# Working Paper 9

# Explaining Sudan's Economic Growth Performance

**Ali Abdel Gadir Ali**
Arab Planning Institute

**Ibrahim A. Elbadawi**
World Bank, Washington, D.C.

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*The rule of growth in developing countries is that anything can happen and often does* – Pritchett (2000: 247)

*Sudan, an international pariah with no democracy and no international assistance, is doing as well as anyone these days, with a current growth rate of more than 7%. Much of Africa is ruled by rainfall than politics. – The Economist* (13–19 May 2000)

## 1. INTRODUCTION

At the outset, it is perhaps important to note that over the past 20 years or so a huge empirical literature has developed in an attempt to explain the major determinants of long-run economic growth. This empirical growth literature, largely developed to understand the determinants of long-run steady state growth in advanced countries, has identified at least 62 statistically significant explanatory variables influencing the growth performance of different economies.[2] The empirical framework is one of cross-country panel regressions where economic growth is usually measured as the growth rate in per capita GDP averaged over a period of time, usually over half-decades, for each country in the regression. Of the identified 62 variables, three explanatory variables have consistently been reported as significant in all studies. These three variables are in the nature of initial conditions. They include initial real per capita income (reflecting the stage of development of the country and capturing the idea of convergence over long periods of time); initial life expectancy at birth (reflecting the health dimension of the human capital of the country); and initial primary school enrolment ratio (reflecting the education dimension of human capital). All these initial conditions are measured at the start of the relevant time period over which per capita GDP growth rates are averaged.

Apart from technical robustness analysis of the explanatory variables this literature has come under close scrutiny by, among others, Collier and Gunning (1999) and Soludo and Kim (2002). Collier and Gunning called for more in-depth country studies to explain growth episodes by relating growth performance to the behaviour of microeconomic agents, markets and institutions. Soludo and Kim (2002), concurring with the need for country studies, noted that the current stage of knowledge is that the empirical growth literature has raised more questions than provided answers.

On a different track, analysis of long time series of growth for a large number of countries has recently shown that modern growth performance has passed through a time break separating two growth periods, irrespective of the policy stance of countries and the level of development.[3] The years of the break separate a high growth period (postwar period up to the mid 1970s) from a low growth period (from the 1970s to the present). In the context of such studies it is found that steady state growth is a feature of advanced countries while volatile growth is a characteristic of the growth process in developing countries. The "rule of growth in developing countries is that anything can happen and often does. The instability of growth rates makes talk of the growth rate almost meaningless. Moreover, the enormous volatility of growth around its trend (however defined) means that even over periods as long as a decade, growth can be dominated by shocks and recovery" (Pritchett, 2000: 247).

Growth and the structural transformation of economies that accompanies it, it is generally agreed, are ultimately driven by investment, learning and innovation. The role of investment in effecting

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[2] According to Barro (1998: 8) the framework for the determination of growth can be written as $Dy = f(y, y^*)$, where Dy is the growth rate of per capita output, y is the current level of per capita output and $y^*$ is the long-run or steady state level of per capita output. The growth rate is diminishing in y, given $y^*$, and increasing in $y^*$, given y. The steady state level of per capita output, $y^*$, depends on an array of choice and environmental variables.

[3] See, for example, Ben-David and Papell (1995, 1998) and Pritchett (2000).

growth is facilitated by physical infrastructure, macroeconomic stability, the rule of law and solid institutions.[4] Thus, according to this view the fundamentals of growth continue to be investment supported by solid institutions inclusive of macroeconomic management. Building relevant institutions, it is generally recognized, is part and parcel of the development process. It is also generally recognized that institutions evolve over long periods of time in response to the demands of social, political and economic interactions. The evolutionary processes involved are influenced by the history and culture of the societies concerned. The direct channel through which institutions affect growth is the design and implementation of growth supporting policies. Hence, growth came to be closely related to policies at the micro and macro levels.[5]

In the context of Africa an important historical influence on the long-term evolutionary process of institutions has been the colonial encounter. There is evidence that where the colonial powers decided to settle they devised what is now called "market-supporting" institutions, while where they decided not to settle they opted for "extractive institutions". Colonial institutions, it is argued, persisted to the post-colonial period.[6] It is these inherited institutions that have influenced the growth performance of African countries, including Sudan.

On the basis of this understanding, a case-based analysis of growth performance is expected to address questions such as what patterns of investment, learning and innovation were observed? Why were these chosen by economic agents (households, firms and governments)? And, how did these choices feed into the growth outcomes?[7] Answering such questions for a given country effectively amounts to looking at the relevant history of the economy from a development performance perspective.[8] Such an investigation is a major undertaking and is certainly beyond the scope of this paper, which has the limited objective of highlighting the major features of Sudan that may have contributed to its growth performance. The starting point of the growth story in Sudan is that growth has been volatile over the past 40 years or so since independence in 1956. From the data, weak as they may be, four major growth episodes are identified for the purpose of the case study. These four episodes can be described from various perspectives of concern to the overall adopted of the case studies. At this early stage, however, we only need to note that they were alternating episodes of negative {(1960–1973) and (1984–1994)} and positive {(1974–1983) and (1995–1998)} growth.

In terms of major associations, the growth record, it will be shown, was influenced by a high degree of political instability that produced alternating democratic regimes with short durations and military regimes with relatively long durations. Given the historical background to the rise of political parties in the country, it will also be shown that democratic regimes were characterized by highly polarized political practices that left very little room for the articulation, design and implementation of growth-supporting policies. On the other hand, despite the long duration of military regimes they were politically vulnerable to outside influence, and possibly manipulation, which affected the credibility of policies and hence the overall environment for doing business. In addition to the political dimension, Sudan inherited an institutional structure that was not only weak but also extractive in nature. Such institutional structure was not changed in any significant fashion to become growth supporting. Specifically, the inherited institutional structure failed to provide a satisfactory solution to the country's major political and economic issue of the vast disparity that existed between its North,

[4] Rodrik (1999: 105).

[5] A relevant finding in this respect is that of Easterly (2001b) where it is noted that despite improvements in the policy stance indexes of a large number of developing countries over the period 1960–1994, especially in the context of the policy-based lending that started in the 1980s, a lot of these countries stagnated. A possible explanation of the stagnation of a number of countries despite improvement in policy is external shocks emanating from the slow-down of growth in advanced countries. For recent policy reforms in Sudan see IMF (1999, 2000).

[6] See, for example, Acemoglu et al. (2000). Mamdani (1996: 19) argues that the colonial state in Africa was "a double-sided affair. Its one side, the state that governed a racially defined citizenry, was bounded by the rule of law and an associated regime of rights. Its other side, the state that ruled over subjects, was a regime of extra-economic coercion and administratively driven justice".

[7] It is also implicitly understood that growth supporting policies are those characterized by low inflation, low government budget deficit and open trade regime! See, for example, the World Bank (1998: 12, box 1) and Easterly (2001b).

[8] See, for example, the approach adopted by Acemoglu et al. (2001) for a case study n Botswana.

relatively developed and largely Arab and Muslim populated, and its South, relatively underdeveloped and African and animist and Christian populated, regions. As a result, the country endured a civil war over the period 1962–1972 and another one from 1983 to the present. Thus, polarized politics, external influence and the civil war may have been major factors associated with the volatile growth performance of the country.

Brief as this outline of the story may be, the paper is composed of twelve sections. Section 2 gives a quick historical background to the economy of the country, while Section 3 looks at the growth record of the country in terms of the chosen periods as well as in terms of the half-decades used in the methodology papers by Ndulu and O'Connell (2000) and O'Connell and Ndulu (2000). The development transformation experience of the country given its growth performance is the focus of Section (4), and Section 5 deals with politics and growth in terms of political parties (reporting a political polarization index based on election results), the trade union movement and institutions. In Section 6 we turn to policy and growth. Sections 7, 8 and 9 deal, respectively, with markets, education and the civil war. Section 10 investigates the distributional and poverty implications of the growth process and Section 11 deals with the effect of oil on the growth performance of the economy. The final section (12) provides a summary in an attempt to answer the three questions posed above as to the "what, why and how" of growth in Sudan.

## 2. ECONOMIC BACKGROUND

Sudan, with its current international borders, became independent on the first of January 1956. As such it was one of the first countries in sub-Saharan Africa to gain independence from the late colonialism that targeted Africa in the 1860s. Unlike many sub-Saharan African countries, Sudan was nominally under a Condominium rule of Britain and Egypt over the period 1899–1956. Prior to that, some parts of Sudan were under a Turko-Egyptian rule that lasted for just over 60 years (1824–1885) before it was overthrown by a religious-nationalist revolution in 1885, the Mahdist revolution.

During the Turko-Egyptian rule a centralized administration emerged in the northern part of the country with Khartoum serving as the capital. In the southern (historically known as Equatoria in British colonial parlance) and western (Darfur) parts of the present country less formal, and traditional, administrations were prevalent. The second half of the nineteenth century witnessed improvements in transport and communications with Egypt that resulted in the opening of the country to foreigners. As a result, trade in goods (e.g., gum Arabic) and slaves (at the hands of Egyptian, British and Austrian traders) increased rapidly. The flourishing international trade, however, was disrupted during the Mahdist rule of 1885–1898.

The period 1899–1956, under the British colonial administration, saw the laying of the foundation of the modern economy of Sudan. The centrepiece of this foundation was long-staple cotton. Brown (1992: 80) summarized the story succinctly by noting that in "1913 the Condominium administration, backed by the British government, raised a loan to finance the construction of a dam at Sennar on the Blue Nile. Work began in 1914, was interrupted by the First World War, and in 1925 was completed. The Gezira irrigated cotton scheme, located in the triangle of land south of the confluence of the two Niles, thus came into being. Ultimately covering an area of over two million feddans, it was to become the world's largest single farming enterprise under one management, and the most important source of foreign revenue for Sudan" (for the detailed history of the Gezira scheme see Gaitskell, 1959).[9]

Drawing on the dominant traditions of crop sharing in northern and central Sudan, the Gezira scheme was organized as a partnership between the Sudan Plantation Syndicate (SPS, a British management company representing British shareholders), the colonial government and the tenants. The net profits of the scheme (after deducting the costs of non-labour inputs, overheads, production costs, transportation and marketing from the gross proceeds of cotton sales) were distributed among the three partners such that tenants received 40%, the government received 35% and SPS received

[9] One feddan = 1.038 acres = 4,201 square metres.

25%. In 1925 the total irrigated area of the scheme was 240,000 feddans, increasing to about one million feddans by independence in 1956.

The centrality of cotton to the colonial administration is attested to by the replication of the Gezira model in the eastern part of the country. Unlike the gravity irrigated Gezira, the Gash delta cotton scheme was developed on the basis of flush irrigation. While the annual area fluctuated depending on rain levels, the total area under the scheme increased from about 9,100 feddans in 1920 to about 68,800 in 1956. A smaller scheme was also initiated in the delta of the Baraka River in eastern Sudan with a total area of 30,000–40,000 feddans. Private pump schemes were established on the White and Blue Niles and their number increased from 372 (with an area of 170,000 feddans) in 1944 to 2229 (with an area of 770,000 feddans) in 1957.

Complementary to cotton was the transport and communication network. It is estimated that between 1919 and 1939 about 56% of total government capital expenditure was devoted to the Gezira scheme and 24.1% devoted to the development of the railway system. The limited investment that was undertaken in industry was devoted to cotton ginneries (large ones in Port Sudan, Sennar and Atbara and six smaller ones in various parts).

Another agricultural pillar of the modern economy of Sudan was initiated by the colonial state in the wake of the Second World War. Large-scale mechanized production of sorghum (dura), the main food staple of the northern part of the country, was started in 1945 near Gedaref in eastern Sudan. The first mechanized crop production scheme covered about 12,000 feddans under the management of the Middle East Supply Corporation (MESC). Labour difficulties encountered by MESC resulted in the government taking over the scheme in 1947 where a share cropping arrangement similar to the Gezira formula was introduced. Under the government, the scheme covered 25,000 feddans and involved about 1,000 cultivators, up to 1953. During the period 1947–1953 a number of entrepreneurs expressed interest in investing in mechanized farming under a different land tenure system. Eventually, the crop sharing arrangement was abandoned and leaseholds were sold to private investors. At independence in 1956 there were more than 300 private mechanized schemes covering about 388,000 feddans.

At independence in 1956 the production structure of the Sudan economy was as summarized in Table 1. Not surprisingly, the economy was dominated by agriculture, which contributed about 61% of GDP. There was virtually no industrial sector to speak of (with a contribution of about 1.1% of GDP) with the services sector accounting for the remaining 37.9% of GDP.

**Table 1: Sudan: 1955/56 GDP composition (current prices)**

| Sector | GDP (million £s.) | GDP share (%) |
|---|---|---|
| Agriculture | 172.6 | 60.7 |
| Industry | 3.0 | 1.1 |
| Construction | 16.2 | 5.7 |
| Transport | 37.6 | 13.2 |
| Public Utilities | 1.0 | 0.4 |
| Government | 17.2 | 6.0 |
| Real Estate | 8.2 | 2.9 |
| Other | 28.4 | 10.0 |
| Total | 284.2 | 100.0 |

Source: Brown (1992: Table 3.1, 86).

In the context of this economy it is estimated that total investment amounted to about 21.1 million Sudanese pounds in current prices. The sectoral distribution of this investment was such that the bulk was in the real estate sector (38.7%) followed by the government sector (accounting for 21.7%), transport (19.7%) and agriculture (8.5%). Investment in manufacturing amounted to only 2.5% of the total. Of the total investment in 1955/56, it is estimated that 54% was contributed by the public sector, leaving a balance of 46% for the private sector. Of the private sector's total investment, 84% was devoted to the real estate sector, 5% to manufacturing, 4% to agriculture and 3% to transport.

Given the structure of the economy, the composition of Sudan's exports at independence was dominated exclusively by primary products. Total exports amounted to about £s65.4 million in current

prices (about 23% of GDP). Cotton dominated Sudan's exports with a share of 80% of total exports. Gum Arabic and groundnuts ranked second to cotton with a share of 7% each, while melon-seed and hides and skins ranked third with a share of 2% each.

At independence the structure of the economy was clearly dual in nature with a vast traditional sector and a small modern sector. This production structure influenced the fiscal system on the resource mobilization side. Taxes aiming at mobilizing resources from the traditional sector included a land tax (introduced in 1925 on all irrigated land, except that irrigated seasonally by rain or flood, as a fixed charge on land value or the value of the products), a date tax (1925, on date trees bearing fruits), an animal tax (1925, on livestock at a specified rate per head of each type), "ushur", based on Islamic traditions, is an Arabic word meaning one-tenth is designed to tax rain-fed agriculture (1924, at 10% of the value of the product of rain lands), a poll tax (1925, on almost all adult males in the subsistence part of the economy, at one Sudanese pound per head), and a house tax (1918, at a rate of one-twelfth of the annual rental value of the house irrespective of it being rented or occupied). In addition to these direct taxes designed to mobilize resources from the traditional part of the economy, other direct taxes were also enacted to tax the modern part of the economy. The most important among these was the business profits tax, which was introduced in 1913. Not surprisingly, however, indirect taxes were the most important source of government revenue under the colonial state and continued to be so in the post-colonial period. Among these, taxes on international trade were central to the country's revenue structure at independence. Import duties, export taxes and royalties were imposed in 1939. Excise duties, imposed upon certain locally produced commodities, and consumption taxes on selected imported goods, were imposed in 1924.

At independence, on the first of January 1956, Sudan was composed of nine administrative units called provinces: six provinces in the north of the country (Northern, Khartoum, Blue Nile, Kassala, Kordofan and Darfur) and three provinces in the south of the country (Bahr El Ghazal, Upper Nile and Equatoria). Table 2 gives the distribution of population in 1956 according to the results of the population census. The table shows that in 1956 southern Sudan accounted for 27.12% of the total population of the country.

**Table 2: Population of Sudan by province in 1956**

| Province | Population | Percentage of population |
|---|---|---|
| Blue Nile | 2,069,646 | 20.17 |
| Kassala | 941,039 | 9.17 |
| Khartoum | 504,923 | 4.92 |
| Darfur | 1,328,765 | 12.95 |
| Kordofan | 1,761,968 | 17.17 |
| Northern | 873,059 | 8.51 |
| Bahr El Ghazal | 991,022 | 9.66 |
| Equatoria | 903,503 | 8.80 |
| Upper Nile | 888,611 | 8.65 |
| Total | 10,262,536 | 100.00 |

Source: Balamoan (1981: 58).

At independence, Sudan's GDP was estimated as amounting to £s284 million (US$795 million). Per capita GDP amounted to £s28, or about US$78, classifying Sudan among the poorest countries in the world. The distribution of GDP over regions is given in Table 3.

**Table 3: GDP of Sudan by region in 1956**

| Region | Provinces | GDP (£s000) | GDP share (%) | Population | Population share (%) | GDP per capita (£s) |
|---|---|---|---|---|---|---|
| North-East | Northern, Kassala, Khartoum | 75,786 | 26.67 | 2,319,021 | 22.60 | 32.68 |
| Blue Nile | Blue Nile | 86,032 | 30.27 | 2,069,646 | 20.17 | 41.59 |
| North-West | Kordofan, Darfur | 83,777 | 29.48 | 3,090,733 | 30.11 | 27.11 |

| | | | | | | |
|---|---|---|---|---|---|---|
| South | Bahr El Ghazal, Equatoria, Upper Nile | 38,610 | 13.59 | 2,783,136 | 27.12 | 13.87 |
| Total | | 284,205 | 100.00 | 10,262,536 | 100.00 | 27.69 |

Source: based on Balamoan (1981: 244).

The table shows that the Blue Nile region, the heart of agricultural development during the colonial period, was relatively better off than other regions of the country with a per capita GDP that amounted to about £s.42 (US$118), followed by the North-East region, which includes the capital city of Khartoum, with a per capita GDP of about £s33 (US$92) and the North-West region with a per capita GDP of £s27 (US$76). The South fared much worse than the northern regions with a per capita GDP of about £s14 (US$39), reflecting years of neglect and marginalization during the colonial period. The poorest northern sub-region has almost twice the per capita income of the South.

At an aggregative level this information enables the calculation of a Gini coefficient for the distribution of GDP among regions of about 26.35%, reflecting a fairly even distribution of GDP consistent with the nature of the economy and its very early stage of development. The Gini coefficient for the distribution of GDP among the northern three regions is about 9.52%, reflecting a fairly high degree of equality in the distribution of GDP among these regions.

The development gap between the northern and southern parts of the country at independence can further be appreciated by looking at the distribution of GDP by economic sector. Overall the country was agricultural in nature with the agricultural sector accounting for more than 60% of GDP while industry accounting for less than 5% of GDP. Table 4 provides the distribution among the regions where figures between brackets are the shares of the regions in sectoral GDP.

**Table 4: Sectoral composition and regional distribution of GDP in Sudan 1956 (£s000)**

| Sector | North-East | Blue Nile | North-West | South | Total | GDP share (%) |
|---|---|---|---|---|---|---|
| Agriculture | 23,434 (13.58) | 63,117 (36.66) | 58,454 (33.86) | 27,603 (16.00) | 172,608 | 60.73 |
| Industry | 5,302 (38.45) | 3,134 (22.73) | 2,819 (20.45) | 2,533 (18.37) | 13,788 | 4.85 |
| Services | 47,050 (48.10) | 19,781 (20.22) | 22,504 (23.01) | 8,474 (8.66) | 97,809 | 34.42 |
| Total | 85,786 | 86,032 | 83,777 | 38,610 | 284,205 | 100.00 |

Source: compiled from Balamoan (1981: 246).

Thus, at independence the northern part of the country contributed 84% of agricultural output, about 82% of industrial output and about 91% of the output of the services sector. The structure of the economy of the southern part of the country departed significantly from the overall structure of the economy where it is an easy matter to show that agriculture contributed 72% of the GDP of the region and services 22% with industry contributing the rest.

## 3. ECONOMIC GROWTH IN SUDAN: THE RECORD

In conformity with the AERC Growth Project we look at the period 1960–1998/2000 for which consistent data on real GDP per capita in 1985 purchasing power parity (PPP) are available from the Global Development Network growth database (Easterly and Sewadeh, 2002). Visual inspection of the data series suggests four subperiods of growth experience. The periods are of different lengths. We estimated the trend growth rates for each of the subperiods and calculated the mean and the standard deviation of growth rates as well as the coefficient of variation for the four periods. Table 5) reports our results where figures in parenthesis are the standard deviations for the mean growth rates.

**Table 5: Sudan's growth episodes: Per capita GDP growth rates 1960–1998**

| Growth episode | Trend growth rate (%) | Average growth rate (%) and (SD) | Coefficient of variation | # of Years |
|---|---|---|---|---|
| 1960–1973 | -0.89* | -1.43 (5.13) | 3.59 | 9 (13) |
| 1974–1983 | 1.27 | 2.57 (7.54) | 2.93 | 2 (10) |
| 1984–1994 | -0.11 | -0.60 (4.97) | 8.28 | 6 (11) |
| 1995–1998 | 2.96* | 2.60 (1.12) | 0.43 | 0 (4) |
| 1960–1998 | 0.02 | 0.29 (5.69) | 19.62 | 17 (38) |

Source: Own calculations. Trend growth rates are based on regressions of the form: ln y = a + b t; where y is per capita GDP in PPP 1985 dollars and t is time. * indicates significance at 1% level or better. Note that in the last column year-on-year growth rates are calculated and as such 1960 is lost in recording the number of years.

Thus for Sudan we have alternating subperiods of negative and positive growth. The negative growth periods are the longest ones, but with relatively low negative growth rates. By contrast, the positive growth subperiods are shorter with relatively high per capita growth rates. For the whole period, there was a positive, but insignificant, growth trend with a very low R-squared.

The details show that during the negative growth subperiods there were fluctuations around the subperiod trend. Thus, for example, during the negative growth episode of 1960–1973 real per capita GDP increased in 1965, 1966, 1970 and 1971. Similarly, during the 1984–1994 episode real per capita GDP increased for the years 1986, 1989, 1991, 1992 and 1994. During these two episodes the magnitude of the rates of growth also varied. Thus, for example, during the 1960–1973 episode the highest negative growth rate is recorded for 1973 (-12%), while the lowest negative growth is recorded for 1967 (-0.8%); the highest positive growth rate is recorded for the year 1971 (5.1%), while the lowest positive growth rate is recorded for the year 1970 (3.4%). On the other hand, for the positive growth episodes only the 1974–1983 recorded negative growth rates for the years 1978 (-3%) and 1979 (-11.6%).

Overall, Sudan's growth record was one of volatile growth. Looking at the coefficient of variation it is easy to see that the positive growth periods had relatively low variability, while the negative growth periods were volatile. For the whole period the coefficient of variation is fairly high, confirming the overall volatility of the growth experience of the country.

Be the above as it may, and subject to the qualifications (discussed in O'Connell and Ndulu, 2000) about the appropriateness of the data on physical capital, growth accounting for the Sudan, based on the Collins and Bosworth (1996) global cross-country regressions, shows that the behaviour of total factor productivity (TFP) seems to embody the main story behind the growth performance of Sudan. Table 6 presents the relevant information.

