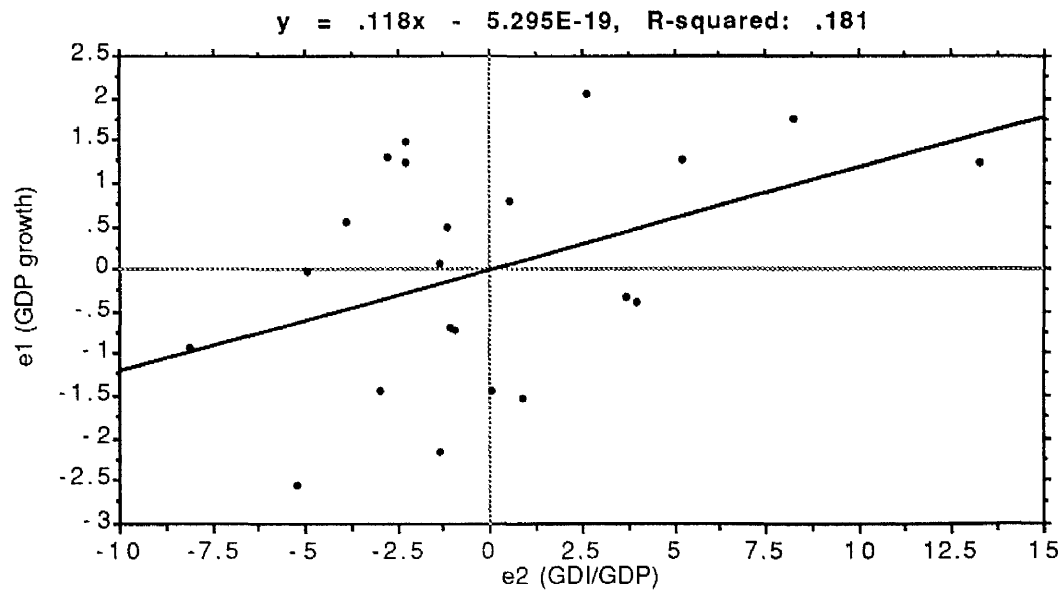
(b) 1970-79



(c) 1980-86



(d) 1960-86



are presented in this chapter {(6.1) - (6.14)} have been performed using the partial regression technique in order to obtain a clearer, more 'purified', representation of the relationship between the variables concerned (Gujarati, 1988, and chapter four). Furthermore, it is noteworthy that due to rounding error, the fitted lines in some graphs do not pass through the origin.

6.3.2 Trade Variables

In general, of the three trade-related variables (export growth, import growth, and the terms of trade), the effect of export growth appears to be the most significant (as indicated by the values of the t-statistics of the X-gr coefficient in the various equations).

Equations (1) & (2) show the effect of export growth on the growth of GDP. This is consistently significant, becoming more so in the 1980s.

M-gr and X-gr were not included together at the same time in any of the equations due to the link between the two (exports generate the funds necessary to buy imports which are used to increase the production of exports and so on).

Equations (6) & (7) indicate the effect of import growth on the growth of GDP. Both equations point to a significant effect (at the 5% level). Again, these results are consistent with what traditional theory has maintained regarding the central roles that the growth of exports and imports play in the growth process, being the main sources of foreign exchange for the purchase of non-competitive imports, and providing benefits from efficient specialisation.

As to the change in the terms of trade, this was weighted by the ratio of exports to GDP (X/GDP). The results concerning the effect of ΔToT on economic growth are unexpectedly weak. Equation (3) shows this variable to have a positive but insignificant effect, except for the 1970s where $t = 2.5$ (significant at the 5% level). This was a period when oil price rises can be expected to have had positive growth effects on the five oil exporters (Angola, Nigeria, Cameroon, Congo and Gabon), and strong negative effects on the oil importers.

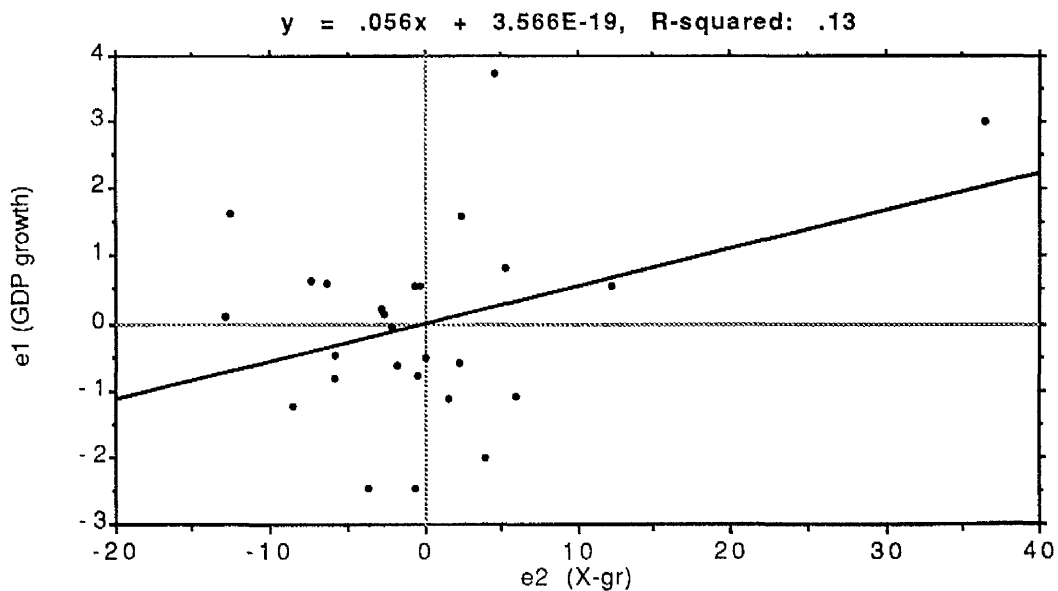
Equation (12), however, is interesting in that it includes only the oil importing countries in Sub-Saharan Africa. The results now indicate that ΔToT have a positive but insignificant effect on the growth of GDP. However, the effect becomes significant at the 5% level ($t = 2.1$) during the 1980s, and remains significant (at the 10% level where $t = 1.7$) over the period as a whole.

In the 1970s, the impact of the oil-price rise on oil importers was offset by higher capital inflows. However, this led to higher debt service payments in the 1980s, which is perhaps where the declining terms of trade in the 1970s for the oil importers made its impact.

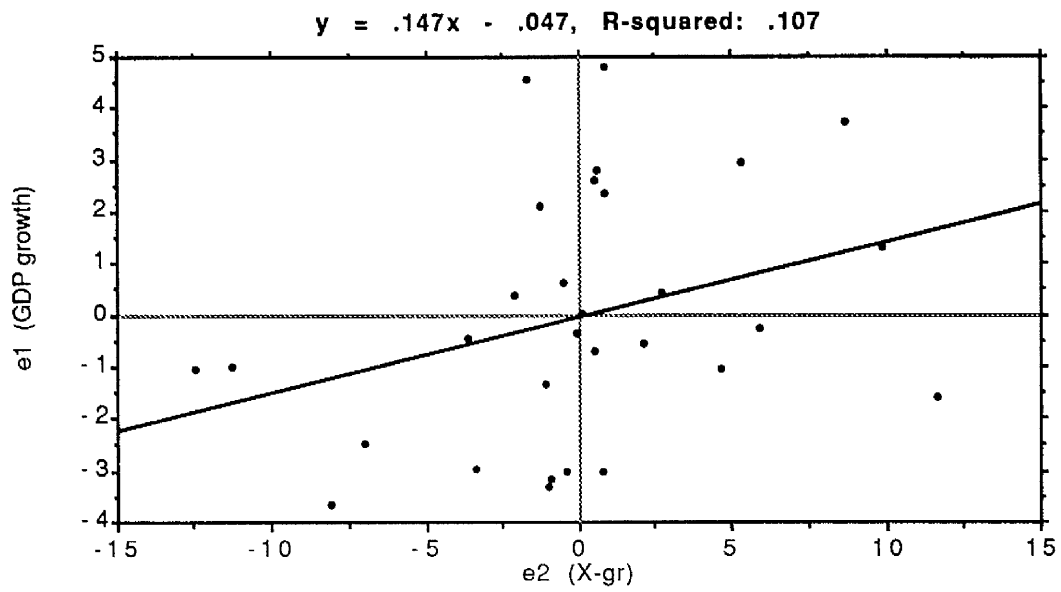
The graphs below (Fig.6.2 - Fig.6.4) indicate how each of these variables was related to growth in each of the periods considered, and how the strength of these relationships changed over time.

Fig. 6.2
Export growth and economic growth

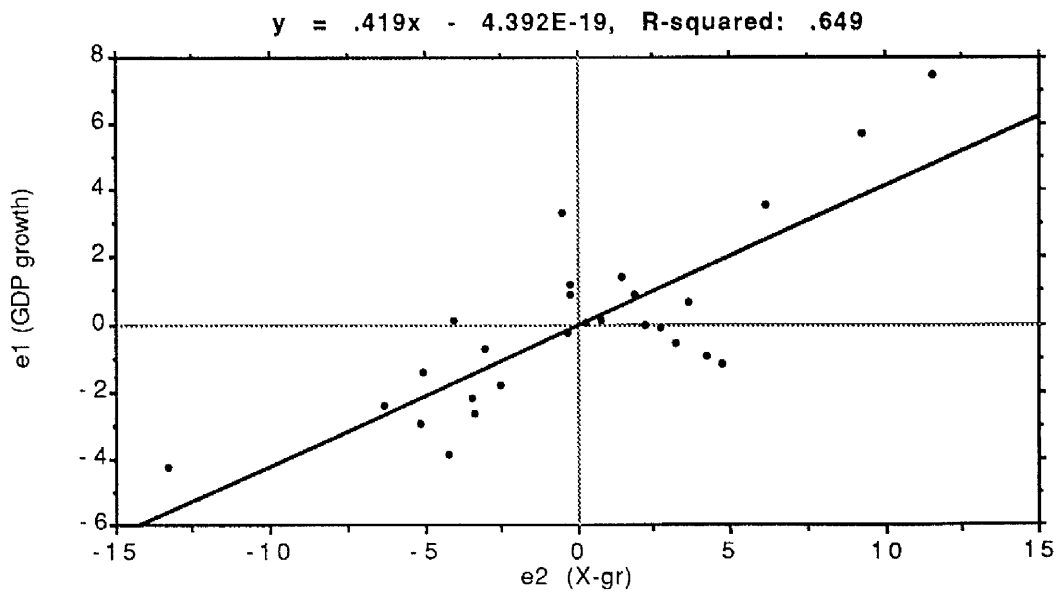
(a) 1960-69



(b) 1970-79



(c) 1980-86



(d) 1960-86

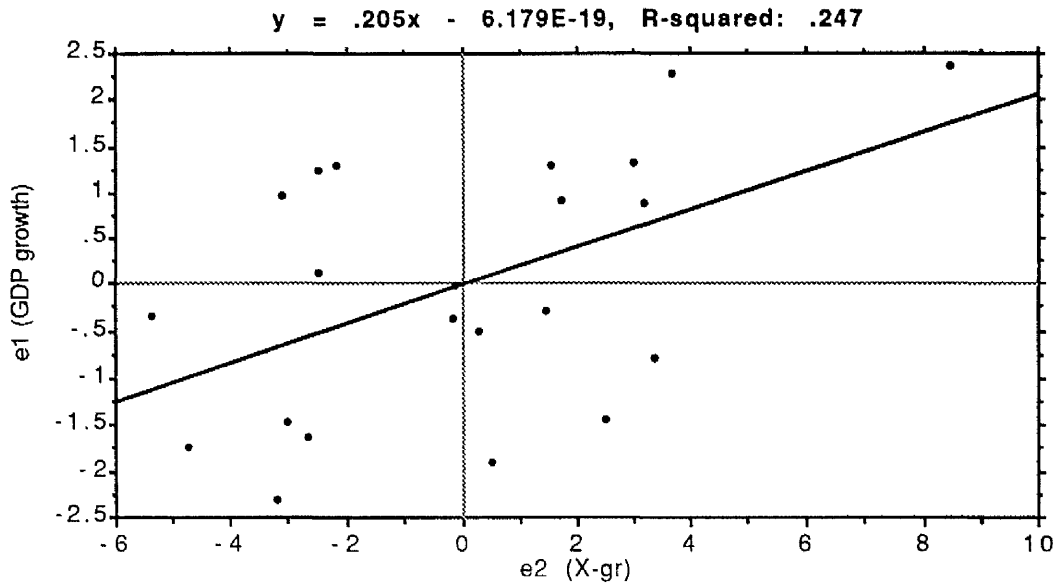
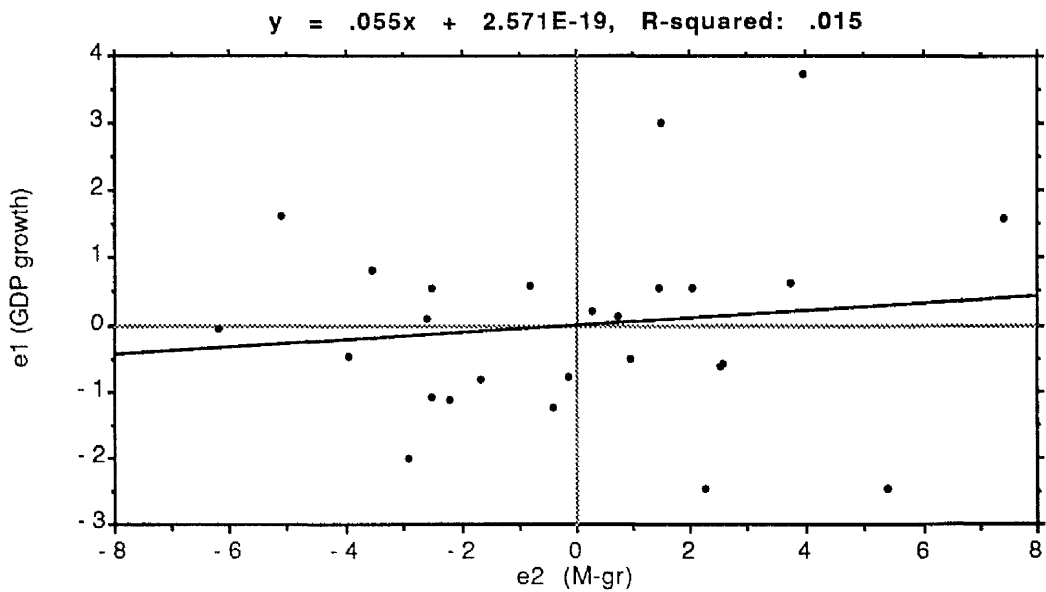
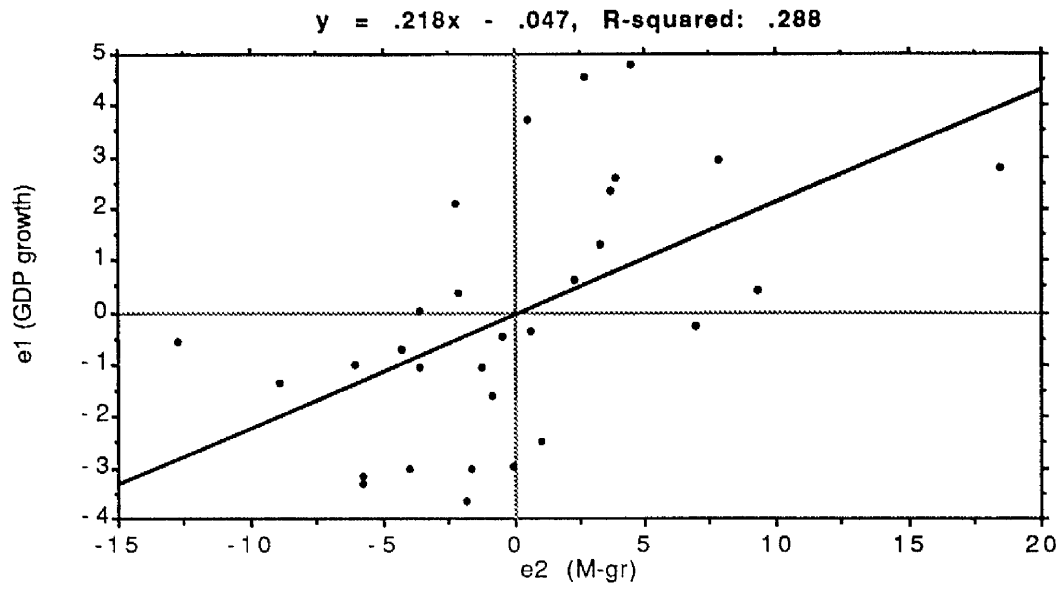


Fig. 6.3
Import growth and economic growth

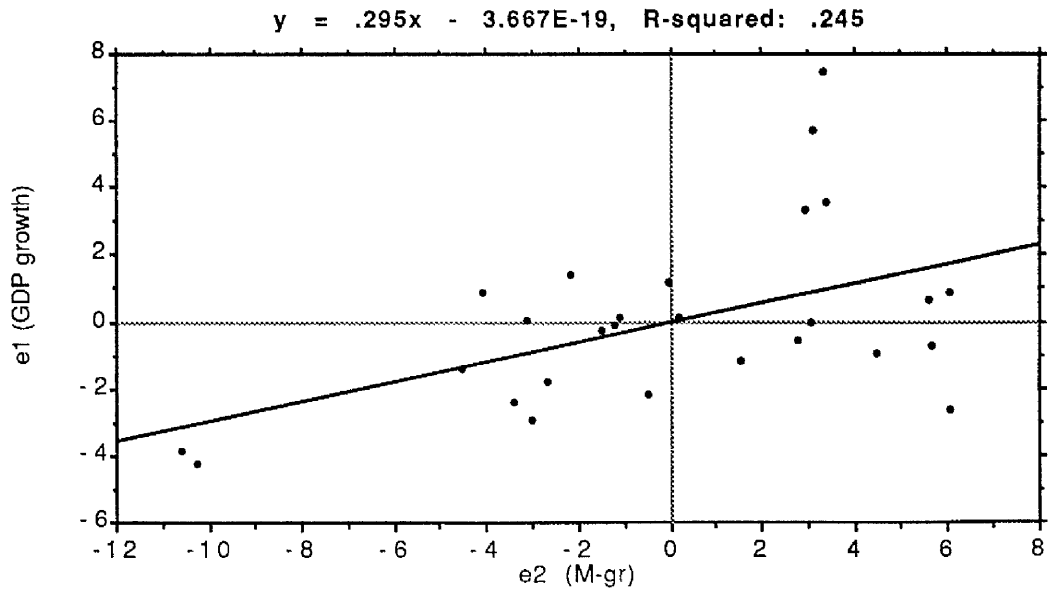
(a) 1960-69



(b) 1970-79



(c) 1980-86



(d) 1960-86

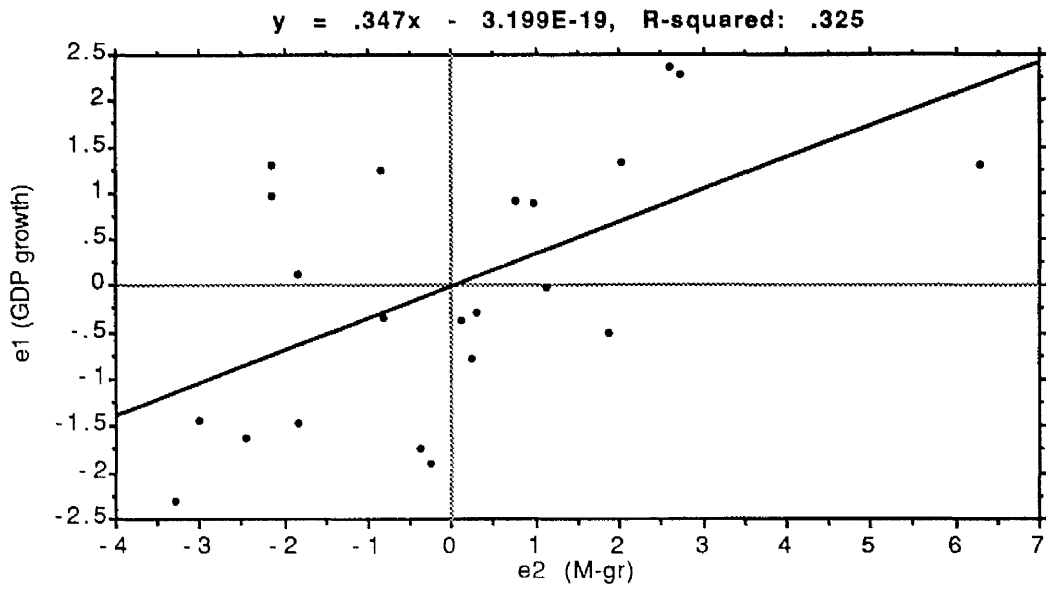
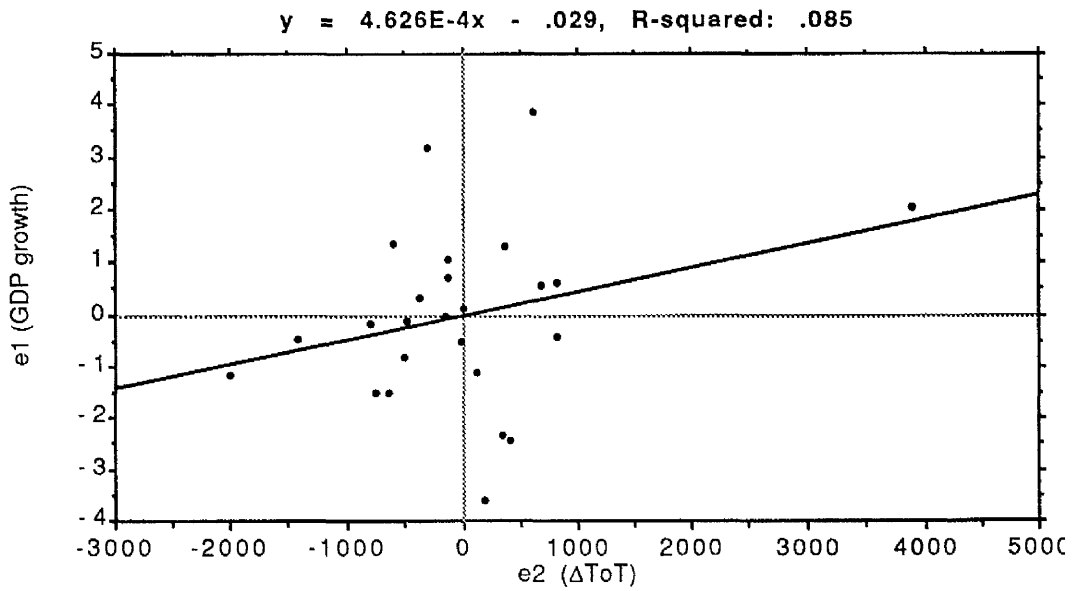
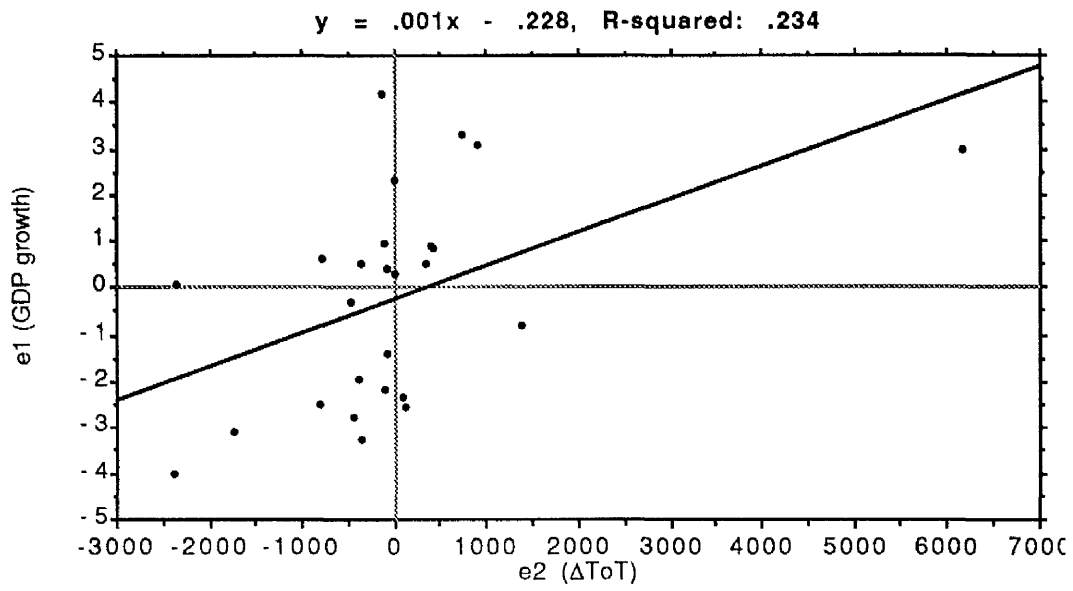


Fig. 6.4
 ΔToT and economic growth

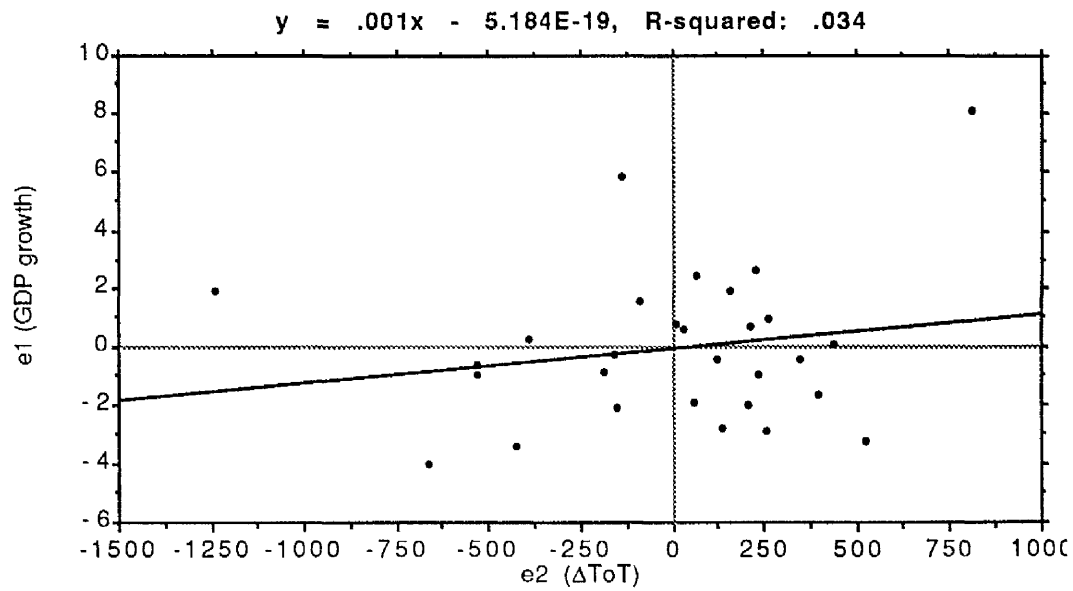
(a) 1960-69



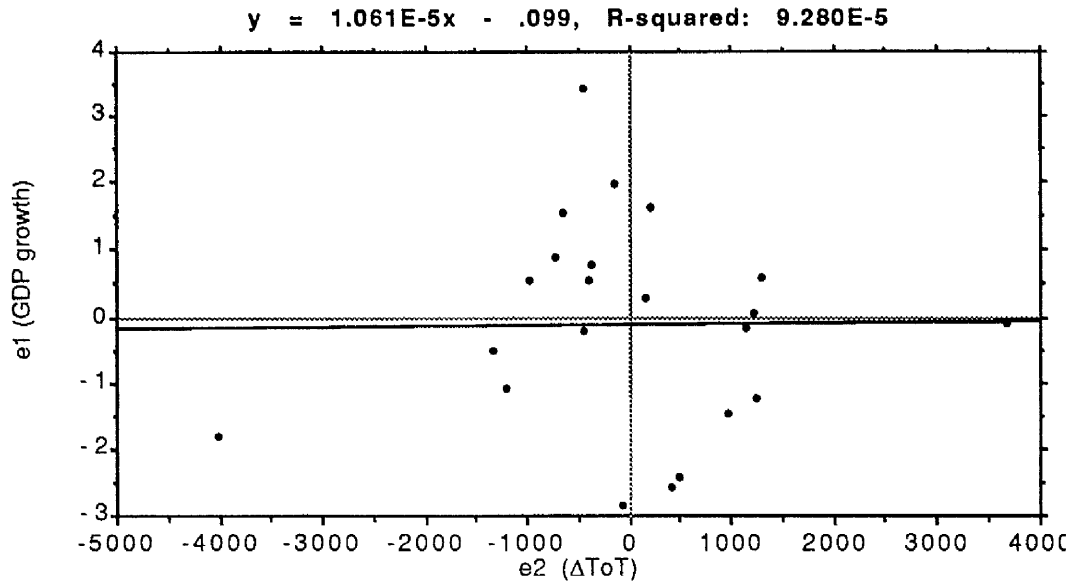
(b) 1970-79



(c) 1980-86



(d) 1960-86



6.3.3 Aid

Despite appearing to always have a positive effect, the inclusion of aid in the regression equations was rarely significant.

