

Stabilization, Structural Adjustment, Liberalization, and Economic Growth in the Sudan*

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Heavy government intervention is largely responsible for dismal economic performance of many Sub-Saharan Africa countries. To promote economic growth, donor countries and development organizations recommend structural adjustment and liberalization policies. The effects of IMF/World Bank stabilization and adjustment programs implemented in the Sudan between 1977 and 1985 are investigated. Although the programs had favorable effects on investment and industrial production they had a negative effect on economic growth. It is suggested that reform policies that do not carefully evaluate a country's productive capacities as was the case in Sudan have the potential of distorting efficiency thereby inhibiting rather than promoting growth.

I. Introduction

Compared to other developing areas, living standards in the majority of African countries are considerably lower. This is especially true for countries in Sub-Saharan Africa where extreme poverty inflicts the larger proportion of the population. A combination of factors such as predatory governments, political instability, high rates of population growth, and adverse natural conditions are blamed for the dismal

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economic performance of the countries in Sub-Saharan Africa. There is no doubt that these factors have played an important role in leading to the poor economic performance of those countries. However, poor economic performance is also due to government policies that constrain the efficient functioning of markets. Specifically, excessive government intervention in markets is responsible for sluggish economic growth in those countries. Heavy government intervention distorts market signals (prices, profits, interest rates) resulting in misallocation of resources. By interfering with the market process, government intervention destroys investment and production incentives. In addition, taxation and regulation increase the cost of doing business thereby reducing entrepreneurial activities (Kimenyi 1991). Thus, heavy intervention characteristic of many Sub-Saharan African countries seriously constrains economic growth.

Prescriptions for promoting economic growth in Sub-Saharan countries now key on minimizing the growth-inhibiting role of governments. In the domestic front, such policies focus on eliminating price and interest rate regulations, elimination of government subsidies, and curtailing the growth of government by for example reducing the size of the civil service. In addition to these measures, reform policies involve reducing government deficit and the maintenance of price stability by tightening the money supply.

Finally, growth policies focus on promoting open economies. It has been recognized for a long time now that economic growth is higher in those countries that adopt liberal international trade policies. The theory of comparative advantage postulates that nations benefit when they specialize in producing those goods and services for which they have a comparative advantage. Gains from specialization and trade are achieved if conditions of free trade prevail. As such, some of the policies that have been suggested for developing countries have been to promote the export sector. Evidence shows that countries that have adopted outward looking strategies of export promotion have fared much better than those that have implemented a strategy of inward looking import substitution. A primary aspect of export promotion policies has been the devaluation of domestic currencies so as to make exports competitive in international markets while making imports relatively expensive and thus reducing the trade balance.

The various policies mentioned above comprise structural adjustment, stabilization, and liberalization. These policies are the core of World Bank and International Monetary Fund programs for reforming the economies of developing countries. Countries that seek the assist-

ance of the international development agencies are required to demonstrate their willingness to adopt those policies. To a large extent, adoption of reform measures is used as a condition for support from the World Bank and the IMF.¹ Frequently, financial support from other nations is provided on condition that recipient countries adhere to World Bank/IMF reform programs. At the present time, several of the African countries are undergoing through such reforms under the close scrutiny of the Bank and IMF.²

Conventional wisdom holds that World Bank/IMF mandated reforms are necessary for self-sustaining economic growth. Although it is true that reform measures have resulted in positive results in some countries, this does not necessarily imply that the reforms have similar results in all countries. It is likely that the success of the reforms is not only dependent on the reforms themselves and the state of the economy at the time reforms are implemented but also on other institutional factors. Thus, it is not obvious that reforms will always achieve desired goals. In fact, there is a growing consensus in parts of the developing world and amongst development experts that reform programs impose severe hardships on the population, limits the options open to the government in economic policy making, and that often those programs do not result in sufficient economic growth as claimed by proponents of reform. As such, there is need to analyze the impact of reform measures on a case by case basis so as to acquire a better understanding as to why reforms succeed in some countries and fail in others.

In this paper, we investigate empirically the effect of reform policies that were adopted by Sudan as required by donor agencies. The period of managed reforms in the Sudan started in 1977 and terminated in 1985 amidst severe economic crisis. In section II, we review the background of the economic and political conditions that led to the adoption of the reform policies. Section III contains the empirical model and results of

¹ In the development literature, the term "conditionalities" is almost always used in reference to the various conditions that countries are required to meet before they can be eligible to receive support from the World Bank or the IMF. Conditionalities often involve terms that are viewed by governments of poor countries as harsh.