**Table 6: Growth accounting decompositions for Sudan: 1960–1997**

| Sub-Period | Growth in real GDP | Contribution of physical capital per worker | Contribution of human capital per worker | Residual |
|---|---|---|---|---|
| 1960–64 | -.096 | 4.16 | 0.04 | -5.16 |
| 1965–69 | -1.18 | 1.88 | 0.08 | -3.14 |
| 1970–74 | -0.37 | 1.01 | 0.16 | -1.54 |
| 1975–79 | 3.44 | 1.93 | 0.22 | 1.29 |
| 1980–84 | -0.38 | 1.22 | 0.33 | -1.92 |
| 1985–89 | -2.42 | -0.19 | 0.35 | -2.58 |
| 1990–97 | 1.03 | -0.42 | 0.21 | 1.24 |
| Total | -0.12 | 1.37 | 0.20 | -1.69 |

Source: O'Connell and Ndulu (2000: Table 4.3).

A few observations are in order regarding the results in the table. The first observation is that for the half decades covering the period 1960–1974 (which approximates the first growth episode of Table 5), growth was negative and was caused by a significant total factor productivity decline. Negative TFP growth caused growth to slip by more than 3 percentage points per annum, relative to

the rates attainable with the levels of physical and human capital utilized during the period. As will be elaborated in the various sections below, the subperiod 1960–1969 saw a macroeconomic policy that was fairly stable with reasonably low inflation rates, small budget deficits and a reasonably valued exchange rate. Moreover, economic and development policy was outward oriented in terms of focusing on the expansion of cotton production and was private sector sensitive in terms of enacting a number of laws to encourage private sector investment in rain-fed farming and manufacturing industry.[10] Furthermore, the external economic environment was conducive to growth in the sense of being predictable despite the fluctuations in the terms of trade.

The period was marked by a fairly high degree of political instability, however, that reflected itself in a number of coalition governments following the demise of the military regime that was governing over the period 1960–1964. This eventually lead to the second military regime in 1969, which brought with it a set of policies that were diametrically opposed to the earlier policies and increased the degree of government intervention in the economy through nationalization and confiscation in the manufacturing sector, as well as increasing the degree of control on prices, including wages, and profit margins and the politicization of the bureaucracy.[11] These socialist policies, which were modelled on the Egyptian experience under Nasser, and thus reflected a degree of sensitivity of policy making to external influence, also nationalized the banking sector.

Second, the weighted average growth rate for two half-decades (1975–1979 and 1980–1984), corresponding to our first positive growth episode, is 1.53% per annum. The weighted average contributions of physical and human capital to this growth are, respectively, 1.58 and 0.28 percentage points, implying a negative total factor productivity contribution of 0.33 percentage points. Thus growth during this period seems to have been driven largely by factor accumulation. Pending further details, this prediction is consistent with the fact that this period witnessed massive inflows of official capital from Arab countries in the context of the so-called breadbasket strategy but also witnessed the first signs of the economic crisis of the country in 1977 and 1978. The end of the growth episode in 1983 also witnessed negative innovations in terms of governance in the form of forcible implementation of Islamic laws (so-called Shariaa laws). The political instability reflected itself in the major change of the military regime by a democratic one, which saw the formation of five coalition governments in a span of four years not counting the transitional quasi-military regime that took over during the period April 1985–April, 1986.

Third, the weighted average growth rate for the half-decade 1984–1989 and the implicit half-decade 1990–1994 was a negative 0.7% per annum which approximately corresponds to the episode of negative growth of 1984–1994 in Table 5. The weighted average contributions of physical and human capital to this growth are, respectively, negative 0.31 percentage points and a positive 0.28 percentage points, implying a negative total factor productivity contribution of 0.67 percentage points. Thus growth during this period seems to have been driven largely by total factor productivity. This period was characterized by relatively high political instability and witnessed two regime changes from military to democratic to military. As a result of this political instability perceived risks of the economic environment increased especially during the early years of the 1989 military regime, which used extreme political repression, unheard of in the modern history of Sudan, as well as extreme predatory economic measures favouring party loyalists and discriminating against traditional entrepreneurs. The military regime that took over in June 1989 had its support from the ideological National Islamic Front (NIF).

Fourth, in the most recent positive growth spell of the 1990s, growth in TFP seems to explain the performance of the economy. One possible explanation is that TFP growth was related to the earlier phase of the inflow of foreign direct investment into the oil sector. The flow of FDI must be seen as

[10] The various acts for encouraging private investment included the Approved Enterprises Concessions Act, 1956; the Organization and Promotion of Industrial Investment Act, 1967; and the Development and Encouragement of Industrial Investment Acts, 1972 and 1974. For an analysis of the incentive content of these acts see, among others, Abu Affan (1985).

[11] According to the records of the Ministry of Industry, 27 private firms were taken over by the state in 1970. Later on, under a reversal of policies, 15 of these were returned to their previous owners, 11 were retained under public ownership, and one was turned into a joint venture. For the details see Abu Affan (1985: 152–3, Appendix II).

having been a remarkable phenomenon in view of the political and economic isolation of Sudan by major Western donors, and of the fact that Sudan has since been placed under a non-active status with the IFIs.

## 4. GROWTH AND DEVELOPMENT TRANSFORMATION

Utilizing the usual sectoral composition of the economy O'Connell and Ndulu (2000: 5) report that "Africa's slow growth has been accompanied by very limited structural transformation". We use World Bank (2000) data on sectoral shares, to look at the experience of Sudan compared with that of Africa. We note the following results for the transformation experience of Sudan in terms of sectoral shares.

The first result to note is that the growth experience of Sudan conforms to the observation that in the 1990s "agriculture still tends to contribute roughly a third of total GDP in African countries, a share nearly two standard deviations above the non-African-developing-country mean". Over the whole period 1960–1998 the share of agriculture declined from 55.35% of GDP in 1960 to 39.29% in 1998. Thus by the end of the period agriculture continued to dominate the production structure of Sudan. The pattern of decline was not uniform, however, where some periods recorded fluctuations. For the whole period 1960–1987 we estimated a trend annual rate of decline of 1.67% (with a t-value of 8.1 and an R-squared of 72%). During the period 1960–973 a trend annual rate of decline of 2.1% (with a t-value of 2.83 and an R-squared of 40%) is estimated. However, the period saw the share of agriculture declining from 55.4% in 1960 to a low of 36.8% in 1968 before increasing to 44.9% in 1973. Over the period 1973–1977 the share of agriculture declined in a sustained fashion at a trend rate of decline of 3.7% per annum (with a t-value of 3.4 and an R-squared of 80%). The share declined from 44.9% in 1973 to 39.9% in 1977. During the period 1977–1987 a rate of decline of 1.5% is estimated (with a t-value of 2.43 and an R-squared of 40%), and the share declined from 39.9% in 1977 to 32.8% in 1987.

The second result is that the growth experience of Sudan conforms to the observation that "Africa's share of GDP in industry has risen very slowly since the early 1970s". For the whole period 1960–1987 we estimate a trend rate of increase of 0.35% (with a t-value of 1.67 and an R-squared of 9.7%) that is not significant at the 10% level. During this period the share of industry increased from about 13.5% of GDP in 1960 to about 16.3% in 1987. The increase in the share of industry was not significantly different from zero for the subperiod 1960–1973 (a trend rate of increase of 0.51% with a t-value of 0.83 and an R-squared of 5.5%). For the period 1973–1977 the share of industry recorded a decline at a trend rate of 2.12%, which is not significantly different from zero (with a t-value of 1.69 and an R-squared of 49%). The period 1977–1987 recorded a significant trend rate of increase of 3.12% (with a t-value of 12 and an R-squared of 94%). By 1998 the share of industry amounted to 18.2% of GDP.

The third result is that the growth experience of Sudan does not conform to the observation that on the services front, the African average shows a pattern of increase until the early 1980s and a decrease thereafter. The African boom-and-bust pattern is consistent with accounts that emphasize over-stretching of the African public sector by mid-to-late 1970s. For the whole period 1960–1987 the share of the services sector in GDP increased at an annual trend rate of 1.55% (with a t-value of 8 and an R-squared of 71%), and the share increased from 31.1% of GDP in 1960 to 50.9% in 1987. Significant trend rates of increase are estimated for the two subperiods 1960–1973 (2.54% with a t-value of 3.95 and an R-squared of 56%) and 1973–1977 (4.1% with a t-value of 5.4 and an R-squared of 91%). The share of services fluctuated along an increasing trend during the period 1977–1987. Thus, during this period the share of services registered a non-significant rate of increase of 1.7% (with a t-value of 0.44 and an R-squared of only 2.2%). By 1998 the share of services amounted to 42.6% of GDP.

O'Connell and Ndulu (2000: 6) reported Chenery–Syrquin type regressions in an attempt to see the extent to which "the patterns of sectoral transformation in African countries depart in systematic ways from what would be expected given the continent's overall growth". Using the results of the estimated model Ndulu and O'Connell (2000: 10–17, Table 3.3.A) provided actual and predicted sectoral shares for a number of countries. In the estimation of the model sectoral shares, the dependent

variables are calculated on the basis of constant 1995 dollars. Owing to missing observations, Sudan was not included in the regression sample and as a result no actual values are reported. In what follows we use the data in Appendix A, Table A1, to compute the means for the half-decades and compare them with the predicted shares. At this stage, our results should be taken as indicative. Table 7 summarizes the results.

**Table 7: Structural transformation in Sudan: Actual and predicted sectoral shares (percentages)**

| Period | Agriculture: | | Industry: | | Services: | |
|---|---|---|---|---|---|---|
| | Actual | Predicted | Actual | Predicted | Actual | Predicted |
| 1960–1964 | 52.42 | 32.42 | 13.56 | 25.52 | 34.02 | 42.06 |
| 1965–1969 | 39.83 | 31.63 | 15.59 | 25.17 | 44.58 | 43.20 |
| 1970–1974 | 44.33 | 31.42 | 13.79 | 24.34 | 41.88 | 44.24 |
| 1975–1979 | 38.77 | 30.94 | 13.11 | 23.88 | 48.13 | 45.18 |
| 1980–1984 | 34.12 | 28.58 | 14.87 | 25.18 | 51.01 | 46.24 |
| 1985–1989 | 33.06 | 29.11 | 16.08 | 23.76 | 50.92 | 47.12 |
| 1990–1997 | 38.34 | 28.93 | 15.79 | 22.91 | 45.36 | 48.17 |

Source: Ndulu and O'Connell (2000: 16) for the predicted shares.

On the basis of Table 7 we note the following results:

- Sudan's growth experience does not conform to the observation that "agricultural output shares are just slightly higher in Sub-Saharan Africa than predicted on the basis of income and population". As the table shows the actual share of agriculture in GDP is markedly higher than the predicted share for all half-decades. The difference narrowed for some periods but has also widened for others.

- Sudan's growth experience does not conform to the observation that "given income and population the size of industry is markedly larger than would be predicted based on cross-country norms". As the table shows, for all half-decades the actual share of industry in GDP is markedly lower than what is predicted by the cross-country norms.

- Sudan's growth experience partly conforms to the observation that "given income and population, the size of the services sector is markedly lower than would be predicted based on cross-country norms". As the table shows, the observation applies to the half decades of 1960–1964, 1970–1974 and 1990–1997; for the remaining periods the actual share of services is higher than the predicted share.

Thus, on the basis of these results Sudan's growth experience shows that little or no development transformation occurred over the period 1960–1998.

## 5. POLITICS, INSTITUTIONS AND GROWTH

In their framework paper Bates and Devarajan (2000: 2) argued that the observed poor growth performance of a number of African countries cannot be explained without taking into account the behaviour of governments. A relevant analytical framework in the context of which such account can be taken, it is proposed, is the neo-classical political economy that starts from assuming that governments have well defined preferences over policy choices. Such preferences get aggregated through interest groups and political parties. On the basis of such preferences policy outcomes get determined through the intermediation of domestic political institutions. Examples of how politics can be incorporated in an analysis that seeks to explain policy outcomes are given for trade policy, exchange rate policy, the budget process and monetary policy. Since all of these policy variables

affect growth it is concluded that politics affects the rate of growth of an economy through its impact on public policy.

At the domestic political level, it is shown that preferences for various policies could be shaped by the resource endowment of the country; the nature of the interest groups; the structure of political institutions; the strength of the bureaucracies; the economic base of the political party, or parties, in power; the regional basis of political parties; and the preferences of dictators. In addition to these domestic political dimensions, it can be argued that actual policy choices can be influenced by the response of domestic political structures to external influences regarding policy preferences.

There is general agreement, among political science analysts and historians, that at independence, and during the subsequent post-independence period, three major social groups came to hold great influence on the political, social and economic life of northern Sudan and of the country. These included religious leaders, tribal leaders and merchants. Their emergence was due to old historical factors relating to the domination of religious life in northern society by Muslim Sufi religious orders and to the indirect rule policy of the colonial state. In the old days (sixteenth to eighteenth century) religious leaders consolidated their wealth position by their ability to mobilize small savings from their followers depending on a number of factors including the nature of the religious organization. The Mahdist revolution, despite expression of scattered scepticism, was the culmination of such Sufi influence on northern political, social and economic life. (For a brief review of the political history of the country see Appendix B.)

### 5.1 Political Parties

In view of the political background of the preceding section it is perhaps not surprising that the very first parliamentary elections, in 1953, for a self-rule government were contested by the two major parties, the National Unionist Party (NUP) and the Umma Party (UP), in addition to a number of small parties including the Republican Socialist Party (RSP). In this respect it is interesting to note that the RSP was composed of tribal leaders and its creation is credited to the British administration in the hope that it would carry the political day of the country. It is perhaps not surprising that the results of the first parliamentary elections were such that 75% of the seats from geographic constituencies went for the two parties aligned with the two major religious sects. The total number of geographic constituencies was 92, distributed in such a way that 22 were allocated for the South and the remainder for the North. In addition to these geographic constituencies five additional constituencies were reserved for "graduates of secondary schools" in Sudan. These five graduate constituencies were open for competition at the country level. The details of the election results for the geographic constituencies are reported in Table 8.

**Table 8: Regional basis of political parties in 1953: Parliamentary seats from geographic constituencies**

| Province | National Unionist Party (NUP) | Umma Party (UP) | Republican Socialist Party | Southern Party | Others | Total |
|---|---|---|---|---|---|---|
| Blue Nile | 6 | 10 | 2 | 0 | 0 | 18 |
| Kassala | 6 | 1 | 0 | 0 | 1 | 8 |
| Khartoum | 9 | 0 | 0 | 0 | 0 | 9 |
| Darfur | 2 | 6 | 1 | 0 | 2 | 11 |
| Kordofan | 11 | 6 | 0 | 0 | 0 | 17 |
| Northern | 7 | 0 | 0 | 0 | 0 | 7 |
| Bahr El Ghazal | 1 | 0 | 0 | 2 | 4 | 7 |
| Equatoria | 0 | 0 | 0 | 5 | 2 | 7 |
| Upper Nile | 4 | 0 | 0 | 2 | 2 | 8 |
| Total | 46 | 23 | 3 | 9 | 11 | 92 |

Source: Compiled from Niblock (1987).

From tables 3 and 8 it is perhaps clear that NUP's regional base was in the North East of the country together with Kordofan province, while the regional base of the Umma party was in the Blue Nile and the North West. From Table 5 it is clear that in terms of GDP the North East contributed about 27% while the Blue Nile and the North West regions contributed 30% and 29%, respectively. The Blue Nile is the heart of the cotton growing area where together with large-scale government schemes it also housed the privately owned cotton schemes. The North East's GDP is dominated by transport and distribution activities, building and construction, the services sector including banks and trade, and ownership of buildings. While these could be used as indicators for distinguishing between the economic bases of the parties, it is perhaps safe to say that the two major parties had similar economic bases and hence represented similar economic interests, mainly those of agricultural "capitalists" (for more detailed analysis of the economic interests of the parties see, for example, Ali, 1989). This was indeed borne out in the results of the various democratic elections and the nature of policies pursued by the various governments.

Consistent with these observations on economic interests, and as noted earlier in the historical origins of modern politics in Sudan, was the social origins of the elected members of parliament (MPs). According to Niblock's (1987) classification, the social origins can be looked at in terms of four major categories: tribal and religious leaders; ex-government employees and ex-army officers; merchants and farmers; and teachers and others. Table 9 summarizes the distribution of members of the first parliament according to social origins.

**Table 9: Social groups of the members of the first elected parliament**

| Social Group | Northern constituencies | Southern constituencies | Graduate constituencies | Total |
|---|---|---|---|---|
| Tribal and religious leaders | 31 | 3 | 0 | 34 |
| Ex-employees and ex-soldiers | 19 | 10 | 1 | 30 |
| Merchants and farmers | 14 | 1 | 0 | 15 |
| Teachers and others | 6 | 8 | 4 | 18 |
| Total | 70 | 22 | 5 | 97 |

Source: Own compilation from Niblock (1987).

These features of the political history of the country leading to the capture of the post-independence Sudanese state by the economic elite (with their religious following) partly explain the involvement of the military in the politics of the country. The reason for this is that the results of the 1953 self-rule elections indicated that the country was to be ruled by coalition governments in view of the lack of clear majorities being won by any major party. Indeed, the two major parties were to split from within in various directions and for various reasons. The first split came in June 1956 when "Khatmiyyah loyalists among the tribal leaders, religious agents and fractions of bourgeoisie with economic interests in rural areas of the northern and eastern Sudan, broke away from the NUP and formed the Peoples' Democratic Party (PDP)" (Ali, 1989: 117).[12]

**Table 10: Number of geographical constituencies in 1953 and 1958 in Northern Sudan**

| Province | Number in 1953 | Number in 1958 | % change | Party political influence |
|---|---|---|---|---|
| Northern | 7 | 16 | 128 | Khatmia Sect |
| Kassala | 8 | 16 | 100 | Khatmia + Ansar |
| Darfur | 11 | 22 | 100 | Ansar |
| Blue Nile | 18 | 35 | 94.4 | Ansar+ Quasi-Secular |
| Kordofan | 17 | 29 | 76.6 | Quasi-Secular + Ansar |
| Khartoum | 9 | 9 | 0 | Quasi-Secular |

Source: Niblock (1987).

[12] Relating the creation of the PDP and the eventual coalition with the Umma party to the evidence of the social origins of MPs, Ali (1989: 119) concluded that "the regime of July 1956 represented an alliance of the agricultural capitalists and the religious aristocracy with the latter exercising effective, undisguised and unmitigated hegemony".

Rather than continue with the detailed historical records on the rise and fall of political parties, it may be useful to concentrate on the major political feature of these formations for the purposes of policy making. This major feature is that politics in the Northern part of the country started off as factional and conflict ridden and hence fairly highly polarized. Such a feature can be captured by a political polarization index defined as follows:

$$\text{Political polarization index} = \text{PPI} = 1 - 4\,\Sigma(0.5 - \pi_i)^2\,\pi_i \qquad (1)$$

where $\pi_i$ is the percentage of seats secured by a given party in an election and the summation is over the number of political parties. The maximum political polarization, an index value equal to one, obtains when there are only two parties with equal weights in the elections. Table 11 summarizes the results of the calculations of the PPI for all the elections held in Sudan. Except for 1953 and 1958, all other elections were partial in nature in the sense of excluding the Southern region of the country. The index is calculated for the number of seats secured by given parties as reported in the literature. Where there are numerous small parties a category called "others" is used in the calculation of the index.

**Table 11: Political polarization index for Sudan**

| Year | Number of parties | Number of constituencies | PPI | Governments formed during the period |
|---|---|---|---|---|
| 1953 | 5 | 97 | 0.7798 | NUP formed the first government. A coalition NUP-UP government was formed in February 1956. In June 1956 Khatmiyyah loyalists broke away from NUP and formed the Peoples' Democratic Party (PDP). A UP-PDP government was formed in July 1956. |
| 1958 | 3 | 127 | 0.8842 | UP-PDP coalition government. UP handing over the government to the army generals on 17 November, owing to a threat of being deposed by a NUP-PDP coalition. |
| 1965 | 6 | 173 | 0.7867 | UP-NUP coalition for the period May 1965–June 1966. UP spilt into two parties: Sadig's faction (SUP) and the Imam faction (IUP). SUP-NUP coalition government for the period June 1966–May 1967. IUP-NUP coalition for the period May 1967–June 1968. |
| 1968 | 9 | 218 | 0.6616 | IUP-NUP coalition for the period 1968–May 1969. |
| 1986 | 7 | 260 | 0.7323 | UP-NUP two coalition governments (June 1986– May 1987; and June 1987–May 1988); UP-NUP-NIF coalition government (May 1988–December 1988); UP-NIF coalition government (December 1988–March 1989); and National Unity Government (March 1989–June 1989). |

Source: Own calculation and compilation from various sources. In all coalition governments there were ministers from the South though not necessarily representing it.

The table shows a fairly high level of political polarization for the country during the democratic regimes based on the various democratic elections held in the country. It is this relatively high level of political polarization that led to the involvement of the military in the politics of the country. Over the period 1956 to the present Sudan has had six alternating democratic–military regimes as summarized by Table 12.

**Table 12: Political regimes and their policy orientation in Sudan 1956–2002**

| Period | Regime type | Duration in months | Ideology | ▪ Policy stance |
|---|---|---|---|---|
| 1 January 1956– | Parliamen- | 35 | No identified | ▪ Private sector and |

| | | | | |
|---|---|---|---|---|
| 16 November 1958 | tary-Demo-cratic | | ideological stance. Dominant traditional parties with Islamic-sectarian popular support. Dominant agricultural economic interests | export orientation;<br>▪ Agricultural development;<br>▪ Fine tuning fiscal and monetary policy |
| 16 November 1959–25 October 1964 | Military (Generals) | 71 | No identified ideological stance | ▪ As above |
| 26 October 1964–24[t] May 1969 | Parliamen-tary-Demo-cratic | 55 | As per the first period | ▪ As above |
| 25 May 1969–5 April 1984 | Military (young officers) | 178 | Arab nationalism and Arab socialism with support from the left. Subsequent adherence to Islamic orientation. | ▪ Up to 1972: Socialist policies.<br>▪ From 1972: Liberalization and private sector orientation; inflow of foreign capital.;<br>▪ Debt crisis<br>▪ IMF/WB adjustment policies |
| 6 April 1985–30 June 1989 | Parliamentar y-Democratic | 63 | As per the first period with coalition with Islamic oriented political forces | ▪ Ad-hoc policies |
| 30 June 1989–Present | Military-Civilian | 78 | So-called Islamic civilizing project | ▪ Up to 1995: Confused policy stance From 1995 to the present: Home grown adjustment policies of the IMF/WB variety with no financial support<br>▪ Oil exports from Sept. 1999 |
| Total | ----- | 480 | ----- | ▪ ------ |

Source: Own compilation.

The features noted above of the political process and the nature of the dominant parties had obvious implications for the choice and pursuit of economic and development policies. A fair observation would be that while democratic governments were inclined to pursue previously tried policies in the sense of maintaining the status quo in policies, military regimes have been relatively more adventurous in trying new policies, be these planning oriented or more market oriented. Thus the first ten-year plan was launched during the first military regime, while two other plans were drafted during the second military regime. It was also the second military regime that decided to formulate and implement structural adjustment programmes with support from the International Monetary Fund (IMF) and the World Bank, while the third military regime, after some procrastination, decided to formulate a home grown version of an adjustment programme, albeit not supported by the IMF and the World Bank. Moreover, it was the first military regime that decided to receive the highly politically contested US foreign aid and it was the second military regime that went ahead with the adventure of trying to formulate an Egyptian style socialist policy programme inclusive of nationalization and confiscation.