Equations (1), (3), & (4) show the effect of aid. In equation (1), the effect is not always significant.

In equation (3), and for the whole period, it is close to significance at the 10% level ($t= 1.7$), but insignificant in each of the sub-periods. This is perhaps because investment was excluded from this equation, and since aid affects the investment rate, the aid effect appears more significant.

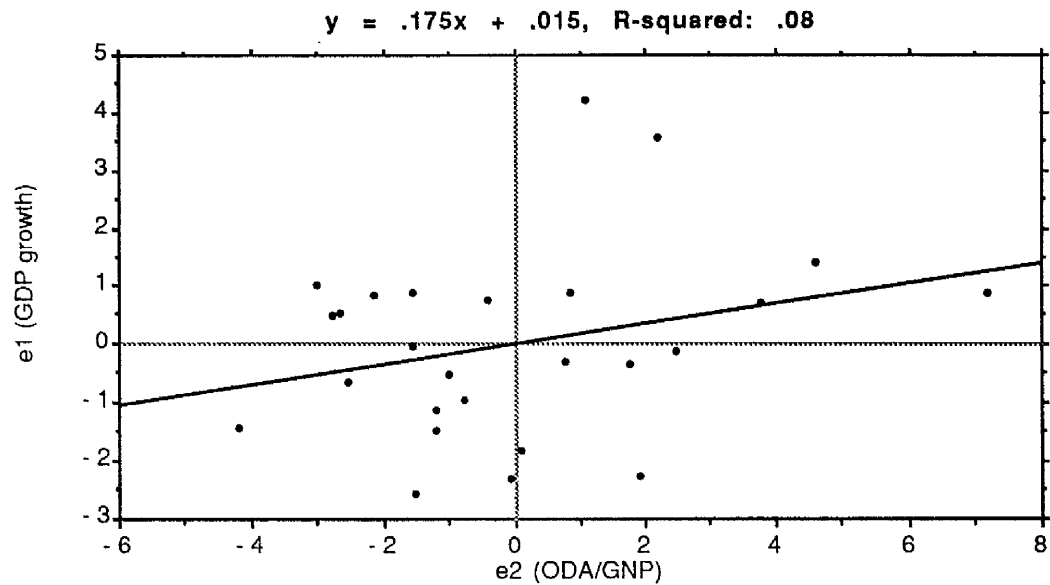
In equation (4), it is, again, not significant (yet being closer to significance in the 1970s than in the 1980s).

Overall, it can be concluded that aid does not appear to play a particularly significant role in the growth process of Sub-Saharan Africa. This is not a surprising conclusion as the aid debate continues with conflicting evidence (see, for example, Mosley, 1987, Wheeler, 1984, and Todaro, 1989).

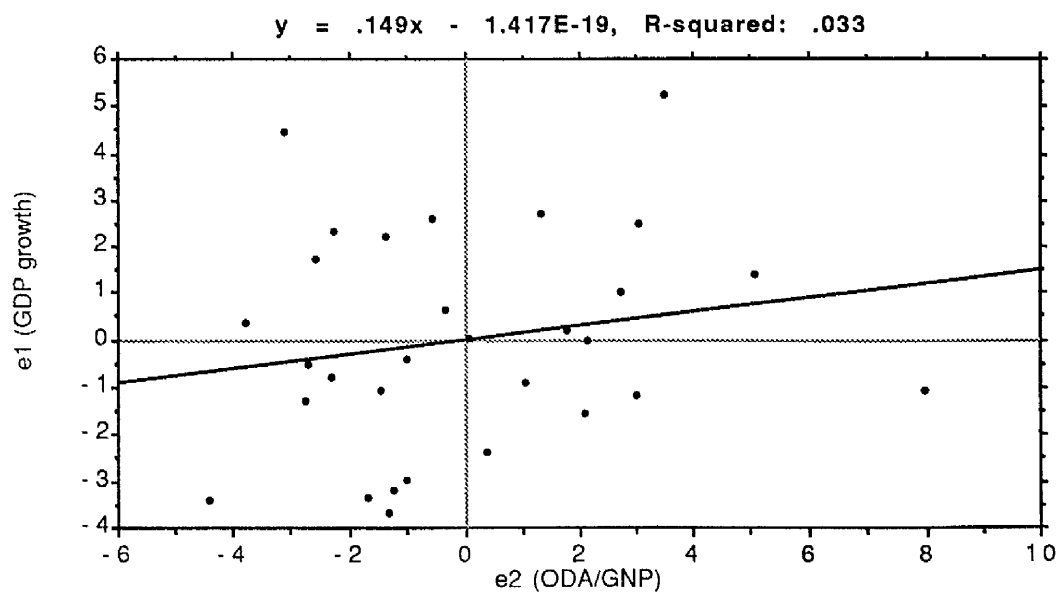
Again, the aid-growth relationship and its changing pattern is shown below in Fig.6.5.

Fig. 6.5
ODA and economic growth

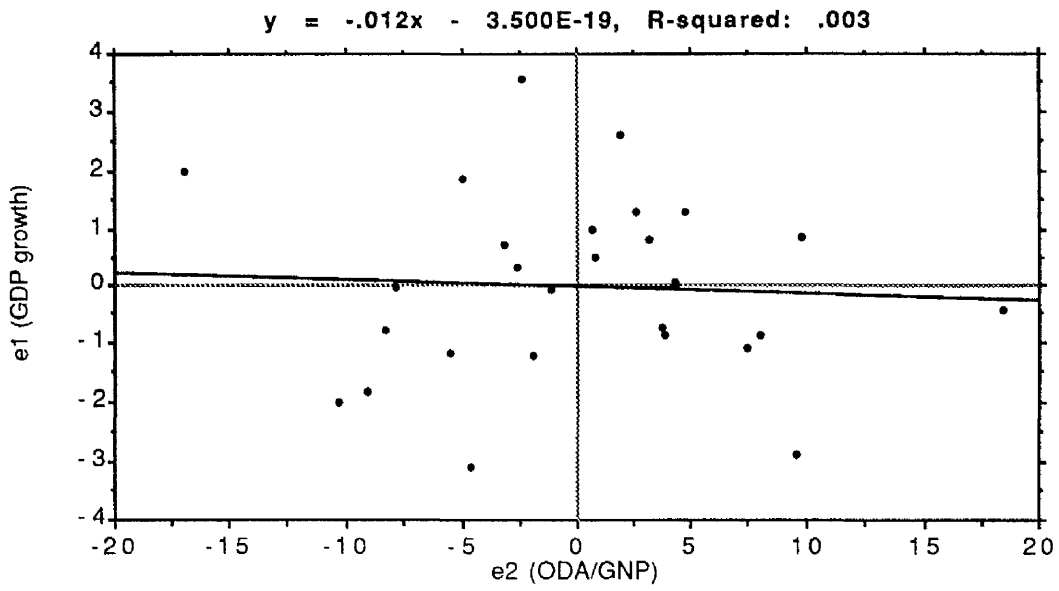
(a) 1960-69



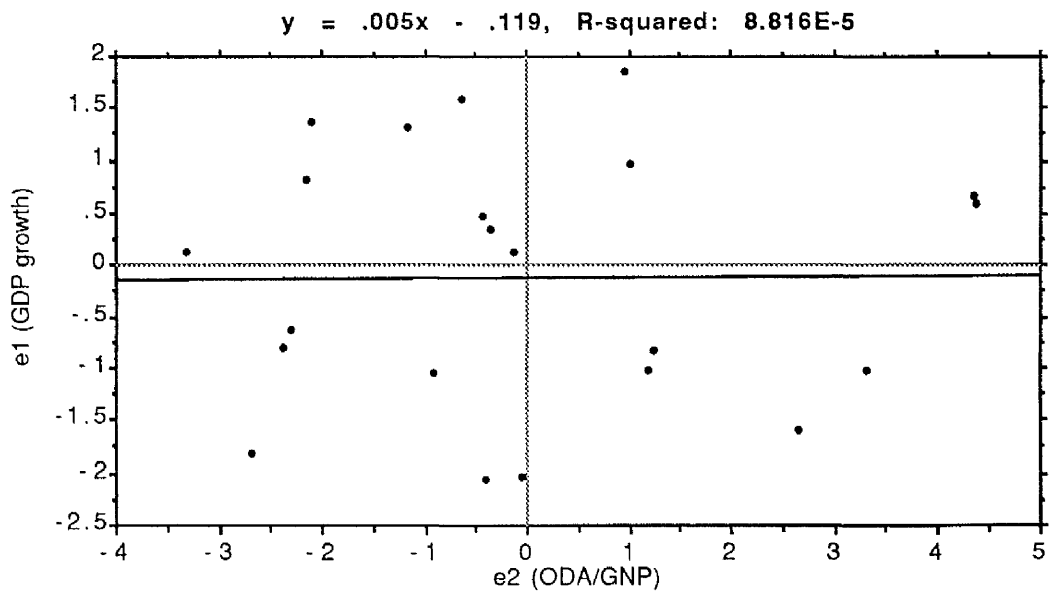
(b) 1970-79



(c) 1980-86



(d) 1960-86

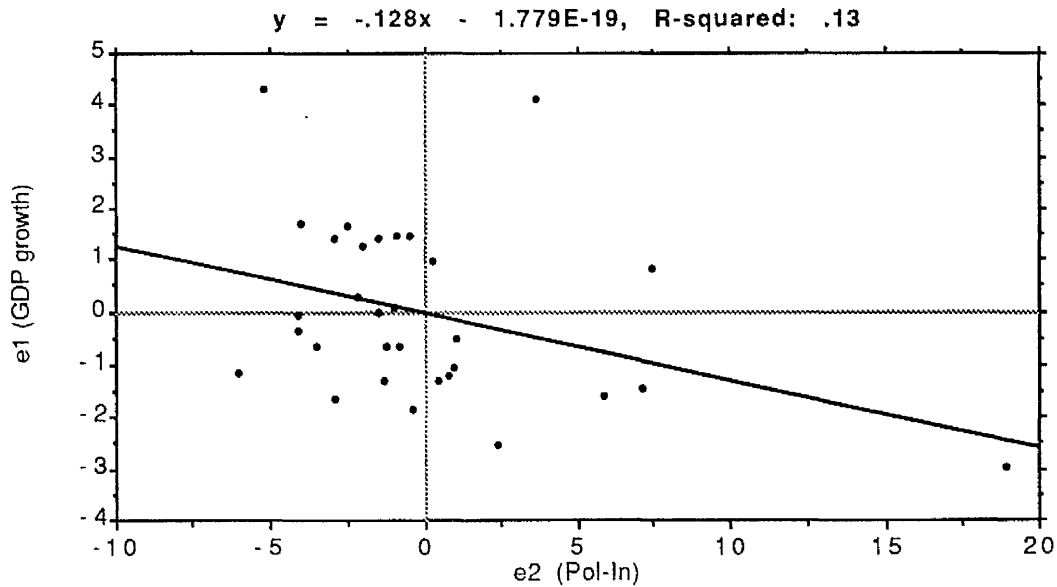


6.3.4 Political Instability

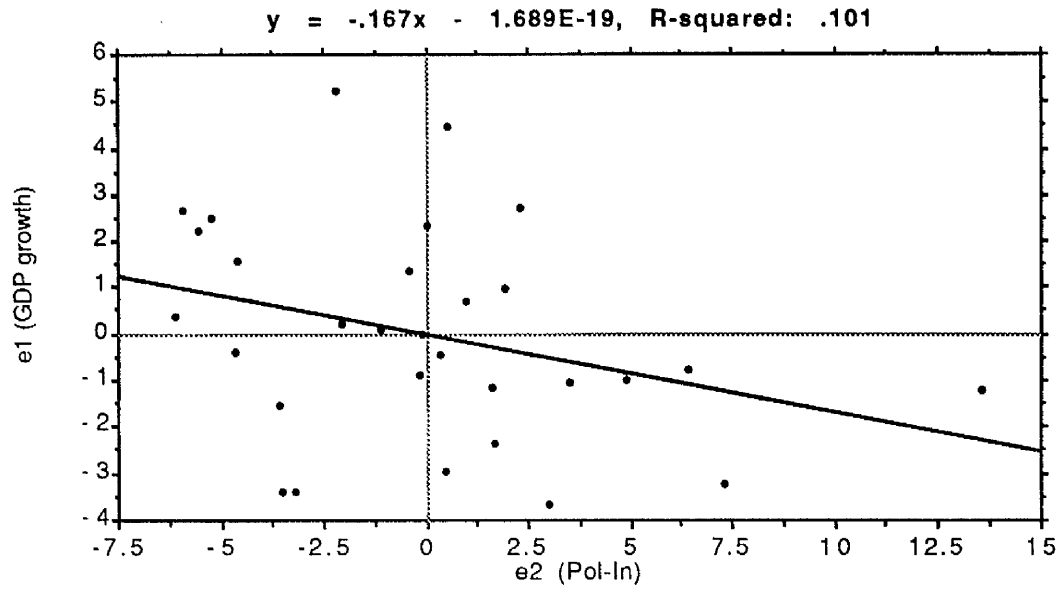
This is the modified Jackman (weighted incidents) political instability index. Its effect on the growth of GDP appears in equations (2), (3), (4), and (7). The equations indicate that this factor is indeed significant and has a negative impact on economic growth. The results here confirm that a stable political environment is as important as the traditional factors (X-gr, M-gr, & GDI) in the growth process.

Fig. 6.6
Political instability and economic growth

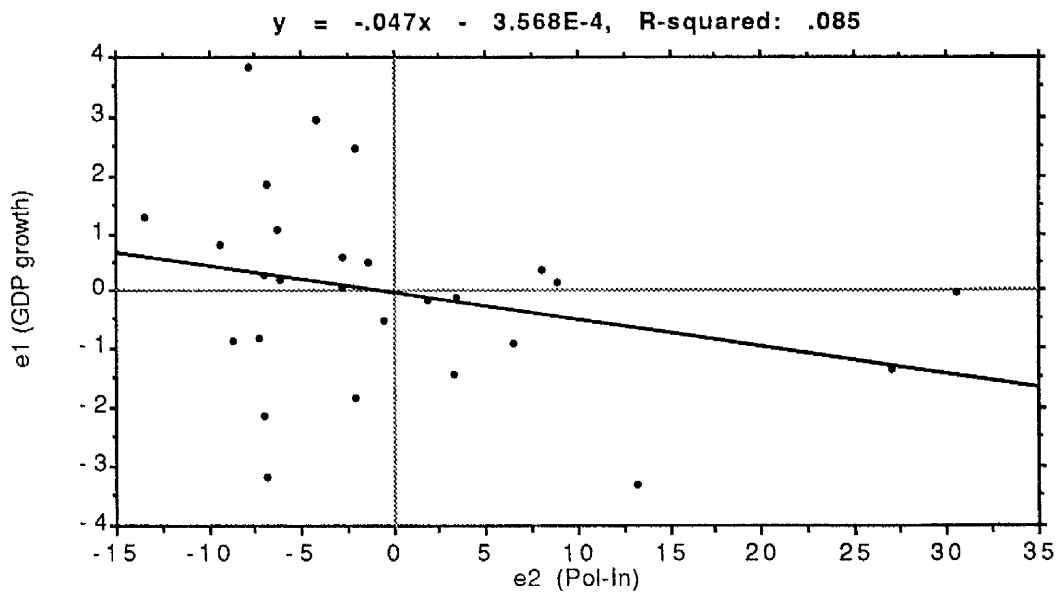
(a) 1960-69



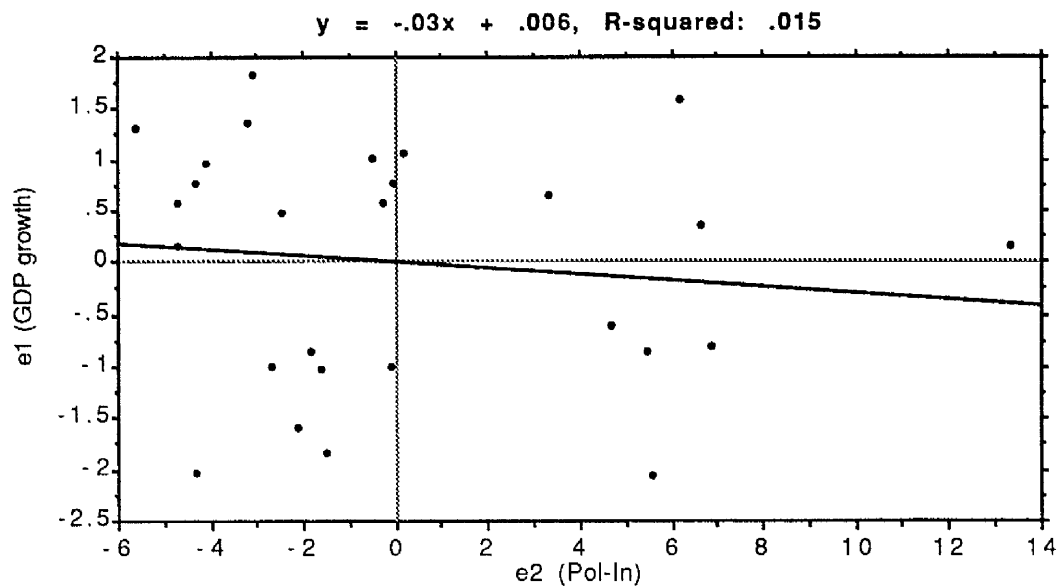
(b) 1970-79



(c) 1980-86



(d) 1960-86



However, it is noticeable that despite significant t-values in all the sub-periods considered, in the whole-period equation (1960-86) it is not significant. This is interesting as it indicates that despite the importance of political stability in the short - medium term, in the longer term, the negative effect on growth persists but decreases in significance. This occurs perhaps, because for some countries, political stability conditions reverse as the decades progress, leaving fewer countries in the sample with continuously poor stability or good stability, thus leading to lower significance in the statistical analysis.

The graphs above {Fig.6.6, (a) - (d)} illustrate this relationship more clearly, and confirm the above observations.

6.3.5 Literacy

Equations (1), (2), (3), & (4) contain the variable LIT to assess the effect of literacy rates on the growth rates of GDP in Sub-Saharan Africa.

It is perhaps expected that the effect of this variable (LIT) would always be positive and significant. Yet the equations indicate a negative but insignificant effect during the 1960s; a positive but still insignificant effect during the 1970s and a positive and very significant effect (at the 5% level) during the 1980s.

For the 1960s and the 1970s, these results are perhaps surprising as literacy rates might be considered good proxies for the effects of investment in human capital. The use of other proxies such as primary and secondary educational enrolment rates did not improve the results.

Other studies (e.g. Barro, 1991) have also exhibited some difficulties in assessing the impact of education on growth during the early stages of development using adult literacy rates as a measure. Using other proxies, such as secondary education enrolment rates, also did not improve the results. Barro argues that this is possibly due to the fact that during the 1960s, data collection for this variable was far less reliable than it is in the latter periods. This is borne out by the fact that the impact of this factor becomes increasingly significant during the 1970s and the 1980s, reflecting perhaps, the higher quality of data in those later periods.

An alternative explanation is that the effect of greater investment in human capital transpires in later periods. Equation (6) examines the lagged effect of literacy (LIT_{-1}), considering the effect of 1960s literacy rates on the average growth rates of the 1970s, and the 1970s literacy rates on the growth rates of the 1980s. The results indicate a positive but insignificant effect for the former ($t = 0.6$), and a positive and increasingly significant effect for the latter ($t = 1.1$).

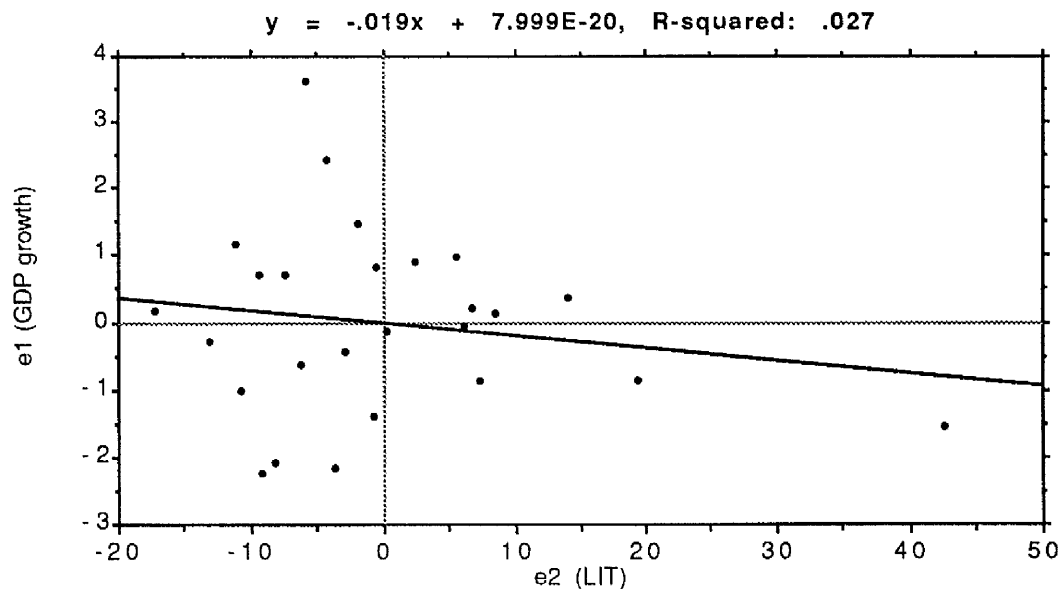
It could, therefore, be said that the impact of education does appear to become of greater importance as those educated in the current period become active in the labour force in later years. This could further explain the negative impact of literacy during the 1960s, as that period was characterised by increased public spending on education after independence, with resources being diverted from investment in physical capital to education. Clearly, no immediate returns would materialise from such an investment in the form of a more highly trained labour force, since those who entered education in the 1960s would most likely still be in

education by 1969. There may also be a differential effect of increasing literacy through primary education as against adult education classes. The former might be considered to have a greater effect as it opens up the possibility of absorbing productivity-enhancing skills and career opportunities in the formative years. In the 1960s and 1970s, much of the literacy improvement was the result of widespread adult education classes to rectify the poor educational position in the colonial period (Hodd, 1991).