² Once conditionalities are imposed, there is not much a poor country in need of financial support can do but to follow the guidelines set forth. In a recent case, the IMF/World Bank placed stringent conditionalities on Kenya in early 1993. In May the same year, Kenya's leadership reacted by suspending the terms. After only a few weeks, the leadership reversed itself and declared that the country was going to abide with all conditionalities. This was in realization that there was very little such a poor country can do if the support of those organizations were withdrawn.

the effect of reform policies on various macroeconomic aggregates. Section IV concludes.

II. World Bank and IMF Programs in the Sudan

Sudan, is one of the largest and poorest of African countries. At the time of writing this paper, the country was experiencing severe economic problems and civil war. In this paper, we do not focus on the current economic conditions. Rather, we examine attempts that have been made in the past to reform its economy. We discuss the events leading to IMF and World Bank involvement in the Sudanese economy for the period between 1977/78 and 1984/85. Sudan's agreement with the IMF and the World Bank adjustment measures associated with the inception of stabilization policies are accounted for. Finally, the effect of these policies on the economy at large is analyzed.

Agriculture is the backbone of the Sudanese economy, accounting for 33 percent of GDP, 85 percent of the labor force, and over 90 percent of exports. The industrial sector which accounts for 8 percent of GDP is primarily concerned with processing agricultural products (Ministry of Finance and Economic Planning 1991).

During the 1970s, Sudan embarked upon a series of development plans: the 1970-1975 Five-Year Plan (FYP), and the 1977/78-1983/84 Six-Year Plan (SYP). The main objectives of these plans was to increase and diversify Sudan's agricultural output, promote a number of import-substituting industries, and to alleviate the existing transportation bottlenecks. The Five Year Plan designed by the military government that took power in 1969 through a military coup, was supposed to lay the foundation for a strong socialist economy. The plan sought to achieve a 7.6 annual growth rate of GDP, through a total investment of 385 million Sudanese Pounds (about US\$1.1 billion), with 58.1 percent allocated to agriculture, 32.2 percent to industry, and 8.7 percent to service sector (Ministry of National Planning 1970). More importantly, the public sector was assigned a leading role, with 56 percent of total investment directed through this sector. While government surpluses were to finance 49 percent of total investment, the remaining was to be financed by foreign sources (mainly socialist countries and Arab oil countries). The prospects for obtaining external resources appeared to be good at the time. Following the 1973 oil price shock, Arab oil producing countries were eager both to find outlets for their surplus petro dollars and to lessen their dependence on the West, the US in particular for food imports. As noted by Brown (1988), between 1973 and 1977, over US\$3

billion in foreign loans were committed for investment in Sudan's strategy of becoming the 'breadbasket' of the Middle East. In fact, public investment rose by about 50 percent in real terms between 1972/73 and 1973/74, and doubled again the following year. The average economy growth rate was about 10 percent for the period 1973/74-1975/76 (See Table 1).

In 1977 a Six-Year (1977/78-1982/83) plan for socioeconomic development was put in effect. This plan provided for an investment of US\$7.4 billion to be financed almost equally from domestic and external resources. The annual growth rate of GDP was projected as 7.5 percent for this period. Agriculture was to grow at 6.5 percent and industry at 9.5 percent (Ministry of Finance and Economic Planning, 1976). Although foreign aid declined after 1976, expansionary government policies were continued through domestic borrowing. Consequently, inflation reached 26 percent in 1977/78.³ GDP declined from an average growth rate of 10 percent per annum to -2 in 1977/78. The Government's overall balance, which had been positive in 1970/71, turned into a deficit of 5 percent of GDP in 1977/78 (Table 1). The situation with regard to the external sector was equally bad. The trade deficit, which had been small (2 percent of GDP) in 1970/71 grew to 8 percent in 1977/78. Foreign debt increased from US\$337 million in 1970/71 to nearly US\$2 billion by end 1978. Finally the debt service ratio — measured as debt service payments due as a percentage of merchandise exports — grew rapidly, reaching 29 percent in 1977/78 (see Table 1).