This behaviour of governments regarding economic policy choices, it can be conjectured, arose mainly because over time the dominant political parties seemed to be locked into the old style pre-independence haggling over power, with no time devoted to developing legitimacy in the economic performance sphere. In this respect Salih (2001: 78) observes that the "Sudanese political elite of different political persuasions still use the discourse of independence, the events that had shaped it and the configuration of political life that ensued, to claim and justify their right to rule. As a result they have offered virtually no new visions of governance, or alternative institutional arrangements".[13]

### 5.2 The Trade Union Movement

In contrast to the traditional nature of the dominant parties, a modern, democratic, economically conscious and politically active trade union movement developed in Sudan as early as 1946 and was involved in the struggle for independence. According to the most authoritative account of the rise of this movement, it all started at Atbara town, the headquarters of Sudan railways, when an informal association of railway workers started to agitate to be recognized as the sole representative of the railway workers (Fawzi, 1957). Following a number of failed attempts, and industrial action in the form of strikes that crippled the transport system of the country, the colonial government eventually recognized the association and went on to legislate for the organization of labour relations in the form of the Trade Unions Act 1949. The railways trade union was eventually registered in 1949 as the largest trade union in the country, with a dominating membership of more than 17,000 workers accounting for 45.7% of the total members of the trade union movement in 1951. On the basis of the legislative instrument the number of workers trade unions increased from 5 in 1949 to 62 in 1950, 86 in 1951, 99 in 1952 and 123 in 1953.

The railways trade union was instrumental in the eventual establishment of an umbrella organization for workers trade unions first in the form of the Workers Trade Union Congress and later in the form of Sudan Workers Trade Union Federation (SWTUF) in 1950. SWTUF was established as a modern democratic organization with a constitution and bylaws that governed its operations and where member trade unions were represented in the Federation's various bodies on the basis of an agreed formula for representation according to size. SWTUF became involved in the political struggle for independence by amending its constitution to incorporate "anti-imperialist struggle" as an explicit objective.

Farmers also started to organize in trade unions in response to a call by SWTUF for such a move. The Nuba Mountains Tenants Union was the first farmers union to achieve government's recognition in 1952. Farmers and tenants all over the country started to organize in the early 1950s and the Gezira Tenants' Union (GTU), the largest and by far the most influential, came into existence in 1954 after having passed through various stages of organization from tenants' boards to tenants' association. In contrast to workers' unions, which were mainly concerned with issues of wage, pay and conditions of service, tenants' unions were concerned with issues of sharing arrangements governing the distribution of net proceeds of cotton and other crops among various partners in agricultural schemes (usually government, management and farmers). In addition, tenants' unions were also concerned with issues of marketing of crops and pricing policies for inputs and outputs.

[13] In this respect it may need to be noted that the Sudan Communist Party, established in 1948, posed a serious challenge to the traditional parties in terms of its advocacy of distributive policies. The Moslem Brothers movement, which was to gain political ascendance in the mid 1970s, was also involved in political haggling by its advocacy of the so-called Islamic constitution rather than economic or development policies. In assessing the potential for democracy in the country, Salih (2001: 103) concludes that "Sudan's dominant political parties are sectarian, religious-based and are not democratic in structure and content. Their followers constitute a horde of disciples, who have never been in a position to challenge the divine leadership from whom they seek religious blessing more than political or economic rewards. The leaders of these political parties bask in the homage bestowed upon them by their disciples, including an educated political elite that has betrayed its claims to modernity and Western education".

In addition to workers and farmers, professionals also started to organize in trade unions and professional syndicates as early as the 1950s. These included medical doctors, engineers, administrators, civil servants and banks' employees. While members of trade unions were expected to hold their own individual political views, solidarity with respect to specific issues related to the welfare of the members of each trade union was expected to override such political commitments. Solidarity among trade unions was also expected to override political affiliations.

The role of the trade union movement in the struggle for independence is very well documented and appreciated by all including political parties. However, over the period following independence the role of the trade union movement in politics became extremely controversial especially from the point of view of the dominant parties. This is perhaps not surprising, since the trade union movement has had very clear views on a number of economic issues in contrast to these parties. Invariably these views were dominated by distributive concerns, be they in the form of agitation for minimum wages for the wage sector of the market, or fair distribution of returns to agricultural production activities in the farm sector. Moreover, relative to the total population, the members of the trade union movement were much more sophisticated politically, being able to follow major political debates through the media and their own organized meetings.

As it happened over the period 1960–1998 the trade union movement was involved in all the major changes of military regimes through popular opposition. Indeed, the transitional government of 1964 was dominated by representatives of the trade union movement on account of the role played by these unions in the demise of the first military regime. Similarly, it was the general strike called for by the trade union movement that eventually led to the demise of the second military regime. In this respect it is also well known that the second military regime, taking a cue from the Egyptian experience, attempted to domesticate the trade union movement by incorporating it into its sole political organization, the Sudan Socialist Union. Moreover, it is also generally acknowledged that the second military regime was blatantly involved in undermining the railway workers trade union movement and its headquarters Atbara to head off their political influence. Once again, in recognition of the role of the trade union movement in the restoration of democracy in 1985, the prime minister of the transitional government was the chairman of the medical doctors' association and the transitional government was formed from representatives of the trade union movement with token representation for the political parties.

Given the diversity of the social backgrounds of the members of the trade union movement and their relatively better educational attainment, it is also generally known that the dominant political parties would not mind seeing the movement's political involvement severely curtailed. Expressions of such sentiments were made repeatedly when the movement challenged the economic policies of various coalition governments that ruled during the democratic regimes. These governments would not hesitate in arguing that one of the causes of political instability in the country is the hyper active political stance of the trade union movement.

### 5.3 Institutional Structures

The volatile growth record of Sudan is probably related to the institutions it inherited from the colonial period. Since the colonial powers did not decide to settle in Sudan, it can be concluded that these inherited institutions were basically extractive in nature and hence were not conducive to growth. But irrespective of the nature of the inherited institutions, their quality is believed to matter for economic performance. Indeed, simulations in Appendix C show that relative to East Asia the quality of institutions and the policy environment in Sudan is very low and that this has been costly to the country in terms of growth. These simulations are based on the World Bank's Country Policy and Institutional Assessment Index (CPIA).[14]

The importance of institutions in general, and governance institutions in particular, has recently gained increased recognition. In the case of Sudan a number of analysts will be prepared to argue that

[14] Quality refers to how conducive the policy and institutional framework is for promoting poverty-reducing growth and how effectively it uses development assistance. Each of the 20 components, which were rated ordinally by country specialists on a scale of 1 to 6 according to standardized criteria, were assigned equal weights of 0.05.

the onset and the duration of the civil war are due largely to a fundamental failure of governance institutions, especially those charged with resolving social and ethnic conflicts. Indeed, the economic performance of various countries – and the ability of countries to resolve various types of conflicts in society – has been increasingly related to the quality of institutions.[15]

The most important recent contribution in this respect defines a measure of social infrastructure that quantifies the wedge between the private return to productive activities and the social returns to such activities. A good social infrastructure ensures that these returns are kept closely in line across the range of activities in the economy; and a possible composite measure of social infrastructure is one that takes into account government anti-diversion policies and openness to trade.[16] The most important result of this contribution is that "differences in social infrastructure account for much of the difference in long-run economic performance throughout the world, as measured by output per worker".[17]

The political environment in post-independence Sudan can be looked at in terms of a political freedom indicator produced by Freedom House. This is a composite indicator composed of two measures of political rights and civil liberties. These measures are scored on a scale ranging from unity (for "free" status) to 7 (for "not free" status). The composite indicator is the average of the two scores. The political rights component measures the extent to which a government is chosen by means of free and fair elections of representatives of the people. The civil liberties component measures the extent of freedom from government oppression and covers four broad categories of freedoms: freedom of expression and belief, freedom of association and organization rights, rule of law and human rights, and personal autonomy and economic rights. Averaging over the two components countries are classified into freedom status so that a country is judged "free" if the average freedom score is in the range 1–2.5, "partly free" if the score is in the range 2.5–5.5, or "not free" if the average score is greater than 5.5. Freedom indicators have been compiled since the early 1970s. Table 13 relates Sudan's achievements on these scores to its growth performance.

**Table 13: Sudan's growth episodes and political freedoms**

| Episode | Average growth rate (%) | Political rights | Civil liberties | Freedom score |
|---|---|---|---|---|
| 1960–1973* | -1.43 | 6.00 | 6.00 | 6.00 |
| 1974–1983 | 2.56 | 6.00 | 5.75 | 5.88 |
| 1984–1994 | -0.60 | 5.50 | 5.83 | 5.67 |
| 1995–1998 | 2.60 | 7.00 | 7.00 | 7.00 |
| 1960–1998** | 0.29 | 5.89 | 6.00 | 5.95 |

Source: Own calculations. * refers to 1972/73 year only. ** refers more appropriately to the period 1972–1998.

The table shows that Sudan, with a freedom score of 5.95 for the entire period since the freedom scores started, was "not free" during all growth episodes. During the first positive growth episode the freedom score of 5.88 also indicates that Sudan was not free under the second military regime. This accords with our intuitive understanding of the nature of such regimes. During the negative growth episode that followed, the freedom score improved slightly to 5.67, reflecting the democratic interlude of 1985–1989 but still classifying Sudan as having been "not free". For the second positive growth episode 1995—1998, Sudan was awarded the highest score for not being free. Indeed Sudan's score of 7 for the two categories of freedom did not change over the whole period 1989–1998. Once again this is consistent with the ruling military regime with its Islamic fundamentalist posture. Thus, it appears that in the case of Sudan there was no association between growth performance and the legal institutional structure that protects people's freedoms.

In addition to the rather limited measure of institutional indicators described above, recent research proposes a method for constructing aggregate institutional and governance indicators that

[15] Landes (1998).
[16] Hall and Jones (1999: 97).
[17] Hall and Jones (1999: 107).

incorporate more directly relevant measures of institutional quality.[18] The method is based on a compilation of a large data set from 13 specialized agencies that monitor various aspects of institutions of governance covering 155 to 173 countries all over the world.[19] Defining governance as "the traditions and institutions by which authority in a country is exercised", the major aspects of governance are identified to include: (a) the process by which governments are selected, monitored and replaced; (b) the capacity of the government to effectively formulate and implement sound policies; and (c) the respect of citizens, and the state, for the institutions that govern economic and social interaction.

A total of 31 indicators are organized in six clusters corresponding to the three major aspects of governance noted above. The governance process has two clusters called "voice and accountability" and "political instability and violence"; the capacity of the government has two clusters called "government effectiveness" and "regulatory burden"; and the respect for the rule of law has two clusters called "rule of law" and "graft". The "voice and accountability" cluster includes a number of indicators measuring various aspects of the political process, civil liberties, political rights and independence of the media. As such therefore this cluster measures the extent to which citizens of a country are able to participate in the selection of governments and are able to monitor, and hold accountable, those in authority. The "political instability and violence" cluster combines several indicators that measure the perception of the likelihood of destabilization and overthrow of governments by unconstitutional or violent means.

The "government effectiveness" cluster combines indicators that measure the quality of public service, the quality of bureaucracy, the competence of civil servants, the independence of the civil service from political pressures, and the credibility of the government's commitment to policies. All of the indicators involved are based on perceptions. The "regulatory burden" cluster includes variables that measure the extent of government's imposed distortions as embodied in various policies.

The "rule of law" cluster includes indicators that measure the extent to which citizens have confidence in the rules devised by society and the extent to which they abide by such rules. As such the indicators include perceptions on the incidence of crime, the effectiveness and predictability of the judiciary, and the enforceability of contracts. The cluster on "graft" measures perceptions on corruption in the sense of the exercise of public power for private gain.

The data from the various sources was reoriented so that higher values correspond to better outcomes (e.g., stronger rule of law and less corruption). Moreover, each indicator is re-scaled by subtracting the minimum possible and dividing by the difference between the maximum and minimum score so that each indicator is on a scale from zero to one. Using an econometric model to organize the data from the various sources, and with an appropriate choice of measurement units, a standardization procedure is followed such that the estimate of the distribution of each governance indicator has a mean of zero and a standard deviation of one and range from about -2.5 to about 2.5, where higher values correspond to better outcomes. These standardized variables are then used in a causal econometric model to see the effect of governance on development outcome indicators: per capita GDP, infant mortality rate and adult literacy rate. Each governance indicator was found to be a significant determinant of the three development outcomes. For our purposes we use the standardized governance indicators as proxies for transparency guarantees in the sense of the quality of institutions. Given the normalization and standardized procedures used and the dominant methodology of using the simple average of indicators as a composite index for the phenomenon under analysis, we also compute an overall index for the quality of institutions.

Sudan's 1997 governance indicators on the basis of these results are reported to be below average quality. On voice and accountability, Sudan was 1.498 below the average quality; on political instability it was 1.732 below the average; on government effectiveness it was 1.697 below the average; on government regulatory burden it was 0.823 below the average; on the rule of law it was 1.348 below the average; and on graft it was 1.061 below the average. A fair reaction to these results

[18] See Kaufmann et al (1999a/b).

[19] The sources used are: Business Environment Risk Intelligence; *Wall Street Journal*; Standard and Poor's; European Bank for Reconstruction and Development; Economist Intelligence Unit; Freedom House; Gallup International; World Economic Forum; Heritage Foundation; Political Economic Risk Consultancy; Political Risk Services; Institute of Management Development; and the World Bank.

would be that African countries should not be judged against world averages, but rather against African averages. Table 14 provides a comparison for Sudan compared with Africa on the basis of standardized results.

**Table 14: Governance indicators of institutional structure in Sudan and sub-Saharan Africa: 1997**

| Region | Government effectiveness | Regulatory burden | Rule of law | Graft | Average |
|---|---|---|---|---|---|
| Sudan | -1.697 | -0.823 | -1.348 | -1.061 | -1.232 |
| Central | -0.763 | -0.716 | -1.019 | -0.826 | -0.831 |
| Eastern | -0.905 | -0.680 | -0.813 | -0.821 | -0.805 |
| Southern | -0.435 | -0.014 | -0.062 | -0.141 | -0.163 |
| Western | -0.342 | -0.504 | -0.593 | -0.508 | -0.487 |
| SSA | -0.611 | -0.479 | -0.622 | -0.574 | -0.572 |
| Best | 0.221 | 0.570 | 1.279 | 0.535 | 0.501 |
| Worst | -1.769 | -2.340 | -2.153 | -1.567 | -1.955 |

Source: Based on Kaufmann et al. (2000) data files.

Given the methodology of constructing these indicators the table shows that for all indicators all regions have institutional structures of below world average quality. The indicated numbers measure the distance from the average quality in terms of standard deviations. The ranking of the regions, in terms of the overall composite measure, is such that the best performing region is that of southern Africa while the worst performing region is that of central Africa. The table also shows the best and the worst quality of institutional structure, where Botswana enjoys the best quality institutions in terms of government effectiveness. From the table, it is perhaps clear that for all indicators Sudan's institutions are below the African average. The overall average institutional indicator for Sudan is -1.232, which is below the African average of -0.572.

In this context it is perhaps important to note that during the period 1974–1984 large-scale corruption became known in Sudan. This was precipitated largely by the nature of the military regime in power, which, with no checks and balances, changed the laws governing budget allocations, contraction of loans and the operations of the central bank in a manner to suit its objective of holding to office. It is known in this respect that during the period 1974–1987 various ministers were mandated to contract loans from various quarters, including the international capital market, with no recourse to a central authority (for some of the inside stories on corruption during this period see, for example, Khalid, 1985). Large-scale corruption is also associated with the third military regime over the period 1989 to the present.

## 6. POLICY, POLITICS AND GROWTH

As noted in the introduction, the recent empirical literature on growth has attempted to explore the causal relationship between macroeconomic policy and long-run growth. A lucid, non-technical, summary of this literature is to be found in Easterly (2001). In such literature macroeconomic policy is looked at in terms of fiscal policy (using indicators such as the fiscal deficit as a ratio of GDP or government non-productive consumption as a ratio of GDP), monetary policy (using indicators such as the inflation rate or the ratio of money supply to GDP as a measure of financial depth) and exchange rate policy (using indicators such as the black market premium or an index of the real overvaluation of the domestic currency).[20] In reporting the results of regressions exploring the causal

[20] Some of these indicators have been constructed from existing data series. Thus, for example, the indicator of the government non-productive consumption is defined as the ratio of government consumption to GDP minus the ratios of government spending on education and defence. Similarly, the over-valuation index is defined as the real exchange rate against the US dollar multiplied by a country-specific constant so as to convert the average for 1976 to be equal to an estimated average degree of over-valuation for the period 1976–1985.

link between policy variables and growth it is generally recognized that while individual policy variables rarely perform consistently across alternative specifications, it is rare for a set of policy variables to be jointly insignificant in a growth regression.[21]

Controlling for a number of initial geographic and institutional variables Ndulu and O'Connell (2000) report recent results on the effect of policy on growth.[22] Table 15 summarizes the relevant results for the macroeconomic policy variables that they use, where figures in parentheses are absolute t-values and where the dependent variable is the growth rate of real GDP per capita.

**Table 15Policy and growth: Results from a pooled sample of countries**

| Detail | Specification 1 | Specification 2 | Specification 3 | Specification 4 |
|---|---|---|---|---|
| Financial depth (M2/GDP) | | 0.021 (2.842) | | |
| Inflation rate | -0.004 (1.830) | | -0.003 (1.170) | -0.002 (0.766) |
| Black market premium | -0.007 (2.403) | -0.008 (2.687) | -0.008 (2.399) | -0.009 (2.293) |
| Government non-productive consumption/GDP | -0.113 (4.555) | -0.105 (3.931) | -0.113 (4.210) | -0.100 (3.681) |
| Fiscal deficit after grants/GDP | | | | -0.103 (2.928) |
| Number of observations | 422 | 364 | 363 | 258 |
| R-squared | 0.407 | 0.402 | 0.417 | 0.467 |

Source: Ndulu and O'Connell (2000: Table 5.3.1).

From the results of specifications 1 and 2 it is perhaps clear that the three indicators of macroeconomic policy are significantly related to per capita growth. Increases in the inflation rate, the black market premium and the ratio of government non-productive consumption to GDP reduce the growth rate, while an increase in financial depth increases the growth rate. As specifications 3 and 4 make clear, however, the inflation rate seems not to be precisely estimated. Further, specification 4 also indicates that the ratio of the fiscal deficit after grants to GDP is also significantly related to growth so that an increase in the ratio reduces the growth rate.

### 6.1. Overall Picture

In our study we apply this approach to economic growth in Sudan. Using relevant macroeconomic policy indicators, Table 16 summarizes the evidence for Sudan where for the exchange rate policy the index of over-valuation is used.

**Table 16: Policy and growth in Sudan**

| Episode | Real over-valuation | Inflation rate | Budget deficit/GDP (%) | GDP per capita growth rate (%) |
|---|---|---|---|---|
| 1960–1973 | 119.67 | 5.08 | 4.31* | -1.43 |
| 1974–1983 | 168.01 | 16.94 | 6.64 | 2.56 |
| 1984–1994 | 182.94 | 70.83 | 5.62 | -0.60 |
| 1995–1998 | 89.57 | 66.24 | 2.00 | 2.60 |
| 1960-1998 | 146.83 | 35.15 | 5.29** | 0.29 |

* Average for the period 1970–1973. ** Weighted average for the period 1970–1998.
Source: Own calculations based on GDN database for the over-valuation index and the inflation rate (see Easterly and Sewadeh, 2002; IMF, 2000) for the budget deficit for the period 1995–1999; official figures as reported to the Arab Monetary Fund for the fiscal deficit 1990–1994; and Table 5 above for the growth rates.

The table shows that despite a relatively favourable policy stance for the period 1960—1973, growth was negative, and despite the deterioration of the policy stance for the following 11-year

[21] See, for example, Levine and Renelt (1993).
[22] For all specifications the non-policy variables included in the regression are: the logarithm of initial income (initial with respect to the half-decade); life expectancy; age dependency ratio; growth of the potential labour force; terms of trade shock; trading partner growth; landlocked status; and political instability.

period, growth turned positive with a fairly high average per capita growth rate. One possible explanation is that except for the over-valuation index, the other two policy indicators were on the safe margins with the inflation rate at two digits but low compared with the threshold of 40% inflation rate considered detrimental to growth, and the budget deficit slightly above the 5% threshold. Further deterioration of the policy indicators, except for the budget deficit, was associated with negative growth during the period 1984–1994. As already noted, this was the period where the country was very unstable in terms of both politics and economics. The noticeable improvement in the policy indicators during the last episode was also associated with positive, and fairly respectable, growth in real per capita GDP.

From the foregoing, it can be concluded that the growth experience of Sudan provides evidence associating growth performance with the improvement in the macroeconomic policy stance, though such association does not indicate causality as yet.[23] In the following subsections a more detailed analysis linking policy stances to political regimes will be undertaken.

### 6.2 Political Cycles and Policy

As noted earlier, Sudan has had five unscheduled regime changes during its short post-independence history, including three successful coups (in 1958, 1969 and 1989) that led to three long-reigning military regimes and two popular uprisings (in 1964 and 1985) that brought down the first two military regimes. In addition to the first democracy that presided over the country's independence (1956–1958), the two popular uprisings led to the election of the second and third democracies, following two brief transitional administrations. Sudan, therefore, has an embarrassingly rich experience of "unscheduled" regime changes.

In an extension of the of the political business cycle (PBC) literature to the case of developing countries, where unscheduled regime change is the norm, it has been argued that such military–civilian regime cycles could be associated with a similar PBC process, but for different political economy considerations (Abdel-Rahman, 1997). The military dictator, lacking the legal basis for access to power, is assumed to pursue economic policies to achieve the goal of "legitimacy by achievements". Utilizing the control of information and the capacity to undertake policy surprises, especially monetary policy surprises, the military regime would attempt to manipulate the conventional Phillips-curve trade-off in order to strike targets of both high unemployment and low inflation. This dual objective could not be achieved on a sustained basis, however, which would eventually force the military regime to choose high growth, mainly finance by recourse to inflationary finance. The military would be relatively less averse to high inflation, provided that it can effect transfer policy or directed subsidies to certain key constituencies, deemed critical for its survival, such as the armed forces. But as inflation reached crisis proportions, growth would collapse. Moreover, as agents exercise the option of diversifying away from domestic money, the seigniorage revenue declines over time and the transfer system becomes dysfunctional.

On the other hand, the democratic civilian regimes that inherit the macroeconomic crisis of their military predecessors have no options but to focus on restoring macroeconomic stability and shoring up shattered business confidence. Moreover, in all circumstances these democracies cannot easily exploit policy strategies such as monetary surprises or patronage to a limited segment of society. In the case of the Sudan, democracy brought political parties back to power, but left the trade and professional unions with substantial influence, having played the decisive role in engineering the uprising that swept these parties to power. In the absence of a workable "social contract" among the main stakeholders in the society, the cohabitation between the civilian "traditional" party democracies and the "modern social class" – professional and labour unions as well as the army – proved to be very costly for development policy in Sudan.

[23] Over the past few years Sudan was collaborating with the IMF under an arrangement called the medium-term staff monitored programme. The latest staff appraisal of the programme noted that macroeconomic "policy now appears roughly on track with the basic objectives of moderate growth and lower inflation achieved" (IMF (2000a: 34), thus confirming the association observed in the text.

This "extended" PBC literature would, therefore, predict that military regimes should be characterized by short growth spells but also by high inflation, high quasi fiscal deficit, and more frequent reliance on seigniorage and inflation tax – as well as recourse to monetary surprises. On the other hand, civilian democracies are likely to adopt more stable macroeconomic policy, but will not be able to avoid negative or low growth.