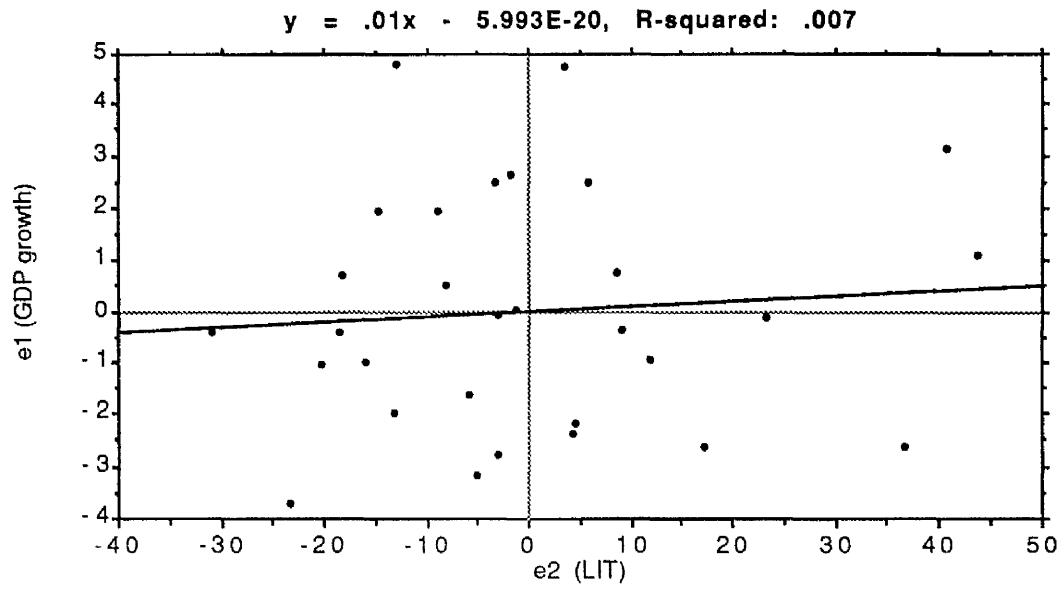
Fig. (6.7) below illustrates the nature of the relationship between literacy and growth over each decade, and for the period as a whole.

Fig. 6.7
Literacy and growth

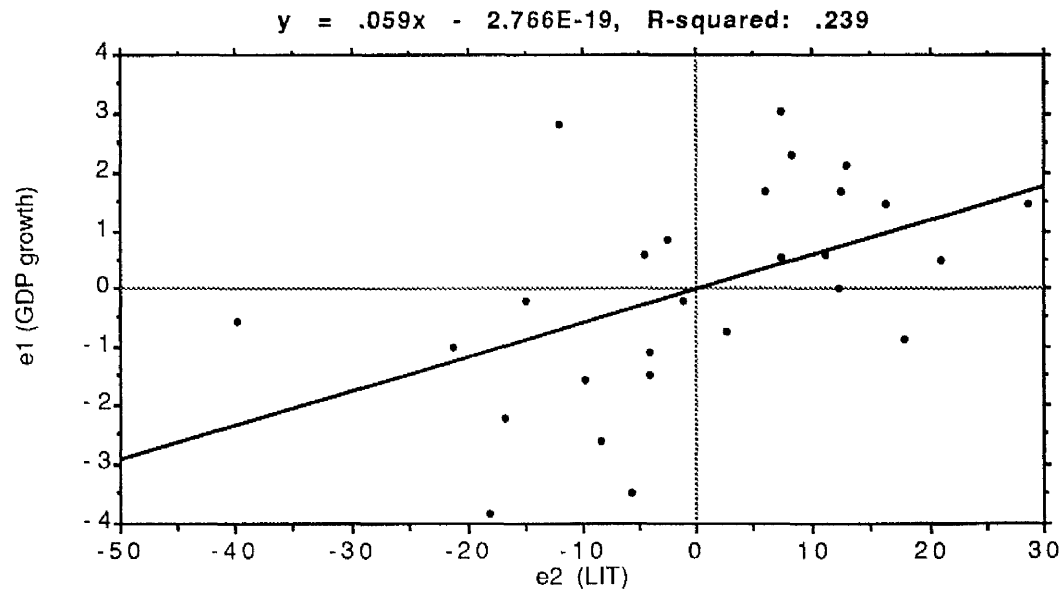
(a) 1960-69



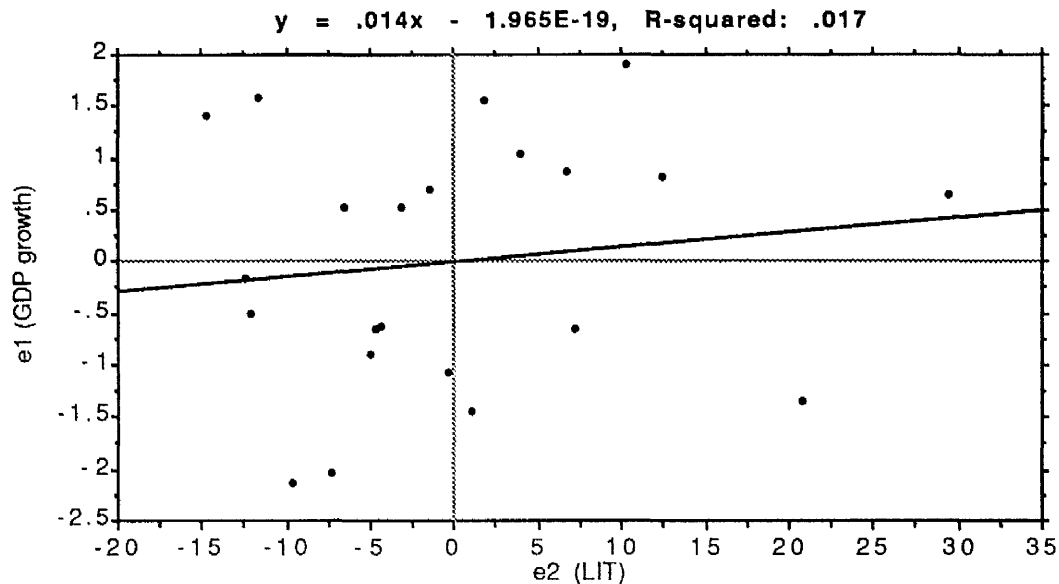
(b) 1970-79



(c) 1980-86



(d) 1960-86



6.3.6 Size of Government sector

Government consumption is the variable used to assess the impact of the size of the public sector on economic growth in Sub-Saharan Africa (G/GDP).

The effect of G/GDP can be seen in equations (1) and (2).

In both equations, the effect appears to be negative but insignificant (with the exception of the result in equation (2) for 1960-69). The significance, as given by the t-statistics, also falls as we move forward in the time period considered.

The lack of significance of this much-discussed variable is of interest. Once again the results may be due to measurement limitations. Much criticism of the state sector has been levelled at direct productive activities, and perhaps if a measure of the share of total resources engaged in state-owned

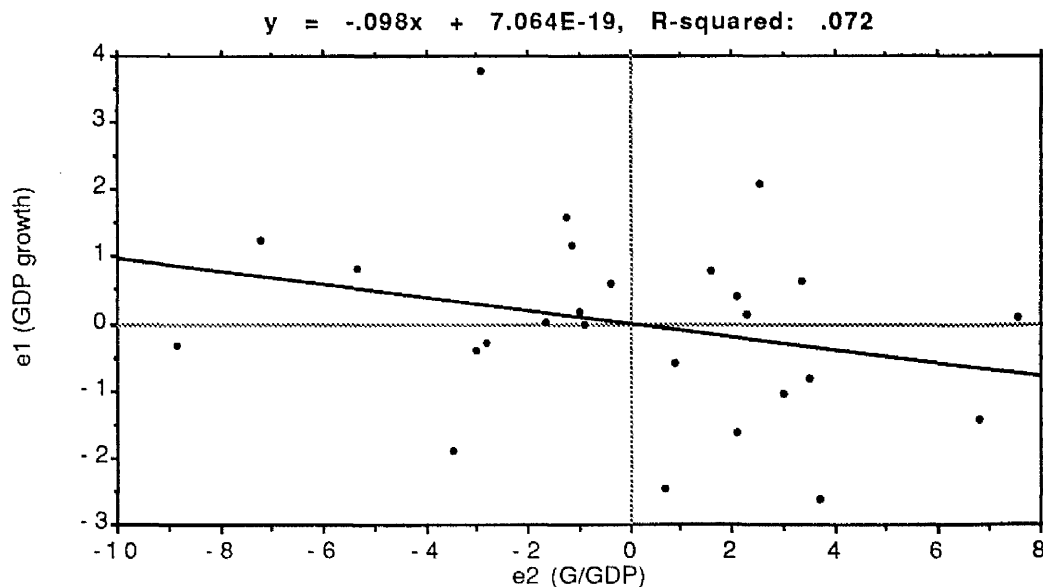
activities could be obtained, this would show up better in the regression equations.

A further possible reason as to why the effect of government became insignificant during the 1970s and the 1980s could be the fact that during the 1970s, world prices for oil and some minerals increased markedly. Given that these sectors were invariably controlled by governments in the Sub-Saharan African countries, the revenues generated from such sectors meant that the government was able to expand its consumption expenditure. This positive association may well have offset some of the negative efficiency effects of a large public sector.

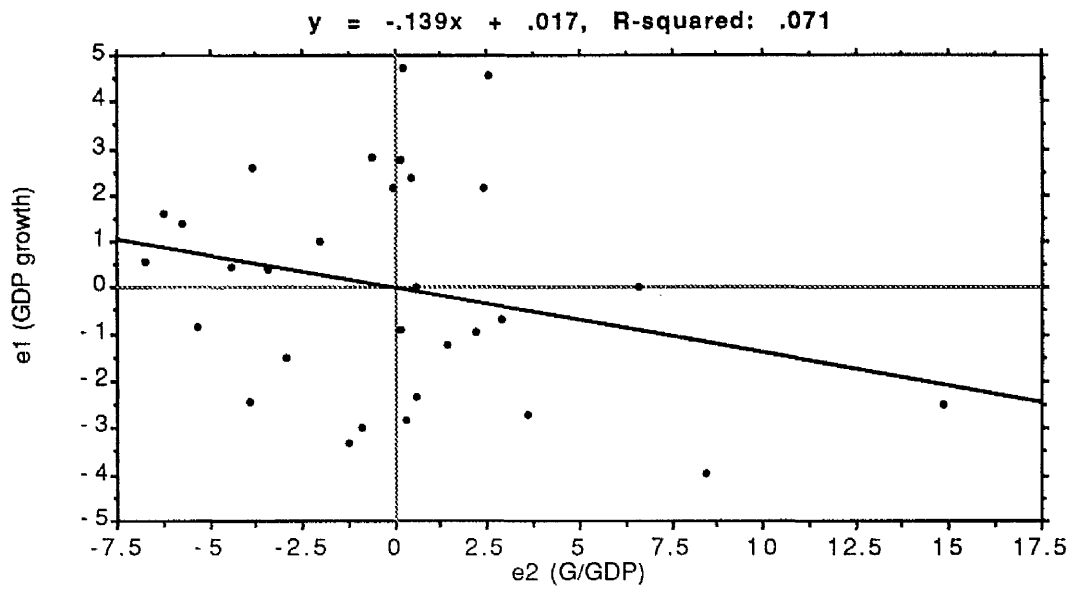
Fig. (6.8) illustrates the association between the size of the public sector (proxied by government consumption) and growth, over each decade and for the period as a whole.

Fig. 6.8
Government consumption and economic growth

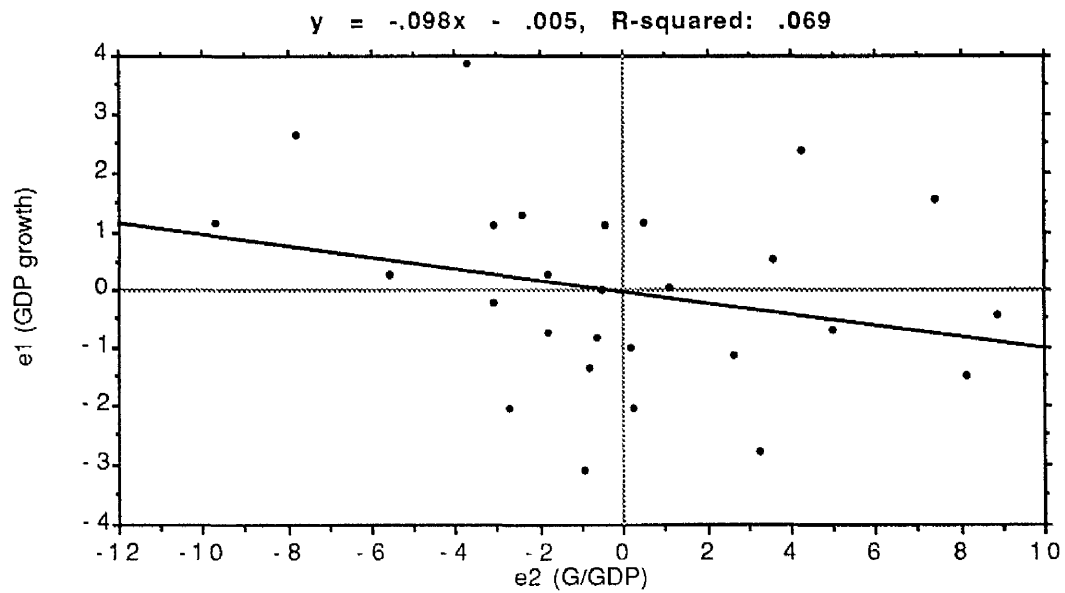
(a) 1960-69



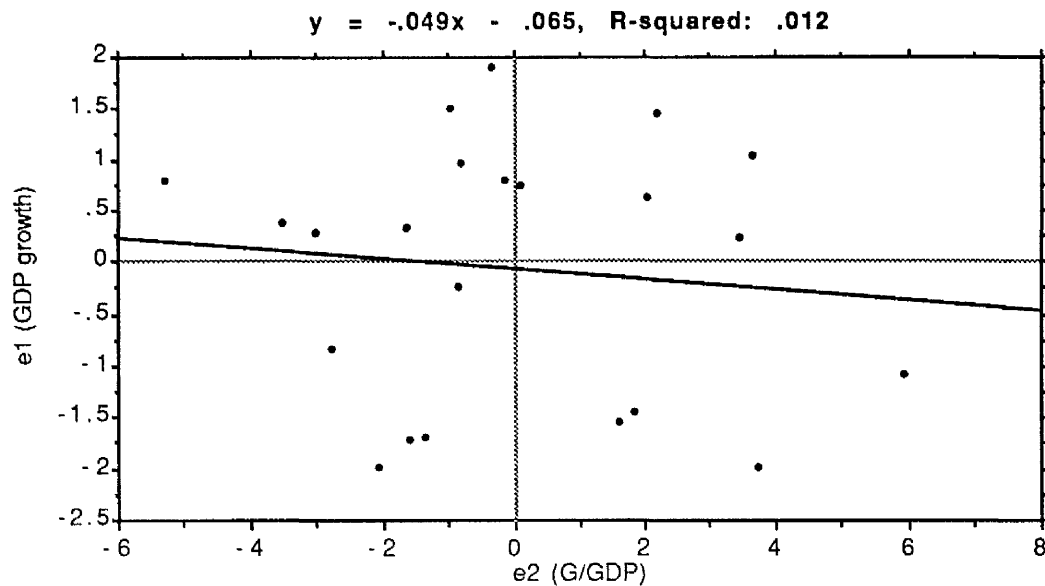
(b) 1970-79



(c) 1980-86



(d) 1960-86



6.3.7. Debt Indicators

Equations (5) & (7) demonstrate the effect of total debt-service payments on the rate of growth of GDP. There is no equation for the 1960s due to the lack of reliable data (on TDS & DEBT) in this decade.

Equation(5) indicates a negative and significant effect of TDS on growth, and equation (7) points to the increasing significance of this factor in time (a higher t-value in the 1980s than in the 1970s). These results correspond to expectations regarding this factor.

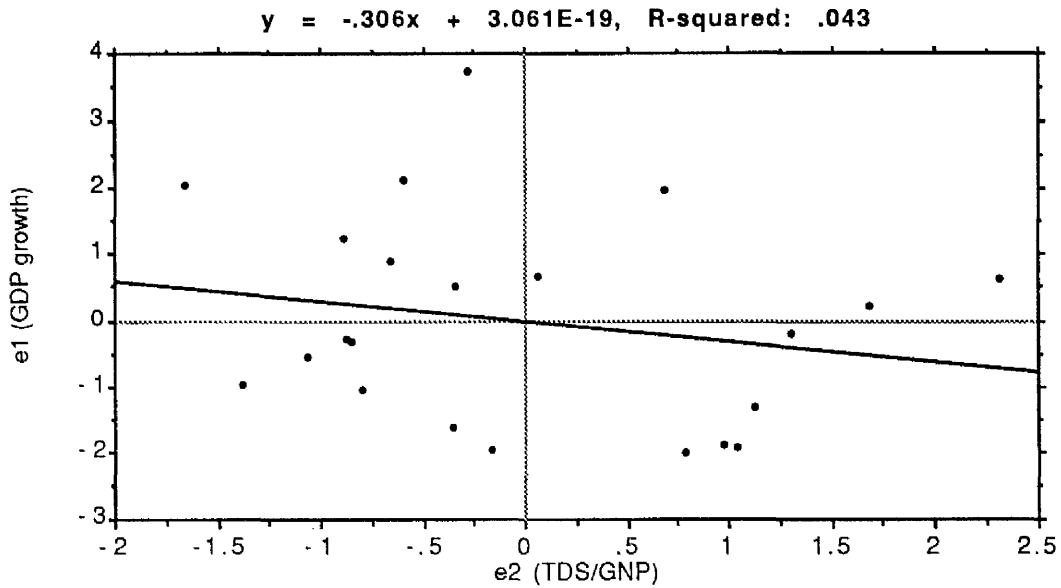
The effect of total debt stocks reinforces this view. Equation (4) indicates a negative and significant effect of debt on growth.

Actual debt stocks therefore, appear to be an important factor retarding growth, indicating perhaps, that much of this debt was not employed in productive investment in earlier decades.

These observations are summarised in Fig. 6.9 and Fig. 6.10 below.

Fig. 6.9
Total debt service and economic growth

(a) 1970-79



(b) 1980-86

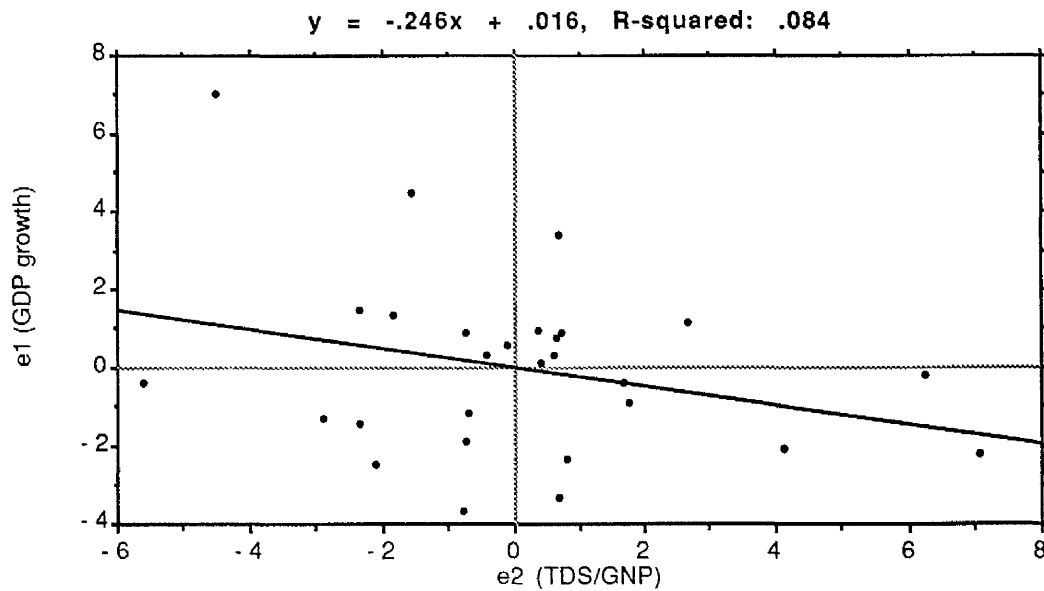
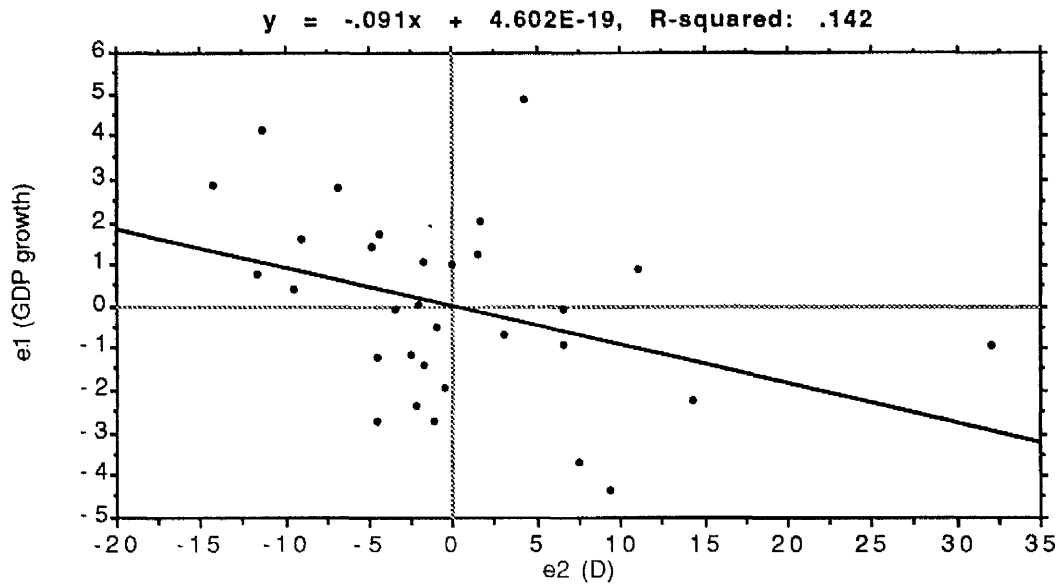
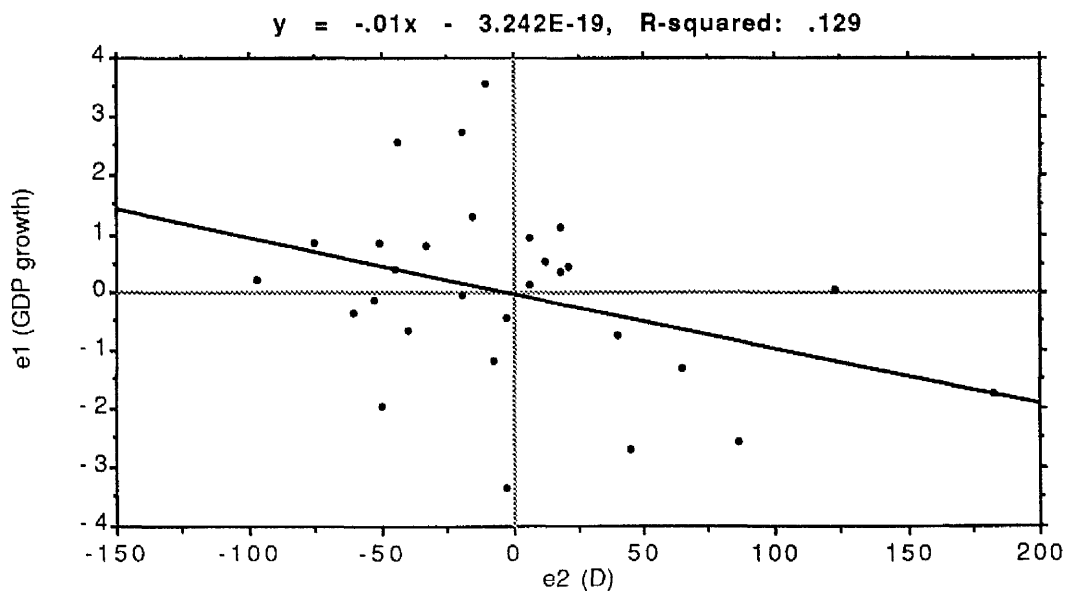


Fig. 6.10
Debt stocks and economic growth

(a) 1970-79



(b) 1980-86



6.3.8 Inflation

Equations (1), (2), & (3) demonstrate the effect of this variable on the growth rate of GDP.

It appears to be negative throughout the period under study, but it is most significant during the 1960s. The significance of this factor (as indicated by the t-values) falls markedly in the later sub-periods. Average inflation rates in SSA have steadily increased over the three sub-periods considered (from 5.9%, to 17.3% to 20.4%, excluding Nigeria), and it may be that the African economies have become better at adjusting, thereby minimising shoe-leather and menu costs.

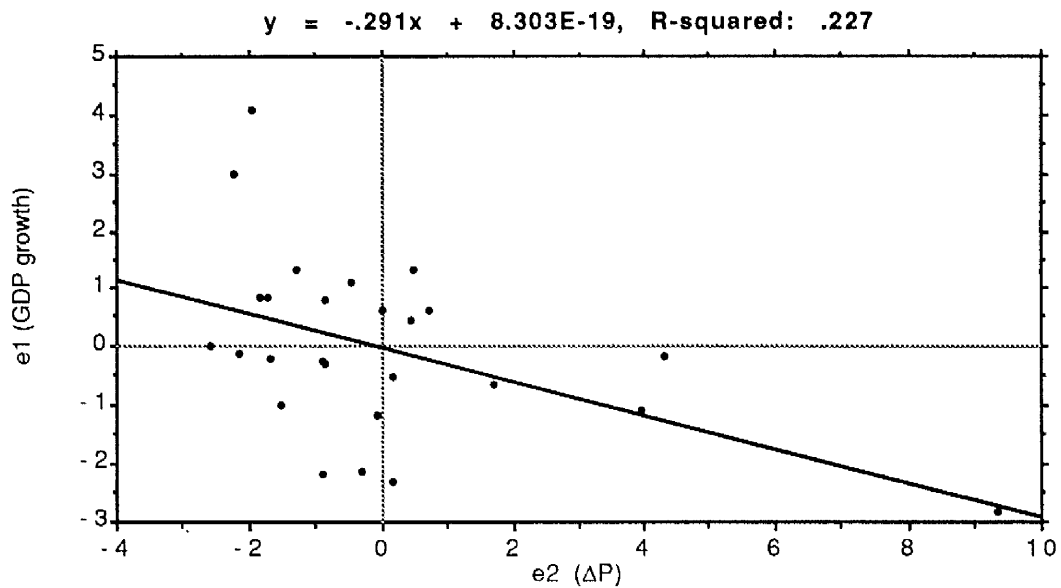
In general, the relationship between inflation and growth is not a simple one. Evidence can be found to indicate a low correlation between the two variables (e.g. Sundrum, 1990, and Thirlwall, 1974). The direction of this relationship depends on the causes of inflation, as these affect growth differently. For example, if a country experiences wars or civil disturbances (as many SSA countries have), then we could expect low or even negative growth rates but high inflation. On the other hand, inflation could be used as a means of accumulating 'forced saving' by the government, and when there are high social rates of return for investment, it may be associated with a positive effect on the growth of GDP.