Consequently, the government was obliged to reassess its development policy. The result was initiation of World Bank/IMF program, and the effective scrapping of the government's one-year-old, Six-Year Plan of socioeconomic development. In June 1978, amidst severe shortages of basic food imports and fuel, the Sudanese government negotiated the first of a series of stabilization and structural adjustment programs with the IMF and World Bank. The 1978 IMF 'Stand-by Agreement' provided 30.2 million in Special Drawing Rights (SDR); a three-year agreement concluded in May 1979 provided for 200 million in SDR through the 'Extended Fund Facility,' and three separate one year 'Stand-by Agreement' providing 198, 170, and 90 million in SDR were concluded between 1982/83 and 1984/85 (Hussien 1988). Trade

³ Contrary to the SYP projection that sufficient foreign capital would be available, the developments which took place during the first year of the plan brought the inflow of foreign capital to a complete halt. The situation became even tighter when Saudi Arabia, Kuwait and other Arab oil countries curtailed their inflow of capital to Sudan as a results of Sudan's support of the 1977 Camp David Agreement.

Table 1
MAJOR ECONOMIC INDICATORS, 1970-1987

Indicator	70/71	73/74	76/77	77/78	78/79	79/80	80/81	81/82	83/84	84/85	85/86	86/87
GDP, 81/82 prices	5239	5191	6871	6764	6062	6116	6248	6721	6681	5716	6248	6373
GDP growth rate	10	15	15	-2	-10	1	2	8	-4	-14	9	2
Curr. revenue % GDP	22	16	16	16	16	15	15	13	13	10	9	9
Curr. expend. % GDP	18	14	14	15	20	18	21	20	17	22	20	17
Devel. expen.	2	3	7	6	5	6	6	5	4	3	2	4
Overall balance % GDP	2	-1	-5	-5	-9	-9	-12	-12	-8	-15	-13	-12
M2 % GDP	17	20	23	23	27	26	29	28	28	35	32	31
Exports % GDP	16	13	11	8	10	12	9	9	13	11	9	7
Imports % GDP	18	17	17	16	19	24	23	27	23	19	17	15
Trade deficit % GDP	-2	-4	-6	-8	-9	-12	-14	-18	-10	-8	-8	-8
Current a/c as % of GDP	2	-4	-5	-6	-7	-10	-12	-17	-11	-9	-11	-12
T.O.T 81/82 = 100%	171	145	160	164	151	139	130	100	128	106	102	106
For. debt (mill. US\$)	337	602	1809	1952	2330	5008	6169	6885	8466	8929	9568	11126
Debt-service ratio	8	14	22	29	33	53	70	95	137	162	244	296

Sources: World Bank (1985b, 1987).

liberalization, devaluation, and other demand restraint measures were key aspects of every IMF stabilization package. Closely associated with the inception of IMF packages were World Bank structural adjustment programs, including a three-year (1979/80-1981/82) Economic Recovery Program (ERP), a three-year annual program entitled 'Prospects, Programs, and Economic Development' (PPED), covering the period 1982/83-1984/85 (Ministry of Finance and Economic Planning 1979, 1982). With the involvement of these institutions in the formulation and implementation of economic policy in Sudan, the country's development priorities shifted. The new priorities emphasized integrating the domestic economy into world market- an outward looking strategy of export promotion rather than the existing inward looking import substitution policy. For instance, a World Bank-sponsored 'Export Action Program' was a major objective of ERP. This program sought to rehabilitate Sudan's capital investment in the modern-irrigated agricultural sector to implement policy reforms and institutional improvements, and to help increase exportable output (cotton) substantially from the irrigation schemes over the 1980-1990 period. Several modern irrigation projects were supporting this export recovery program. In fact, about US\$594 million, or 59 percent of World Bank Group lending to Sudan were allocated to modern irrigated and export oriented agricultural sub-sector. In contrast, rain-fed agriculture, which provides a living for nearly 75 percent of the population, was virtually neglected with only about US\$19.5 million (or 3 percent of World Bank loans) allocated to this sub-sector (World Bank, 1985a). The structural adjustment programs also focused on increasing capacity utilization in capital-intensive modern industry such as the 'Sugar Rehabilitation Project' with the intention of increasing sugar exports (World Bank 1983). Infra-structural investments in transportation and power to service modern industry amounted to US\$346 million and accounted for an additional 34 percent of the World bank loans by 1985 (World Bank, 1985a).