A key question to ask at this juncture is: Does this theory account for the Sudanese experience? Put differently, is this a good theory for explaining the political economy of macroeconomic and growth policy in Sudan?

A formal testing of the PBC theory is provided by Abdel-Rahman (1997), who utilizes intervention autoregressive integrated moving average (ARIMA) models in output growth, inflation acceleration; in the quasi budget deficit, seigniorage and inflation tax; and in money surprises for Sudan to test the theory. These results generally corroborate the theory, but also point out various insightful qualifications.

First, starting with the growth, the regression results suggest that the first and third military regimes as well as the second civilian regime had a positive marginal contribution to growth, while other regimes either had insignificant or negative effects on growth. Second, seigniorage was used as a form of finance by the different types of regimes, but significantly by the third military regime and the first civilian democracy after independence. Third, both the third military and third civilian regimes, and to a lesser extent the second military regime, appear to have resorted to inflation tax. The same applies to the second transitional regime, which was essentially a military regime. On the other hand, both the first and second civilian administrations had reduced inflation tax. This finding is important as it suggest that unlike the last military regime the recourse to monetary financing by the first civilian administration was clearly consistent with a rising demand for money.

Fourth, the evidence on the inflation tax is mirrored by the inflation acceleration results, which suggest that the last two military regimes as well as the last civilian regime were all associated with acceleration of inflation. On the other hand, for all other remaining regimes there was no evidence of positive marginal contribution to inflation acceleration. Fifth, the evidence suggests that monetary surprises were strictly confined to the last two military regimes. Finally, the evidence on the quasi-fiscal deficit suggests that except for the last civilian administration, all other regimes had significant impact on expansionary budgets. The failure to detect differences between military and civilian regimes in this case could be explained by the difficulty of controlling budgets in weak coalition governments. In addition to this factor, which applies to Sudan, the pressure to spend on the civil war also applies to civilian regimes. Moreover, civilian and transitional regimes, being short-lived and following long-reigning military regimes, were susceptible to the budget inertia created by their military predecessors.

The foregoing analysis suggests that while the military–civilian regime cycle in Sudan explains a large part of the story of the political economy of macroeconomic policy, it does not fully account for the whole story. We identify four issues that would require further analysis. First, there are differences between the second (1964–1968) and third (1985–1989) civilian democracies, and between the first (partially covered by period 1961–1964) and the other two military regimes (1969–1984 and 1989–present, respectively). Second, there are similarities between the first military regime and the second civilian regime. Third, there are differences between phases within the last two military regimes. Fourth, relative to all regimes, the first phase of the Salvation regime (1989–1994) stands out in terms of its excessive use of inflationary finance.

The first three regimes that ruled Sudan – the first civilian democracy (1956–58), the first military regime (1958–1964) and the second civilian administration (1964–69) – were establishmentarian systems with no radical political agenda and had essentially adopted similar economic policies. The first coup that led brought the "benevolent" military junta was a palace coup, mounted at the behest of the political establishment to restore political stability to the country. This regime quickly acquiesced to popular pressure and handed over power to a transitional government, which prepared the country for an elected civilian administration. The second democracy that took over pursued similar economic policies and did not appear to be concerned about the recurrence of military rule, following the spectacular popular uprising that brought it to power. As such, the second civilian regime was not motivated to change the "rules of the game"(Abdel-Rahman, 1997). As noted by Brown (1992: 102), "Neither the civilian parliamentary regimes nor the military regime of Abboud sought to bring about

any radical transformation of the economy they inherited, for most political authority lay with those social groups who had profited most from socio-economic structure that had evolved before independence".

The traditional political philosophy of the first military regime is clearly reflected in terms of its macroeconomic policy. The evidence for the 1961–1964 period (which partially spans the reign of this regime), suggests that it relied only modestly on inflationary finance, which yielded an average seigniorage revenue of 1.4 percentage points of GDP and below 5% inflation rate. The second democracy (1965–1968) showed even further commitment to macroeconomic stability, where no inflation tax was recorded, seigniorage revenue declined to less than 1% and inflation was virtually zero. This was made possible by reducing the rate of monetary expansion by more than 50% (from about 15% during the military regime to 7%). In these two periods the country also enjoyed relatively efficient state institutions, with virtually all recurrent and development budgets financed domestically. Aid per capita was negligible during the two regimes (at $1.1 and $1.6, respectively). Also in the two periods the civil was essentially a very low-level violence with limited economy-wide consequences. This changed toward the end of the military regime, however, when the regime sought a military solution to the conflict.

The military regime evolved through four distinct phases, each one with distinct features in terms of political economy and the associated economic policies.

The first phase (1969–1973) was dominated by a socialist ideology, which came with a radical programme for restructuring the Sudanese society and economy. However, owing to strong opposition from the main political establishment as well as divisions within the rank of the leftist junta, the regime could not implement its radical agenda. This explains the rising recourse to inflationary finance and the rise in inflation rate. Even so, this period did not constitute a major break from the past, with inflation still in single digits. In terms of external economic relations, foreign aid (at $1.5 per capita) was still negligible. Moreover, like the previous two regimes, economic growth during this phase of the May regime was negative. In fact, growth declined much more to a low of -2.2% per annum, compared with -0.5% for 1965–1968.

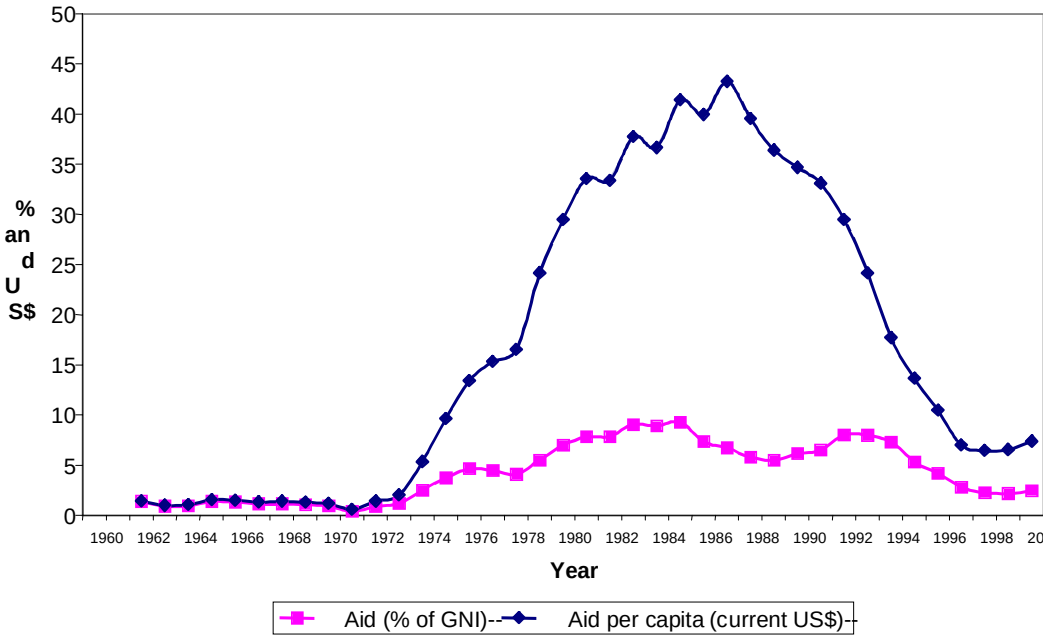
Following a failed coup in 1971 by the Sudanese Communist Party, General Nimeiri, the head of the military regime, having consolidated his personal grip on power, broke away from his leftist past and moved his regime much closer to the West. In the meantime, and following an initiative by the civilian regime before it, the regime started to intensify its efforts to reach a peaceful resolution to the civil war. Very significantly, the emergence of the regime as a close ally of the West, especially the United States, facilitated the involvement of the World Council of Churches and Emperor Haile Selassie in the peace efforts. In 1972 they managed to mediate a peace agreement, better known as the Addis Ababa Peace Agreement, which brought peace to the Sudan for more than 11 years (1972–1983). In terms of economic performance, the period 1974–1977, which we identify as the second phase of the May regime, recorded the most impressive growth (9% annual per capita growth rate) in the post independence history of the country. While inflation rose to more than 17% and the rate of monetary expansion almost doubled (from 17 to 30%), per capita foreign aid also increased from $1.5 in the previous period to more than $14 (Table 17 and Figure 1). This was the most dramatic development in the Sudanese economy.

**Table 17: Seigniorage and inflation tax and foreign aid in Sudan 1975–1999**

| Macroeconomic policy | 1961–64 | 1965–68 | 1969–73 | 1974–77 | 1978–84 | 1985–89 | 1990–94 | 1995–99 |
|---|---|---|---|---|---|---|---|---|
| Seigniorage revenue (% of GDP) | 1.4 | 0.9 | 2.3 | 4.0 | 5.0 | 6.5 | 5.4 | 2.31 |
| Inflation tax revenue (% of GDP) | 0.6 | 0.0 | 1.5 | 3.0 | 6.2 | 8.9 | 14.1 | 4.25 |
| Inflation rate | 4.8 | 0.1 | 9.4 | 17.2 | 27.2 | 44.4 | 104.6 | 56.2 |
| % change in M1 | 14.6 | 6.8 | 16.9 | 30.0 | 28.1 | 47.4 | 67.7 | 48.5 |
| M1 to GDP (%) | 12.2 | 14.0 | 16 | 17.4 | 23 | 20.8 | 13.7 | 7.1 |

| Foreign aid | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Aid ratio (as % of GNI) | 1.0 | 1.3 | 0.9 | 4.5 | 7.8 | 6.4 | 7.2 | 2.7 |
| Aid per capita (current US$) | 1.1 | 1.6 | 1.5 | 14.2 | 32.9 | 40.1 | 24.2 | 7.20 |

**Figure 1: Aid to Sudan**




So, in the face of a macro economy that was starting to show signs of instability, growth dramatically picked up in 1974–1977. There is also evidence that this period witnessed the emergence of a long-term vision of development, inspired by sense of security and vitality on the part of the regime. Both the spectacular growth episode and the emergence of what could be described as a developmental state – Asia style – were jointly driven by the peaceful resolution of the civil war and by favourable external developments.

First, the resolution of the conflict and the ability of the country to realize a handsome "peace dividend" was reflected in the dramatic rise in aid. At least partially, the development aid had contributed to realization of the huge potential catch-up growth following end of a long civil war. The literature predicts such source of growth to be as high as 2.2% per growth per annum (e.g., Collier, 1999; Elbadawi, 1999b)). By making peace with the South the regime gained confidence in its long-term stability and embarked on an ambitious development strategy, a substantial part of it devoted to post-conflict reconstruction in the South. During this period the share of gross investment in GDP reached more than 19%, up by more than 6 percentage points of GDP from the average for 1970–1974. Most of this investment was accounted for by foreign direct investment.

Second, and related to the first, was the enhanced influence of the region's geopolitics on Sudan's development strategies. Following the 1973 Arab–Israeli war, the oil-surplus countries of the Arab world, having realized substantial windfall from high oil prices, were ready to sponsor Sudan's development strategy, which also promised to turn the country into a "bread basket" for the Arab world. This strategy augured well with pan-Arab political thinking at the time that the Arab world should develop self-sufficiency in food. In this period, the Sudan economy clearly benefited from

closer regional integration (through foreign direct investment), which was partially motivated by geopolitical consideration.

To maintain the pace of its ambitious development plan, while at the same time continuing to provide for substantial outlays to the Regional Government in the South, the May regime relied on monetary expansion as well, especially as external financing tapered off toward the end of the period. In addition to rising macroeconomic instability (Elbadawi,1992), gross implementation and planning deficiencies not only brought growth to a halt, but they also led the country to the brink of a major economic crisis by 1978.

In 1979 Sudan became one of the first countries to adopt International Monetary Fund (IMF) and World Bank macroeconomic stabilization and structural adjustment programmes. The economy continued to slide further throughout the 1978–1984, however, which witnessed very active adjustment operations. Growth collapsed during this period to an average annual rate of -1.7% per capita, while macroeconomic policy continued to worsen. Inflation shot to more than 27%, and for the first time inflation tax (at 6.2% of GDP) exceeded seigniorage revenue by more than 1 percentage point, indicating the increasing inefficiency of monetary finance. The reforms emphasized two central policies: successive devaluations and trade liberalization measures that shifted imports (and to some extent exports) from the official market to the free market. These reforms were also motivated by the emerging role of Sudan as a major labour-exporting country to the oil-surplus economies of the Middle East. Remittances from Sudanese nationals working abroad averaged more than three times the dollar value of official exports during 1983/84. These huge foreign exchange resources prompted the government to adopt reforms to unify the exchange rate. Having failed to attract further investment from the oil surplus economies in the Arab region, these reforms aimed to mobilize the resources of the remittances from these countries. These efforts were largely unsuccessful, however, and Sudanese nationals have continued to send the bulk of their remittances through the parallel foreign exchange market, attracted by its more depreciated exchange rate (Elbadawi, 1992).

Sudan's quest for economic reform has been a dismal failure for three broad reasons. First, like many early IMF and World Bank macroeconomic stabilization and structural adjustment programmes, the Sudanese reforms were fraught with conceptual, sequencing and design problems. Needless to say that issues of wider stakeholder consultation, ownership and capacity building were never seriously appreciated, much less considered (Ali, 1985). Second, the Sudanese government lacked the political will to implement the reforms and the broad development vision to guide them. The third and most critical factor was the unravelling of the regional government in the South because of corruption and infighting within the South along tribal lines. This deteriorating situation, which started as early as 1978, ultimately led to resurgence of the civil war in 1983.

Given the obvious failure of reforms, an important question to ask at this juncture is: Why had adjustment lending continued all the way until the collapse of the May regime in April 1985, causing the country to inherit one of the highest external debt burdens in Africa?

Addressing this question is important from the perspective of political economy. According to many analysts, the answer is actually rather simple. The fundamental factor was that Sudan under the May regime was a key ally of the West in the cold war politics of the Horn of Africa and the Middle East (Brown, 1992). Political rather than economic consideration appeared to have been the key motivation behind the commitment to support the failed reform programme of the May regime.

A popular uprising in April 1984 led by the professional unions and the political parties forced the collapse of the May regime when the army switched loyalty to the rebellious masses. Following a one-year transitional military–civilian regime, the third elected civilian democracy assumed power. In addition to inheriting a massively violent civil war, the third democracy also inherited an economy in deep crisis. Unfortunately, the democratically elected government was compromised by a weak and fractious partisan coalition, non-cooperating professional unions and a still aggressive military. Therefore, the lack of political consensus prevented the democratic regime from undoing the economic legacy inherited from the previous 16 years of the Numeiri regime. The economy, therefore, continued to slide. Inflation reached more than 40% due to continued recourse to inflationary finance, despite a significant rise in foreign aid by about $7 per capita.

In June 1989 a military takeover put an end to the short-lived third democracy in the Sudan. This time the army was used as a front by the "Islamic Front", which managed to install the "ideological" Salvation regime, which remains in power to the present. This era brought to Sudan major and

sweeping changes, changes so drastic that they could only be brought about by a determined, ideological and harsh authoritarian regime. In using the instruments of the state to achieve its objectives, including holding on to power, the regime spared no time and was not deterred by any bounds or established traditions. The objectives of the regime included purging the civil service, police and especially the military of non-Islamist elements; creating a new entrepreneurial class through massive redistribution to party loyalists; using fiscal and monetary policy, including the inflation tax, to mobilize domestic resources to implement the political agendas of the party; and creating a strong economy, army and state that could end the civil war in the South by imposing a military defeat on the rebels.

In achieving its objectives the regime had to contend with the immediate reaction of the international community, which immediately scaled down foreign aid by almost 50% to about $24 per capita (Table 17). Moreover, all adjustment and project lending by the international finance institutions (IFIs) were suspended. The policy response by the regime was massive recourse to inflationary finance, leading to a staggering inflation tax of 14%. Because inflation averaged more than 100%, however, seigniorage revenue amounted to much less (at 5.4%), despite the massive growth in money supply. This suggests that the authorities were determined to use inflationary finance, despite its obvious inefficiency with such high rates of inflation. Also in this period financial deepening was reversed, as agents diversified away from holding banking deposits. The stock on narrow money (as a share of GDP) declined from 21% in 1985–1989 to 14% in 1990–1994. Contributing to the loss of confidence and the decapitalization of banks was an announced surprise decision to change the currency in 1991.

Naturally a major part of the appropriated resources were used to finance the enhanced war efforts as well as the security requirements of the regime.Anecdotal evidence suggests that massive transfers had been made to serve the economic interests of the ruling party and the "new" private sector and the bloated regional government institutions. Following the first five chaotic and unstable years (in terms of both politics and economic policies), the regime was able to sharply cut down inflation to about 56% during 1995–1999. Clearly this inflation rate is still high, but it is almost half the rate of 1990–1994. This was manifest by a reduction in monetary growth to 49%, leading to lower inflation tax to little more than 4%. However, seigniorage revenues declined even further to about 2.3%, almost a third the revenue share generated by the last civilian administration. The main factor behind the collapse of inflationary finance was in fact due to massive financial disintermediation, leading to a reduction of the monetary ratio from 14% in the previous period to an all time low of only 7%, which accounts for just one third the monetary ratio during the last civilian regime. Clearly the regime had to face up to the limits of predatory monetary financing. Moreover, and as a result of imposition of formal sanctions by Western countries aid declined to just $7 per capita, almost one sixth of the level in during the third democracy.

However, during this period the regime was able to reap the benefits of a major strategic initiative in the form of the commercial exploitation of oil following strategic economic agreements with China, Malaysia and other smaller companies, including building of massive infrastructure in support of the oil industry.

These two developments, which brought substantial foreign direct investment to Sudan, are, in our opinion, the key factors behind the turnaround in growth in this period (at a per capita rate of about 3% per annum). Moreover, the regime has also started to change its war strategy, and has been actively engaged in peace initiatives for ending the civil war. Related to this, the regime has also embarked on a calculated process of political openness and aggressive attempts at mending fences with the international development community.

Yet despite the progress at the economic and political fronts, there is no evidence to suggest that the regime has abandoned its strategic political, economic and social objectives. The lack of transparency in the budget process, especially with regard to the allocation of the oil resources and the continued control of the state apparatus by the ruling party seem to suggest that the state is still "privatized", but with different instruments.

The key question to ask in closing: Can growth be sustained in a context of deep political divisions, including a civil war and a reigning predatory state, despite the prospects of even higher oil revenues?

## 7. MARKETS AND GROWTH

Our analysis of the relationship between markets and growth focuses on the food market, the labour market and the foreign exchange market. The food market is concerned largely with cereals and livestock. The labour market discussion looks at the differences between rural and urban markets, as well as the shares of various components of the overall labour market. The consideration of the foreign exchange market traces the ups and downs of the exchange rate and its impact on capital flight and other issues.

### 7.1 The Food Market

Sudan experienced a famine in 1984/85 whose direct cause was a major drought that resulted in a large drop in agricultural production. A study by the International Food Policy Research Institute (IFPRI; Teklu, von Braun and Zaki, 1991) subjected the famine of 1984/85 to a careful scrutiny, using survey data from western Sudan as well as aggregate data at the level of the country. Some of the findings of this study relate to the food market in Sudan.

According to the study, rainfall levels declined during the period 1960–1986 and year-to-year fluctuations increased. These weather movements resulted in low growth in cereal production, largely because of the short-run effects on yields. The study shows that a 10% drop in annual rainfall from mean level causes a 5% drop in cereal production and a 3.7% drop in yield at the country level. Sorghum, the staple food of the country, is more affected by rainfall than millet, the staple of some parts of western Sudan. The elasticity of yield to rainfall is estimated as 0.73 for sorghum and 0.3 for millet.

The study shows that the markets for cereals in Sudan are very thin and highly responsive to changes in production. Real cereal prices increased more than three times in 1984/85 compared with 1982/83. Moreover, under the then prevailing trade and market structure conditions, a 10% drop in production resulted in a 26% increase in real prices of cereals in the same year. Similarly, a 10% reduction in stocks increased prices by 8%.

To further explore the characteristics of the food market the IFPRI study estimated a price movement model of the following form, where the relevant variables are in logarithms:

$$P_{it} = \alpha i\, P_{it-1} + \beta i\, (R_t - R_{t-1}) + \theta i\, R_{t-1} + \phi i\, D_{85} + \gamma\, X + \varepsilon_{it}$$

where P is the monthly wholesale price in a given market at a point in time; R is the wholesale monthly price in a reference market; D is a dummy variable for 1984/85 taking the value of one if the month belongs to 1984/85 and zero otherwise; and X is a vector of local specific market factors. In such models $\beta$ measures the change in the local prices caused by a change in the temporal margin in the reference market. A positive value indicates that the local market prices track movements in the reference market prices, implying that local traders monitor changes in reference markets and adjust accordingly. The parameter $\theta$ is supposed to capture the influence of the reference market price level on local prices. A summary of the results is reported in Table 18, where figures in parentheses are t-values.

**Table 18: Information flows in the food market: Index of market connectivity (IMC)**

| Commodity | Regional market | Central market | $\alpha$ | $\beta$ | $\theta$ | IMC: ($\alpha$/ $\theta$) |
|---|---|---|---|---|---|---|
| Sorghum | El Obeid | Gedaref | 0.55 (5.0) | 1.08 (18.5) | 0.45 (3.6) | 1.22 |
| Cattle | El Obeid | Omdurman | 0.72 (8.2) | 0.78 (12.1) | 0.24 (2.3) | 2.98 |
| Cattle | Nyala | Omdurman | 0.75 (8.6) | 0.73 (8.1) | 0.20 (1.7) | 3.68 |
| Cattle | Nyala | El Obeid | 0.43 (3.8) | 0.95 (12.8) | 0.60 (4.5) | 0.71 |

Source: Teklu et al. (1991: 75 –6, tables 44 and 45).

According to the interpretation of these results, the statistical significance of the β and θ coefficients suggests that commodity markets are not segmented. The relatively high β's for sorghum and cattle indicate that the regional markets in the western part of the country have a strong long-run integration with the principal markets in the central and eastern regions of the country. The implication of this is that traders have a well functioning information network for monitoring price developments in various parts of the country. Such information flows are not complemented by strong connection in the short-term, however.

The ratio of the local market coefficient, α, to the reference market coefficient, θ, is defined as the index of market connection (i.e., IMC =α/θ). An IMC greater than unity indicates poor connections across markets. Poor connection among markets implies that the relative contributions of local price history are the primary factors in the current level of local prices. Market segmentation obtains when θ approaches zero. An IMC less than unity implies a high degree of market connection. For sorghum, the regional market of El Obeid, in the west, is compared with the central market of Gedaref, in the east. The index of market connection is found to be 1.22. For cattle, two regional markets in the west, El Obeid and Nyala, are compared with two central markets in Omdurman and El Obeid. Except for the Nyala—El Obeid cattle link, which exhibits relatively high connection with an IMC of 0.7, the remaining cattle market links have IMCs in excess of unity, indicating poor connectivity. The major explanation for this poor market connectivity in the food market is the distance between markets. Thus, for example, Nyala is about 1,400 kilometres away from Omdurman and 95% of the cattle are trekked on a journey that takes about two months during the rainy season.