Finally, if it was the case that the growth in a particular country was mainly due to export demand and a balance of payments surplus, without these foreign exchange earnings being sterilised, we would again observe high inflation associated with high growth rates.

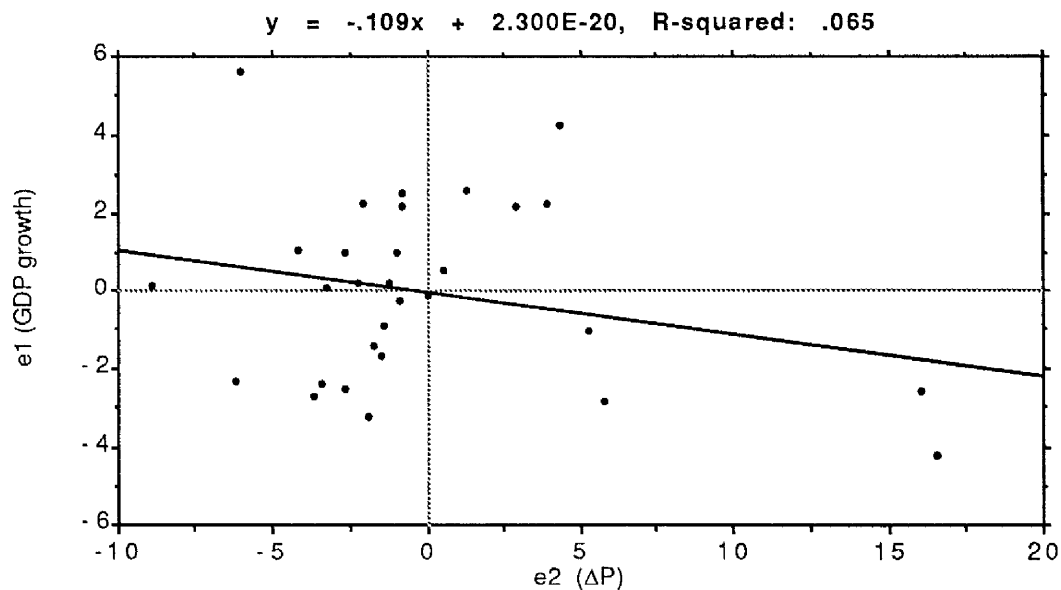
Fig. 6.11 below illustrates the relationship between growth and inflation over each decade and summarises our observations regarding this variable.

Fig. 6.11
Inflation and economic growth

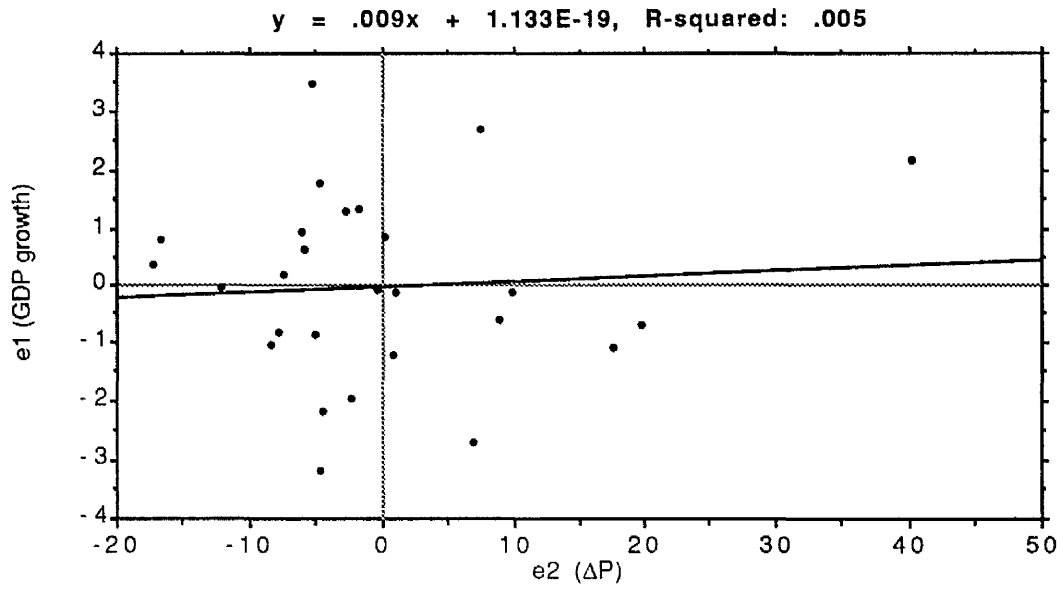
(a) 1960-69



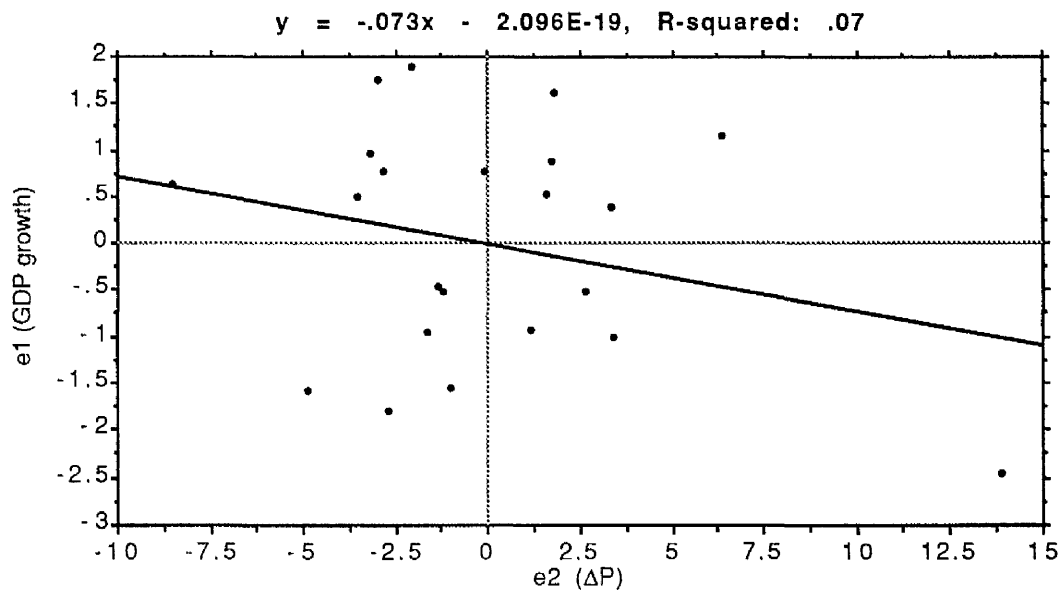
(b) 1970-79



(c) 1980-86



(d) 1960-86



6.3.9 Price Distortions

This variable is proxied by the ratio of the black market to the official exchange rate (BM/E). Equation (5) demonstrates the effect of this variable.

As expected there is a negative association between distortions of market prices and the growth rate of GDP. There is no equation for the 1960s due to the lack of data on the black market rates for this period.

In neither the 1970s nor the 1980s does this variable appear particularly significant, but it is more significant in the 1970s than in the 1980s (as indicated by the corresponding t-values).

An interesting change occurs in equation (8), where the same equation (equation 5) is performed excluding the Franc-zone countries. Here, the distortions still have a negative effect on growth (as expected), but the impact of this factor becomes more significant during the 1980s.

It is not always easy to arrive at solid quantitative conclusions when examining market distortions. Barro (1991) attempts to quantify market distortions using the deviation from the sample mean of the Purchasing Power Parity (PPP) numbers for investment goods as computed by Summers and Heston (1988).

The results of his regressions

"indicate a significantly negative relation between growth and the magnitude of the deviation of PPP"

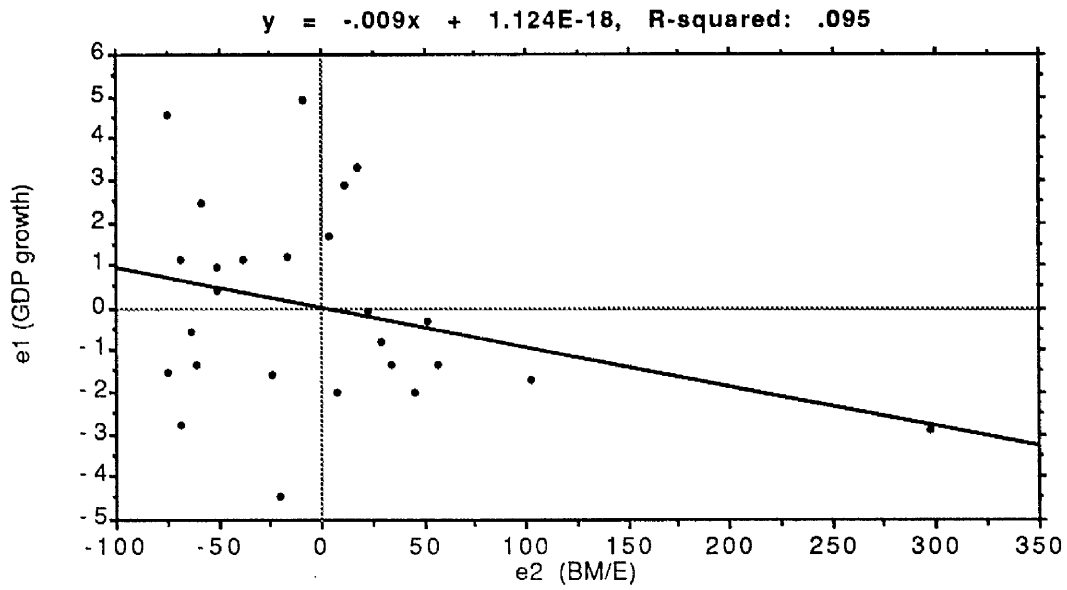
on the one hand, but the result becomes insignificant when another variable (an algebraic value of PPP) is added to the equation.

Thus the regression results of the effects of market distortions on the growth rates of GDP are mixed and, as Barro himself puts it, they are preliminary and in need of further research.

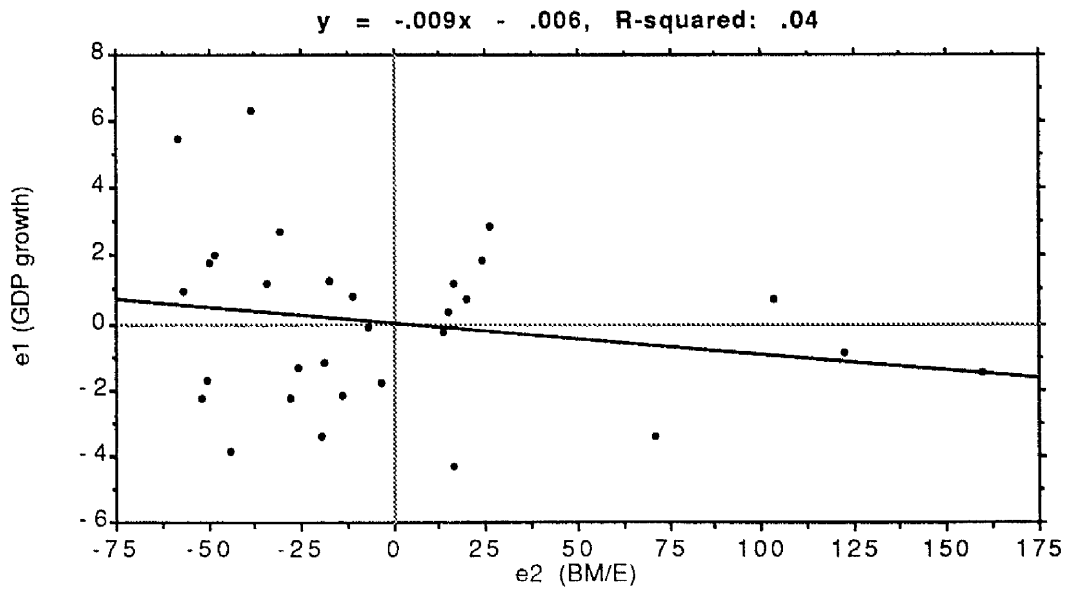
For the period 1970-86, Fig. 6.12 summarises the results of our equations regarding this variable and its association with economic growth.

Fig. 6.12
Market distortions and economic growth

(a) 1970-79



(b) 1980-86



6.3.10 Population Growth

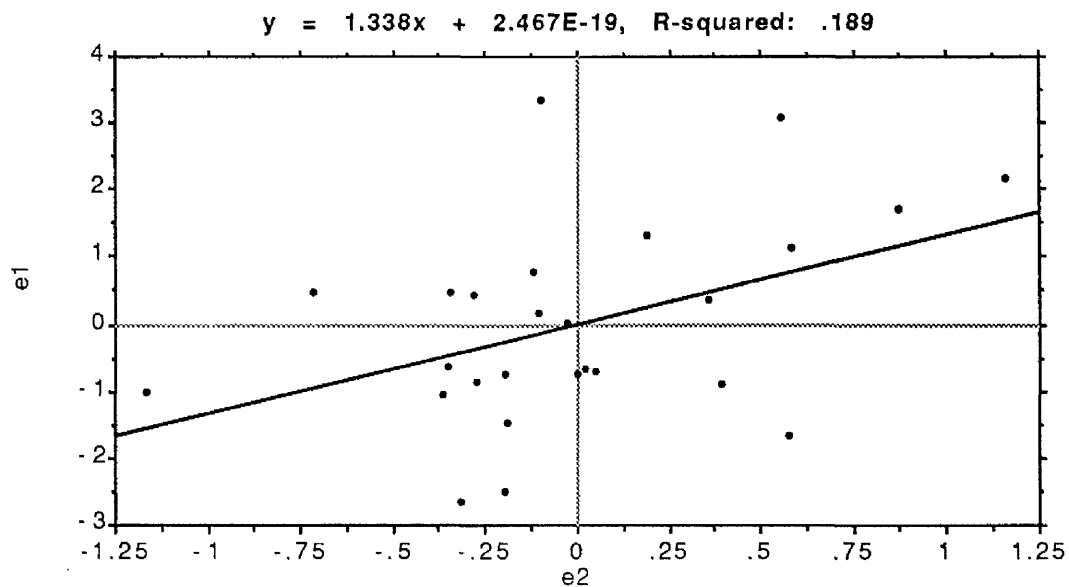
Equations (1), (3), (5), and (6) demonstrate the effect of population growth on GDP growth.

This appears to mostly be positive, and with the exception of the 1960s, insignificant. These results are not surprising if we consider the population growth rate as a proxy for the growth of the country's labour force.

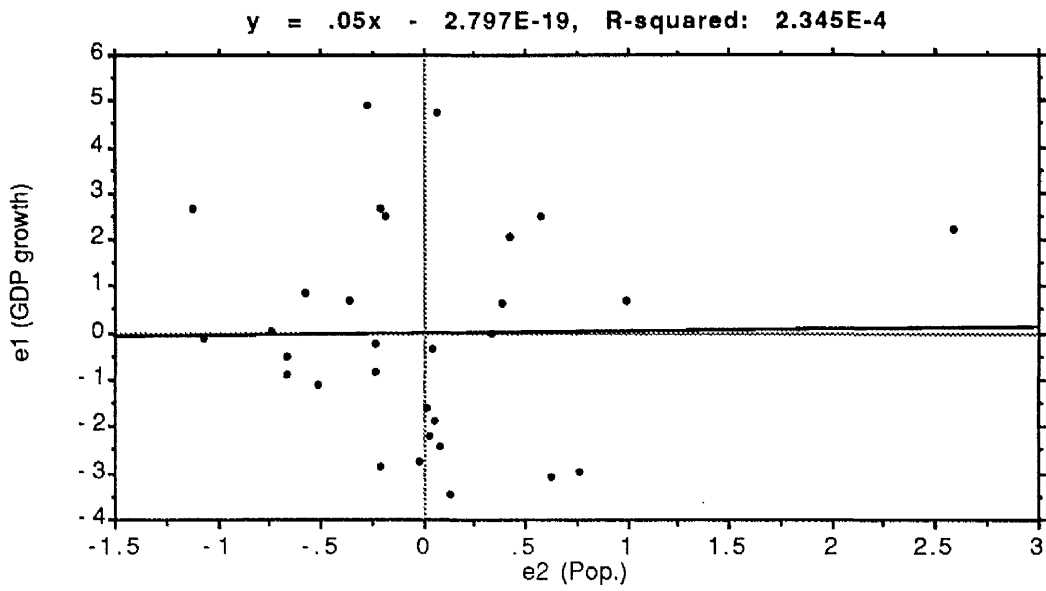
Unless a country's resources are highly stressed and scarce, the growth rate of the population should contribute positively to the growth rate of GDP (shown by a positive and significant coefficient during the 1960s). In time, if the population growth rates are maintained while a key resource, land, remains fixed, and countries have a high proportion of the labour force engaged in agriculture, then the positive contribution of the growing population can be expected to dwindle, becoming insignificant. Eventually, perhaps as a result of fragmentation of holdings and environmental deterioration, the effect of a growing population can become negative.

Fig. 6.13
Population growth rates and economic growth

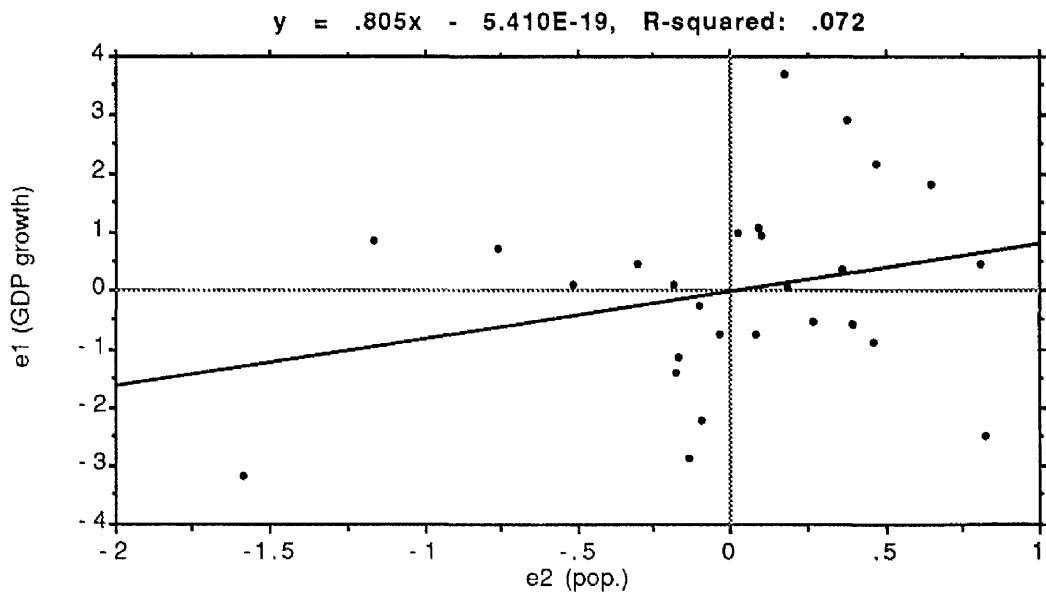
(a) 1960-69



(b) 1970-79



(c) 1980-86



(d) 1960-86

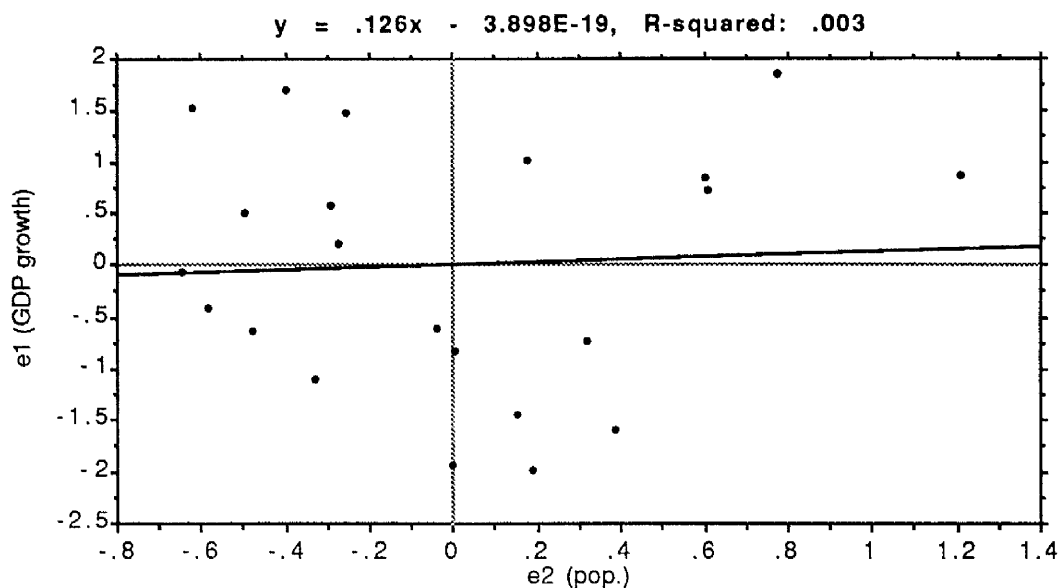


Fig. 6.13 above summarises our observations regarding the relationship between the growth rates of the population in SSA and the economic growth rate over each decade, and over the period as a whole.

6.3.11 Interest Rates

Real lending rates of interest are included in equation (7) to see if these rates would have any direct significant effect on the growth rate of GDP.

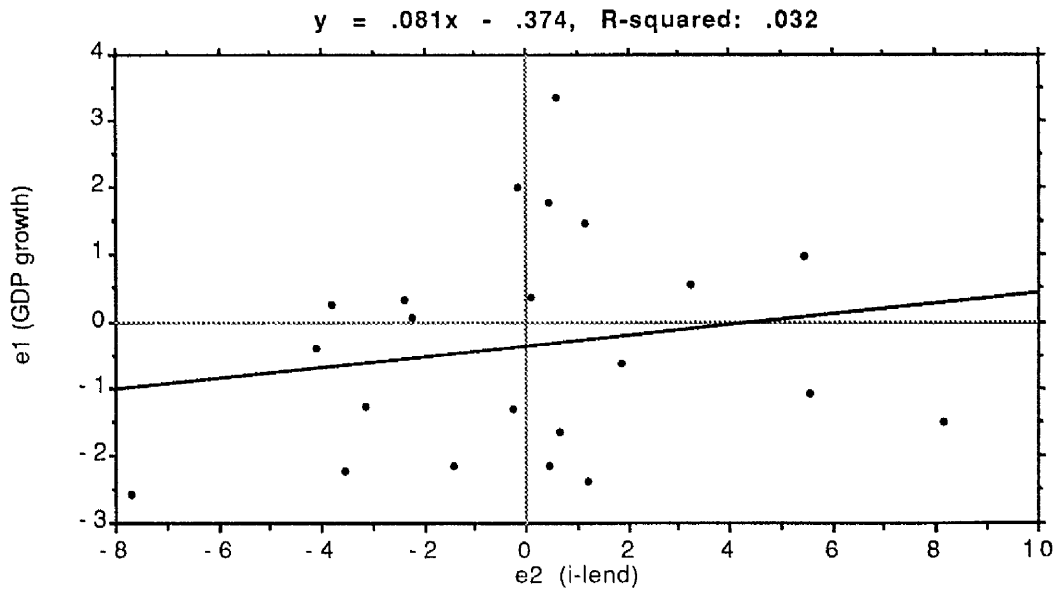
The results indicate a negative but insignificant effect for both the 1970s and the 1980s at the 10% level. (No evidence for 1960s is available, due to the lack of reliable data).

There are two, opposite, possible effects of interest rate changes. If real interest rates rise, this should discourage investment and lower growth. On the other hand, low interest rates (often negative in real terms) have often meant credit being allocated on non-commercial criterion. In this case, low interest rates are associated with inefficient investment allocation and low growth. This was expanded upon in the analysis in chapters two and three.

Fig. 6.14 and Fig. 6.15 below summarise the observed relationship between real lending and deposit rates of interest and growth, over the period 1970-86. The association between i-lend and growth during the 1970s appears positive, indicating perhaps, the fact that real lending rates in this period were very low and, at times, even negative. Clearly, this encouraged investment and accordingly stimulated growth. The situation was reversed during the 1980s, as real lending rates became much higher and positive. The opposite was true for the real deposit rates of interest, which appear to have been very low and, at times, negative. The situation was further worsened by the fact that the role of financial intermediation was negligible (as mentioned in sections 6.4 and 6.5 below).