The Sudanese government has taken several steps in support of stabilization and adjustment targets. They included substantial and frequent devaluations, a liberalization of trade was introduced and subsidies on imports were removed, increases in nominal interest rates, and substantial price increases spread over the years for several commodities such as sugar, wheat, petrol, cement, etc. Moreover, these steps also included organizational reforms in agricultural, industrial, and commercial enterprises.

The economic situation, however, continued to deteriorate despite these policy measures. Table 1, which is essentially World Bank data,

documents the various facets of this economic decline. The stabilization and adjustment period (1977/78-1984/85) was one of very abysmal economic performance. GDP declined in real terms and development expenditure as percentage of GDP dropped by 50 percent. Government deficit tripled, reaching 15 percent of GDP in 1984/85. The growth in money supply increased from 23 percent of GDP to 35 percent, giving rise to an average annual inflation in excess of 30 percent over the period. In the external sector, the deficit on the current account grew from 6 percent of GDP in 1977/78 to 17 percent in 1981/82 before declining to 9 percent in 1984/85. The foreign debt peaked in 1985 to about US\$10 billion, i.e., US\$500 per capita compared with the country's per capita income of only US\$346 at the time. The tempo of capital increased in presence of liberalization and high rates of inflation, with estimates that range between US\$14 to 60 billion for the period in question (Ali 1985). The debt service ratio rose dramatically, exceeding 160 percent (see Table 1). The arrears to the IMF accumulated, and finally in January 1985, the IMF canceled the still operative 1984/1985 Stand-by Agreement. This decision presumed that all debt-service payments falling due were with respect to multilateral loans which, constitutionally, were not rescheduable. The decline in living standards and the persistence of economic hardship led to a rise of considerable instability that ultimately brought down the military regime of 1969 to 1985.

The extent, nature, and results of the IMF/World Bank involvement in the Sudanese economy is well documented by Ali (1985), Brown (1988), Hussien (1988), Wohlmuth and Hanshom (1987) and Hassan (1994). These authors cite long lists of economic indicators attesting to the worsening malaise of the Country's economy despite, and to some authors partly because of, the implementation of series of stabilization and adjustment policies. Furthermore, some economist described the reform period as one during which the Sudanese economy was 'managed' by the IMF and World Bank. The choice of such strong terms was inspired by what those economists saw as clear indicators of these institutions deep involvement in the economic decision-making process. However, none of these studies constitutes an attempt to undertake a comprehensive assessment of stabilization and adjustment in its entirety. Instead, these contributions tend to focus on the nature and effects of one or perhaps a few of the reform measures, the devaluation issue in particular. In the following section, we conduct an empirical investigation of the effects of the entire reform package on economic growth, investment, industrialization, and growth in exports.

III. Empirical Analysis of the Effects of Reforms in the Sudan

The model based on the simultaneous equations model developed by Salvatore (1983), is estimated to investigate the relationship between trade, industrialization, economic development and liberalization for the Sudan. The models estimated here focus on explaining growth, savings and investment, industrial output and exports. The time period under consideration is from 1970 to 1990. Although the liberalization period was between 1977/78 and 1984/85, the dummy variable used to proxy the effects of liberalization is for the period 1979 to 1984. This is because the effects of policies such as liberalization are not apparent immediately but rather there is a lag between implementation and the time when effects are realized.

Growth: The basis for the growth model is the general aggregate production function where $Q = F(K, L)$, where Q represents output and K and L are capital and labor respectively. Structural changes, trade and changes in government policies can also affect the rate of growth, and therefore appropriate proxies are included in the model.

The dependent variable is gross domestic product per capita. We define capital as gross fixed investment as percentage of GDP. Industrial output is included to account for structural changes as its growth indicates the availability of skilled labor, existence of infrastructure and the rate at which labor and capital are transferred from agriculture to industry. Investment and industry are expected to have a positive effect on growth in most cases. However, in some inward oriented regimes on account of the inefficiencies generated and high incremental capital output ratios they can have a negative impact on growth (Salvatore and Hatcher, 1991). Growth in exports have an important contribution to the development process as a vehicle for new technology and for increasing the level of saving and investment. Michaely (1977) among others has empirically confirmed this positive relationship. However, the role played by exports will depend on the type of exports a country has and the same impact may not be experienced by primary exporters. The dummy has been included to represent the period of liberalization.