The study comments that markets "appear to operate and to transmit price signals across regions. Even though such long-term regional price relations exist and remain unaffected in periods of acute production shortfalls, poor market connections preclude markets from clearing because of high market transaction costs. Transportation alone accounts for, on average, 10–15 percent of consumer price" (Teklu et al., 1991: 76). It is also shown that other principal cost components include storage and cost premiums associated with weight loss, which account for about 20—40% of total marketing costs.

### 7.2 The Labour Market

Given the inherited dual structure of the economy it is perhaps not surprising that a dual labour market has continued to exist over the period since independence: a fairly large market in the rural, traditional sector and a small but growing urban modern market. The rural labour market is perceived to be largely competitive, or flexible, with self-employment as the dominant form of employment. The urban labour market started as a protected market, but has experienced increasing flexibility since the late 1970s.

The latest detailed information on the labour market is available for 1996 from the migration and labour force survey (Ministry of Manpower, 1996). The information shows that the rural labour market accounted for 69% of the total labour force of age ten years and above and for the employment of about 71%. In terms of the gender composition of the labour force, it is found that of the total labour force 69% were male: 75% males for the urban sector; and 65.7% for the rural sector.

The result implies that women's involvement in economic activity is higher in rural areas, an expected result given the agricultural nature of the economy and its stage of development.

A major characteristic of the total labour force is its low educational achievement: about 43% had no education (13.4% for the urban sector and 56% for the rural sector); 19.5% could read and write (13.7% for the urban sector and 22% for the rural sector11.8% had primary education (14% for the urban sector and 10.8% for the rural sector); 12.8% had secondary education (29.8% for the urban sector and 5.3% for the rural sector); and 5.3% had university and higher education (15.6% for the urban sector and 0.7% for the rural sector). The educational levels of the employed labour force were almost identical to those of the total labour force. As would be expected in a developing country like Sudan, there are substantial gender differences in the educational levels of the labour force (and the employed labour force). Without getting involved in details, suffice it to note that of the employed labour force, 34.9% of males had no education compared with 65.9% of females.

The distribution of the employed labour in addition to those who had previous labour market experience but were unemployed at the time of the survey (about 90% of the labour force) over the

three conventional production sectors was such that the primary sector accounted for 55.3% of employment, with the services sector accounting for 38.7% and the secondary sector for only 6%. In the urban sector 82.9% of the employment is accounted for by the tertiary sector, with 12.3% in the secondary sector and 4.8% in the primary sector. By contrast, 76.6% of rural employment is accounted for by the primary sector, 20% by the tertiary sector and only 3.4% by the secondary sector.

The private sector accounted for 75% of employment, the government sector accounted for 17.4%, and the public enterprise sector accounted for 3.1%, with the remainder employed in cooperative and other unidentified sectors. The pattern of employment in the urban sector closely follows the overall picture albeit with different shares reflecting the importance of government sector employment. Thus in the urban areas, the private sector accounted for 52.3% of urban employment with the government sector accounting for 39.2% and the public enterprise sector for 4.5%. By contrast, in the rural areas the private sector accounted for 84.6% of total employment, while the government sector accounted for 8.2% and the public enterprise sector for 2.6% of total employment. This pattern of employment in the rural sector is consistent with the overall perception of the rural labour market as being more flexible, or competitive, compared with the urban labour market.

Related to this feature of the labour market is the distribution of employed labour according to the duration of work contracts. According to the survey results, 42.5% of the employed labour had permanent employment, with seasonal employment accounting for 48.3% and occasional and temporary employment accounting for 10% and 1.2%, respectively. In the urban labour market permanent employment accounted for 80.2% of employed labour with occasional employment accounting for about 13% while seasonal and temporary employment accounted for 5.5% and 1.2% of urban employment, respectively. By contrast, in the rural labour market permanent employment accounted for 26.7%, while seasonal employment accounted for 63.5% and occasional and temporary employment accounting for 8.7% and 1.1%, respectively. Once again this goes to confirm the perception of the rural labour market as being relatively more flexible than the urban labour market.

Another important feature of the labour market is that 84.1% of the employed labour was found to be working in establishments of very small size (defined as employing between 1 and 9 workers). Employment in small enterprises (10–29 workers) accounted for 7.8%, that in medium enterprises (30–49 workers) for 1.2% and that in large enterprises (employing 50 workers and more) for 7% of the total. In urban areas very small enterprises accounted for 65.8% of the urban employed labour force, while small, medium and large enterprises accounted for 15.2%, 3.2% and 15.8%, respectively. In the rural areas very small enterprises employed 91.8% of the rural labour force, with small, medium and large enterprises accounting for 4.5%, 0.4% and 3.3%, respectively.

Of the total employed labour the survey results show that only 35.8% were working for a wage. Those working for a wage in the urban sector accounted for 71.9% of the employed urban labour force, while those in the rural sector accounted for 19.5% of the employed rural labour force. In a sense, therefore, wage employment seems to be limited, which implies a small size for the labour market properly understood. Using the survey results it can be shown that the average monthly wage in 1996 amounted to £s26,320 in the rural sector (equivalent to US$19.6) and £s50,024 in the urban sector (equivalent to US$37.3), thus implying an urban–rural wage differential of 1.9 per month. Needless to note that the average wage rate in the rural sector was below the international poverty line of US$30 per person per month while that in the urban areas is slightly above this poverty benchmark. There is evidence to show that these estimates are reasonable compared with the wage rates in the government sector in 1996. Thus, according to the Ministry of Finance and National Economy (1996: 36–7), the highest monthly wage in the government sector, after taking into account all types of allowances, amounted to £s70,575 (equivalent to US$52.6), while the lowest monthly wage amounted to £s13,330 (equivalent to US$ 8.1). There is also evidence that over time real wages have declined.

With declining real wages, and the limited size of the labour markets, one would have expected the labour market to achieve a natural rate of unemployment of about 5% of the labour. According to the Ministry of Labour (1996: xiii), the rate of unemployment increased from about 5.5% in 1973 to 16.6% in 1996, recording an annual rate of increase of 5.2 %. The details of the unemployment rate for 1996 by the level of education are given in Table 19.

**Table 19: Unemployment rates in 1996 by level of education and labour market (%)**

| Educational level | Urban | Rural | Total |
|---|---|---|---|
| No education | 18.9 | 14.1 | 14.6 |
| Read and write | 19.1 | 16.0 | 16.6 |
| Primary | 19.7 | 19.3 | 19.4 |
| Intermediate | 23.0 | 18.1 | 20.6 |
| Secondary | 17.6 | 15.1 | 16.9 |
| University and higher | 21.8 | 7.5 | 22.6 |
| Total | 19.6 | 15.3 | 16.6 |

Source: calculated from Ministry of Manpower (1996: 48–52, Table 8).

As is clear from the table the rural unemployment rate is lower than that of the urban sector but still relatively quite high. The table also shows the tendency of the rate of unemployment to increase with the level of education, although the pattern of increase is not uniform. In the urban sector the highest unemployment rate is recorded for the intermediate level of education, with the university level ranking second, while in the rural sector there is a clear tendency for the rate of unemployment to increase up to the primary level and then decline. The behaviour of the overall unemployment rate mirrors that of the urban sector.

That the unemployment rate increased at a rate of 5.2% per annum over the period 1973–1996 can be taken as a failure of the growth process to generate sufficient employment opportunities. A response to the then emerging economic crisis was undertaken by individuals in the form of migration to the oil producing countries in the Gulf. As a result of the first oil price increase these countries started ambitious development programmes and as such created a regional labour market to which labour flocked from all over the world. No exact numbers of Sudanese nationals working abroad (SNWA) was ever reported in the relevant literature or the official sources, but a number of field survey studies were conducted at the time, and fairly believable, and consistent, time series data were constructed and used by, among others, Brown (1992: 227). According to these estimates the number of emigrants increased from about 185,000 in 1978 to about 350,000 in 1984 and stabilized thereafter. As would be expected, such an emigration process was highly selective in terms of educational levels, skill levels and age groups.

Thus, for example, in 1983 a comparison of SNWA with the labour in terms of skills showed that 0.4% of SNWA was highly trained administrators compared with 0.2% for the labour force; 9% were professionals compared with 3%; 7% were clerks compared with 2.4% and 4.3% were unskilled workers compared with 11.9%. In terms of educational level, only 16.6% of SNWA were illiterate compared with 68% of the labour force; 32.4% had primary education compared with 6%; 17% had intermediate level education compared with only 2.1%; and 26% had secondary or higher qualifications compared with 4.8% in the labour force. Indeed, in 1983 it was officially reported that out of 5,815 medical doctors, 2,254 had left the country (a ratio of 39%). Among engineers, 950 out of 2,640 had migrated (a ratio of 36%), and among trained teachers 965 out of 1,665 opted to migrate (a ratio of 58%).[24]

### 7.3 The Foreign Exchange Market

The migration of the Sudanese since the mid 1970s, in response to the working of the domestic labour market, is closely linked to developments in the foreign exchange market. Prior to exploring the link between the two markets it should be noted that like many African countries the economy of Sudan operated under a system of strict foreign exchange control for the period from independence until 1979. Following its creation in 1984 the Bank of Sudan, the central bank of the country, was the sole body authorized to deal in foreign exchange. Up to 1979, when foreign exchange controls were abolished, the system operated with only minor amendments.

In response to the migration for work in the Gulf States the exchange control system saw a few amendments including the introduction of an incentive exchange rate for remittances from Sudanese nationals working abroad (SNWA) and a nil-value import system that allowed the issuing of import

[24] For similar survey-based results see, among others, Galaledin (1987) and Choucri (1985).

licences without the provision of foreign exchange resources from official sources. Under the nil-value system importers borrowed their foreign exchange requirements from workers abroad against the promise of paying the equivalent, at an agreed exchange rate, in Sudanese pounds. On 8 June 1978 the official exchange was devalued from £s0.36/US$ to £s0.4/US$ and the effective rate, applied on all transactions except cotton, was devalued from £s0.4/US$ to £s0.5/US$. The incentive rate for remittances was kept at £s0.57/US$.

In September 1979 foreign exchange controls and the nil-value system were abolished and the holding of, and dealings in, foreign currencies by Sudanese nationals was permitted. A dual exchange rate system was established with an official rate (now depreciated from £s0.4/US$ to £s0.5/US$) and a parallel rate (of £s0.8/US$) to be applied to a selected list of imported goods. The foreign exchange resources of the parallel market were mobilized from the black market. The policy of moving imported goods from the official market to the parallel market increased the transactions in the black market. By 1980 about 60% of total imports were channelled through the parallel market. On 15 July 1981 a free foreign exchange market was created and black market foreign exchange dealers were licensed. The official and parallel exchange rates were unified at £s0.9/US$ by 19 November 1979. A detailed description of the various stages of the development of the black market, as well as an analysis of the major determinants of the black market premium, is to be found in Elbadawi (1992).It is important to note that it was on the basis of the working of the black market, on the one hand, and the structural weakness of the economy, on the other, that the official exchange rate depreciated from about £s0.35/US$ for the period 1960–1977 to £s2,525.5/US$ in 1999. According to the GDN database the black market premium, which was about 20% in 1960, fluctuated in an increasing trend to reach a maximum of 915.4% in 1990 and to decline thereafter to almost zero in 1999.[25]

At this juncture, it should be noted that the resources available to the black market in foreign exchange depended on the saving potential of SNWA. Estimates of the saving potential varied in the literature. Depending on conservative estimates of the number of SNWA as being about a quarter of a million workers, it has been suggested that over the period 1978–1987 the average total earnings of SNWA were in the range of US$2.5–3 billion per year, with an average saving ratio of 60% of total income. This implies that potential remittances ranged from US$1.5–1.8 billion per year. For the year 1983/84 it is estimated that actual cash remittances flowing into the country amounted to US$1.64 billion. The distribution of remittances according to the channels used was such that 76% came through unofficial channels (including briefcase remittances, 49%; friends and relatives, 23%; and agents, 4%), with the remaining 24% of remittances coming through official channels (15% through Sudanese banks and 9% through foreign banks).

Estimates of the demand for foreign exchange in the black market have been reported in Hussain (1986: 25–6). According to these estimates a large proportion of remittances supplied through the black market were used to finance imports other than government imports. In addition, black market remittances were used for capital export by private agents as well as commercial banks and for financing government imports when official foreign exchange availability fell short of total government requirements. According to these estimates black market resources contributed to the financing of about 55% of total imports during the mid 1980s.

The behaviour of the black market exchange rate provided incentives, as well as price signals, for the relevant agents in the economy to respond appropriately in the form of engaging in capital flight. Estimates of capital flight for the period 1978–1987 have also been reported by, among others, Brown (1992: 228–9) and Elbadawi (1992). Using an adjusted national accounts framework to account for unofficial remittances Brown estimates that about US$11 billion left the economy as capital export over the period under consideration. “This is equivalent to 17 per cent of Sudan’s adjusted GNY over the same period, and approximately equal to the economy’s accumulated foreign debt, which stood at US$11.1 billion at the end of 1987”. Using a similar methodology Elbadawi (1992: 52, Table 4) estimates capital flight over the period 1973–1988 as US$11.9 billion. According to these results annual capital flight as a ratio of GDP ranged from a low of 4.5% for 1984 to a high of 21% for 1975.

[25] Elbadawi (1992: 57, Table 9) reports average black market premiums of 71.9% for the period 1970–1973; 77.8% for the period 1974–1977; 77.7% for 1978–1987; and 449.3% for 1988–1990.

More recent estimates for capital flight are provided in Boyce and Ndikumana (2001) for the period 1970–1996, where adjustments are made for exchange rate changes, mis-invoicing of trade transactions and interest earnings. The estimates are made in terms of real 1996 prices using IMF trade statistics. According to their results, Sudan ranked fourth in terms of average annual unadjusted capital flight at US$513 million (with Nigeria leading with an annual average of US$2.3 billion, followed by Angola, US$1.5 billion, and Côte d'Ivoire, US$616 million). Allowing for trade mis-invoicing Sudan's accumulated real capital flight amounted to US$6.98 billion and allowing for imputed interest earnings it amounted to US$11.61 billion. Average annual capital flight as a ratio of GDP is calculated as 1.6%, while the accumulated capital flight with interest earnings amounted to 161% of 1996 real GDP – equivalent to US$428 per capita for the same year (compared with a real GDP per capita of US$265). Relatively large amounts of capital flight are recorded for the years 1974 (US$674 million), 1979 (US$545 million), 1984 (US$1.4 billion), 1987 (US$599 million), 1989 (US$1.2 billion) and 1990 (US$846 million).

## 8. EDUCATION AND GROWTH

As is well known, the stock of human capital is usually measured as the average number of years of schooling in a population. This measure is reported for the population over age 15 years. For developing countries it is generally agreed that the measure for population over the age of 15 years is the relevant indicator of human capital. Due to the methodology of constructing the measure from census/survey data, the measure is not generally available for current years except on the basis of projections.[26] The most recent estimates for human capital are provided in Barro and Lee (2000). The results for Sudan are reported in Table 20.

**Table 20: Sudan educational achievements of population over 15 years: 1960–2000**

| Year | Population over age 15 (million) | % of Population with no schooling | % of Population with first level of schooling | % of population with first level of schooling | % of population with post-secondary level of schooling | Average years of schooling |
|---|---|---|---|---|---|---|
| 1960 | 6.2 | 87.5 | 10.9 | 1.5 | 0.1 | 0.41 |
| 1965 | 6.9 | 85.3 | 12.7 | 1.8 | 0.2 | 0.50 |
| 1970 | 7.7 | 82.7 | 14.4 | 2.6 | 0.3 | 0.62 |
| 1975 | 8.9 | 79.0 | 16.2 | 4.3 | 0.5 | 0.83 |
| 1980 | 10.3 | 74.3 | 19.0 | 6.0 | 0.7 | 1.14 |
| 1985 | 11.8 | 69.5 | 23.7 | 6.2 | 0.6 | 1.34 |
| 1990 | 13.6 | 65.9 | 24.7 | 8.4 | 0.9 | 1.64 |
| 1995 | 15.8 | 62.8 | 26.1 | 9.7 | 1.4 | 1.93 |
| 2000 | 18.3 | 60.0 | 27.4 | 10.7 | 1.9 | 2.14 |

Source: Based on Barro and Lee (2000: Appendix Table A2).

The table indicates the relatively rather modest educational achievements in Sudan since independence. In terms of human capital, the table shows that the average years of schooling for the

[26] The most widely followed method of estimation is the perpetual inventory method, which uses census observations on attainments as benchmarks and new school entrants as flows to be added to the stocks with an appropriate time lag (see, for example, Barro and Lee (2000: 3–7)). According to the CBS (2001: 9, Table 4) enrolment at the primary level increased from about 2 million in 1988/1989 to 3.5 million in 1998/1999, but declined to 3.1 million in 1999/2000. Similarly, enrolment at the secondary level increased from about 251,000 in 1988/1989 to 461,000 in 1998/1999, but declined to 401,000 in 1999/2000. Note, however, that the decline in enrolment serves to slow down the increase in the average years of schooling, which is a stock concept as already explained.

relevant population category in Sudan was only 0.41 years in 1960 but increased to reach an estimated 2.14 years by 2000. For the year 2000 the educational achievement of Sudan was much lower than that of the world (an average of 6.7 years), that for the developing world (an average of 5.1 years), that for South Asia (an average of 4.6 years) and that for sub-Saharan Africa (an average of 3.5 years). With this level of achievement Sudan is still far below the threshold of 4 years beyond which increasing returns to scale for human capital begin to accrue. When this threshold level of education is achieved, the quality of labour attains a critical mass, allowing greater overall productivity.[27]

Despite this very limited achievement it is an easy matter to show that the stock of human capital per worker in Sudan has recorded rather impressive growth over the period. The annual growth rates of human capital stock ranged from 6.55% for the period 1975–1980, to a low of 2.09% for the period 1995–2000 (see Table 21). For the whole period 1960–2000 the annual rate of growth is 4.28%. Recalling the fluctuating per capita growth record during the period since 1960, the experience of Sudan seems to conform to an emerging puzzle in the empirical growth literature. The puzzle is that despite the rather impressive expansion in the stock of human capital as measured by the average years of schooling in the population, GDP per capita did not show a similar trend. This is especially true in the developing regions of the world including Sudan. Thus, the growth of educational capital per worker does not seem to have any association with the growth of output per worker.

The standard methodology of looking at the puzzle is the estimation of a production function relating output per worker, as a dependent variable, to physical capital per worker and human capital per worker as explanatory variables. The production function could be estimated in level form or as growth rates. The dominant functional form for the production function is the Cobb–Douglas function.[28]

A recent careful study estimated a production function with variables expressed as rates of growth for a sample of 91 countries over the period 1960–1985. The basic estimated equation (using ordinary least squares) shows an elasticity of output with respect to physical capital per worker of 0.524 that is significantly different from zero (with a t-value of 12.8). This is an expected result, though slightly on the higher side compared with results obtained from national income accounts. On the other hand, the estimated equation shows an elasticity of output with respect to human capital per worker of -0.049 that is not significantly different from zero (with an absolute t-value of 1.07). At best, this implies that growth in per worker human capital has no effect on output. If the negative sign is taken into consideration, the result implies that there seems to be surplus human capital per worker.

The results on per capita GDP growth rates in Sudan, combined with the results on human capital, confirms the ambiguity of the relationship between the increase in capital stock per worker and GDP per capita growth (see Table 21).

**Table 21: Human capital and growth in Sudan, 1980–2000**

| Period | Growth rate of human capital per worker (%) | Growth rate of per capita GDP (%) | Output elasticity with respect to human capital |
|---|---|---|---|
| 1960–1965 | 4.56 | -1.25 | -0.27 |
| 1965–1970 | 4.39 | -0.61 | -0.14 |
| 1970–1975 | 6.01 | -1.85 | -0.31 |
| 1975–1980 | 6.55 | 4.09 | 0.63 |
| 1980–1985 | 3.29 | -0.34 | -0.10 |
| 1985–1990 | 3.87 | -0.45 | -0.12 |
| 1990–1995 | 3.31 | 0.33 | 0.10 |

[27] See World Bank (1998: 10) and the references cited there.

[28] It will be recalled that a generally specified production function usually takes the following form: Y =F(K, L, H), where Y is output, K is physical capital stock, L is labour and H is human capital stock. If the production technology exhibits constant returns to scale, then output per worker, y=Y/L, can be expressed as y= f(k, h), where k is physical capital per worker and h is human capital per worker. A per worker Cobb–Douglas function takes the form $y = A k^{\alpha}h^{\beta}$, where A is a technology parameter and $\alpha$ and $\beta$ are output elasticities with respect to physical and human capital, respectively.

| | | | |
|---|---|---|---|
| 1995–2000 | 2.09 | 2.94 | 1.41 |

Source: Based on Table 19 and estimates of growth rates for the half-decades.

The table shows that for the period 1960–1975 and the period 1980–1990 there was a negative relationship between the growth in the stock of human capital per worker and the per capita GDP. A positive relationship between the two is recorded for the period 1975–1980 and for the 1990s decade. The absolute value of the elasticity of output with respect to human capital was less than unity for all the half-decades except the second half-decade of the 1990s. Thus, on the whole no systematic relationship between the growth rate of human capital stock per worker and the per capita GDP growth can be detected from Sudan's growth experience.

## 9. CIVIL WAR AND GROWTH

As noted in Section 3, a major feature of post-independence Sudan was the civil war that raged for about ten years over 1962–1972 at relatively low intensity and from 1983 to the present at relatively high intensity. A recent study of the economics of civil war in Sudan is that of Ali, Elbadawi and El-Batahani (2002), which provides historical as well as analytical insights on this war. Given its long duration it is believed that the civil war must have affected the growth performance of the economy.

Civil wars usually cause immediate and substantial decline of output, and when they last long enough time they can also destroy the physical, human and "social" capital[29] of the affected countries. The loss of productive capital, especially human and social capital, takes more time to reverse. Collier (1999) distinguishes among five effects of conflict. Military destruction reduces the capital stock. The government diverts its expenditure from economic services, such as the police, to military expenditure. Disruption raises the cost of transactions and lowers the cost of opportunistic behaviour so that social capital starts to break down. Because incomes are seen as temporarily low, agents will dissave. Because investment opportunities are unusually poor and risky, agents will shift their portfolios abroad. These five effects have implications for both the level and the composition of economic activity. During civil wars per capita GDP is estimated to decline at annual rate of 2.2% relative to the counterfactual of no war. Moreover, the sectors that are intensive in, or suppliers of, capital and transaction (e.g., manufacturing, construction, transport, distribution, finance) tend to suffer more disproportionate losses (Collier, 1999). So civil wars not only reduce the overall level of economic activity, but they are particularly damaging to the most dynamic sectors of the affected economy.

Therefore, analysing the economic consequences and causes of civil war is central to understanding the growth process in Sudan.[30] This country has endured one of the longest (1956–1973 and 1983–present), and more recently one of the bloodiest, wars in Africa. Elbadawi (1999) provides some simple simulations of the possible costs incurred by Sudan due to just two of the channels noted above: (a) the intensity of the war, which is assumed to lead to political instability, erosion of the state and civil society instruments, and the consequent decline in property rights and the enforcement of contracts; and (b) the diversion of the limited human, financial and physical resources to military ends. The first effect is proxied by the number of war casualties per 1,000, while the ratio of military expenditure to GDP was the chosen indicator for the second effect. Using global panel data estimates of the determinants of growth and investment, which account for the two channels, Elbadawi derived the following benchmark simulations of the cost of war in Sudan in terms of overall growth and fixed investment (holding other determinants of both investment and growth constant).