Fig. 6.14
Real lending rates of interest and economic growth

(a) 1970-79



(b) 1980-86

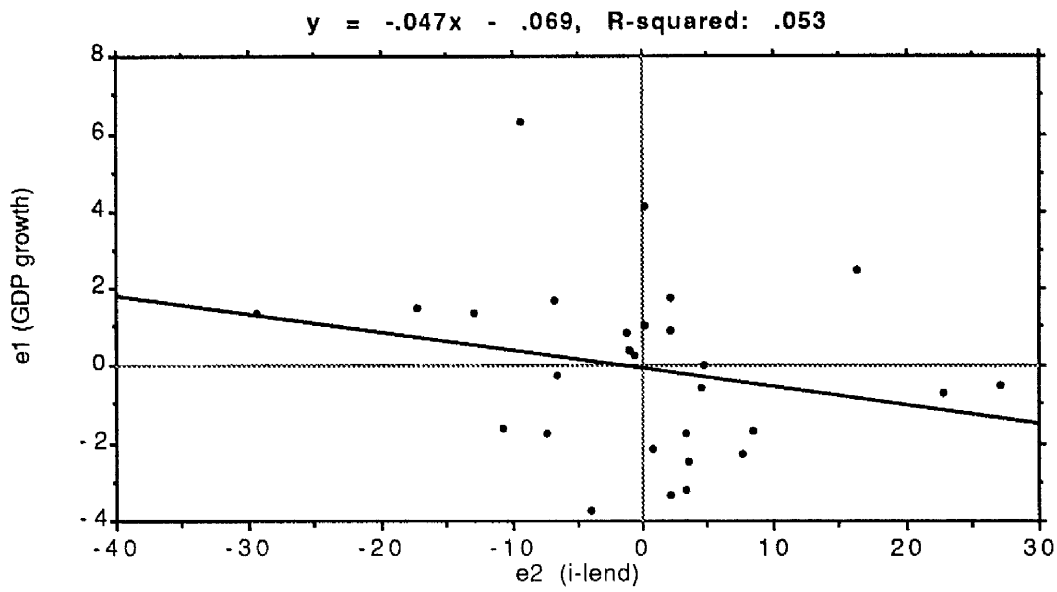
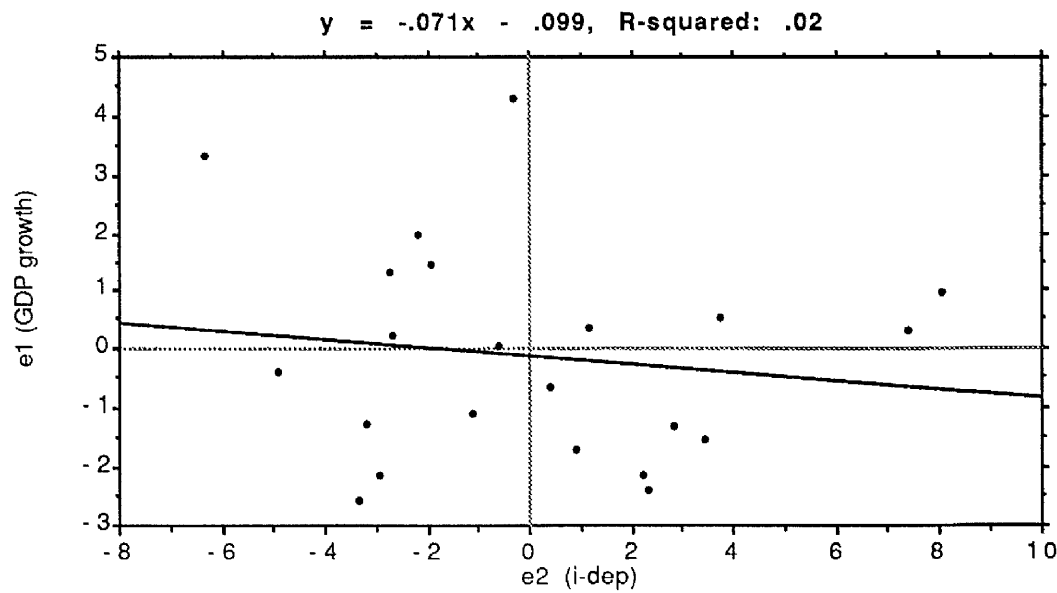
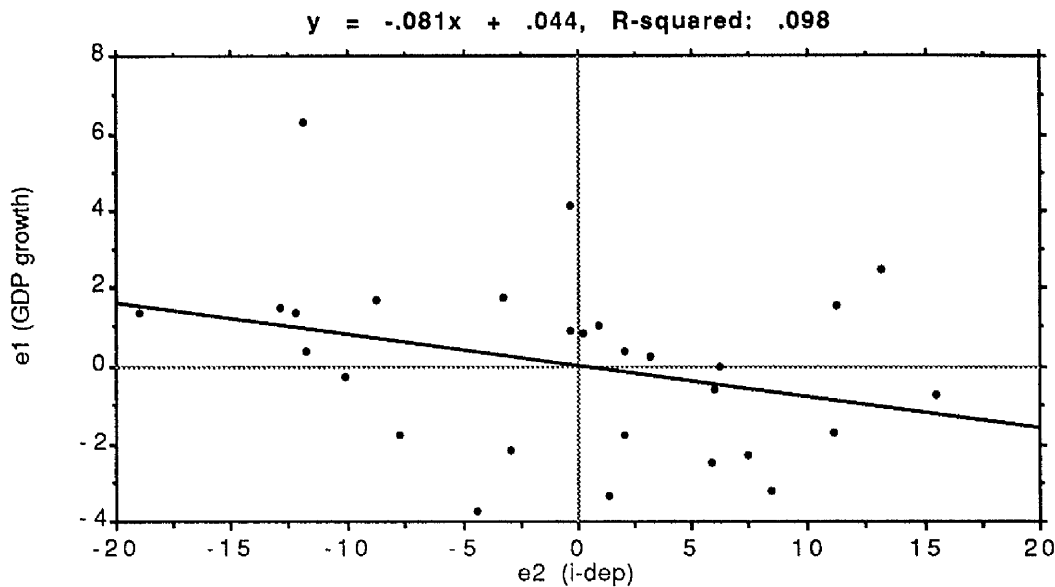


Fig. 6.15
Real deposit rates of interest and economic growth

(a) 1970-79



(b) 1980-86



6.3.12 Overall Evaluation

The results of these regressions indicate that the most significant factors affecting the growth of SSA are the growth rates of exports and imports, the investment rates, political instability, and, in the later decades the total debt servicing ratios. The other factors considered appeared to be significant at times, and not significant at others.

The explanatory power of the regressions as given by the values of 'R²' appear satisfactory, ranging between 0.17 and 0.77, being lowest on those occasions where an equation was specified especially to test the significance of a particular factor, thus leaving room for mis-specification error. For those equations with five or more explanatory variables, the value of 'R²' rises significantly.

This evaluation is perhaps strengthened when comparing our results with those of other similar studies, such as Barro (1991), where the range of the 'R²' values was between 0.49 and 0.63 for a much larger sample of

countries (up to 98 in most equations). On the other hand, Wheeler's results (1984) for the X-sectional regression produced an 'R²' of 0.86, bearing in mind that it was for one equation over the period 1970-80 only.

6.4 The Investment-ratio Function

In this section the first of two components of overall GDP growth, the savings-ratio or the investment ratio function, is examined. The study will be based on the simplified Harrod-Domar equation of the growth rate, discussed previously in chapter two.

Thus, given that $g = s/v$,

the determinants of 's' (the savings or the investment ratio) are analysed.

It is expected that the following factors influence the savings ratio 's' :

G	The ratio of government consumption to the Gross Domestic Product
GNP _h	Average per capita income
i-dep	Real deposit rates of interest
Pol-In	Political instability
ΔP	Inflation
Pop	Population growth rates

It is expected that there will be a negative association between the size of the government sector and the savings ratio, primarily due to the crowding-out and distortionary effects. However, if it was not the case that governments in SSA 'replace' private savers and investors but complement them instead, then there might be a positive association between 's' and G/GDP.

With regards to per capita income, it is expected that there is a positive relationship between this variable and the savings ratio. As income rises, a higher proportion of it is saved than at lower levels of income, as at low levels, there is little margin over subsistence.

A positive relationship between real interest rates and the savings ratio is also expected, as we are considering the deposit rates of interest which induce higher savings.

Political stability not only affects domestic savings behaviour directly, but it also has an indirect influence on the savings that end up overseas in safer investment havens. This is the endemic problem of capital flight which inevitably accompanies political instability. Therefore, we would expect a negative relationship between political instability and the savings ratio.

High inflation levels also deter saving, through effects such as 'shoe-leather' and 'menu' costs, which leave less surplus over subsistence for saving. We have allowed for the effect of inflation on the levels of interest by employing the real rates of interest, not the nominal ones.

A high rate of population growth indicates a high dependency ratio and therefore, a low savings rate. Population growth rates and the savings ratio are thus expected to be negatively related.

Using cross-sectional data for 32 Sub-Saharan African countries (those for which data is available), OLS regressions were performed for the savings-ratio function.

Chapter four provided a detailed description of the data collection process and the countries and sources involved. The results of the regression and the values of the coefficients of the independent variables are given below in Table (6.2).

The table indicates that during the 1960s, the effect of G/GDP was not only positive, but also significant (as given by the t-values at the 5% level). This is perhaps explainable by the fact that the government was the biggest 'saver' during that period. G/GDP was the most significant factor in the

1960s and the 1970s, but it took second place during the 1980s and for the period as a whole (1960-86).

It was superseded by the levels of per capita income in the latter periods. Therefore, the level of GNP/h appears to be the next most significant factor, especially when pop-gr is dropped out of the equation.

Both political instability and inflation levels appear to have negative but insignificant effects on the savings ratio. A likely explanation is that the lack of significance of political instability and inflation in the saving process reflects the fact that it was the government which was the major force in mobilising savings and investment.

It was not possible to obtain interest rates for the 1960s and so ΔP was used as a proxy for this variable in the first two equations.

Table 6.2

Determination of the investment ratio.

Dependent variable : GDI/GDP (the Saving or Investment rate)

t-values in parentheses

Equation 1

	Const.	Pop	GNP/h	G	Pol-In	ΔP	R ²	n
1960-69	2.08	1.78	.006	.52	-.04	-.15	.45	32
		(.96)	(1.49)	(2.95)	(.22)	(.77)		
1970-79	11.92	-.24	.007	.40	-.34	-.008	.40	30
		(.13)	(1.47)	(1.91)	(1.30)	(.31)		
1980-86	17.88	-.14	.01	.10	-.06	-.14	.38	28
		(.06)	(2.48)	(.35)	(.44)	(1.39)		
1960-86	6.11	-1.14	.01	.73	-.04	-.12	.73	28
		(.80)	(5.01)	(3.9)	(.24)	(.99)		

Equation 2

	Const.	GNP/h	G	Pol-In	ΔP	R ²	n
1960-69	7.51	.006 (1.71)	.46 (2.79)	-.09 (.45)	-.21 (1.11)	.43	32
1970-79	11.34	.007 (1.70)	.40 (1.95)	-.33 (1.32)	-.004 (.02)	.40	30
1980-86	15.26	.005 (2.71)	.23 (1.02)	-.07 (.55)	-.13 (1.34)	.40	29
1960-86	6.57	.01 (4.84)	.52 (3.18)	-.06 (.33)	-.15 (1.17)	.69	29

Equation 3

	Const.	GNP/h	G	Pol-In	R ²	n
1960-69	6.40	.006 (1.57)	.49 (2.98)	-.06 (.32)	.40	32
1970-79	11.38	.007 (1.63)	.40 (2.11)	-.33 (1.53)	.40	30
1980-86	12.35	.006 (3.01)	.30 (1.31)	-.11 (.87)	.35	29
1960-86	4.74	.01 (4.79)	.56 (3.46)	-.10 (.57)	.67	29

Equation 4

	Const.	GNP/h	Pop	Pol-In	G	ΔP	i-dep	R ²	n
1970-79	5.72	.009	-1.71	-.33	.33	-.20	.25	.59	22
	(1.84)		(.98)	(1.08)	(1.69)	(.69)	(.67)		
1980-86	17.94	.005	-.07	-.13	-.03	-.02	.29	.41	26
	(2.37)		(.03)	(.66)	(.08)	(.07)	(.78)		

Equation 5

	Const.	G	GNP/h	Pol-In	ΔP	i-dep	R ²	n
1980-86	15.48	.17	.005	-.09	-.06	.19	.41	27
		(.67)	(2.50)	(.47)	(.26)	(.56)		

Equation 6

	Const.	G	GNP/h	Pol-In	i-dep	R ²	n
1970-79	9.18	.30	.01	-.18	.34	.55	22
		(1.67)	(2.54)	(.66)	(1.23)		
1980-86	15.17	.15	.006	-.10	.27	.41	27
		(.64)	(2.78)	(.53)	(1.73)		

The deposit rates of interest have a positive but insignificant effect in all but one equation (Equation 6). In this formulation, the inflation rate was dropped out of the equation, as the rates of interest are measured in real terms, thus discounting inflation. The interest rate is significant at the 10% level. It was not possible to perform this equation for other sub-periods due to data problems. The fact that they appeared significant in the 1980s implies the increasing importance of the operation of the market and financial intermediation, as the rates of interest in the earlier periods tended to be government-determined.

The above findings are in some ways surprising (especially the roles of G/GDP and political instability - the latter being expected to play a more significant role in the saving process). The values of the 'R²' in the above table are not particularly high, but they are satisfactory, with only two sub-equations scoring below 0.40. However, the best results appear to be those given for the whole-period equations, indicating perhaps, that the factors determining the investment ratio (or the savings ratio) are easier to quantify over longer time periods than over the relatively short term.

6.5 The ICOR function

The ICOR is a measure of the efficiency with which capital is utilised. A low 'v' indicates a more efficient utilisation of capital. If an economy is working below capacity, very little extra capital is needed to increase output and substantial growth may be associated with a relatively small incremental capital-output ratio (ICOR).

The factors examined for their influence the incremental-capital-output ratio are the following :

G	The size of government consumption relative to GDP
Pol-In	Political instability
i-lend	real lending rates of interest
LIT	Literacy rates

BM/E Ratio of the black market to the official exchange rates (an indicator of distortions to the price system)

It is expected that there will be a positive association between G/GDP and 'v', indicating the lower efficiency in capital productivity that accompanies a large government sector. (This is expected to be true in SSA because of the wastage and inefficiency that, it has been argued, exists in many developing countries with large governments sectors).

The effect of political instability on the ICOR is positive, indicating the increased inefficiency of capital use in politically unstable environments. Instability causes disruption of production, which results in reduced utilisation of capital, hence the positive relationship between the two variables.

The role of the real lending rates of interest is expected to be negative due to the fact that higher rates limit investment to only high productivity projects. Also, higher rates of interest reduce investment and thus reduce the investment-to-GDP ratio.

Higher rates of literacy are negatively associated with the ICOR as increased education should lead to a more efficient and productive use of capital.

Finally, taking the ratio BM/E as a proxy to distortions to the price and the market system, this variable should be positively associated to 'v' since the increased distortions imply added misallocation of capital and hence increased inefficiency in its utilisation.

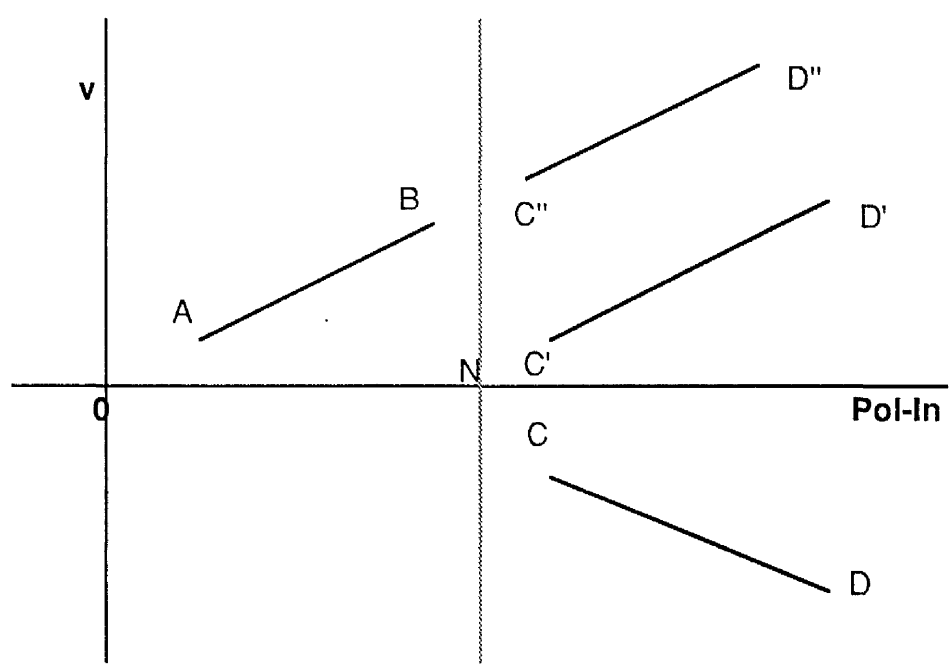
Again, a cross-sectional OLS regression was performed for a sample of thirty-two SSA countries. The results of those regressions for the period 1960-86 (and the sub-periods) are presented in Table 6.3 below. The results for the 1960s are presented separately, as two particular variables affecting 'v' were not available for this period - BM/E and i-lend.

An added complication in the quantification of this function was the fact that, for the 1970s and 1980s, some countries had a negative ICOR ratio. This meant that as conditions worsened, for example, as market distortions or

political instability increased, it appeared that a point was reached where 'v' was no longer positive, but became negative, implying an actual fall in output with increments of capital, or a decrease in the capital stock itself.

This is not very easy to interpret. To illustrate this behaviour of the ICOR, Fig. 6.16 presents the observed association between 'v' and political instability.

Fig. 6.16
Association between 'v' and Political Instability in SSA



As instability increases, the ICOR increases, indicating a lower efficiency of capital utilisation, and falling increments to output (since $v = \Delta K / \Delta Y$) from existing (or increasing) capital stock. Eventually, a point is reached (N), where further worsening conditions in the form of higher political instability, are associated with negative 'v' or ICOR values. From that point onwards, increases in instability are associated with an increasingly negative ICOR (along CD).

A negative 'v' implies that the increments in output (ΔY) between $t = 1$ and $t = 0$ are negative, i.e. $\Delta Y_{t1} < \Delta Y_{t0}$. That is to say, total output has actually fallen between $t=1$ and $t=0$.

This can only result if other, external, factors have contrived to reduce output, or to leave some of the existing capital redundant. For example, political instability could have become so severe, that the labour operating the capital is reduced to less than the minimum required for the operation of machines (assuming that capital represents physical capital only - machinery, equipment, and buildings). Alternatively, the production process could have become so overstaffed, that the marginal product of labour has become negative (too many labourers per machine impeding each other).

In the above diagram (Fig. 6.16), C'D' and C"D" represent what was done to obtain the regressions reported in Appendix II. Countries reporting negative 'v' values were given a positive 'v' (moving to C'D'), and a dummy variable was employed, having a value of one for each negative 'v' country, and zero otherwise.

The set of equations presented in table 6.3 have been performed excluding 'negative v' countries from the sample. Over the period 1960-69, there were no negative 'v' countries. However, over 1970-79, three countries exhibited negative 'v' values and were excluded. These were Ghana, Uganda, and Zaire. Over the period 1980-86, seven countries were excluded, those being Cote D'Ivoire, Liberia, Madagascar, Niger, Nigeria, Togo, and Zambia.

As mentioned above, further regressions were performed including those "negative-v" countries, but also including a dummy variable to take into account the fact that they had negative ICOR values. This was done in order to explore the effect of their inclusion on the ICOR and on the significance of the factors affecting it. These results are presented in Appendix II, although they are not particularly satisfactory.

Table 6.3
 Determination of the ICOR
 OLS Regression results
 Dependent variable : v (excluding negative 'v' countries)

Equation 1

1960-69 only

Const.	G	LIT	Pol-In	R ²	n
.96	.15 (2.21)	.03 (1.15)	.17 (2.10)	.19	32

Equation 2

	Const.	G	LIT	Pol-In	BM/E	ΔP	R ²	n
1970-79	-53.38 (.70)	.38	-.10 (.58)	1.32 (1.85)	.14 (1.40)	3.37 (3.88)	.63	30
1980-86	25.43 (.06)	-.05	-.36 (2.05)	.55 (2.07)	.03 (.30)	.04 (.15)	.43	20

Equation 3

	Const.	G	LIT	Pol-In	BM/E	R ²	n
1970-79	-33.47	.01 (.01)	-.07 (.34)	1.55 (1.74)	.31 (2.81)	.40	30
1980-86	25.70	-.11 (.16)	-.35 (2.12)	.55 (2.22)	.04 (.48)	.43	20

Equation 4

	Const.	LIT	Pol-In	BM/E	R ²	n
1970-79	-33.34	-.07 (.35)	1.55 (1.78)	.31 (2.90)	.40	30
1980-86	21.88	-.30 (2.05)	.36 (1.67)	.04 (.73)	.29	23

Equation 5

	Const.	G	LIT	Pol-In	BM/E	i-lend	R ²	n
1970-79	14.16	-.15 (.36)	.23 (1.54)	-.14 (.24)	-.07 (1.03)	-.28 (.35)	.16	22
1980-86	19.51	-.51 (.57)	-.23 (1.21)	.33 (.99)	.09 (1.02)	.25 (.56)	.31	18

For the period 1960-69, the equations indicate that the most significant factors affecting 'v' during this period appear to be political instability (Pol-In) and the size of the public sector as indicated by the variable G/GDP. As expected, both are positively associated with 'v' and both are significant at the 5% level as indicated by the t-values for each variable. This implies that the greater the government intervention in the running of the economy, the less productive is the utilisation of capital due to government wastage and inefficiency. Furthermore, the greater the political instability, the lower the productivity of capital due to the above mentioned disruptive effects on the production process.

The effects of literacy rates appear insignificant as given by the t-statistics. What is disappointing, however, is the low value of R² - the explanatory

power of the variables combined. There are clearly other factors affecting capital productivity which are not included.

For the period 1970-79, it appears that the most significant factors were BM/E and Pol-In. For BM/E, this indicates that distortions in market prices have a positive effect on 'v', i.e. the more the distortions the lower the ICOR and so the more inefficient was the utilisation of capital. This was expected, as non-market allocations of capital (i.e. through government imposition) produce less efficient utilisation of capital.

The significance of political instability was also expected, as it is clear that greater instability produces lower efficiency in capital utilisation, due to the disruption of the production process.

Throughout the above table {with the exception of equation (5)}, the real lending rates of interest were excluded due to the bias introduced by the reduction of sample size from 32 to 18. When included (equation 5), this variable reduced the explanatory power of the equation by a significant amount. It was clear that excluding it was more advantageous than including it. In equation (1), ΔP (the inflation level) was used as a proxy for the effect of interest rates on 'v'. The results indicate that this factor was significant in the 1970s but not in the 1980s, perhaps implying that the African countries became increasingly able to adjust to higher inflation rates.

For the period 1980-86, the most noticeable change is the increased significance of the literacy rates as a factor affecting the ICOR (at the 5% level). This indicates the increasing importance of education and greater investment in human capital, in raising the productivity of capital.

Another feature of the 1980s equations is the lack of significance of BM/E in its effect on the ICOR. This may be a reflection of the fact that in the 1980s, an increasing number of SSA countries were adopting IMF (and IMF-style) adjustment programmes, thereby reducing the (previously sizeable) distortions in market prices.

The values of the R^2 in the 1970s and 1980s are higher than those for the 1960s equation, implying perhaps the importance of BM/E in the process. However, all those values are disappointingly low overall, probably

indicating that the factors included in the above equations of table 6.3 are not sufficient in explaining the behaviour of the ICOR, and that further research is necessary in this field.

6.6 Internal Vs. External factors

As a summary measure of the explanatory powers of the internal versus the external factors in the growth process of SSA, two equations, (10) and (11) in Table 6.2 above, were performed in an attempt to assess how much of the growth rate of GDP is accounted for by the internal or endogenous factors, and how much by the external or exogenous factors.

The results are interesting, but they are also preliminary. R^2 is used as the indicative value of the explanatory powers of each group of variables.

Table 6.4

Internal Versus External factors

Values of R^2 as given by equations (10) and (11) in Table 6.1

Period	% explained by external factors	% explained by internal factors	%un - explained by either	Total
1960-69	07	38	55	100
1970-79	49	44	07	100
1980-86	13	75	12	100
1960-86	22	71	07	100

The table above indicates that in the 1960s, the internal factors played a more significant role in accounting for Sub-Saharan Africa's growth performance than the external factors. However, the largest part appeared

'unexplained', perhaps implying the importance of the roles of factor productivities - the 'measure of our ignorance' - or what Denison called " the residual" (1962 and 1967).

In the 1970s, there appears to be a marked shift in emphasis, with the external factors becoming more significant than the internal factors, and very little was left unexplained. This is not surprising, as the 1970s subjected most of the African countries to the very harsh external shocks of the increases in energy prices.

In the 1980s, the situation was again reversed, with the internal factors becoming more significant, implying greater policy mismanagement by the African governments, and perhaps failure to adjust to the shocks of the 1970s.

The overall picture for the whole period, 1960-86, also implies that the greater part of the explanation of the growth performance of the continent lies in the internal factors and policies adopted by many of the Governments of Africa.

6.7 Summary

The main conclusions that could be drawn from the growth equations are that the most statistically significant factors affecting the growth of GDP are the trade variables, as given by the growth of exports and the growth of imports, and the investment (or saving ratio) variable. The prominence of these factors was expected, as both traditional growth theory and the analysis of SSA's predicaments indicate this. These are followed in importance by political stability - a factor that is necessary but not sufficient to foster economic growth.

In the 1980s, the role of external public debt becomes important, due to the role that debt servicing plays in reducing the amount of foreign exchange available for the satisfaction of import requirements.

The results of the saving ratio regressions indicate that the levels of per capita income are an important determinant of saving behaviour, but it was also found that the governments of the SSA countries have played a positive

and significant role in the process of saving mobilisation since independence, but one which has diminished in the later years.

The equations for the incremental capital-output function indicated that for the 1960s the most significant factors in the process were the size of the government sector and political instability, both displaying a positive association with the ICOR, implying the need for increased political stability and a smaller government sector involvement in investment in order to increase the efficiency of utilisation of capital.

During the 1970s and 1980s, the picture changes primarily due to the inclusion of the variable BM/E, the ratio of the black market to the official exchange rates, as a proxy to distortions in the market price. For the 1970s, this factor is significant implying that the more distorted the market price system, the lower is the efficiency of capital utilisation. However, the significance of this factor is greatly reduced during the 1980s, with political instability and literacy rates exhibiting the most significant effects on the ICOR.

In all the equations, a significant proportion of the variance of the dependent variable is not explained. This may indicate that, in addition to the problems of measuring these dependent variables accurately, there are almost certainly important influences on the growth process that have not been incorporated into the analysis.

Addendum

In an attempt to further consolidate the results of the OLS and TSLS cross-section regressions of economic growth, panel regressions were performed, whereby the same number of variables and countries were used in a number of equations, but the time periods were divided into five-year periods (1960-64, 1965-69, 1970-74, 1975-79, 1980-84). This would provide the added advantage of a larger sample and a more detailed breakdown of the effects of the factors involved on the countries concerned. The results of the panel regressions are detailed in Appendix IV, along with a summary of the main conclusions of those regressions.