Savings and Investment: The rate of investment is determined by domestic saving rate and foreign capital inflow. Foreign capital inflow is generally necessary to fill the savings gap and itself is highly dependent on the policies of the government in many developing countries. Foreign capital inflow is found to make a positive net contribution to the rate of

capital formation, [Chenery and Eckstein (1970), Lee (1971), Voivadas (1973)]. A higher rate of exports can also lead to higher private and public savings (through taxation). Thus following Chenery and Carter (1976) and Salvatore (1983), investment is itself a function of growth in per capita income, growth in foreign capital inflow and growth in exports. The effect of liberalization on investment is also uncertain because by improving the climate of investment and reducing controls on imports, liberalization can have a positive impact. However, due to investor skepticism and the adverse impact of a devaluation of the currency, liberalization could have a negative effect. This negative effect would be stronger than the positive effect if there is macroeconomic instability in the economy.

Industrial Output: Increasing industrialization has been one of the most important goals of developing countries. It is primarily of the desire to increase the pace of industrialization and self sufficiency that many countries adopted the inward oriented growth strategy. Following Salvatore (1983), industrial output is taken to be a function of growth in per capita output and exports. However, there is no clear indication of the expected role of exports on industrial growth. Whereas higher export give a nation greater incentive to industrialize, it also makes industrialization less of an overriding concern. Thus these two opposing forces might make the coefficient for exports close to zero and insignificant (Salvatore 1983). Liberalization is expected to have a favorable impact on industrialization as a result of greater access to raw materials and imported inputs and a shift to industries which have a greater comparative advantage. However there could be a fall in output initially until some structural changes take place.

Exports: The volume of exports as percentage of GDP are generally dependent on the relative competitive position of the nation, as reflected in its real exchange rate. This is why liberalization is generally accompanied by devaluation. The success of devaluation largely depends on elasticities of exports and imports. Thus, the effect of a devaluation would be expected to be greater in countries which export manufactured goods than those that export agricultural products. Growth in exports will also depend on the conditions in world markets.

Thus the model can be summarized as follows:

- 1) Growth: $DY = a_0 + a_1 IY + a_2 R + a_3 X + a_4 D$
- 2) Investment: $IY = b_0 + b_1 DY + b_2 FK + b_3 X + b_4 D$
- 3) Industry: $R = c_0 + c_1 DY + c_2 XY + c_3 D$
- 4) Exports: $XY = d_0 + d_1 RER + d_2 WY + d_3 D$

Where: DY	= growth in per capita income;
IY	= gross fixed investment as percentage of GDP;
R	= growth in industrial output;
X	= growth in exports;
XY	= exports as percentage of GDP;
FK	= foreign capital inflow as percentage of GDP;
RER	= the real exchange rate (rh times producer prices in the U.S. divided by Sudan's CPI);
WY	= growth in world income; and
D	= binary variable accounting for the liberalization period.

The data are taken from World Tables (1992) and International Financial Statistics (1992).

A. Estimation

OLS regressions were first estimated and the Wu-Hausman test (Hausman 1978) was done to test the endogeneity of variables. The null hypothesis of consistency of variables could not be rejected. However, since on economic grounds we would expect endogeneity, the model was also estimated with a 3SLS procedure. However, on account of the lack of degrees of freedom in the 3SLS estimation, the results for OLS are reported in the main section and the 3SLS estimates are reported in the appendix. The 3SLS results are consistent with those obtained from the OLS procedure. The single equation method would be appropriate for a country like Sudan because, due to market imperfections, the repercussions in the economy would be dampened. Wherever autocorrelation was detected, it was corrected for by using maximum likelihood iterative technique.