The cost due to increased military expenditure: relative to the average military expenditure/GDP ratios that prevailed in SSA in 1986–1990 (about 2.5%), the high military expenditure ratios in Sudan

[29] The concept of "social capital" used in this analysis follows Putnam (1993), who defines social capital as "the features of social organization, such as trust, norms, and networks, that can improve the efficiency of society by facilitating coordinated actions".

[30] For analysis of the causes of civil wars, see Collier and Hoeffler (1998) and Elbadawi and Sambanis (2000); and for consequences of civil wars see Collier (1999).

for 1989/90–1993/94 (about 7.9) have cost Sudan a decline of 16% in investment/GDP and caused a loss of 2% in per capita GDP growth during the four years. The cost due to war intensity is estimated by noting that when the war intensified from relatively low level violence (an average of 956 non-civilian casualties in 1984) to more than 4,000 in 1989,[31] the investment ratio declined by 196% and GDP per capita growth slowed down by 6 percentage points. Thus, the overall cost over this four-year period was such that the civil war caused the country's investment ratio to be less than one-third of its potential level under normal conditions and reduced per capita GDP by a cumulative rate of 8 percentage pints. On average, therefore, the cost of war can be looked as having been 2% in real per capita GDP growth. This is consistent with the estimates by Collier (1999).

Be these monetary estimates as they may, the effect of the civil war on the growth performance of the economy can be looked at in a direct fashion. Under such a direct method the cost of civil war is considered in terms of forgone per capita growth. Table 22 provides estimates for the case of Sudan where the five-year moving average of real per capita GDP growth is used. In the table the average growth rate for 1973–1983 is used as the peace counterfactual. As such, therefore, the difference between the observed average growth rate for the various periods and the counterfactual is taken as the cost of the civil war in terms of forgone per capita growth. For the second civil war distinction is made between two subperiods: 1984–1994 is designated as "without oil", while the period 1984–1997 is designated "with oil". In addition, a pure oil effect is looked at in terms of the average growth rate for the period 1995–1997.

As the table shows, the five-year moving average real per capita growth rate during the peace period 1973–1983 was 4.27% per annum compared with a moving average growth rate of 1.52% per annum for the war period 1963–1972. This implies that the cost of the first civil war was a reduction in real per capita growth of about 2.73 percentage points. During the second civil war, prior to the inflow of oil investments, the average real per capita growth rate was 2.11% per annum, implying a cost of war of 2.13 percentage points. With the inflow of oil-related investments, the per capita growth rate over the period 1984-1997 averaged 2.63% per annum implying a cost of war of 1.86 percentage points reduction in the growth rate. The weighted average cost of war comes to a 2.22 percentage point reduction in the per capita rate of growth. This result is not very different from the estimates by Collier (1999), despite the difference in methodology.

**Table 22: The cost of civil war in Sudan: Forgone per capita growth**

| Period | Designation | 5-year moving average per capita growth rate (%) | Change in per capita growth rate percentage points) | Implied GDP growth rate (%) |
|---|---|---|---|---|
| 1963–1972 | First civil war | 1.52 | -- | 4.32 |
| 1973–1983 | Addis Ababa peace interlude | 4.24 | 2.72 | 7.04 |
| 1984–1994 | Second civil war without oil | 2.11 | -2.13 | 4.91 |
| 1984–1997 | Second civil war with oil | 2.63 | -1.86 | 5.43 |
| 1995–1997 | Oil and second civil war | 4.27 | 0.03 | 7.07 |

Source: Own estimation.

The pure effect of oil production is given by comparing the average for the period 1995–1997 with the peace counterfactual. As the table shows there is a marginal difference between the two growth rates, suggesting that perhaps oil production could substitute for peace. All these results, it is suggested, are remarkable. A particular feature of the results is that the five-year moving average for the peace-duration period is almost identical to the five-year moving average of the period where there was civil war with oil. Such a result is consistent with that reported in Table 5.

[31] By all accounts these are extremely conservative estimates. Furthermore, the war casualties have risen significantly since the advent of the current military government to power in June 1989.

## 10. GROWTH, DISTRIBUTION AND POVERTY

To examine the growth, distribution and poverty nexus in the context of Sudan a few remarks on poverty measurement are appropriate. In this respect it should be noted that the most dominant approach to the measurement of poverty is the money metric approach. Under this approach, the first step towards measurement is to agree on a relevant measure for the standard of living. A relevant standard for countries in the developing world is per capita consumption expenditure (including the consumption of own production). Given agreement on the relevant standard of living, there are a number of methods to determine the threshold of deprivation below which a person can be identified as poor. This threshold is commonly known as the poverty line.

While there are both conceptual and practical problems regarding the determination of poverty lines, there is general agreement that the relevant method for determining poverty lines for developing countries is the cost of basic needs. This method involves identifying a typical diet for the poor that is necessary for leading a healthy life. Healthy life is defined in terms of nutritional requirements using World Health Organization (WHO) and Food and Agriculture Organization (FAO) nutritional requirements (recommended daily allowances, e.g., 2,500 calories per adult per day). Required quantities of the goods supplying the required calories are appropriately priced to arrive at a monetary value defining a food poverty line. By adding to this amount the cost of other requirements needed by individuals to live in a social context (e.g., the cost of clothing, shelter, education and medicine), an overall poverty line can be estimated.[32]

With a poverty line agreed upon, an immediate measure of poverty is the ratio of the poor thus identified to the total population in a given society. This is the well-known head-count ratio. It is the most widely used, and easily understood, measure of poverty. The head-count ratio measures the spread, or incidence, of poverty in a given society. Another useful poverty measure is the poverty-gap ratio, which takes into account the extent to which the consumption of the poor falls below the poverty line. It measures the depth of poverty in a society. As is well known these two measures are special cases of a general class of additively separable poverty measures. The Foster–Greer–Thorbecke (FGT) measure is given by:[33]

$$P_\alpha = 1/n \sum [(z - y_i)/z]^\alpha; \quad (2)$$

In the above equation the summation is over q poor people, n is total population, z is the poverty line, $y_i$ is the consumption expenditure of the $i^{th}$ poor person, and $\alpha$ is a non-negative poverty aversion parameter. When $\alpha=0$ the equation gives the head-count ratio denoted by $P_0$ or H and is given by:

$$P_0 = H = q/n \quad (3)$$

When $\alpha=1$ the equation gives the poverty-gap ratio, denoted by $P_1$ and is given by:

$$P_1 = H (1 - y_p/z) \quad (4)$$

where $y_p$ is the mean consumption expenditure of the poor.

With the poverty line agreed upon, and to be able to identify the poor, information on the distribution of consumption expenditure in the society is needed. This information is usually obtained from household budget, or expenditure, surveys. Such surveys, like population censuses, are very expensive to conduct in a rigorous fashion and as a result such information is usually lacking in developing countries, especially on a time series basis. In countries suffering from civil conflicts as in

[32] Anand and Nur (1984) used this method to estimate an absolute poverty line for Sudan for 1984. According to their estimates the absolute poverty line was Ls1.2 per person per day, equivalent to US$. Subsequent studies in Sudan used the typical food basket for the poor identified by Anand and Nur (1994) to estimates poverty lines by appropriate re-pricing of the quantities involved that provide the recommended per person daily calorie intake.

[33] See Foster, Greer and Thorbecke (1994).

Sudan information on the distribution of consumption expenditure even when available usually fails to satisfy one of the requirements of "high quality data" sets, namely that of being representative of the whole country.

Be that as it may, and in general, any poverty measure (which can be denoted by P) could be expressed as depending on mean consumption expenditure in society, the poverty line and on a measure of the underlying inequality in the distribution of consumption. Most of the poverty measures in use have the property of being invariant to equal proportional changes in mean consumption expenditure and the poverty line. As a result, any poverty measure can be expressed in the following general form:

$$P = P(\mu/z, \theta) \tag{5}$$

where $\mu$ is mean consumption expenditure, z is the poverty line and $\theta$ is a measure of the inequality in the distribution of consumption expenditure usually taken as the Gini coefficient. The theoretical restrictions on this general form are such that as per capita consumption increases (poverty line declines), other things remaining the same, poverty declines. Similarly, as inequality in the distribution of consumption expenditure declines, other things remaining the same, poverty declines. Note that in this general formulation if the poverty line changes by the same rate of change as mean consumption expenditure, other things remaining the same, poverty does not change.[34] Note also that if the poverty line is set as a constant proportion of mean consumption expenditure, then poverty changes will only depend on the change in the distribution of consumption expenditure.[35]

Under the above general formulation of poverty measures, it is an easy matter to show that changes in poverty over time can be looked at in terms of the elasticity of the poverty measure with respect to consumption expenditure, inclusive of the elasticity of the poverty line with respect to consumption expenditure, and with respect to the Gini coefficient. Thus changes in poverty over time have a growth component and a distribution component that are of the following format:

$$[dP/dt][1/P] = \gamma\,(d\mu/dt)(1/\mu) + \nu\,(d\theta/dt)(1/\theta) \tag{6}$$

where $\gamma$ and $\nu$ are the elasticities of the poverty measure with respect to consumption expenditure (inclusive of the elasticity of the poverty line with respect to consumption expenditure) and the Gini coefficient, respectively. This is the relationship that can be used for the purposes of looking at the growth–poverty nexus in Sudan. The elasticities in question can be calculated in a direct fashion if the required data are available. In the case of Sudan, such data are not available for the 1990s. As a result, resort can be made to indirect methods. One such method is to use estimates of poverty measures from sub-Saharan Africa, the requisite data for which is reported in the World Bank World Development Indicators. For a sample of 18 sub-Saharan countries poverty measures were calculated on the basis of a poverty line that changes with per capita consumption expenditure. A poverty equation is then estimated where the logarithms of relevant poverty measure are the independent variables, and per capita consumption expenditure and the Gini coefficient are the explanatory variables. The resulting equation for the head-count ratio, with White heteroscedasticity adjusted absolute t-values in brackets, is given below:

$$\underset{(34.36)\ (15.96)\ (5.40)}{\text{Ln } H = 4.1732 - 0.00163\,\mu + 0.0124\,\theta}\ ;\ \text{adjusted R-squared} = 0.94; \tag{7}$$

where H is the head-count ratio, $\mu$ is real per capita consumption expenditure in 1985 purchasing power parity dollars and $\theta$ is the Gini coefficient in percentage points. The relevant partial elasticities of the head-count ratio are readily obtainable from this equation as $\gamma = [-0.00163\mu]$ and $\nu = [0.0124\theta]$

[34] This is the property of zero homogeneity of the poverty measure with respect to mean consumption expenditure and the poverty line. This property is thought to hold for most widely used poverty measures.

[35] This can easily be established by direct substitution in the definition of the general poverty measure.

once information for $\mu$ and $\theta$ is available. Alternatively, we can directly look at expression equivalent to the change in poverty over time by differentiating Equation 8 with respect to time to get:

$$(dH/dt)(1/H) = [-0.00163\mu](d\mu/dt)(1/\mu) + [0.0124\theta](d\theta/dt)(1/\theta) \quad (8)$$

where $(d\mu/dt)(1/\mu)$ is the growth rate in per capita consumption expenditure and $(d\theta/dt)(1/\theta)$ is the percentage change in the Gini coefficient. If, as is commonly believed, the sustained growth in the second half of the 1990s did not reduce poverty in Sudan, then according to the equation above the distribution of consumption expenditure must have worsened in a significant fashion. To explore this issue Table 23 presents estimates on real per capita consumption expenditure for a number of years including the 1990s. As is usual in the literature, use is made of the estimates of private consumption to GDP from national income accounts. To be appropriately used in the estimated equation for the head-count ratio, real per capita consumption expenditure is estimated on the basis of 1985 PPP US dollars.

**Table 23: Real per capita consumption expenditure in Sudan: 1968–1999**

| Year | GDP per capita ($: 1985 PPP) | Private consumption as a % of GDP | Per capita consumption expenditure ($ 1985 PPP) | Annual growth rate of per capita consumption expenditure (%) |
|---|---|---|---|---|
| 1968 | 798 | 0.679 | 542 | - |
| 1978 | 962 | 0.815 | 784 | 3.76 |
| 1987 | 817 | 0.778 | 636 | -2.30 |
| 1988 | 763 | 0.713 | 544 | -14.47 |
| 1989 | 808 | 0.890 | 719 | 32.17 |
| 1990 | 773 | 0.833 | 644 | -10.43 |
| 1991 | 798 | 0.937 | 748 | 16.15 |
| 1992 | 817 | 0.721 | 589 | -21.26 |
| 1993 | 815 | 0.932 | 760 | 29.03 |
| 1994 | 820 | 0.933 | 765 | 0.66 |
| 1995 | 833 | 0.782 | 651 | -14.90 |
| 1996 | 846 | 0.810 | 685 | 5.22 |
| 1997 | 876 | 0.874 | 766 | 11.82 |
| 1998 | 908 | 0.913 | 829 | 8.22 |
| 1999 | 944 | 0.857 | 809 | -2.41 |

Source: GDN database (see Easterly and Sewadeh, 2002). Figures for per capita GDP are appropriately adjusted using real GDP growth rates. Figures for private consumption as a ratio of GDP from 1988 onwards are from the Arab Monetary Fund et al. (2000).

From the information above it is clear that per capita private consumption expenditure fluctuated widely over the period. As the table shows, during 1968–1978 per capita consumption expenditure increased by an annual rate of 3.8% followed by a decline at an annual rate of 2.3% over the period 1978–1987. Despite the fluctuations during the period since the mid 1980s, per capita consumption expenditure recorded positive growth for the various subperiods of the 1990s. The average annual growth rates of per capita consumption for the 1990s subperiods are as follows: 2.21% for 1990–1999 (with a standard deviation of 15.2 percentage points); 2.72% for 1990–1998 (with a standard deviation of 16 percentage points); 2.88% for 1990–1994 (with a standard deviation of 20.24 percentage points); and 1.59% (with a standard deviation of 10.6 percentage points) for 1995–1998.

While high quality information on the distribution of expenditure exists only for 1968, there is comparable information for 1978 and 1987. On the basis of this information, Gini coefficients for the distribution of expenditure are reported as 38.72% for 1968; 40.4% for 1978; and 57.48% for 1986.[36] Thus, the expenditure Gini coefficient recorded an annual increase at the rate of 0.42% over the period 1968–1978, and at the rate of 4.51% for the period 1978–1986. The discussion that follows will use the rate of increase in the Gini coefficient of 4.51% for the 1990s period. Table 24 reports the results for the rate of increase in the head-count ratio during the 1990s.

**Table 24: Growth and poverty in Sudan during the 1990s: Change in the head-count ratio**

| Period | Initial per capita expenditure: μ ($: PPP) | Elasticity of H wrt to μ= γ | Initial Gini coefficient : G (%) | Elasticity of H wrt G= ν | Per capita expenditure growth rate (%) | Growth in the Gini coefficient (%) | Change in poverty (%) |
|---|---|---|---|---|---|---|---|
| 1990–99 | 773 | -1.26 | 65.61 | 0.81 | 2.21 | 4.51 | 0.87 |
| 1990–98 | 773 | -1.26 | 65.61 | 0.81 | 2.72 | 4.51 | 0.23 |

[36] See Ali (1994) for data sources.

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1990–94 | 773 | -1.26 | 65.61 | 0.81 | 2.88 | 4.51 | 0.24 |
| 1995–98 | 833 | -1.36 | 81.81 | 1.01 | 1.59 | 4.51 | 2.39 |

Source: Own calculations.

The results above, it is suggested, are reasonable in terms of the magnitude of the elasticity of the head-count ratio with respect to per capita consumption expenditure and the Gini coefficient. Compared with other African countries, the spread of poverty in Sudan seems to be relatively more responsive to both determinants.[37] An increase of 1% in per capita consumption expenditure leads the head-count ratio to decline by 1.26% for the periods that have 1990 as the base year and by 1.36% for 1994 as the base year. Similarly, improvements in the distribution of consumption expenditure are reflected in a decline in the Gini coefficient.

The table shows that the spread of poverty has increased during the 1990s despite the overall growth in per capita GDP because of the relatively low growth rates in per capita expenditure and because of the deterioration in the distribution of expenditure. For the whole period 1990–1999 poverty increased by an annual rate of 0.87%. For the first half of the 1990s poverty increased marginally at an annual rate of 0.24%, but for the second half the increase in the head-count ratio was very significant at the rate of 2.4%. These estimates are not qualitatively different from the most recent results reported for Sudan that compare absolute poverty in 1990 with that in 1996.[38] According to these results the incidence of poverty (as measured by the head-count ratio) increased by an annual rate of 2.62% per annum, from 77.5% in 1990 to 90.5% in 1996.[39] Moreover, it is reported that the head-count ratio for 1996 was 81.4% for the urban areas (using an urban poverty line of £S292,000 per person per year) and 94.8% for the rural areas (using a poverty line of £S261,000 per person per year).

## 11. OIL AND GROWTH: WAS THERE AN INVESTMENT TRANSITION IN THE 1990s?

In August 1999 Sudan exported its first oil shipment after about 40 years above oil explorations first started and about 20 years after serious efforts at oil exploration began.[40] According to an IMF report, proven reserves are estimated to range from about 1 billion to 5 billion barrels, which would last from about 19 to 93 years.[41]

[37] For a sample of 17 sub-Saharan African countries for which high quality distribution data are available the elasticity of the head-count ratio with respect to consumption expenditure varied from -1.82 for Ghana (with per capita consumption expenditure of US$635 in PPP) to -0.51 for Central Africa Republic (with per capita consumption expenditure of US$511 in PPP). The elasticity of the head-count ratio with respect to the Gini coefficient in Ghana is 0.84. All these elasticities are directly calculated by POVCAL, a software for poverty analysis based on grouped data that is available from the World Bank's website www.worldbank.org.

[38] The most recent poverty estimates for Sudan are provided in Ministry of Manpower and ILO (1997). These estimates use an absolute poverty of £S271,000 per person per year (which was found to be almost identical to the officially approved Islamic cost of basic needs (0.4018 of the Nisab as determined by the Ifta Committee of the Zakat Fund).

[39] While interesting, and seeming to confirm casual observations, these estimates remain problematic because of the partial coverage of the survey data on which they are based. In the two surveys used, the Southern part of the country was not covered due to the civil war.

[40] According to an Amnesty International report the major companies currently active in the oil sector are the following. The Great Nile Petroleum and Oil Corporation (GNPOC) holds the concession for the two main oil producing areas. China National Petroleum Corporation (CNPC) holds a 40% share in the project, Petronas Bhd of Malaysia holds a 30% share, Talisman Energy of Canada holds a 25% share, and Sudapet of Sudan holds a 5% share.

[41] The latest reference to estimated reserves came in the context of the recent report by the US special envoy J. Danforth to President Bush on the civil war in Sudan. The figures were reported in the *St. Louis Post-Dispatch* (http://home.post-dispatch.com) on 29 April 2002.

Not surprisingly, the advent of oil will have significant impact on Sudan's production structure and the composition of its exports. According to recent estimates total yearly production amounted to about 52.8 million barrels, of which total cost of production amounted to 22.18 million barrels (i.e., 42% of total production). Thus oil profits amounted to about 30.62 million barrels, of which the government received 22.05 million barrels (i.e., 72% of total profits). Of this total, 15 million barrels were allocated for local consumption (3 million for El Obeid refinery and 12 million for Khartoum refinery), 4.7 million represented the transportation fees (i.e., 31.4% of the total local consumption or 21.3% of total share of the government), and 2.34 million represented exports (i.e., 10.6% of the total share of the government).

The export price realized by the government averaged about US$20.75 per barrel. This was based on a UK Brent spot price of US$24.5 per barrel minus a price adjustment of US$3 per barrel minus port fees of US$0.75 per barrel. On the basis of this export price it is estimated that the total gross revenue generated by the government from oil in 2000 amounted to about US$360 million (US$49 million from exports, US$62 million from El Obeid refinery and US$249 from Khartoum refinery). Net government revenue from oil, after deducting oil related loan repayments, amounted to US$292 million.

In terms of the production structure of the economy, preliminary projections by the IMF show that the share of the oil sector in GDP will increase from about 4% in 2000 to 6.4% in 2005 and that the value of crude oil exports will increase from about US$813 million in 2000 to about US$1.1 billion in 2005. The share of oil exports has already started to dominate the exports composition, where it reached 35.4% in 1999 (having been US$275.9 million out of US$780 million).

Given the above, it is generally believed that the sustained growth that was registered during the second half of the 1990s was related to private investment flows to the oil sector. In view of the distinct growth record of this subperiod this raises the question as to whether Sudan was able to engineer an investment transition during this period.

An investment transition is defined as a sustained increase in the investment rate of 5 percentage points or more. Thus, "a country is said to undergo an investment transition in year T if the three-year moving average of its investment rate over an eight-year period starting at T+1 exceeds the five-year average of its investment rate prior to T by five percentage points or more".[42] Applying this definition of investment transitions to a sample of developing countries, excluding major oil exporting countries as well as cases in which the post-transition investment rate remains below 10%, yielded 47 episodes of investment transitions, 25 of which are for African countries. Sudan, however, was not among the African countries that have undergone an investment transition.

Rather not surprisingly, investment transitions are shown to be associated with significant increases in rates of economic growth. In particular, it is shown that countries that experience an investment transition see their real per capita GDP growth rates increase from an average of 0.8 percentage points less than the world average growth rate to one that is 1.4 percentage points more than the world average, implying a difference of 2.2 percentage points increase in average growth rates.

Available information permits the investigation of a recent investment transition in Sudan. Table 25 summarizes the results for half-decade five-year moving average investment rates and the corresponding average growth rates of real per capita GDP where figures in parentheses are standard deviations.

**Table 25: Five-year moving average investment rates and growth in Sudan**

| Period | Investment rate (%) | GDP per capita growth | Capital output ratio | Rate of return to capital (%) |
|---|---|---|---|---|
| 1960–1964 | 15.31 | 1.61 | 9.5 | 10.5 |
| 1965–1969 | 13.43 | 1.62 | 8.3 | 12.1 |
| 1970–1974 | 13.17 | 2.05 | 6.4 | 15.6 |
| 1975–1979 | 16.96 | 6.86 | 2.5 | 40.0 |
| 1980–1984 | 16.79 | 1.70 | 9.9 | 10.1 |

[42] Rodrik (1999: 58).

| | | | | |
|---|---|---|---|---|
| 1985–1989 | 19.51 | 1.15 | 17.0 | 5.9 |
| 1990–1996 | 16.28 | 3.26 | 5.0 | 20.0 |
| 1960–1996 | 16.00 | 2.73 | 5.9 | 17.0 |

**Source: Own calculations.**

The table shows that investment rates during the period 1960–1998 in Sudan were below 20% of GDP. The only candidate for a possible investment transition was the half-decade 1985–1989 when the five-year moving average investment rate was 3.98 percentage points higher, in a statistically significant fashion, than that for the 1980–1984 half-decade (with a t-value of 4.37). Compared with the 1985–1989 subperiod, the 1990s investment rate declined, but for 1990–1994 the difference was not statistically significant (a t-value of 1.03). The decline in the five-year moving average investment rate for the subperiod 1995–1998 is statistically significant, however (with a t-value of 3.94). Moreover, the decline in the investment rate for the period 1995–1998 compared with that of 1990–1994 is also statistically significant (with a t-value of 4.36). This is slightly puzzling in view of the impressive increase in the growth rate of per capita GDP in the second half-decade of the 1990s.