One of the main purposes of performing the panel regressions was to further test the endogeneity of the independent variables employed in the analysis. More specifically, some of the endogenous growth debate concludes that factors such as export growth, import growth, aid and debt levels, and other factors may be endogenous to the economic growth process, whereby reverse causality is thought to exist between the growth rate of real GDP and, for example, export and import growth. Causality tests were therefore performed on the suspect variables, in an attempt to test if such an endogeneity has existed in the history of SSA's growth process over the period under study. The results, presented in Appendix IV, demonstrate that no strong endogeneity is perceptible.

CHAPTER SEVEN

SUMMARY AND CONCLUSIONS

7.1 Introduction

In this chapter, a summary of the main results of this thesis is presented, and the empirical findings are related to the main policy issues in Africa. Some further thoughts are also expounded concerning the roles of the World Bank and the IMF in Africa, and finally, there is a brief discussion regarding the approach to Sub-Saharan Africa's economic problems - past, present and future.

We will begin with a summary of the econometric work of the previous chapters.

7.2 Summary of the Regression Results

Chapter six presented the results of the regression equations of three functions : the economic growth function, the investment-ratio (or saving ratio) function, and the incremental capital-output ratio function. In the following three sub-sections, the main results of each are summarised.

7.2.1 The Economic Growth Function

The main conclusions from these equations were that the most consistent and significant factors affecting growth over the whole period considered are the rates of export and import growth, the level of gross domestic investment, and political stability. In the later years of the study (1980-86), total debt-service levels became a significant factor.

The effects of literacy rates, debt stocks and inflation rates were less consistent than the above factors, exhibiting significance over parts of the period studied, but not all.

The results regarding the effects of population growth rates, the ratio of Government consumption to GDP, aid levels and market distortions (as proxied by the BM/E ratio), exhibit generally low statistical significance, (with the exception of the effects of population growth rates in the 1960s, which appear to be positive and significant, and the BM/E ratio in the 1970s).

It is interesting to note that two factors in particular, population growth and the size of the public sector, appear of generally low significance. They both have ambivalent effects. Government can raise the investment ratio, but inefficient government investment will raise the ICOR. Population growth raises productive capacity, but may, through raising the dependency ratios, lower the savings ratio. Hence, both appear to have a net insignificant effect on growth.

An attempt was made to explore the relative impacts of internal and external factors on growth performance [equations (10) and (11) of Table 6.1, chapter six]. If the regression results are interpreted as the independent variables 'causing' or 'explaining' the movements in the dependent variable, it appeared that over the 1960s, the growth rates of SSA were determined more by internal factors than by external factors. In the 1970s, the situation was reversed with the external factors dominating, but in the 1980s, again, internal factors became the dominant influence on growth. For the period as a whole (1960-86), the internal factors appeared more than three times as significant as the external factors.

The tentative implications of the above are that internal factors - mismanagement and misguided policies by the domestic authorities - are largely to blame for SSA's predicament, with the obvious exception of the 1970s.

Nonetheless, the external influences have been important. These have primarily come from the fluctuations of the international prices for the primary exports of Africa, and developed-country policies of restrictions on manufactured imports since the late 1970s. In many ways, the old 'aid or trade' debate, could now more accurately be described as the 'debt and aid, or trade' debate. Trade, it is argued, remains generally to the benefit of the richer countries, and within the poorer countries, its benefits tend to accrue to a small elite of people (Todaro, 1989). Yet, as Todaro puts it, the question

is not 'to trade or not to trade' as trade is essentially beneficial, it is more 'with whom and by how much to trade'. Many LDCs do not have such options. Therefore, the new approach to trade, may need to come from within the LDCs, rather than being imposed upon them by the richer trading nations. This issue will be discussed in section 7.4 below.

7.2.2 The Investment-ratio

The analysis of this function resulted in the conclusion that the level of per capita income was the most significant factor determining savings behaviour over the whole period, being statistically most significant in the 1980s. This was followed by the size of government as proxied by the ratio of government consumption to GDP. During the 1960s, the effect of the government sector was stronger than that of the levels of per capita income, but this was reversed in the following decades.

This indicates that, perhaps, the government was a significant 'saver' in the majority of the SSA countries, particularly in the immediate post-independence period.

This conclusion - that the SSA governments played a positive role in mobilising savings (and hence investment), is credible given that a large proportion of Africa's population are close to subsistence income levels (World Bank, 1981 and 1989).

The other factors included in the equations, (inflation, political instability, the real deposit rates of interest, and population growth rates) did not exhibit any significant influence on saving behaviour throughout the period under study. This strengthens the suggestion that the governments were the most powerful force in the mobilisation of savings, and that the private financial sector was less efficient or effective in doing so.

7.2.3 The Incremental Capital-Output Ratio (ICOR)

The results of these regressions are less clear or consistent than those of the above function. What is clear is that distortions to the free workings of the market, as proxied by the ratio of the black market exchange rate to the

official rate, had a positive and statistically more significant effect on the ICOR during the 1970s, than in the 1980s, indicating, perhaps, the effects of the increasing application of adjustment programmes in the 1980s by many SSA countries.

The effect of political instability was generally more significant (statistically) than that of any other factor, indicating the important role of stability in fostering efficiency in capital utilisation. The effect of literacy rates was significant during the 1980s alone, suggesting the increasingly important role of education in raising the efficiency of capital utilisation.

As in the previous function, the role of interest rates appeared insignificant. This possibly indicates the weak role of the private banking sector as financial intermediaries, or that the rate of interest did not reflect the real price of capital, and therefore, it did not play an important role in its efficient allocation between different uses.

7.3 Policy Implications

Some policy conclusions can be deduced from the results of our empirical findings for Sub-Saharan Africa. These are discussed below. The main policy issues are regarding the roles of the market prices, investment levels, political instability, the size of the government sector, population growth, outward-inward orientation, aid and debt, and the role of other (less significant) factors included in the equations.

7.3.1 Market Prices

This was proxied by the ratio of the black market to the official exchange rates. In general, countries with significant divergences between official and market exchange rates, tend also to be characterised by having other prices not reflecting scarcities. It also indicates the direct importance of having exchange rates which reflect the market valuation of the currency. The results emphasize the importance of prices which are based on relative scarcities. The most significant effect appeared to be on the ICOR - the indicator of the degree of efficiency in the utilisation of capital. Reduction in

government intervention, in terms of fixing prices in certain markets, such as agricultural producer prices, interest rates and exchange rates, can therefore, be expected to have a positive effect on growth. (More on the role of government in section 7.3.4 below).

Therefore, reducing the distortions in market prices has an effect on the growth rates of GDP, through improving the allocation and utilisation of capital, and taking advantage of the gains from international trade. This is particularly important for SSA as evidence points to the existence of significant black market activity in most of the countries in the continent (Hodd, 1991, Pick and Cowitt, 1960-87).

7.3.2 Investment levels

The empirical findings indicate that investment (and saving) levels are one of the most significant factors affecting the growth of the SSA countries (the other two being export and import growth levels). This implies the need for policies to attract further investment funds, and to a greater mobilisation of domestic savings.

Therefore, there appears to be a need for policies to liberalise interest rates, increase the role and efficiency of financial intermediaries, and perhaps, create special enterprise zones (as in Mauritius), and minimise the effects of the factors that lead to capital flight. One important factor in this regard is political instability.

7.3.3 Political Instability

The index used for instability produced statistically significant results in some equations but not in all. As previously discussed (in chapter six and section 7.2 above), this depended mostly on the period under consideration. Policies to improve stability are not easy to identify.

In the medium-longer term, it is possible that an increase in democratisation, so that any popular discontent could be expressed through effective, democratic and strong institutions will improve stability.

The evidence of a two-way relationship between growth and stability suggests that a virtuous circle is possible, with improved economic policies leading to faster growth, which will improve stability, thus having a positive feedback on growth.

7.3.4 Size of Government

Our results have indicated that the size of the government sector, as measured by the ratio of government consumption to GDP, has no uniformly significant direct effect on economic growth.

However, given that we have also found that the government was a significant force in the mobilisation of savings, and hence investment, and that distortions to the market price (inevitably government instigated) were highly significant in affecting the ICOR, we can conclude that the indirect effect of the size of government on growth is important.

The role that the size of the public sector plays in affecting economic growth has perhaps been over-stressed in the literature, particularly by the IMF and previously, the World Bank (discussed in section 7.4 below). More important than the actual size of the public sector is the efficiency of this sector's operation. It is the latter which is more detrimental to economic growth than the former. It may be true that

'Africa needs not just less government but better government - government that concentrated its efforts less on direct interventions and more on enabling others to be productive' (World Bank, 1989).

Yet at this stage of development, SSA may need the direction and guidance of a well-informed and (relatively honest) government, taking the example of the governments of the NICs during the 1960s and 1970s, who played a significant role in directing their countries' development efforts at the start (see chapter three).

However, efficiency improvements often necessitate the reduction of the size of this sector, as over-staffing in SSA is common. There is much to be said though, for the reduction in the size of government and its intervention (in prices and tariffs, for example) being undertaken gradually, as many of the African countries are politically fragile. In particular, the decrease in

employment brought about by reductions in the numbers of civil servants is very likely to create greater dissatisfaction and unrest. (This was discussed at greater lengths in chapter five, section 5.2). The case for gradualism in this respect is strengthened by past experiences of attempts to introduce structural adjustment instantly, which have often resulted in unrest, and very often, the adjustment programme has had to be abandoned (Killick, 1984, and Little, Scitovsky and Scott, 1970).

Therefore, the role of the government perhaps, needs to be more of a strong director of the development effort, and less of a direct intervenor. This involves reforming the operation of marketing boards, and relaxing price controls, particularly on producer prices. This should also help in eliminating the operation of black markets in many SSA countries. The liberalisation of the exchange rate system, has also been prescribed as a necessary policy reform in SSA (see chapter three, and Little, Scitovsky & Scott, 1970).

7.3.5 Population Growth

Our results indicate that the rate of population growth had no direct significant effect on economic growth, except in the 1960s, when the effect was positive and significant. In the later decades, the lack of significance is possibly due to the net effect of two forces : the growing population acting as a source of increased labour input, and, at the same time, raising the dependency ratio.

As the availability of fertile agricultural land is fixed, it is quite plausible that the output enhancing effects of increased population will diminish over time. This interpretation would suggest that there are benefits from slower population growth, as population levels rise over time.

7.3.6 Outward-Inward orientation

Our results indicate the very significant role that the growth of exports and imports play in the growth process. This appears to support the arguments in favour of increased openness and trade for the SSA countries. This

would call for policies to increase both exports and imports, such as the reduction of export and import duties, the reduction (or elimination) of restrictions on the foreign exchange and domestic prices, particularly producer prices, more diversification in the export base, and perhaps, more actively seeking new markets for their products, outside of Europe and North America, such as the Far and the Middle East.

However, the important role of trade in the growth process of the African economies does not necessarily imply indiscriminate liberalisation of trade. Given the vulnerability of those countries to external shocks, more attention might to be directed towards increasing regional and inter-developing-country trade and cooperation (Todaro, 1984, and World Bank, 1989), while at the same time exporting goods to and importing technology from their old trading partners.

7.3.7 Aid and Debt

Aid did not have a statistically significant effect on SSA's growth, thus giving support to neither the pro-aid nor the against-aid arguments.

The results concerning the debt issue indicate the increasing significance of the negative effects of debt service payments on growth, as we moved from the 1960s to the 1970s and 1980s. This implies the need for policies to reduce the effects of the debt burden on the SSA borrowers.

The debt problem became severe in the late 1970s/early 1980s, when world real interest rates did not fall in line with inflation, and instead, started rising significantly (See chapter three). Prior to that, during the 1970s, the real international lending rates were low, and sometimes even negative. Naturally, this encouraged the developing countries to borrow, as it seemed to be a relatively easy option to adopt in order to solve their economic (and especially, their balance of payments) problems. Serious problems started to develop in the early 1980s, when the international real rates of interest began to rise significantly, and at the same time, the capability of the borrowers to service and repay their loans was not increasing in line. The debt crisis became severe around the mid-1980s, when some of the heaviest debtors (Mexico Venezuela, Brazil and Argentina) threatened to

default and to declare a moratorium on service payments (Todaro, 1989, and George, 1988).

Policies to alleviate the debt problem are required of both the borrowers and the lenders. On the one hand, the lenders need to adopt measures such as increasing debt relief, rescheduling, and perhaps outright write-offs for part of the debt for the most-severely indebted countries, as their growth effort appears crippled by their service payments.

On the other hand, borrowers need to adopt policies to greatly increase their foreign exchange earnings. These include positive steps to stimulate the growth of exports, greater control (if possible) on the type of imports, and a conscious effort not to be too eager to borrow - tempting as borrowing may seem as a short-term solution to economic problems, especially when there is also an eagerness to lend by lenders (as was the case in the mid-late 1970s and early-1980s - see chapter three for further details).

The problem of Sub-Saharan Africa's external debt burden has received far less attention than that of other regions, primarily because of the relatively small size of the region's debt and the commensurate minimum exposure of commercial banks. Recently, more than 70% of Africa's external debt is estimated to be owed to bilateral and multilateral institutions (compared with less than one half of Latin America's debt). This implies that the problem is more intergovernmental in nature, rather than one which could threaten the stability of the international financial system. Naturally, this does not reduce the seriousness of the problem, it merely adds to the effective marginalisation of the continent from the international economy.

Sub-Saharan Africa's role as a force in the world economy has been decreasing, as the region's impact on world commodity prices, financial and trade systems is falling. This is also reflected in the reduced attention awarded to the continent, except when the catastrophic problems of famine and wars are in the news. Such marginalisation detracts from the economic potential and wealth of the region, as well as from the relatively successful experiences of some countries (such as Botswana, Mauritius, Madagascar, and arguably, Ghana). It further reinforces the continent's predicaments and defers any possible solutions, unless those come purely from within the continent (Martin, 1991).

The debt-crisis of the region as whole shows no signs of abating, as very few countries are experiencing strong enough rates of economic growth to be able to service their debt and invest in development at the same time. The recent monumental increases in debt-service payment-upwards of 20% in many cases, and close to 40% in others (such as Zambia's position in 1991)-is an unsustainable situation, as this drains out more than one-quarter of a country's total export revenues which would have been available for financing the development effort.

Furthermore the often-quoted debt-service ratios often understate the true debt burden on the African economies, as they reflect actual payments of service, not payments and obligations due (nafziger, 1993). If debt arrears and reschedulings are taken into account, the real debt-service ratio for many countries could well be close to 50%. This drain on scarce foreign exchange will clearly constrain imports, exports, and subsequently, economic growth. Moreover, if the countries concerned have no choice but to fully service their debt, then they could be entangled in a vicious circle of reduced imports and exports indefinitely (in theory), or incurring payments arrears, unless external intervention in the form of significant debt-relief, for example, is affected.

What the regression results indicate is that there is, indeed, a significant negative impact of rising debt-service payments on the rate of economic growth. However, to "apportion the blame" for the creation of Sub-Saharan Africa's debt crisis between external and internal factors would, at this stage, be an exercise of little importance, as it could be argued that, on this particular issue, it is more important to urgently resolve the problem than explain it-important as the latter may be for the avoidance of a repetition of the earlier mistakes and the crisis of the early-mid-1980s. An urgent solution is crucial because the sooner the problem is resolved, the less resources are drained put of the country in service payments and, hopefully, the more the investment in development.

The debt crisis was created because of factors within and beyond the control of African governments (see Chapter Three). Any solution would have to involve external assistance and strong debt-relief measures, avoiding, as much as possible, incurring new loans. Instead, a concentration of policy on

increasing exports in order to generate sufficient funds to service what debt is left unwritten-off *and* finance the growth effort is far more important.

7.3.8 Other Factors

The other factors included in the empirical work were the terms of trade, literacy rates, interest rates, and inflation.

The results concerning the terms of trade have indicated that this factor showed most significance in the 1970s, when commodity prices were at their most volatile. The policy implications appear to be two-fold. Firstly, reflecting trends in world commodity prices in prices to producers will give producers the best possible signals on which to base their decisions. Secondly, in conditions of uncertainty, there is much to be said for policies that encourage diversification of sources of export revenues. Legitimate exercises in this direction for governments within the context of a market economy might be supplying producers with price forecasts and information on alternative products.

In the case of literacy rates, the results were mixed, but the main conclusion that could be made was that the significance of education as proxied by the literacy rates was increasing through time. The policy implications of this are clear. There is a need to greatly increase access to education and literacy, due to the positive effect of this on labour productivity, population growth rates, life expectancy, etc. (see chapters three and six for a greater discussion of the subject).

The levels of real interest rates had the expected signs in the investment-ratio equations, but were not statistically significant. They also appeared to have no influence on ICORs. The main policy conclusion on the role of interest rates were discussed in chapter six, and they are mainly related to the role that interest rates play in encouraging savings and efficiently allocating investment. However, as more investment decisions are left to market forces, the importance of financial liberalisation will perhaps increase.

Finally, the rate of inflation did not prove to be consistently statistically significant in the growth process of SSA. The inflation rates in Africa

became relatively high in the 1980s, whereas before that, they were relatively low (see chapter three). One of the main adverse effects of high inflation is that it can lead to financial repression, if nominal interest rates are kept fixed. It is noteworthy that the real interest rates were more significant in equations without the inflation rate. Similarly, the occasions when inflation was significant were when there was no data on interest rates.

Thus a modest rate of inflation (under 10%) is probably an important policy objective.

7.4 Trade, Aid and Debt

It may not be far from the truth to say that 'free trade' is little more than theoretical and political rhetoric. It is also true that, on balance, trade is beneficial. Self-sufficiency is not only virtually impossible to maintain in the long-term in the small economies that are typical of Africa, but it can also involve inefficiency. On the other hand, excessive specialisation, although attractive in the short-term, may not be optimal in the long-term. Indeed, it has been argued that one of the SSA's greatest problems is the lack of diversification in the trading base of most countries in the continent (Chapter three).

Within Africa, it appears that there remains untapped potential for inter-regional trade and cooperation. Previous attempts have not always succeeded (such as the failure of the East African Community in 1977). The World Bank (1989) strongly recommends greater regional integration and cooperation.

The debt problems of SSA are not unrelated to the trade problems of the continent. Before 1970, loans were largely official (inter-governmental) and concessionary. By the late 1970s, the problem started to become serious, as many LDCs started borrowing commercially to cover their balance of payments deficits and to finance government spending. This option was made relatively easy by the apparent eagerness of the international commercial banking sector to lend money to third-world governments. This was brought about by the fact that the oil-price rises of the 1970s led to the accumulation of enormous wealth by the oil-exporters, which was re-cycled

by the international commercial banking sector, many of it as loans to the oil-importing developing countries (see section 7.3.7 above). This involvement of the commercial banking sector meant that the nature of the loans was becoming increasingly non-concessional and more problematic to pay back, especially since the early 1980s, when world real interest rates began to rise significantly.

After 1980, the situation approached crisis levels; with many LDCs experiencing deterioration in both their current and capital account balances, due to factors such as the dramatic falls in commodity prices, global recessions (particularly in 1981-82), increased developed-country protectionism, rising debt-service obligations, significant capital flight problems, and the corresponding reluctance and decline in lending by the international banks.

Even though most of the debt was concentrated in four Latin American countries (Brazil, Mexico, Argentina and Venezuela), SSA's debt problem is arguably the most serious, because of the continuing declining incomes and stagnating economies of most countries in the continent. Furthermore, the problem of capital flight is very serious in most LDCs, with an estimate of \$200 billion flowing out of the heavily-indebted countries between 1976 and 1985 - equivalent to approximately to 50% of total LDC borrowing (Todaro, 1989). One example of this flight capital in SSA is an estimate for Kenya of \$1.3 billion (equivalent to 40% of aid to Kenya) in the four years to June 1991; and Kenya is not one of the worst cases in point (Guardian Newspaper, November 1991).

This raises the issue of aid. There is no clear evidence of a positive effect of aid on economic growth (Chapter 6). It is argued that aid donors give aid because it is in their strategic, political and/or economic self-interest to do so. LDCs also accept aid for various reasons. Apart from the corrupt and rent-seeking factors, virtually all of the advice they get from the developed-countries' economists is that aid is a crucial and essential ingredient in the development process, helping relieve the foreign exchange and the savings constraints. Aid could also be viewed as a powerful political weapon in the hands of the recipient government against opposition (Todaro, 1989).

Academic arguments aside, the best testimonies come from donor aid officials and recipients' reactions, good examples of which are:

'The biggest single misconception about the foreign aid program is that we send money abroad. We don't. Foreign aid consists of American equipment, raw materials, expert services and food - all provided for specific development projects which we ourselves review and approve.... Ninety-three percent of aid funds are spent directly in the United States to pay for these things' ¹.

As to recipients' thoughts, a statement from the Santiago Resolution:

'What the Third World must ask of the international order is... a genuine transfer of real resources, not the present 'aid' charade'. (Todaro, 1989).

Thus the controversial debate over the role of aid in the development and growth process continues (e.g. Riddell, 1987 , Mosley, 1987 , and Cassen, 1986). Perhaps the only agreement over the essential role of aid is for emergency relief (in famine and natural disaster conditions), but not much more concord regarding the other roles of aid exists.

7.5 The IMF and the World Bank

The reason why we briefly discuss these two organisations is because of the important role they play in channelling funds to developing countries, and the conditionality of their lending which has important implications for the debtor countries.

IMF lending has traditionally been aimed at the alleviation of balance of payments problems. Their perspective was short-term, usually less than eighteen months. Policies upon which the loans were conditioned were devaluation and reduction in government spending. Since many governments were reluctant to devalue, most of the adjustment fell on expenditure reduction, with a subsequent contraction of the economy (Killick, 1984).

Structural adjustment programmes concentrated on improving economic efficiency by relying more on the operation of the markets for resource allocation. There may be long-term benefits to the developing countries of implementing such structural change programmes, but there are also

disadvantages and problems. Evidence shows that these measures can disproportionately hurt the lower and middle-income groups, thus striking at the heart of development efforts (Todaro, 1989). They have also been the roots of political instability in many countries, particularly due to the IMF demands of abolishing subsidies on, for example, food and fuel.

In an attempt to assess the impact of the IMF's stabilisation programmes, Killick *et. al* (1984), drawing on work by Conors (1979), the ODI, and 'in-house' IMF reviews, arrive at the following conclusions:

i. Even though there appears to be some improvement in the current account balance of the countries involved in an IMF programme, this tendency exhibits low statistical significance when tested. This weak statistical significance also appeared when testing the effect on the overall balance of payment deficit, even though the deficit appeared to be moving in the right direction (falling).

ii. Regarding the IMF objective of the elimination of foreign exchange restrictions, little direct evidence was found on progress in achieving this objective.

iii. 'Subordinate' IMF-programme goals, such as the reduction of inflation and the improvement of the economic growth rate also failed to significantly materialise, with no statistically significant results appearing in the tests.

While accepting that the evidence surveyed is mixed, they maintain that it also provides little support over the whole period surveyed (1960-1980, given the various sources) for the proposition that

'Fund programmes generally gave short-run deflationary consequences, even though there are examples of such results and there are indications of a possible worsening in recent years'.

Their study also stresses the fact that it is a

'misconception that reducing inflation is a prime objective of Fund programmes'.

All targets, even if they are included in a programme, remain subordinate to the primary objective of the improvement of the balance of payments situation.

iv. Finally, even though the Fund has always maintained that income distribution is not involved in their programmes as an objective, arguing that distributional objectives are beyond their control and should remain subject to independent national government design, it is clear that Fund programmes will affect the distribution of income. This is primarily through the effect on consumption and investment of suggested policies for the improvement of the balance of payments (such as the increase of tradable goods vis-a-vis non-tradables, favouring some industries against others, and the removal or re-direction of subsidies). Killick et. al argue that given the results of tests on other variables (discussed above),

'By and large, the results have shown programmes to have limited impact.... it does not seem likely that the distributional effects were very potent either.'

However, they stress, that there is a shortage of systematic evidence but that

'it is most likely that the majority of programmes have no statistically significant effects one way or the other'.

While accepting that better conclusions could be obtained from a more detailed case-by-case study, the evidence surveyed above points to limited success in many programme-operating countries. Perhaps the best testimony to this comes from an evaluation from Fund staff for internal purposes, relating to 1980 stand-bys and 1978-80 Extended Fund Facilities :

'The Fund cannot be complacent about a situation in which almost half of the cases have not shown any progress towards balance of payments viability. This may be no worse a record than in earlier years, although previous reviews have not presented the material in the same way and so direct comparisons are not possible...nevertheless, there is a clear need to improve the success rate...'

However, more recently, the importance of a case-by-case conditionality approach has been realised. This did not mean the abandonment of the conditions attached to a loan, but more flexibility was introduced within those

conditions, depending on the political as well as the economic feasibility of their implementation. This appears to be a more promising approach, given the structural weaknesses of many less developed economies (chapter three).

7.6 SSA : Past, Present and Future

The 1960s could be described as the first development decade for SSA, as it was the period of independence for most countries. Many governments embarked upon their development efforts enthusiastically, forming ambitious development plans and programmes. The results of those plans were, for the most part, disappointing (Wickins, 1986). Although actual GDP growth figures were relatively high, the foundations of the growth effort appeared not too solid, where most of the growth resulted from the export of primary products, with very little diversification.

During the 1970s, those weak structural foundations surfaced in the face of severe external shocks. Growth of GDP decelerated significantly - with some countries experiencing negative growth (for example Ghana and Mozambique). Perhaps the deterioration of the African economies is best summed up by the fact that the incomes of its people remain so low and their access to basic services so limited. GNP per capita in SSA as a whole grew annually by only 0.8% on average over the period 1970-79. For low-income SSA, this figure was -0.3% - an actual fall in per capita incomes (World Bank, 1981). In no other part of the World was the deterioration in per capita income so strong. For example, in South Asia and the low-income developing countries (the most suitable regions for comparison with SSA), the respective figures were 1.5% and 1.6%. Thus, basically, Africans were, for the most part, worse off in 1980 than they had been in 1970, despite having higher school enrolment rates and slightly longer life-expectancy (i.e. an improvement in other development indicators).

The 1980s have been described by the World Bank (1989) as the lost decade of development, when they should have been the third decade of Africa's development. As early as 1981, the Bank, in the Berg Report, began talking of an economic crisis in SSA. By 1989, their reports still talked in terms of a crisis.

By the end of the 1980s, according to the Bank, twenty out of the twenty-nine Least Developed Countries are in SSA². More to the point in encapsulating Africa's predicament, the living standards of the African people today are almost as they were thirty years ago (World Bank, 1989). These facts summarise the desperate state reached by most of the SSA countries.

Three distinct periods in Africa's history can be identified : 1961-72; when per capita incomes grew, 1973-80; a period of stagnation, and 1981-87; a period of nearly continuous decline.

The factors behind SSA's economic decline have been the central feature of this study. They were categorised as external and internal factors. The results of the regression analysis seem to indicate the greater significance of the internal factors than the external factors (without discounting the effects of the latter). Also, the examination of political instability as a factor in the economic growth process raises the possibility that better economic policies will improve stability, thereby further improving the growth prospects.

However, the record of Africa is not all gloom. Several countries, most notably Botswana, but also Mauritius, Kenya, Cote D'Ivoire, and Zimbabwe have succeeded in improving average living standards significantly since 1960.

A more disappointing fact is that what is known as the 'Green Revolution' appears, for the most part, to have bypassed Africa. Other LDCs, particularly the Asian countries, have made use of improved hybrid seeds, soil conservation and other technologies aimed at increasing the productivity of the agricultural sector. Yet, most of the African countries have only marginally applied such technologies (Todaro, 1989). Sustained industrial expansion has yet to reach most of Africa.

As maintained throughout this study, it would be hazardous to make too many generalisations concerning a solution or a way forward for Sub-Saharan Africa. Yet, from the results of our econometric work, we may infer that policy reforms need to be directed at improving the performances of exports and imports, speeding their growth and improving their competitiveness, increasing investment levels and, somehow, reducing or eliminating the political fragility of the area. Naturally, this implies a

framework of more sound and coherent economic management concerning all aspects of the African economies.

NOTES

(1) Former U.S. aid official W. S. Gaud "Foreign aid : What is it, how it works; why we provide it", Department of State Bulletin 59, no. 1537,1968.

(2) Benin, Burundi, Cape Verde, Chad, Comoros, Ethiopia, Gambia, Guinea, Guinea Bissau, Malawi, Lesotho, Niger, Rwanda, Somalia, Mali, Uganda, Tanzania, Sudan, and Upper Volta (Burkina Faso).

APPENDIX I

Definitions and Sources of Variables

GDP

Gross Domestic Product at constant (1980 prices) factor cost (or market prices if factor cost is not available) in terms of the local currencies. World Bank - World Tables (WB - WT). This is defined by the WB as being derived as the sum of the value added in all sectors. However, due to some discontinuity in the calculation of this series, and the fact that data had to be collected from two different editions of the World Tables, with a different base year in each edition, the figures were re-calculated in order to obtain values for all the series with a common base year. This was achieved by choosing a base year, 1980, which was the World Tables' chosen base year in the third edition. This method of standardising the base year was also applied in the calculation of the GDI, G, and P series.

gr

Growth rate of GDP. This was arrived at by calculating the decade average of the annual percentage changes of GDP at factor cost from the WB - WT data (as standardised above). For those countries for which there were data deficiencies in individual years, the decade averages as calculated by the WB in the World Development Reports (WDRs), 1978-91, were used instead.

p

Implicit overall GDP deflator. WB - World Tables, base year, 1980. This is the index of the annual ratios of GDP at current market prices to GDP at constant market prices. It provides a comprehensive measure of the aggregate price movements of all goods and services making up GDP.

As mentioned above, the fact that different editions of the WTs used different base years in different editions, the pre-1980 data was standardised using 1980 as the overall base year.

G

General Government Consumption at constant (1980) market prices in local currency, WB - World Tables (WT), used as a ratio to GDP. As defined by the WB, this is the sum of :

- (i) Purchases less sales of consumer goods and services, reduced by the value of the own-account production of fixed assets,
- (ii) Compensation of employees,
- (iii) Consumption of fixed assets, and
- (iv) Any payments of indirect taxes.

Again, the series was re-calculated in terms of one base year, 1980.

ToT

Terms of Trade index (1980 = 100). World Bank, World Development Reports, 1978-91, and World Bank, 1981, "Accelerated Development in Sub-Saharan Africa", and 1989, "Sub-Saharan Africa, From Crisis to Sustainable Growth".

As defined by the WB, the terms of trade index measures the relative level of export prices compared with import prices. This is calculated as the ratio of the export price index to the import price index, it shows changes over time of the level of export prices as a percentage of import prices.

The export price index measures changes in the aggregate price level of a country's merchandise exports over time. It is the unit value index of the UNCTAD.

The import price index measures changes in the aggregate price level of a country's merchandise imports over time. It is also the unit value index of UNCTAD.

X-gr

The growth rate of merchandise exports in constant terms, calculated from quantum indexes of exports, WB - WT, 1988-89 edition.

As defined by the WB, these comprise the market value of movable goods, including non-monetary gold. It also includes the market value of related distributive services up to the customs frontier of the exporting country (that is f.o.b. - free on board value).

M-gr

The growth rate of merchandise imports in constant terms, calculated from quantum indexes of imports, WB - WT, 1988-89.

The Bank defines merchandise imports as the market value of movable goods whose ownership changes from a foreigner to a resident (includes non-monetary gold).

D

Public/Publicly guaranteed long-term debt in millions of US dollars outstanding at the year end, WB - WT, various editions, used as a ratio to GDP (as defined by the WB's debt reporting system).

TDS/GNP

Ratio of total debt service on public and publicly guaranteed debt to gross national product, % (all in \$US millions). World Bank - World Debt Tables, 1988-89 edition. TDS was defined as the sum of the principal repayment and interest payments of public and publicly guaranteed loans.

E

Official exchange rate, period average of market exchange rate, given as local currency per one US dollar, IMF - IFS (International Financial Statistics) yearbook, 1987.

i-lend

The real lending rate of interest, %, IMF - IFS, 1987. Bank lending rates are defined as those rates which meet the short-term and medium-term financing needs of the private sector. They are defined in nominal terms. In order to convert these rates into real terms, the inflation rate is subtracted from the nominal interest rate.

i-dep

The real deposit rate of interest, %, IMF -IFS, 1987. Again, the IMF lists those in nominal terms, and defines the bank deposit rates as those offered to resident customers for demand, time and savings deposits. To obtain the real deposit rates of interest for each country, the inflation rates were subtracted from the nominal interest rates.

Pol-In

Political instability index; final figure giving the total number of politically unstable years (the higher the index the more unstable the country in question). The exact calculation of this index is detailed in chapter five. Essentially, this involved according a value of one to every year in which a politically destabilising event occurred (coup, attempted coup, coup plot, or war), and zero otherwise. The index was weighted so as to give greater emphasis to the more serious events (e.g. wars and successful coups d'etat). Data on political upheavals was obtained primarily from the Europa publication "Africa South of the Sahara", 17th edition, 1988.

s

The saving ratio; calculated as the ratio of Gross Domestic Investment to GDP (GDI/GDP), WB - WT, 1988-89 edition.

Y

The Incremental capital-output ratio; calculated as the ratio s/gr (ICOR - Incremental capital-output ratio).

POP

Average population growth rates, based on mid-year estimates of population for countries, WB, WDRs, 1978-9.

LIT

Adult literacy rates (%). This is the number of adults with the ability to both read and write, expressed as a percentage of the adult population, age fifteen years and over. WB - WDRs, 1978-91.

GDI

Gross Domestic Investment, denominated in millions of the local currency, being the sum of gross domestic fixed investment and the change in stocks, WB - WT.

BM/E

Ratio of the black market exchange rate to the official exchange rate. Data for the black market exchange rates was obtained from "Picks currency Yearbooks ", 1963-1986, and Cowitt, P. 1986-87, "World Currency Yearbook".

The black market rates were quoted in terms of the local currency per one U.S. Dollar. The final ratio was calculated by taking decade averages of both the official and the black market exchange rates, and dividing the latter by the former.

LIE

Life expectancy at birth, being the number of years a newborn infant would live if prevailing patterns of mortality for all people at the time of his or her birth were to stay the same throughout his or her life. WB - WT, various editions, and WB - WDRs, 1978-91.

ODA

This the indicator used to capture the effect of aid. It is the ratio of ODA to GNP, D.A.C. - OECD, WB - WDR and other WB reports ("Accelerated Development in Sub-Saharan Africa", 1981, and "Sub-Saharan Africa From Crisis to Substantial Growth", 1989).

Official Development Assistance (ODA) consists of net disbursements of loans and grants made on concessional financial terms by official agencies of the members of DAC (the Development Assistance Committee) of OECD and members of OPEC, to promote economic development and welfare. This definition is meant to exclude purely military assistance. ODA also includes the value of technical cooperation and assistance.

GNP/h

Gross National Income per capita, as defined by the WB - WT, 1988-89 edition. Data given in terms of 1980 US Dollars.

The 32 countries included in the sample are :

Benin, Botswana, Burundi, Cameroon, Central African Republic, Congo, Cote D'Ivoire, Ethiopia, Gabon, Gambia, Ghana, Kenya, Lesotho, Liberia, Madagascar, Malawi, Mali, Mauritania, Mauritius, Niger, Nigeria, Rwanda, Senegal, Sierra Leone, Sudan, Swaziland, Tanzania, Togo, Uganda, Zaire, Zambia, and Zimbabwe.

Appendix II

Following are the results of regression equations with 'v' as the dependent variable, but with the countries having a negative value for 'v' included, along with a dummy variable in each equation, having the value of one for every country which has a negative 'v', and zero otherwise.

For the period 1960-69, there were no negative 'v' countries.

For 1970-79, those were Ghana, Uganda, and Zaire.

For 1980-86, these countries were Cote D'Ivoire, Liberia, Madagascar, Niger, Nigeria, Togo, and Zambia.

Following are the equations for those periods.

Equation 1

	Const.	G	LIT	Pol-In	BM/E	D	R ²	n
1970-79	-19.18	.34 (.53)	-.03 (.15)	.02 (.02)	.17 (1.44)	53.73 (2.30)	.45	31
1980-86	-60.51	.71 (.46)	.53 (1.35)	.12 (.17)	.27 (1.46)	52.21 (2.94)	.38	27

Equation 2

	Const.	G	LIT	BM/E	D	R ²	n
1970-79	-19.10	.34 (.54)	-.03 (.16)	.17 (1.47)	53.98 (2.67)	.45	31
1980-86	-60.60	.71 (.47)	-.54 (1.41)	.28 (1.57)	52.06 (5.0)	.38	27

The results of the above equations are not particularly satisfactory, with BM/E and LIT being closest to significance at the 10% level.

Appendix III

Despite the fact that the Granger-Sims test performed in the previous chapter yielded insignificant results, the mere possibility of reverse causation between economic growth and political instability, implies the existence of simultaneous equation bias. This means that OLS is no longer suitable as a method of estimating regression equations (Gujarati, 1988). Instead, two-stage least squares (TSLS) is employed in order to improve the results. This method was applied to all the equations in section 6.3 which contained political instability as one of the independent variables.

Following are the results of these equations, and the associated partial regression graphs of the variables involved.

As will be made clear, the results are not too dissimilar to those of the OLS equations, implying that no significant difference arises from the reverse causality which could exist between growth and instability.

Equation 1

	Const.	GDI	Pol-In	LIT	G	ΔP	X-gr	R ²	n
1960-69	10.79 (2.44)	.16 (2.41)	-.63 (2.41)	-.08 (2.61)	-.33 (2.09)	-.27 (1.52)	.06	.59	25
1970-79	2.64 (1.75)	.44 (1.69)	-1.22 (1.29)	.04 (1.95)	-.41 (2.15)	-.70 (2.01)	.41	.36	25
1980-86	-1.47 (.76)	.05 (.74)	-.10 (2.94)	.07 (.56)	-.05 (.64)	.02 (4.53)	.35	.73	27
1960-86	.56 (1.61)	.18 (.18)	-.34 (.33)	.01 (.63)	-.08 (.77)	-.06 (2.35)	.20	.61	20

Equation 2

	Const.	Δ ToT	Pol-In	Pop	ODA	Δ P	LIT	R ²	n
1960-69	2.76	.004	-.19	1.42	.05	-.39	-.03	.50	25
	(1.03)	(.96)	(1.66)	(.25)	(2.44)	(.82)			
1970-79	5.42	.001	-.52	-.44	.18	.10	.009	.42	25
	(2.20)	(.71)	(.21)	(1.20)	(.26)	(.18)			
1980-86	.63	.001	-.50	-.27	.11	.04	.11	.40	27
	(1.16)	(2.40)	(.28)	(1.34)	(.75)	(3.06)			
1960-86	-12.6	.001	-.41	2.73	.46	-.18	.14	.36	20
	(.38)	(.60)	(.84)	(1.06)	(1.39)	(.87)			

Equation 3

	Const.	Pop	G	Pol-In	ODA	LIT	R ²	n
1960-69	1.02	1.76	.009	-.20	-.05	-.03	.32	25
	(.39)	(.02)	(.16)	(.13)	(.22)			
1970-79	7.75	-.52	-.10	-.48	.19	.03	.34	31
	(.74)	(1.08)	(2.94)	(1.15)	(1.02)			
1980-86	.89	-.76	.03	-.42	.12	.11	.35	27
	(.82)	(.24)	(2.60)	(1.44)	(2.95)			
1960-86	4.90	-.49	.09	-.21	.02	.02	.28	20
	(.23)	(.74)	(.58)	(.05)	(.22)			

Equation 4

	Const.	ODA	Pol-In	Δ ToT	R ²	n
1960-69	10.49	-.52 (1.70)	-.94 (2.40)	-.004 (.98)	.24	25
1970-79	4.33	.16 (1.06)	-.27 (1.1)	.001 (2.11)	.22	25
1980-86	7.57	.05 (.68)	-.59 (3.11)	.002 (1.75)	.34	27
1960-86	6.42	.09 (.66)	-.60 (1.23)	.001 (.92)	.23	20

Equation 5

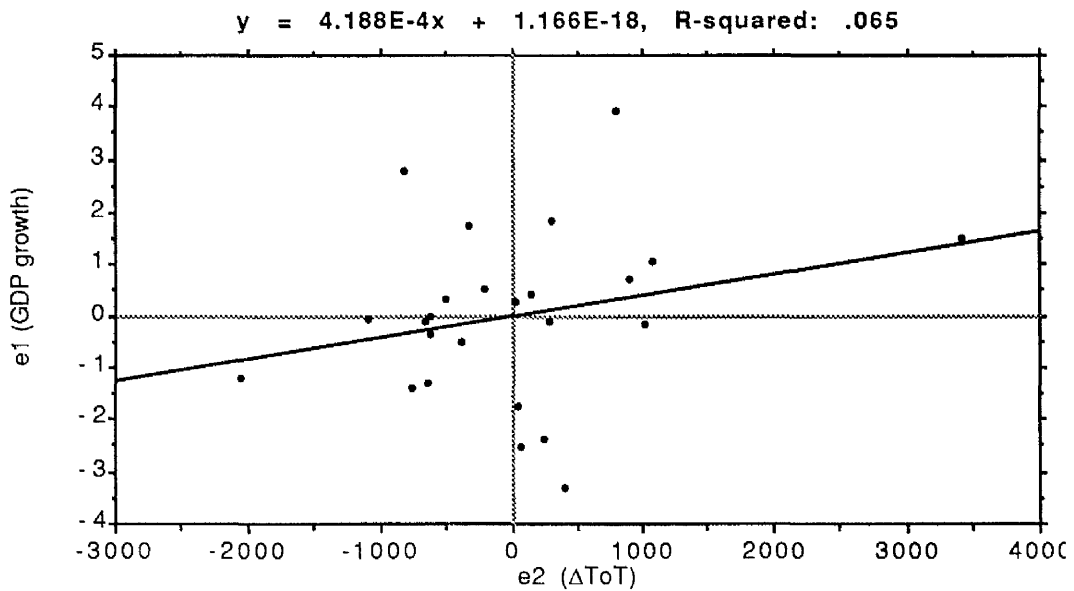
	Const.	D	GDI	Pol-In	LIT	X-gr	ODA	R ²	n
1970-79	2.39 (1.72)	-.09 (1.63)	.14 (1.37)	-.27 (.49)	.01 (.80)	.07 (1.48)	.24	.53	30
1980-86	-1.67 (1.69)	-.01 (.31)	.05 (.17)	-.05 (1.06)	.06 (4.05)	.35 (.12)	.02	.74	27

Equation 6

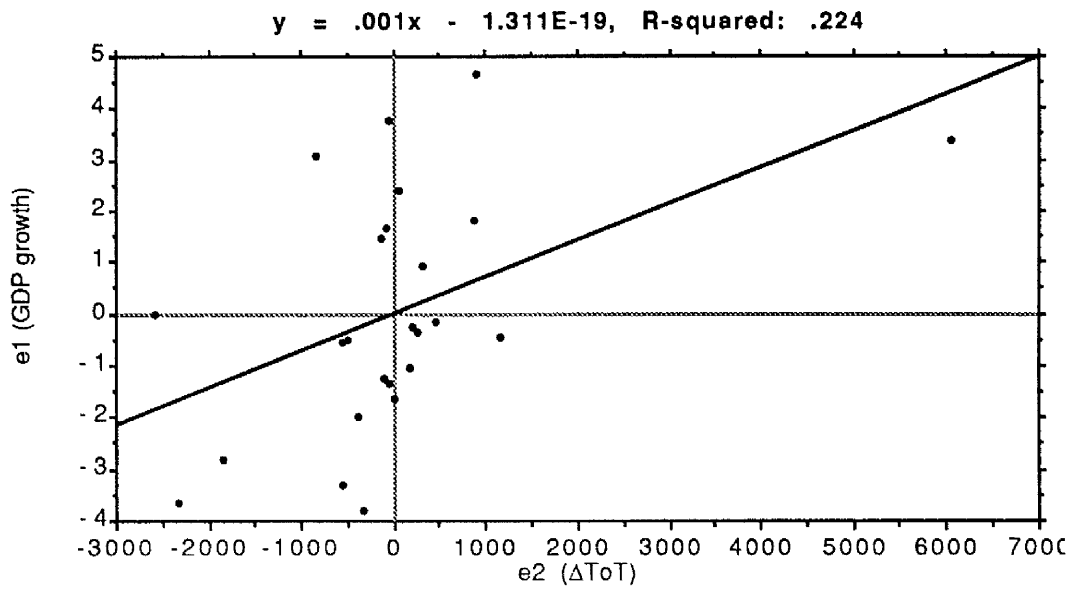
	Const.	i-lend	Pol-In	TDS	M-gr	GDI	R ²	n
1970-79	2.20	.07	-.23	-.38	.18	.14	.56	22
	(.51)	(1.03)	(.83)	(2.14)	(1.72)			
1980-86	5.01	-.23	-.50	-.35	.36	.16	.50	27
	(2.01)	(2.09)	(1.89)	(3.20)	(2.01)			