The foregoing suggests that perhaps Sudan was able to engineer an investment transition during the second half of the 1990s. Compared with the half decade 1990—1994, an investment transition would have required the investment rate for the 1995–1998 subperiod to be in excess of 22.7% of GDP. There is evidence to suggest that foreign direct investment flows related to the oil sector were indeed substantial during the second half of the 1990s. Estimates of FDI flows, however, differ between World Bank and IMF sources on the one hand and UNCTAD, on the other. Table 26 provides the relevant information.

**Table 26: Foreign direct investment flows into Sudan, 1996–2000**

| Year | GDP (US$ million) | UNCTAD FDI flows (US$ million) | UNCTAD's FDI/GDP ratio (%) | IMF FDI flows (US$ million) | IMF's FDI/GDP ratio (%) |
|---|---|---|---|---|---|
| 1996 | 7,586 | 0 | 0 | 70 | 0.92 |
| 1997 | 8,237 | 98 | 1.19 | 180 | 2.19 |
| 1998 | 8,830 | 371 | 4.20 | 670 | 7.59 |
| 1999 | 9,903 | 371 | 3.75 | 224* | 2.26 |
| 2000 | 11,414 | 392 | 3.43 | 150* | 1.31 |

* Projections.
Source: UNCTAD (2001) and IMF (2000).

The time pattern of the flow of FDI is almost identical for the two sources, where FDI flows peaked in 1998 amounting to 4.2% of GDP according to UNCTAD and about 7.6% of GDP according to the IMF. Despite the difference in estimates, the flow of FDI seems to be associated with the reported jump in the growth rate of the economy that happened in 1997. On annual average basis, however, the resulting FDI rate for the period 1996–2000 of 2.5 to 2.9 percentage points of GDP falls short of the minimum 5 percentage points required for an investment transition.

## 12. THE "WHAT, WHY AND HOW" OF SUDAN'S GROWTH

As noted in the introduction, a case-based analysis of growth performance is expected to provide answers to questions such as what patterns of investment, learning and innovation were observed? Why were these chosen by economic agents (households, firms and governments)? And, how did these choices feed into the growth outcomes? A set of short responses to these questions, we suggest, can be offered on the basis of the reading of the evidence arrayed in the various sections of this paper. Not surprisingly these responses can be arranged in terms of the growth episodes identified in Section 4. In what follows we also couch these in terms of the major influence behind the choices made:

- ***The devil they knew: (1960–1969):*** It is perhaps clear that the pattern of investment chosen by the various regimes from independence up to May 1969 was dictated by the inherited institutional structure of the colonial state. As noted, the democratic governments as well as the first military regime did not have well articulated economic programmes and as such continued the set of economic policies implemented during the colonial period with major investments in the agricultural sector and possibly some investment in the transport sector. The orientation of the economic policy was largely benign with respect to the private sector seeking to encourage it to invest in the import-substitution industrial sector with the government taking initiatives in some of the factories with the intention of privatizing them in the future. The then emerging private sector invested in real estate, cotton pump schemes and mechanized rain-fed agriculture for the obvious reason of high returns to investment in these sectors. There was little technological progress, little innovation, and little learning in terms of production and institutional organization. The result was volatile growth.

- ***External influence and the breadbasket mirage (1969–1973 and 1974–1984):*** During the remainder of the first growth episode (1969–1973) there was an attempt to copy the Arab socialist model of Egypt in its totality. Thus, the pattern of investment chosen during this period was heavily biased towards public sector initiatives with large-scale nationalization and confiscation of manufacturing firms. Investment in agriculture remained as it was during the colonial period with emphasis on irrigated agriculture and mechanized rain-fed farming. As it happened, incentives for the private sector were negative and as such a "wait and see" attitude was adopted by this sector. Foreign businesses, especially those associated with import and export trade, started a process of winding down their business in Sudan and relocating outside though keeping business links with agents inside the country. The "wait and see" attitude paid off in less than four years when the military regime made a dramatic change in alliances away from "socialist" policies towards liberalization and opening up to foreign investment. This was largely precipitated by political interests of a number of external parties including Saudi Arabia and the Arab countries and the United States of America. Conservative Arab regimes wanted to extricate Sudan from the throes of a so-called radical Arab camp, while the USA wanted an ally for Egypt. The growth episode 1974–1984 saw both a move towards more liberal economic policies, a lot of joint venture investment with the government investing in transport and telecommunication, and agriculture in the form of the so-called breadbasket strategy. A relatively high inflow of net resources was recorded during this period, including both private capital and official foreign assistance. If there was an investment pattern during this period it was largely dictated by the IMF and the World Bank in the context of policy-based lending of the structural adjustment programmes. The result was a growth episode dependent on foreign official capital and a subsequent accumulation of debts. Though there was relatively increased private confidence in economic policies, the credibility of the government suffered greatly due to a perceived increase in corruption and nepotism. As a result, the period recorded a relatively high level of capital flight facilitated largely by the developments in the labour market, precipitating migration to the Gulf States, and developments in the foreign exchange market enabling transactions in foreign exchange to take place.

- ***Party politics and ideology: (1985–1994):*** There was no clear investment pattern during this period for reasons due to the highly polarized political practices of the democratic regime (1986–1989) and the highly ideological stance of the military regime (1989–1994). Incentives to the private sector did not change in a positive direction during the democratic regime and were dealt a shattering blow during the first phase of the third military regime with its Islamic ideological rhetoric and its biased economic practices (including the use of extreme repression for economic control and resource mobilization). The period saw a lot of capital flight accompanying the search for political asylum in Egypt and various other places. The identification of the regime as one harbouring "terrorism" by the USA increased the risks associated with the economy. In addition, the intensification of the civil war in the southern part of the country continued its pressure on the public treasury and further distorted the allocation of investment funds.

- ***The lure of oil: (1995–1998):*** The pattern of investment chosen during this period was largely determined by the decision to go ahead with the commercial exploitation of oil. As noted earlier, this period saw the inflow of relatively large amounts of foreign direct investment related to the oil sector. This has happened despite the negative incentives to the private sector indicated by the intensification of the civil war and the continued non-credibility of the governing regime. A major move to stabilize the economy started in 1996 with the adoption of a home grown stabilization programme designed on the IMF stabilization model with massive devaluation, privatization, and stringent monetary and fiscal policies. Investment in the oil sector has already had an impact on the growth performance of the economy. As a result, the period since 1995 saw the only sustained growth episode in the history of the country.

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## APPENDIX A: SUPPLEMENTARY TABLES

### Table A1: GDP per capita, structural composition and macro and institutional factors: Averages for Sudan for various time periods

| YEAR | Real GDP per capita (US$; PPP 1985) | GDP per capita growth rate (%) | Share of agriculture in GDP (%) | Share of industry in GDP (%) | Share of services in GDP (%) | Investment/ GDP (%) | Inflation rate (%) | Real over-valuation index | Trading partner per capita GDP growth rate (%) | Terms of trade index | Political rights score | Civil liberties score | Freedom status | Average annual rain |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960–1964 | 850.404 | -0.012 | 52.417 | 13.561 | 34.022 | 15.440 | 4.766 | 118.352 | 3.852 | | | | | 459.491 |
| 1960–1968 | 834.587 | -0.009 | 46.844 | 14.465 | 38.691 | 14.411 | 2.414 | 118.830 | 3.750 | 146.540 | | | | 446.109 |
| 1960–1973 | 820.259 | -0.014 | 45.605 | 14.355 | 40.040 | 13.435 | 5.084 | 119.668 | 3.881 | 143.193 | | | | 423.801 |
| 1960–1998 | 833.424 | 0.003 | 40.206 | 14.778 | 44.919 | 15.945 | 35.149 | 146.827 | 2.397 | 126.437 | | | | 391.524 |
| 1960–2000 | 839.584 | 0.005 | 40.591 | 14.964 | 44.353 | 15.964 | 35.149 | 146.827 | 2.397 | 126.437 | | | | 391.524 |
| 1965–1968 | 814.815 | -0.005 | 39.877 | 15.595 | 44.528 | 13.125 | 0.062 | 119.428 | 3.647 | 146.540 | | | | 429.381 |
| 1965–1969 | 809.920 | -0.006 | 39.830 | 15.593 | 44.577 | 13.100 | 2.571 | 119.185 | 4.070 | 147.775 | | | | 421.566 |
| 1969–1973 | 794.469 | -0.022 | 43.374 | 14.159 | 42.467 | 11.678 | 9.357 | 121.175 | 4.092 | 142.524 | | | | 383.648 |
| 1970–1974 | 778.800 | -0.018 | 44.330 | 13.793 | 41.877 | 12.758 | 12.067 | 128.129 | 3.121 | 145.602 | 6.00 | 6.00 | 6.00 | 390.759 |
| 1974–1977 | 841.000 | 0.090 | 40.930 | 13.403 | 45.668 | 19.038 | 17.218 | 169.389 | 2.032 | 153.825 | 6.00 | 6.00 | 6.00 | 408.145 |
| 1974–1978 | 865.200 | 0.066 | 40.534 | 13.204 | 46.262 | 18.100 | 17.620 | 173.053 | 2.419 | 149.720 | 6.00 | 5.75 | 5.88 | 416.488 |
| 1975–1979 | 892.800 | 0.041 | 38.766 | 13.107 | 48.128 | 17.436 | 18.616 | 181.372 | 2.950 | 142.540 | 5.75 | 5.50 | 5.63 | 411.434 |
| 1978–1983 | 884.000 | -0.017 | 35.730 | 14.010 | 50.261 | 15.537 | 26.100 | 167.097 | 0.617 | 124.917 | 5.00 | 5.20 | 5.10 | 391.498 |
| 1979–1990 | 831.700 | -0.017 | 33.465 | 15.277 | 50.941 | 17.823 | 38.209 | 173.161 | 1.132 | 118.750 | 5.09 | 5.45 | 5.27 | 370.886 |
| 1980–1984 | 865.200 | -0.003 | 34.120 | 14.871 | 51.009 | 16.118 | 28.075 | 154.928 | -0.397 | 122.000 | 5.00 | 5.25 | 5.13 | 354.800 |
| 1985–1989 | 806.200 | -0.005 | 33.061 | 16.081 | 50.918 | 20.000 | 44.368 | 151.584 | 1.865 | 112.620 | 4.50 | 5.25 | 4.88 | 394.211 |
| 1986–1989 | 810.000 | 0.007 | 32.941 | 15.974 | 51.160 | 19.600 | 44.108 | 158.912 | 2.264 | 110.575 | 4.00 | 5.00 | 4.50 | 394.023 |
| 1990–1994 | 804.880 | 0.003 | 34.140 | 16.740 | 48.280 | 16.580 | 104.630 | 220.046 | 1.745 | 111.960 | 7.00 | 7.00 | 7.00 | 376.263 |
| 1991–1994 | 812.750 | 0.015 | 35.150 | 17.100 | 47.725 | 16.175 | 114.498 | 187.358 | 1.510 | 109.100 | 7.00 | 7.00 | 7.00 | 394.084 |
| 1991–2000 | 863.290 | 0.024 | 42.150 | 16.320 | 41.530 | 16.233 | 90.368 | 138.463 | 1.866 | 105.650 | 7.00 | 7.00 | 7.00 | 350.392 |
| 1995–1998 | 865.625 | 0.026 | 46.175 | 14.400 | 39.450 | 16.175 | 66.238 | 89.568 | 2.222 | 98.750 | 7.00 | 7.00 | 7.00 | 306.700 |
| 1995–2000 | 896.983 | 0.029 | 46.817 | 15.800 | 37.400 | 16.280 | 66.238 | 89.568 | 2.222 | 98.750 | 7.00 | 7.00 | 7.00 | 306.700 |

### Table A2: Standard deviations for GDP per capita and other variables for Sudan

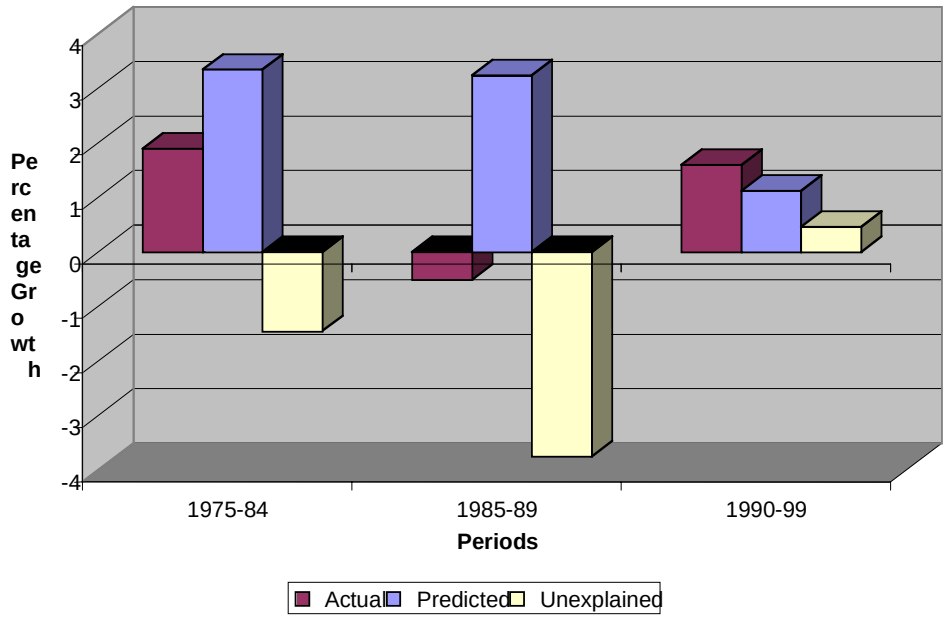
| Year | Real GDP per capita (US$; PPP 1985) | GDP per capita growth rate (%) | Share of agriculture in GDP (%) | Share of industry in GDP (%) | Share of services in GDP (%) | Investment/ GDP (%) | Inflation rate (%) | Real over-valuation index | Trading partner per capita GDP growth rate (%) | Terms of trade index | Political rights score | Civil liberties score | Freedom status | Average annual rain |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1960–1964 | 25.315 | 0.042 | 4.364 | 0.709 | 3.750 | 2.466 | 2.958 | 6.088 | 1.445 | | | | | 36.197 |
| 1960–1968 | 30.625 | 0.039 | 7.720 | 1.566 | 6.337 | 2.199 | 6.562 | 6.181 | 1.040 | | | | | 34.296 |
| 1960–1973 | 44.213 | 0.051 | 6.408 | 1.328 | 5.365 | 2.349 | 7.108 | 6.887 | 1.317 | 6.175 | | | | 43.194 |
| 1960–1998 | 54.977 | 0.057 | 7.095 | 1.431 | 6.219 | 3.150 | 38.327 | 74.286 | 1.955 | 19.023 | | | | 73.485 |
| 1960–2000 | 60.351 | 0.056 | 7.137 | 1.741 | 6.575 | 3.111 | 38.327 | 74.286 | 1.955 | 19.023 | | | | 73.485 |
| 1965–1968 | 26.614 | 0.042 | 4.130 | 1.676 | 2.564 | 0.900 | 8.773 | 7.183 | 0.639 | | | | | 26.795 |
| 1965–1969 | 25.514 | 0.036 | 3.578 | 1.451 | 2.223 | 0.781 | 9.445 | 6.244 | 1.097 | 1.747 | | | | 29.049 |
| 1969–1973 | 56.428 | 0.071 | 2.141 | 0.864 | 1.327 | 1.505 | 6.258 | 8.563 | 1.795 | 6.656 | | | | 24.004 |
| 1970–1974 | 67.625 | 0.073 | 0.477 | 0.329 | 0.317 | 3.416 | 9.895 | 16.236 | 1.969 | 11.899 | 0.00 | 0.00 | 0.00 | 30.779 |
| 1974–1977 | 118.710 | 0.058 | 2.432 | 0.719 | 2.777 | 2.783 | 11.061 | 12.894 | 1.657 | 9.387 | 0.00 | 0.00 | 0.00 | 19.108 |
| 1974–1978 | 116.177 | 0.074 | 2.284 | 0.765 | 2.747 | 3.194 | 9.621 | 13.850 | 1.676 | 12.261 | 0.00 | 0.50 | 0.25 | 24.937 |
| 1975–1979 | 82.068 | 0.110 | 1.920 | 0.705 | 2.061 | 3.451 | 10.899 | 10.973 | 1.487 | 12.025 | 0.50 | 0.58 | 0.48 | 25.122 |
| 1978–1983 | 39.900 | 0.052 | 2.211 | 1.029 | 1.766 | 2.255 | 4.376 | 33.109 | 3.144 | 10.435 | 0.00 | 0.45 | 0.22 | 37.254 |
| 1979–1990 | 40.859 | 0.056 | 2.405 | 1.004 | 2.015 | 3.040 | 17.647 | 64.986 | 2.258 | 10.721 | 0.94 | 0.69 | 0.79 | 57.429 |
| 1980–1984 | 19.058 | 0.032 | 2.544 | 0.768 | 2.147 | 2.435 | 4.135 | 30.509 | 2.543 | 10.315 | 0.00 | 0.50 | 0.25 | 50.450 |
| 1985–1989 | 32.844 | 0.067 | 2.178 | 0.404 | 2.548 | 2.831 | 21.666 | 41.011 | 1.368 | 10.970 | 1.00 | 0.50 | 0.75 | 64.918 |
| 1986–1989 | 36.633 | 0.071 | 2.495 | 0.377 | 2.875 | 3.102 | 25.009 | 43.411 | 1.197 | 11.514 | 0.00 | 0.00 | 0.00 | 74.959 |
| 1990–1994 | 19.715 | 0.029 | 4.879 | 0.924 | 4.278 | 1.434 | 23.520 | 187.962 | 0.861 | 9.957 | 0.00 | 0.00 | 0.00 | 43.730 |
| 1991–1994 | 10.262 | 0.016 | 4.994 | 0.523 | 4.727 | 1.284 | 9.402 | 199.956 | 0.787 | 8.812 | 0.00 | 0.00 | 0.00 | 20.798 |
| 1991–2000 | 60.597 | 0.014 | 6.939 | 2.229 | 6.675 | 1.054 | 41.677 | 141.023 | 0.675 | 8.705 | 0.00 | 0.00 | 0.00 | 122.959 |
| 1995–1998 | 33.686 | 0.012 | 2.656 | 0.455 | 2.901 | 1.109 | 49.110 | 6.839 | 0.322 | 1.768 | 0.00 | 0.00 | 0.00 | 172.494 |
| 1995–2000 | 56.042 | 0.011 | 2.525 | 2.822 | 3.952 | 0.988 | 49.110 | 6.839 | 0.322 | 1.768 | 0.00 | 0.00 | 0.00 | 172.494 |

## APPENDIX C: WHY HAS SUDAN GROWN SO LITTLE?

In addition to sound macroeconomic and institutional environment, as well as rapid accumulation of human and physical capital, growth has also been linked in the modern growth literature to factors associated with "geography and ecology", "demographic transition", and political and criminal violence. As we will show, all three sets of factors are likely to be strong determinants of growth in Sudan. Taking the East Asian economic performance as the development frontier, we use estimates from an endogenous growth model (due to Elbadawi, 2002) that accounts for these growth fundamentals to probe further on the issue of why has there been little growth in the Sudan?

Figure C1 provides the growth differentials in per capita GDP growth between East Asia and Sudan for three periods: 1975–1984, 1985–1989, 1990–1999.[43] The first period approximates period 2 (1974–1983) of Table 5, which was a period marked by peace and a halt in the violence that dominated post-independence Sudan. However, during this period average annual per capita growth in East Asia was higher than that of Sudan by more than 4.6%. The model predicts a lower growth differential of about 3.4%, suggesting an unexplained growth rate of about 13%. During 1985–1989 the growth differential (at 6.48%) widened further in favour of East Asia. The model predicts a much lower growth differential at 3.24%, however, leaving more than 3.2% of growth differential unexplained. This period approximates period 3 (1984–1991), which follows the collapse of peace and the start of the second and much more violent episode of the civil. During the last period (1990–1999), average growth has improved considerably, virtually matching that of East Asia. Both actual and predicted shortfalls in growth relative to East Asia have reduced to about 0.9 and 1.1, respectively.

**Figure C1: Growth in Sudan relative to East Asia (per capita EA minus per capita growth in Sudan Growth in**




Notes: Predicted growth differential is based on growth regression by Elbadawi (2002), given by:

[43] The periodization is dictated by the fact that the regression data, which cover 134 countries, are averaged over the following periods: 1965–1969, 1970–1974, 1975–1979, 1980–1984, 1985–1989, 1990–1994, 1995–1998 (Table 6a-b of Elbadawi, 2001).

$$grwth = -6.90 \ln y_{t-1} + 0.04\, prim + 15.08 \ln\left(\frac{labor}{pop}\right) + 0.90 CPIA + 2.14\, pdensty - 0.15 temp -$$

$$(-7.88) \qquad (2.46) \qquad (4.72) \qquad (3.65) \qquad (7.35) \qquad (-8.38)$$

$$1.51 Cwar + 67.9$$

$$(-2.82)$$

*No. of Observations 669, No. of Countries 113, R-squared 0.60.*

Where, *grwth* = per capita growth, *prim* = primary school enrolment, *CPIA* = country policy and institutional assessment (from the World Bank), *temp* = proportion of land in non-temperate zones, *Cwar* is civil war dummy. Finally, the CPIA is composed of 20 components covering four categories: macroeconomic management and sustainability of reforms; policies for sustainable and equitable growth; policies for reducing inequality; and public sector management and service delivery

However, Sudanese growth in this latter period has not been uniform, with the first half of the period (1990–194) witnessing negative growth, compared with high positive growth at almost 8% per annum during 1995–1999.During this period growth collapsed in most Asian countries following the Asian crisis of 1996. If, instead, we undertake the analysis for the two subperiods, a very different story emerges. In 1990–1994, East Asia grew by more than 4.8% compared with Sudan, although the model predicts a growth differential of only 2.4%, leaving more than 2.4% unexplained growth differential. This was the period of intensified civil war and massive macroeconomic mismanagement, which characterized the first phase of the Salvation regime. On the other hand, in the last subperiod (1995–1999), growth in Sudan exceeded that of East Asia by more than 3%, most of it unaccounted for by the model. This latter period constitutes the current phase of the Salvation regime, when runaway inflation was brought under control and the overall macroeconomic environment improved. More importantly, however, in this period the production and export of oil and the huge inflow of foreign investment associated with the oil sector are likely to have been the key contributors to the growth spell in the Sudan. At the same time, most of East Asia experienced substantial decline in growth during this period.

Now we analyse the allocation of growth differentials to the range of determinants in the model in Table C1. In the table, distinction is made between the "traditional growth fundamentals" – catch up effect, human capital and institutions – and factors associated with demography, geography and civil war.