Partial regression graphs of selected variables

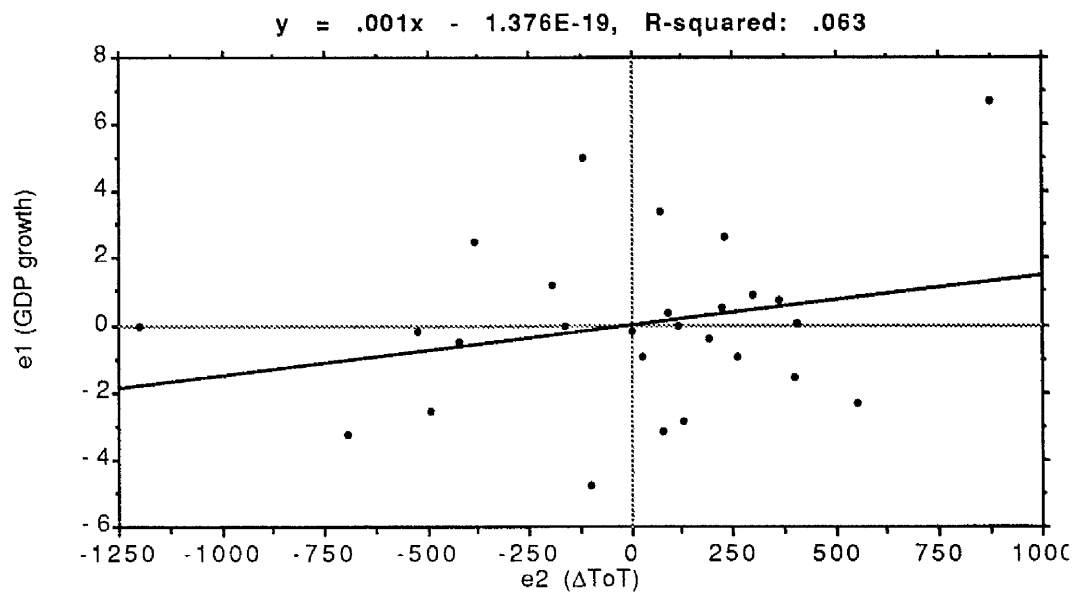
(1) ΔToT & gr 1960-69



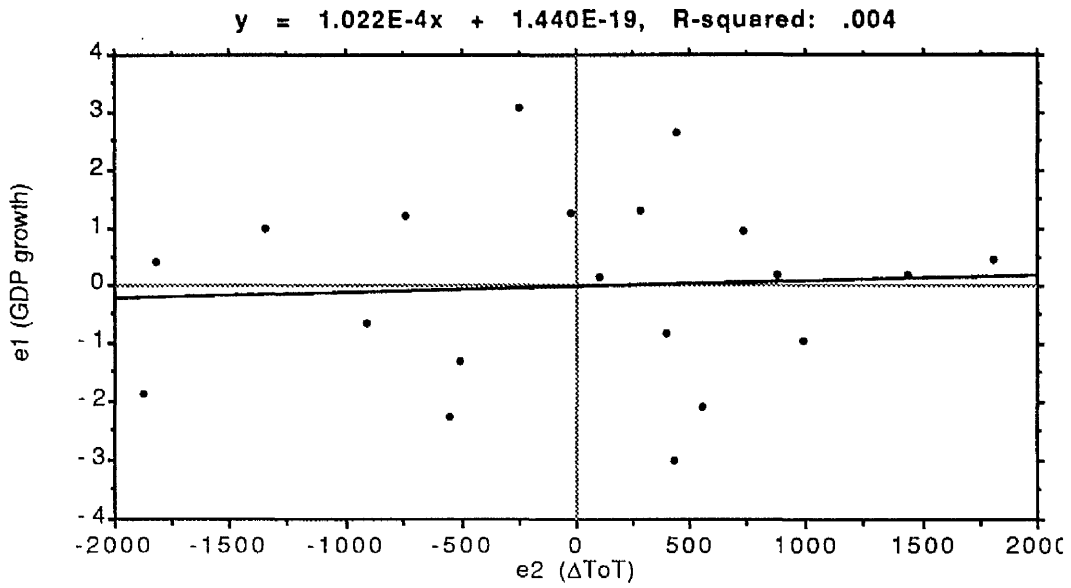
(2) ΔToT & gr 1970-79



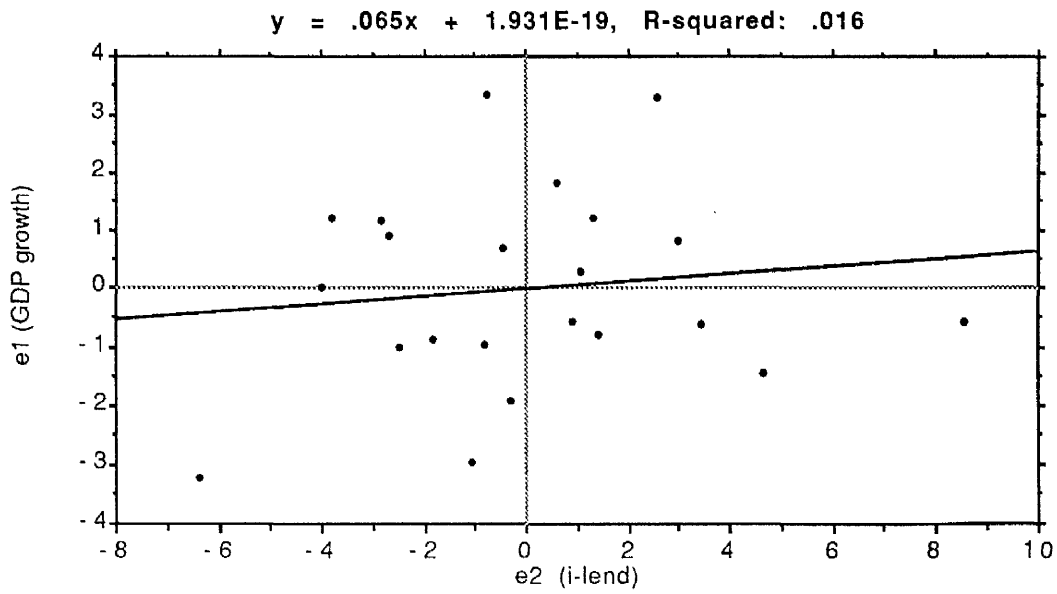
(3) ΔToT & gr 1980-86



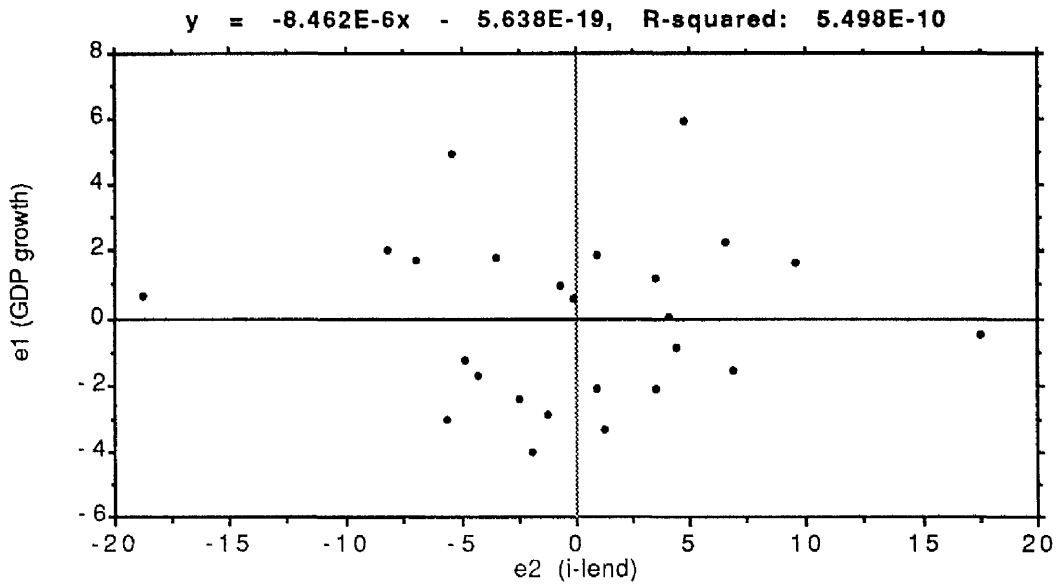
(4) ΔToT & gr 1960-86



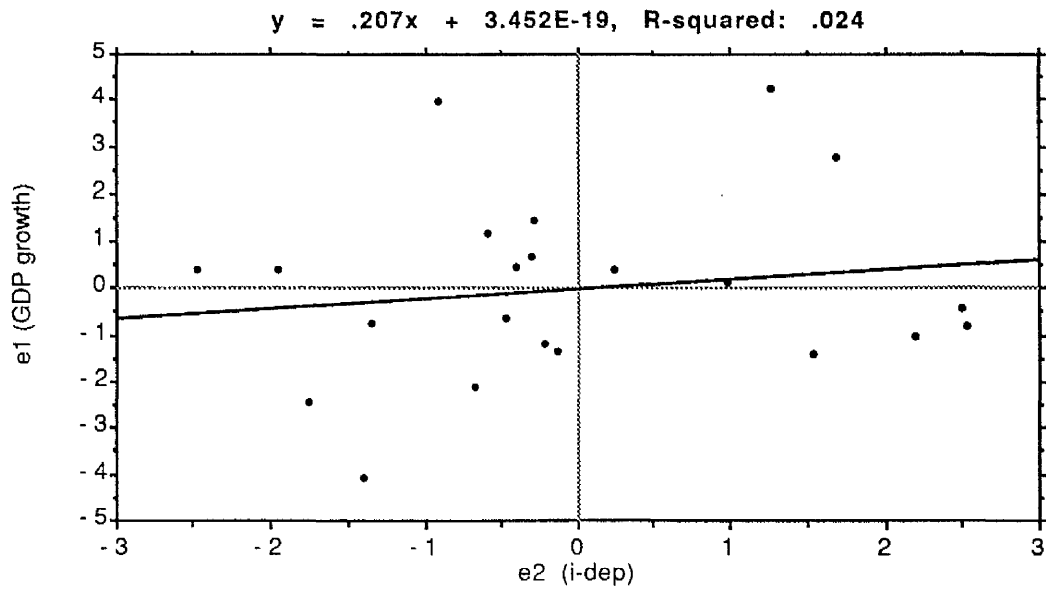
(5) i-lend & gr 1970-79



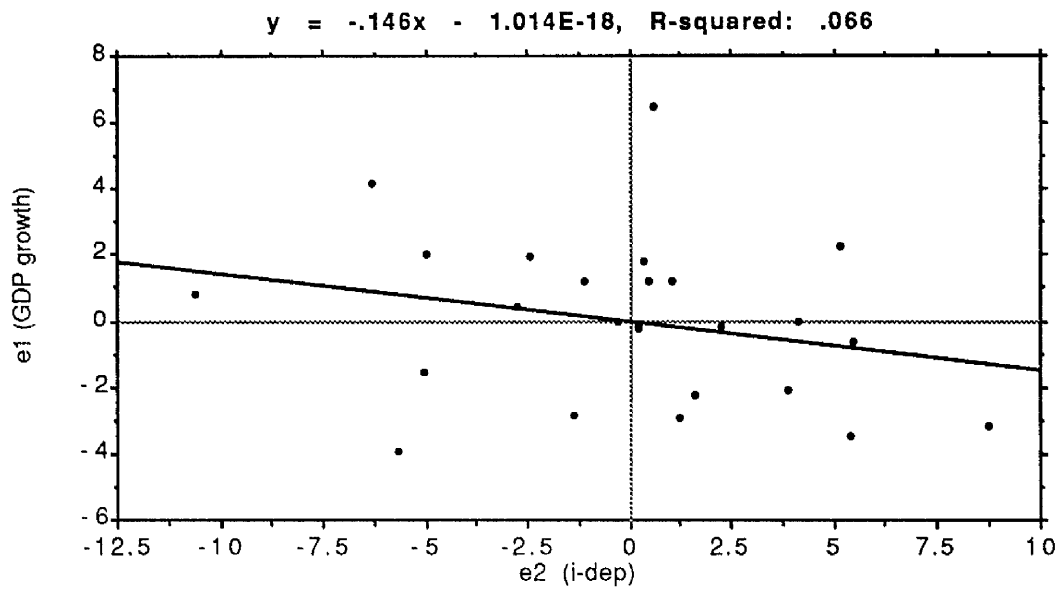
(6) i-lend & gr 1980-86



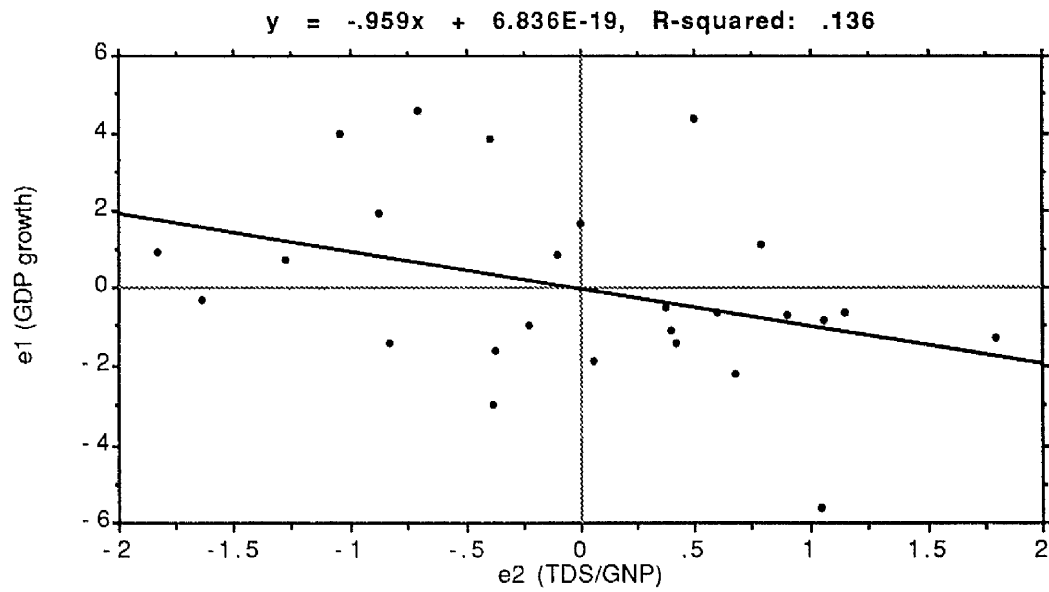
(7) i-dep & gr 1970-79



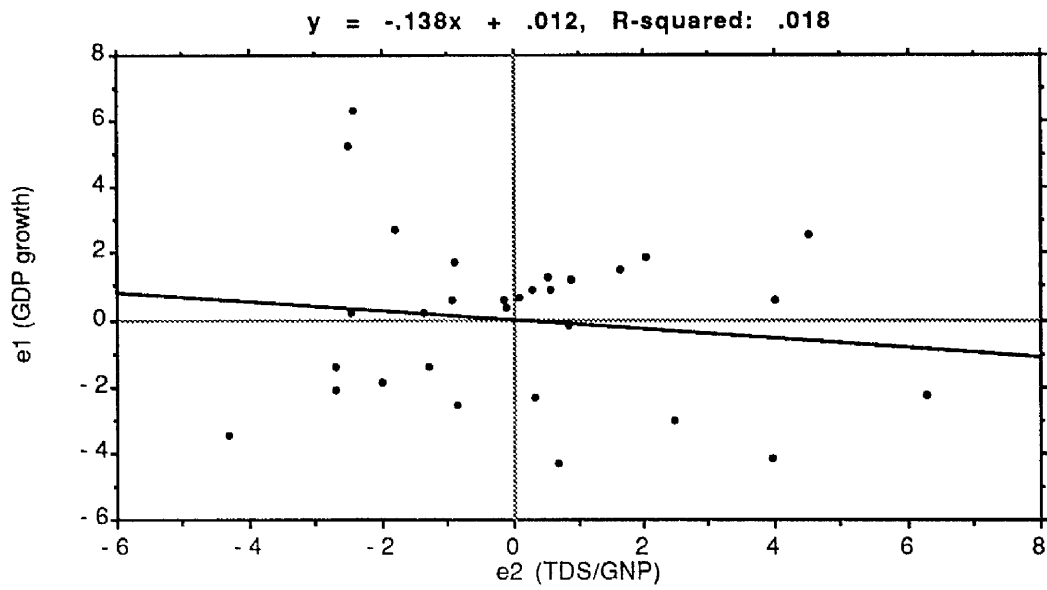
(8) i-dep & gr 1980-86



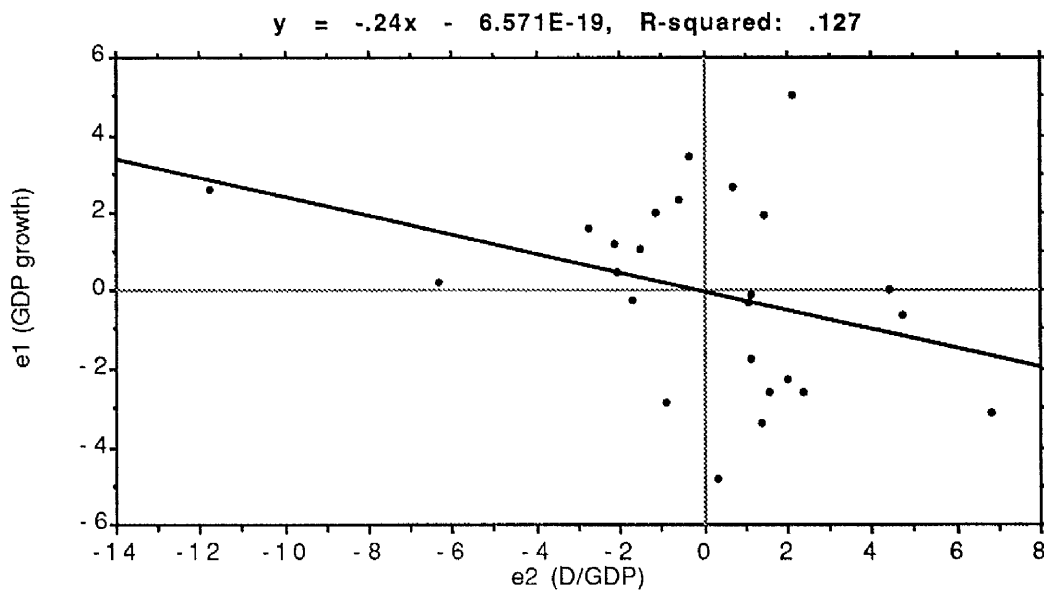
(9) TDS & gr 1970-79



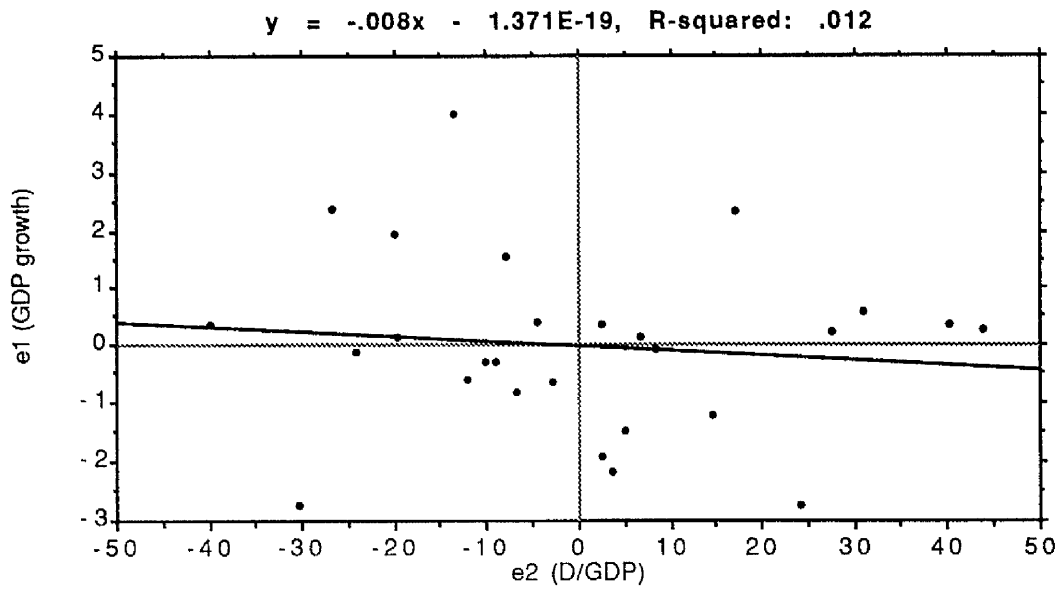
(10) TDS & gr 1980-86



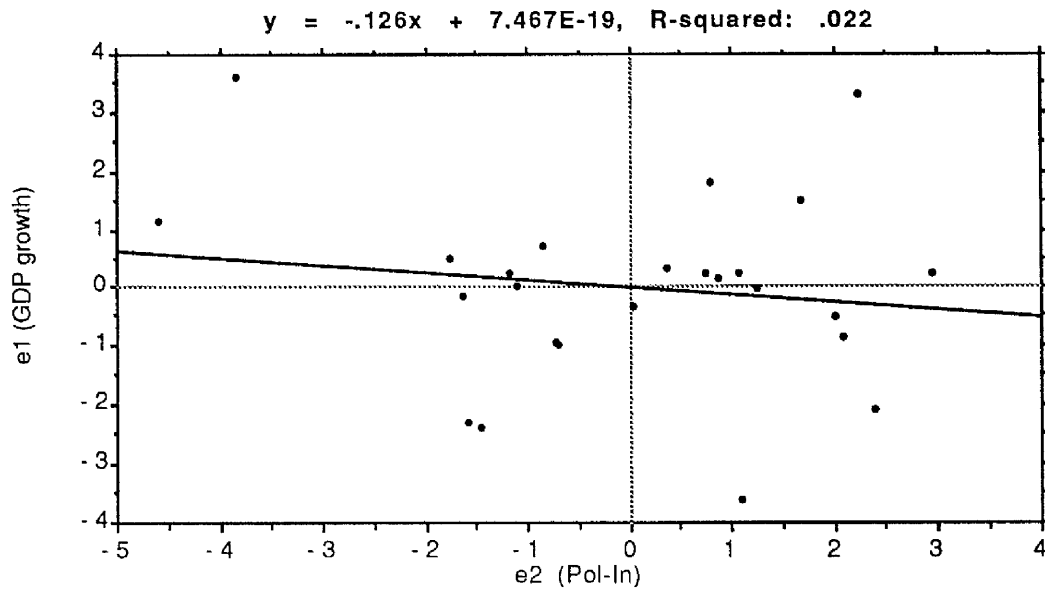
(11) Debt & gr 1970-79



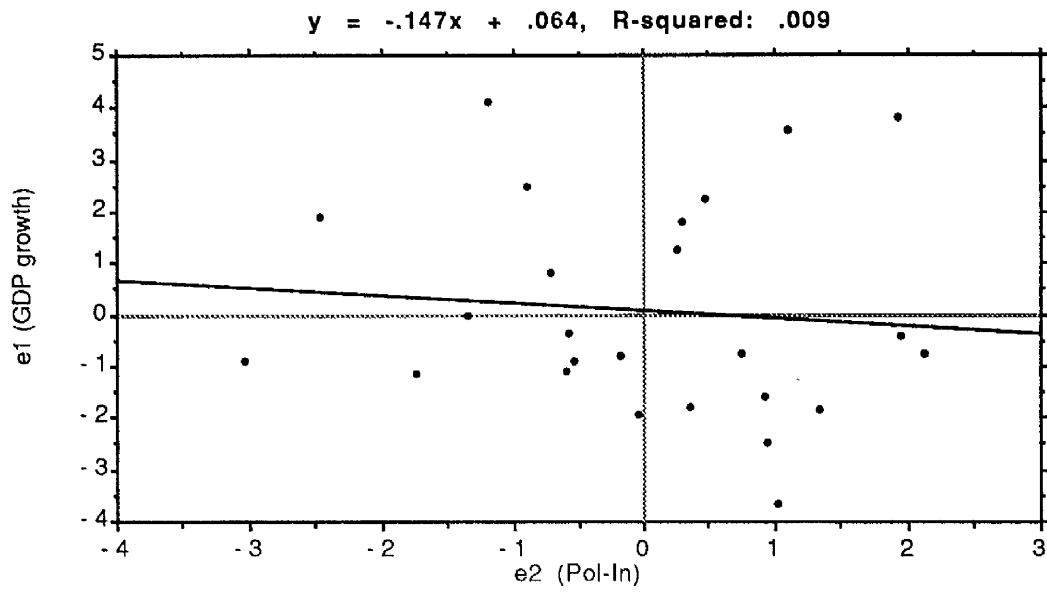
(12) Debt & gr 1980-86



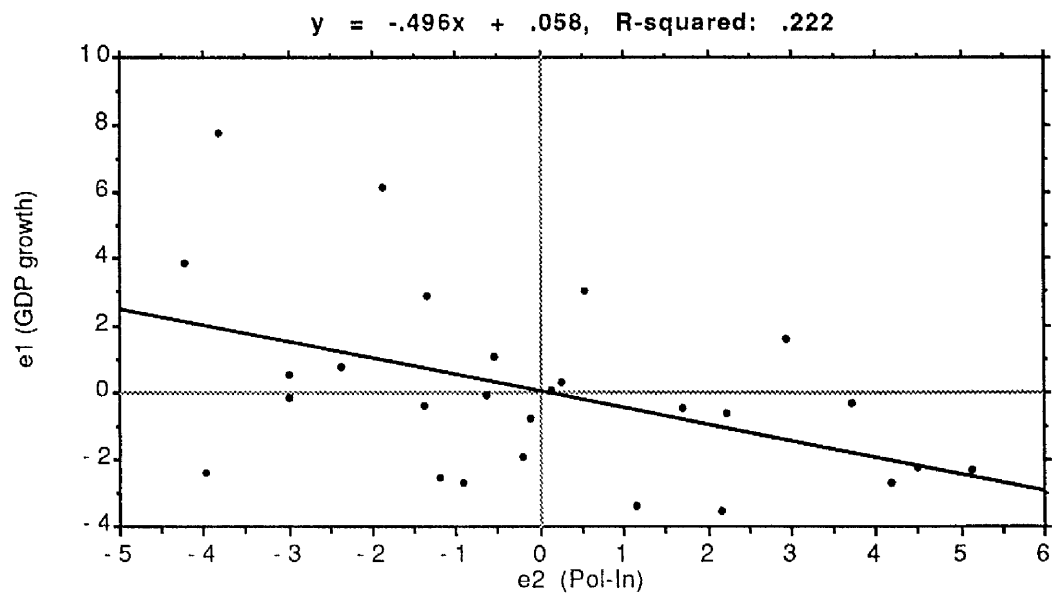
(13) Pol-In & gr 1960-69



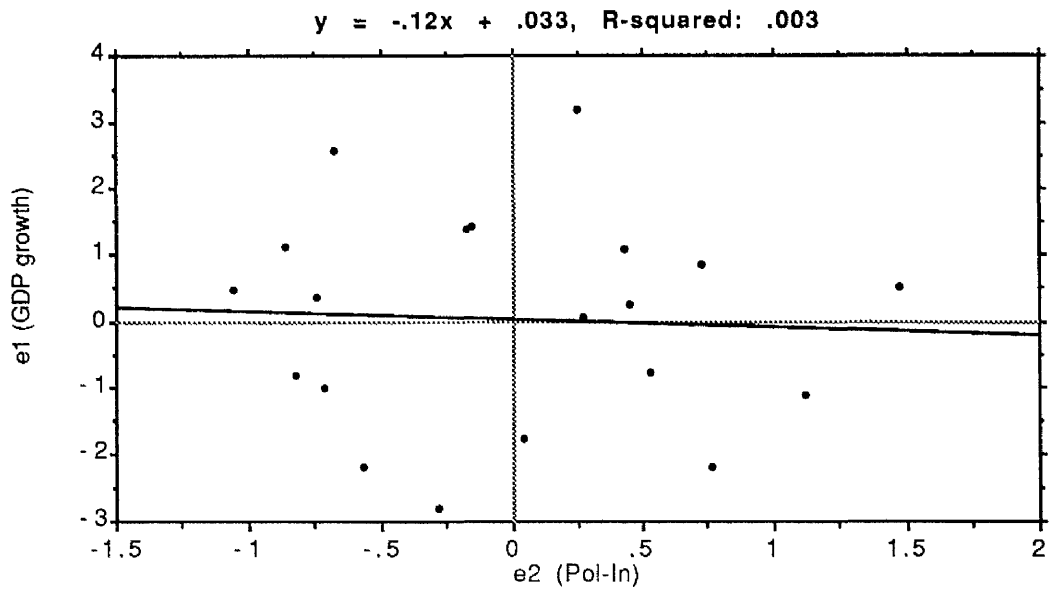
(14) Pol-In & gr 1970-79



(15) Pol-In & gr 1980-86



(16) Pol-In & gr 1960-86



APPENDIX IV

Following are the results of the panel data regressions, performed in order to further examine the robustness of the cross-section regressions, performed in Chapter Five, over the period 1960-85.

The Main (summary) conclusions of these results are:

A. Equations (1) and (2) support the new or endogenous growth theory premise that the level (as well as the growth rate) of human capital, proxied in the equation by literacy rates, is significant in determining economic growth.

B. Equation (3) supports the premise that the level of per-capita income significantly affects the rate of population growth, but that this effect is not particularly strong.

C. Equation (4) demonstrates that economic growth significantly affects political stability (negative and significant association between economic growth and political instability).

D. Equation (5) demonstrates that the growth of exports in a given year is not significantly affected (or determined) by the growth of exports in the previous year.

E. However, equation (6) shows that lagged investment ratios have a positive and significant effect on current investments. Thus, lagged GDI would be a good instrumental variable for current GDI.

F. Equations (7) and (8) demonstrate that there is a more significant effect of economic growth on political instability than vice-versa. However, that is not to say that political instability has no significant effect on economic growth (as equation (1) demonstrates), but that the reverse causation is stronger from growth to instability rather than the other way round.

G. Equations (9) and (10) demonstrate interesting results, as they show that there is a more significant impact of lagged growth on current investment than vice-versa, that is to say, if GDP-gr in year 't' is high, then GDI in year 't+1' will also be high.

PANEL REGRESSIONS

(t-statistics in parenthesis)

(1) Dependent Variable: GDP-gr
 $R^2 = 0.38$
 $n = 31$
 $nob = 106$ (no. of observations)

<u>C</u>	<u>LIT</u>	<u>D-LIT</u>	<u>Pol-In</u>	<u>X-gr</u>
1.73	0.05	0.09	-0.08	0.26
	(2.5)	(1.84)	(1.81)	(5.56)

(2) Dependent Variable: GDP-gr
 $R^2 = 0.24$
 $n = 28$
 $nob = 97$

<u>C</u>	<u>LIT</u>	<u>D-LIT*</u>	<u>GDI</u>	<u>POP</u>	<u>Pol-In</u>	<u>X-gr</u>
0.86	0.04	0.09	0.07	0.07	-0.07	0.25
	(1.86)	(1.61)	(1.55)	(0.13)	(1.44)	(4.85)

(3) Dependent Variable: POP, 1960-84
 $R^2 = 0.10$
 $n = 27$
 $nob = 72$

<u>C</u>	<u>GDP-h</u>
0.0	0.004
	(1.67)

(4) Dependent variable: Pol-In
 $R^2 = 0.15$
 $n = 27$
 $nob = 72$

<u>C</u>	<u>GDP-gr</u>
0.0	-0.73
	(2.7)

The following equations have been estimated using instrumental variables:

(5) Dependent Variable: X-gr
 $R^2 = 0.10$
 $n = 72$

<u>C</u>	<u>X-gr (-1)</u>
0.86	0.05
	(0.44)

(6) Dependent Variable: GDI
 $R^2 = 0.55$
 $n = 72$

<u>C</u>	<u>GDI (-1)</u>
2.02	0.83
	(8.60)

(7) Dependent Variable: GDP-gr
 $R^2 = 0.18$
 $n = 72$

<u>C</u>	<u>Pol-In (-1)</u>	<u>GDP-gr (-1)</u>
1.24	-0.1	0.29
	(1.0)	(2.23)

(8) Dependent Variable: Pol-In
 $R^2 = 0.27$
 $n = 72$

<u>C</u>	<u>GDP-gr (-1)</u>	<u>Pol-In (-1)</u>
6.47	-0.53	0.65
	(2.10)	(3.33)

(9) Dependent Variable: GDP-gr
 $R^2 = 0.17$
 $n = 72$

<u>C</u>	<u>GDP-gr (-1)</u>	<u>GDI (-1)</u>
-0.38	0.29	0.05
	(2.10)	(0.80)

(10) Dependent Variable: GDI
 $R^2 = 0.57$
 $n = 72$

<u>C</u>	<u>GDI (-1)</u>	<u>GDP-gr (-1)</u>
1.89	0.76	0.41
	(7.61)	(2.04)

(11) Dependent Variable: GDP-gr
 $R^2 = 0.51$
 $n = 72$

<u>C</u>	<u>LIT</u>	<u>Pol-In</u>	<u>X-gr</u>	<u>GDI</u>
2.07	0.05	-0.05	0.25	0.11
	(2.40)	(1.20)	(4.77)	(2.12)

* D-LIT is the change in literacy rates.

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