**Table C1: Accounting for growth differential (growth in EA minus growth in Sudan)**

| Difference in averages for period 1975–1999 | | | | |
|---|---|---|---|---|
| Variable | 1975–84 | 1985–89 | 1990–94 | 1995–99 |
| Initial conditions/human capital | | | | |
| Initial income | -9.80 | -12.49 | -14.35 | -16.70 |
| Primary school enrolment | 2.09 | 2.01 | 2.06 | 1.83 |
| Demographic gift | | | | |
| Proportion of labour force size to population size (in Log) | 2.58 | 3.56 | 3.69 | 3.57 |
| Policy and institutional environment | | | | |
| CPIA | 1.45 | 2.05 | 2.65 | 3.03 |
| Geography | | | | |
| Population density at the coast/sea navigable river | 6.72 | 6.72 | 6.72 | 6.72 |
| Proportion of land in non-temperate zone (in Log) | 0.17 | 0.17 | 0.17 | 0.17 |
| Conflict | | | | |
| Civil war | 0.15 | 1.21 | 1.51 | 1.21 |
| Explained difference | 3.35 | 3.24 | 2.44 | -0.18 |
| Actual difference = Difference in average growth rate | 1.90 | -0.50 | 0.30 | 2.90 |

| | | | | |
|---|---|---|---|---|
| Unexplained difference | -1.45 | -3.74 | -2.14 | 3.08 |

Notes: The simulation is based on the difference in magnitude of the variable in question between the two regions multiplied by the coefficient taken from model 2a of Elbadawi (2002). The coefficients are reproduced above (see notes to Figure C1).

For all of the periods, the simulation results suggest that relative to East Asia, Sudan had a huge catch-up effect that could be exploited to generate economic growth, because its initial income was much lower. As the gap in income expands, the potential for accelerated growth increases over time (ranging from 9.8% in 1975–1984 to 16.7% in 1995–1999). This unconditional convergence effect is partially reduced by the effect due to better institutions/policy environment and higher human capital accumulation in East Asia. These two factors translate into a growth advantage for the latter ranging from 3.5 to 4.6%. Though substantial, the "net" catch-up effect is still substantial and in favour of the Sudan. In what follows we note the implications of two non-conventional growth determinants, geography and physical ecology and the demographic gift.

- ***Geography and physical ecology:*** Jeffrey Sachs and his research associates[44] argue that favourable geography and ecology – in terms of access to long coast lines or sea navigable rivers and temperate climate – are robustly associated with superior growth records. This literature suggests several channels through which favourable geography and ecology could promote overall economic growth. A high share of a country's area around coastal lines or sea navigable rivers and high economic density along the coast are important determinants of competitiveness, especially for transaction-intensive exports, such as manufactures. A high share of non-tropical (especially temperate) regions in a country is associated with less prevalence of vector-borne diseases and high agricultural productivity. This literature also suggests that natural openness is associated with "good" institutions. However, more recently Easterly and Levine (2002), using cross-country regression models of growth, tests the effect of endowment (tropics, germs and crops), institutions and policy and find that endowment affect growth through institutions, but no direct effect for the former was found in the data. On the other hand, Elbadawi et al. (2001 and 2002b), using a panel of manufacturing firm-level data from none African and non-African countries, find strong evidence linking geography-based measures of "suppliers access" and "market access" to productivity and export performance, while controlling for institutions. Also, the growth regression of Elbadawi (2002) finds that geography and climate are robustly and directly associated with growth, although institutions were also associated with growth as well.

  Geography appears to be a very significant source of growth differentials between East Asia and Sudan. According to the estimates in Table 8, the effect of the population density along coast lines and sea navigable rivers (100 km radius) accounts for more than 6.7% of the growth differential in favour of East Asia.[45] Despite the small share of its coastal area (only 2% compared with 60% for East Asia), the economic density at the Sudanese coast is negligible even by African standards. At a population density of only 15, it accounts for less than one-sixteenth the East Asian average. On the other hand, since most of East Asia and Sudan are non-temperate, the factor accounts for only 0.17 percentage points of the growth differential in favour of East Asia.

- ***Demographic gift:*** The demographic transition experienced by East Asia has manifested itself in a steadily rising share of the working age population relative to the rest of the population. For example, the share of the former group in East Asia increased from 56% in 1960–1984 to 63% in 1985–1998. It has been argued that this type of demographic transition offers "a demographic window of opportunity", where the high share of the working age population fosters accelerated and sustained economic growth by increasing labour participation and savings (Yousif, 1997). The resulting rise in income, in turn, further consolidates the demographic transition, hence completing the virtuous circle. For most SSA countries, including Sudan, this "demographic gift" is not yet in sight. The share of the working age population in this region has remained virtually

[44] Sachs and Warner (1997), Bloom and Sachs (1998), Gallup and Sachs (1998). See also Elbadawi (1999a).
[45] The variable accounts for the combined influence of the land area along the coast and its population density. The population density was based on the average for the 1980s.

stable over the last 30 years: increasing from 50% in 1960–1984 to 51% in 1985–1998. Even in countries where the transition has taken place, such as Egypt, the opportunity may not be realized because growth either has been sluggish or did not create enough jobs to absorb the huge growth in the working age population.

Therefore, it is not surprising that the "demographic gift" has generated handsome growth dividends for East Asia relative to Sudan. It explains about 2.6 percentage points of the growth differential in 1975–1984, and about 3.6 percentage points for the remaining periods of 1985–1989, 1990–1994 and 1995–1999. Even before the demographic transition can take root in Sudan, recent evidence suggests that the failure of the economy to generate sufficient job opportunities to absorb the rising demand for labour is at the heart of the failure to prevent massive unemployment, especially among educated youth, even when growth started to rise during the last half decade or so.

## APPENDIX B: POLITICAL FOUNDATIONS

There is general agreement, among political science analysts and historians, that at independence, and during the subsequent post-independence period, three major social groups came to hold great influence on the political, social and economic life of northern Sudan and of the country. These were religious leaders, tribal leaders and merchants. Their emergence was due to old historical factors relating to the domination of religious life in northern society by Muslim Sufi religious orders and to the indirect rule policy of the colonial state. In the old days (sixteenth to eighteenth century) religious leaders consolidated their wealth position by their ability to mobilize small savings from their followers through a number of factors including the nature of the religious organization. The Mahdist revolution, despite expression of scattered scepticism, was the culmination of such Sufi influence on northern political, social and economic life.

At independence the most prominent, and politically involved, religious orders included the Ansar, followers of Sayed (Mr.) Abdel Rahman Al Mahdi; the Khatmiyyah, followers of Sayed (Mr.) Ali al Mirghani; and the followers of Sharif (Honourable) Yusuf al Hindi. Given their social status and influence the colonial state followed a deliberate policy of enhancing the business interests of these families by preferential allocation of productive assets (mostly land), business contracts and bank loans (converted into grants), with the objective of minimizing the risk of resistance to the colonial regime.

Tribal leaders were the cornerstone of the indirect rule policy, and as such their economic influence increased under the colonial state. “Under the condominium, then, the tribal leaders (some more than others) encountered new opportunities for accumulating funds and investing in profitable enterprises. The formal support from a strong centralized government improved their ability to collect dues which had been their traditional rights; the expansion of their authority to cover some semi-urban areas gave them some control over trade licenses and some other aspects of commercial life (and the process of land registration) made it possible for tribal leaders to establish ownership rights over land which had in fact been communal property, belonging to the tribe as a whole, not to the tribal leader. Where the land which tribal leaders acquired was fertile and could be irrigated, the way was open for them to invest in pump schemes, dividing the land into share-cropping tenancies” (Niblock, 1987: 53).

The merchant class grew over the years under the colonial state. While export and import trade were dominated by British companies, with Egyptians, Syrians, Lebanese and Greeks sharing in the spoils, Sudanese merchants were allowed to trade in gum Arabic, livestock and oilseeds. Some of these merchants had the foresight to invest their profits in related manufacturing ventures like oilseed pressing and cotton ginning.

As it happened, the political life of the country prior to independence started to revolve around the most prominent two religious leaders: al Mahdi and al Mirghani; the other two social groups appropriately aligned themselves with one group or the other. The most influential civil society organization of that time, the Graduates’ Congress, which purported to articulate the social and political demands of the society on a non-sectarian basis, eventually found itself split along the same sectarian divide. Two major parties emerged eventually: the Umma party (UP) with largely Mahdist followers and the National Unionist Party (NUP) with largely Khatimiah followers. The political platforms of the two major parties, which were identified at the time of the struggle for independence, revolved around the future of independent Sudan, with the UP arguing for independence from the two condominium powers (Britain and Egypt) and NUP arguing for a union with Egypt.

As noted by Brown (1992: 96) the two main religious leaders “combined their existing popular support and growing economic power, with substantial political influence among the leadership of the country’s educated elite. In turn, this meant that the main constituencies of the political parties lay within the social groups at the core of the economic elite, and not among the popular masses. In this way the values and objectives of the economic elite came to predominate and thus determine the political orientation of the main tendencies within the nationalist movement as the country approached its independence. It also implied that Sudan’s political leadership, during most of the post-independence era, remained the captive of its major clients among the economic elite”. One important consequence of these historical developments was that the policies pursued by the post-colonial state in Sudan were not designed to bring about radical changes to the existing socio-economic structure,

nor were they designed to attract popular support. “Political parties maintained themselves in power by their ability to forge alliances with those elements among the economic elite whose religious, tribal or other bases of social prominence enabled them to command the support of the mass of the population” (Brown, 1992: 97).

These features of the political history of the country leading to the capture of the post-independence Sudanese state by the economic elite (with their religious following) partly explain the involvement of the military in the politics of the country.

The political landscape of the country, since independence, has been tragically coloured by two rather long civil wars. The origins of these civil wars were also to be found in the period of colonial rule. The sides to the two wars were the central government on the one hand and a southern rebel movement on the other. The first war started in 1955 on the eve of independence where the rebel movement was the Anya Nya (the military wing of the southern Sudan Nationalist Liberation Movement). The second war started in 1983, and continues up to the present, where the rebel movement is the Sudan Peoples’ Liberation Army (SPLA), the military wing of the Sudan Peoples’ Liberation Movement (SPLM). During the period 1972–1983 there was peace.

There is general agreement among political science students and historians that the colonial origins of these wars are to be found in the ill-fated policy of the colonial government to forge an East African Community that included the southern part of Sudan. Laws were enacted to help the realization of this design.[46] It took about 20 years for the colonial government to realize that the East Africa design was infeasible, and that the two parts of Sudan needed to come together in preparation for independence. The need to unite the two parts of the country was also informed by the strong political movement in the north that argued for unity with Egypt.[47]

At the time of this major policy reversal it was realized that the Closed Districts policy did not result in a “developed” South, with a strong political leadership. On the contrary, compared with the northern part the southern part was judged as backward and lacking in leadership. As a result frantic efforts were exerted to safeguard the interests of the South in the elaborate procedures laid down in the Anglo-Egyptian agreement of 1953 preparing the Sudan for independence. These procedures were short-circuited by the events of a mutiny among southern Sudanese troops stationed at Torit garrison in August 1955 and the subsequent declaration of the Parliament of the independence of Sudan. The mutiny escalated into a full-scale civil war, albeit at low intensity, in 1962.

[46] The Closed Districts Order (1922) and the Permit to Trade Order (1925) imposed stringent restrictions on the movement to keep Muslims and Arabic speakers out of the South. “The South was declared a closed area to all Northerners except government officials. Southerners were taught English, not Arabic, and were deliberately isolated from Arab and Islamic traditions. The region was thrown open to Christian missions, to establish spheres of influence for crusades among the pagans who, if they were not saved for Christ, would at least be lost for Allah” (First, 1970: 127).

[47] “It was then in the interest of British policy to unite the two halves of the country and to stress the rights of self-determination for the whole of the Sudanese people, non-Arabs and non-Muslims included, as a counter to the claims by Egypt that the peoples of the Nile Valley should unite” (First, 1970: 137).

## APPENDIX D: THE POLICY RECORD

The first systematic attempt at planned development of the Sudan economy was made in the context of the ten-year plan (TYP) 1961/62–1970/71. The TYP was drawn-up in response to the realization that the development programmes for the period 1946–1961, though they greatly stimulated the Sudanese economy, were no more than a collection of capital projects without defined targets or an underlying theme. The plan adopted an import substitution orientation.[48]

Consistent with the then ruling development paradigm, and similar to development plans elsewhere in the developing world, the TYP stated its qualitative objectives as follows: (a) an appreciable increase in real income per head through a satisfactory growth of the total national production; (b) promotion of a broadening of the structure of the Sudan economy; (c) a considerable increase in exports and import substitution; (d) further improvement of social conditions and services including general and technical education and the creation of sufficient opportunities of productive employment; and (e) the maintenance of a relatively stable price level.

To further disaggregate the required growth rate the TYP adopted an analytical approach that looked at the economy as composed of two sectors: modern and traditional. The modern sector was defined as that part of GDP that is produced by capital goods included in the estimate of capital formation (e.g., machines and other equipment, which are mostly imported; and European styled buildings and civil engineering works, with their high cement content). Thus the modern sector came to include all irrigated agriculture; mechanized land cultivation; slaughter houses and dairy farms; forestry output; transport and distribution; public utilities; building and civil engineering; banks; professional and other services; non-government education; and government services. On the basis of this definition it could be estimated that in 1955 the share of the traditional sector was about 50% of GDP. Assuming that the traditional sector would grow at an annual rate of 3.3% during the plan period, a modern sector's growth of 8% per annum was calculated as a requirement for achieving the target growth rate of the TYP. Maintaining the assumption about the growth rate of the traditional sector for the whole plan period thus amounted to looking at the remaining details of the plan as being concerned with the growth of the modern sector, given an overall macroeconomic framework.

An important parameter used in the planning exercise was the capital–output ratio. After taking into consideration the nature of the priority projects to be implemented, and based on detailed information on sectoral capital use and output performance, the TYP assumed that the capital–output ratio would decline from 4.2 in 1961/62 (i.e., a rate of return to capital of about 23.8%) to 2.61 in 1970/71 (i.e., a rate of return to capital of about 38.3%). This pattern of decline for the capital–output ratio was dictated by a desire to be conservative in view of the dominance of infrastructure projects in the plan, but nonetheless reflected a fairly decent return on capital, implying that at the time of the plan Sudan boasted a fairly decent efficiency use of capital. In this respect it may be useful to note that detailed calculations for the plan indicated that for the agricultural sector the capital–output ratio was 1.7 for modern cotton and crop production; 2.7 for coffee production; 0.8 for timber production; 4.2 for the Managil irrigation project; and 3 for the Khashm Elgirba irrigation project (see Mirghani, 1985: Table 16; 84–5).

The importance of these parameters lies in the fact that they reflect the real returns to investments in the various sectors. Thus according to these estimates the most profitable sector was construction, with a rate of return of about 67%, followed by mining (55.6%) and industry (52.6%). For the purposes of investment decisions, the rate of return to projects in these sectors would need to be compared with the real rate of return in the banking sector. At the time of the plan Sudan was a very

[48] As is well known the import substitution strategy (ISI) came to acquire a bad name under the neoclassical resurgence in the late 1970s. Rodrik (1999) give a more balanced assessment of the ISI strategy. Indeed, Rodrik (1999: 74) argues that "as a strategy of industrialization intended to increase domestic investment and enhance productivity, import substitution apparently worked well in a very broad range of countries until the mid-1970s. Had the world come to an end in 1973, ISI would never have acquired its dismal reputation; nor would East Asia have earned its 'miracle' appellation".

low inflation economy and had a fixed nominal interest rate of around 6%, implying a real rate of return of about 4.5%.

On the basis of the stated objectives of the TYP, and the technical information on capital output ratios, a total investment quantum for the modern sector (inclusive of expansion investment and replacement) of £s565 .4 million was estimated for the plan period. Out of this total the public sector was to contribute £s337 million, while the rest (£s228.4 million) was left for the private sector. The sectoral allocation of the expansion investment was such that agriculture was allotted 25.4%, industry 22.7%, transport and distribution 20.1%, and social services and housing 31.8%.

The projects portfolio of TYP included a number of projects for which a total of about £s140 million of investment was already committed. Of this total about 46% was for agricultural projects (about £s65 million), about 9% was for industry (about £s. 13 million), about 30% for transport (about £s42 million), and about 15% for services (about £s20 million). A closer look at the committed projects portfolio, however, would show that it had a very high infrastructure content. Thus in addition to all of the projects in the transport subsector, in agriculture two dams were to be constructed (Roseires dam and Khashm El Girba dam) and in industry the Sennar hydroelectric power project. Thus of the total committed investment 68% was allocated for infrastructure.

An important feature of the plan is that it accorded a prominent role for the private sector in the realization of the growth objectives. As noted above, out of the total planned investment the private sector was expected to contribute 40%. As it happened for the first three years of the plan (1961/62–1963/64) the actual investment contribution of the private sector was higher than planned, and as a result by the end of the first five years of the plan the contribution of the private sector was almost identical to that planned.

Following the 1969 military take over, a five-year plan (FYP) for economic and social development for period 1970/71–1974/75 was drafted and adopted. Given the early pronouncements of the military regime this plan was supposed to have had a "socialist" orientation. But as noted by a number of observers the new plan was not really much different from its predecessor, except perhaps that its parameters were a shade ad hoc! The sectoral targets of the FYP were to increase agricultural production by about 60.8%, animal products by 75.5% and industrial output by 57.4%. A total of 470 projects were identified according to which total investment (of £s432.9 million) was allocated. The highest investment share of 34.2% went to the transport and communications sector (with 103 projects) followed by the agricultural sector (with 169 projects), which was allocated an investment share of 28.8%; the industrial sector (with 30 projects) was allocated an investment share of 15.5%. The remaining balance of total investment went for the services sector (with 163 projects and an investment share of 16.7%) and other unspecified investment. Owing to political instability and subsequent changes in the orientation of the military regime, the FYP ran very quickly into implementation problems. In 1974, supposedly the last year of the original horizon, the plan had to be extended in an ad hoc fashion to 1976/77.

In the wake of the oil price hikes of 1973 and the resultant accumulation of oil surplus funds in the Arab countries grand plans were designed to turn Sudan into the "granary of the Arab world". Like all grand designs this was based on the idea of exploiting complementary relations among Arab oil money, Sudan's natural resources and western technology. Besides other schemes the most influential instrument for implementing the grand design was a 25-year master plan (1976–2000) drafted by the Arab Fund for Economic and Social Development (AFSED). In April 1976 the Board of Governors of AFSED approved a detailed programme for the first ten years of the master plan. The Arab Authority for Agricultural Investment and Development (AAAID), based in Khartoum, was created as an implementing agency in July 1977 with a capital of US$500 million.

The project portfolio for the first ten years (1976–1985) included 100 projects, with a total cost of US$6.6 billion, classified into four broad categories: (a) Direct investment projects with commercial returns included 31 projects with a total cost of about US$3 billion (crops, 9 projects; animal production, 9 projects; agro-industry, 11 projects; and transport, 2 projects). (b) Sudanese public and private investments in agricultural projects included 25 projects with a total cost of about US$1.7 billion (crops, 9 projects; animal production, 10 projects; and agro-industry, 6 projects). (c) Infrastructure investments in transport and electric power, with a total cost of US$1.8 billion, included 34 projects (direct investment with commercial returns, 20 projects; and investments with indirect returns). (d) Institutional services with 10 projects costing US$172 million.

In terms of the usual sectoral classification it is an easy matter to show that the first phase of the master plan allocated 55% of total investment to agriculture, 22% to industry (inclusive of power), and 21% to transport and communication. Given the emphasis of the master plan on the agricultural sector the investment allocation was largely in line with the investment priorities of Sudan's six-year development plan (SYP) for the period 1977/78–1982/83. The SYP envisaged a total investment over the plan period of about US$7.7 billion, of which 26.8% was allocated to agriculture, 20% to industry inclusive of power, 18.7% to transport and communication, and 26% to social services. It also envisaged roles for the public, private and mixed sectors in implementing planned investment and as such a number of the projects on the first phase of the master plan were incorporated.

In terms of quantitative objectives the plan envisaged increasing GDP by 7.5% per annum over the plan period, with agriculture growing at 6.5% and industry growing by 9.5%. Thus the SYP envisaged a medium term transformation in the structure of the economy such that the share of agriculture in GDP would decline to about 37% from about 39% in the base year.

No sooner was the SYP document approved than Sudan was engulfed in a macroeconomic experiment of implementing an economic recovery programme under the auspices of the IMF and the World Bank. The details of the policy content and the evaluation of Sudan's experience thereof are to be found, among others, in the various Sudanese contributions in Ali (1985) and DSRC (1986) as well as non-Sudanese contributions by, among others, Brown (1992). The experiment began in June 1978 with the first IMF sponsored devaluation of the Sudanese pound. Thus, over the period 1978–1984 the Sudan economy, for all intents and purposes, was managed by remote control by the IMF in collaboration with the World Bank. As is well known these economic reform programmes came to be known as structural adjustment programmes (SAPs) in World Bank terminology after 1980.

Perusing the official documentation of the IMF (1984: 34–9), a summary of the policy actions by sector is as follows: (a) the agricultural sector: the policy actions included exchange rate adjustment for export crops; elimination of export taxes; cost recovery and reform of the pricing system to eliminate subsidies; physical rehabilitation and input procurement plans; and the institutional reform of public enterprises; (b) manufacturing sector: the policy actions included institutional reform of public enterprises; physical rehabilitation; and privatization and management contracts; (c) the government sector: the policy actions included increasing taxes on imports; increasing departmental fees and charges; increasing excise taxes and duties on cigarettes, liquor and luxury imports; increasing the prices of sugar, petroleum products and cement products; raising charges for public utilities; and reducing credit ceilings and increasing interest rates; and (d) the external sector: the policy actions included liberalization of foreign trade transactions; creating a market for foreign exchange; and devaluation of the Sudanese pound.

Despite the fact that Sudan was involved in adopting, and implementing, economic reform programmes of the IMF-World Bank type over the 1978–1984 it is only during the second half of the 1990s that the policy stance indexes started to show a discernable trend towards improvement and for such improvement to be related to the growth performance of the economy in a systematic way. This is important for at least two reasons. The first reason has to do with the fact that implemented policy measures were not backed by IMF and World Bank policy-based lending. The second reason has to do with the fact that the overall institutional set-up did not change in a significant fashion. Moreover, the country continued to suffer from its 19-year civil war and its mounting external debt.

Following the change in the political regime in June 1989 the new government designed a medium-term economic programme, the National Economic Salvation Programme (NESP), with the expressed objective of reinvigorating the Sudan economy. According to Hag Elamin and Elmak (1997: 10–11) the most important objectives of this programme included: (a) giving priority to the agricultural sector to achieve self-sufficiency and food security; (b) liberalizing the economy, deregulating price controls, and removing administrative and legal barriers in order to stimulate agricultural exports; and (c) enhancing the role of the private sector and privatizing state-owned enterprises.

Various policy measures, not substantially different from those recommended by the IMF and the World Bank but couched in ideological rhetoric, were adopted to achieve these major objectives. At the macro level, these included the unification of the exchange rates at a substantially devalued official rate and the complete liberalization of the foreign exchange market with a view of attaining

free convertibility of the Sudanese pound; lifting of price controls and regulations; and abolishing minimum export prices and licensing systems and liberalizing imports.

At the sectoral level an extensive set of policy measures was designed for the agricultural sector. These included, among others, the removal of subsidies on production inputs and services provided by the agricultural production corporations (e.g., fertilizers, insecticides, land and water); reduction of subsidies on food crops; decontrol and deregulation of agricultural prices (with the exception of wheat); abolishing of the monopolies of marketing boards; and reduction of export taxes.

With minor adjustments, this policy focus was to rule over the period 1990 up to the time Sudan exported its first oil shipment in August 1999. Thus, without loss in generality, for the purposes of looking at signs of diversification during this period we can compare the NESP period with the period 1985–1989 as a reference. In terms of political orientation, we hasten to note that this reference period was a democratic transition between two military regimes. As a transition period no clear development orientation, or strategy, was developed and most of the time the economy was managed on an ad hoc basis.