B. Results

The OLS results are reported in Table 2 and the three-stage least squares regression results are reported in the appendix. Since OLS and 3SLS estimates are consistent, we focus on OLS results reported in Table 2. In the growth equation, investment is positive at the 5% level and industry at the 1% level indicating that both are important determinants of growth. Exports are not an important determinant of growth. This is probably because Sudan is an exporter of primary goods. The dummy is negative and significant at the 1% level showing that liberalization had unfavorable impact on the economy. This is consistent with what has been documented in the past by Ali (1985), Brown (1988), and Hussein

Table 2

OLS ESTIMATES

DEPENDENT VARIABLES % growth in (1) GDP per capita (DY), (2) Investment (IY), (3) Industrial Output (R), and (4) Exports (XY)
SAMPLE PERIOD 1970-1990

Variables	1 DY	2 IY	3 R	4 XY
Constant	-8.12 (-2.57)*	12.71 (15.70)**	0.57 (0.15)	4.52 (6.7)**
Investment (IY)	0.6 (2.36)*	—	—	—
Industrial Output (R)	0.58 (3.88)**	—	—	—
Foreign Capital (FKY)	—	0.64 (1.87)*	—	—
Exports Growth(X)	-0.03 (-0.70)	0.0006 (.02)	—	—
Exports (XY) as % of GDP	—	—	0.17 (0.24)	—
Percapita Income (DY)	—	0.46 (5.32)**	0.93 (6.89)**	—
Dummy (D)	-5.75 (-3.43)**	5.45 (3.22)**	5.7 (2.73)**	0.21 (0.34)
Exchange Rate (RER(-1))	—	—	—	0.03 (2.38)*
World Income	—	—	—	0.22 (1.38)
R ²	0.79	0.62	0.71	0.21
DW	2	1.9	1.9	1.4
Rho	-0.34	—	-1.2	—

Notes: FKY, IY and XY are taken as percentage of GDP. DY, R, X and RER are in percentage growth rates.

The numbers in parentheses are t-statistics, where * stands for significance at the 5% level and ** is significance at the 1% level.

Dummy is from 1979 to 1984.

The AR1 procedure was used for equations (1) and (3) to correct for first order serial auto correlation.

(1988). Overall, the variables included in the growth model explain 79 percent of the variations in the growth rate.

In the investment equation, Table 2, both foreign capital inflow is significant at the 5% level and per capita income is significant at the 1% level. The dummy is positive and significant at the 1% level. This shows that foreign capital tends to increase investment efficiency. This is supported by the findings of Rana and Dowling (1990), with respect to Asian countries. The increase in per capita income also has a positive effect on investment by increasing the level of savings.

The main determinant of industrial output is growth in GDP per capita which can be interpreted as growth in the domestic economy. Exports are once again insignificant. Liberalization has had a positive and significant impact on industrialization showing that the focus on projects like the Sugar rehabilitation Program and investment infrastructure as discussed in the previous section did have a favorable impact.⁴

In the model for the determinants of exports the coefficient for the real exchange rate has been taken with a lag and is positive and significant showing that a devaluation will have the desired effect of increasing exports. The liberalization dummy is not significant.

Thus, although liberalization policies have had a significant effect on investment and industrial output, the policies did not have any significant effect on the growth of exports and had a negative and significant effect on economic growth.

IV. Conclusion

Looking back over the seven-year period (1977/78 to 1984/85) Wohlmuth and Hanshom (1987) described the adherence of the Sudanese government to the IMF/World Bank stabilization and adjustment programs, tracing the involvement of the IMF/World Bank in the Sudanese economy back to mid-1978. Referring to the implemented measures, the authors gave the following account: "The Sudanese pound was devalued five times, credit ceilings were fixed, the increases of budget expenditures and the deficits were restricted, a liberalization of the foreign market was introduced and subsidies on imports were removed step by step. Furthermore, a moratorium on most new projects was set" [Wohlmuth and Hanshom (1987), pp. 45]. The authors point

⁴ The variable $R(-1)$ was dropped as it was insignificant.

to the fact that the Sudanese government of the time as a willing and co-operative party to the implementation of IMF/World Bank policy packages. "However," wrote the authors, "it may be doubted this policy has been successful in terms of long-term economic development. These doubts are substantiated by the dramatic proportions of the main economic imbalances years after the stabilization policy." In the empirical investigation, we have examined the effect of IMF and World Bank mandated reforms on various macroeconomic aggregates. The empirical results presented confirm the common view that the adjustment programs had a negative effect on the economic growth of the Sudan. However, the results also show that liberalization had positive effect on investment and industrialization. Unfortunately, these positive effects did not translate into growth in income.

There is evidence that liberalization efforts have been successful in several developing countries. While it is clear that implementation of adjustment programs is essential in many poor countries, the results reported here show that such efforts should be undertaken with caution. It is clear that country specific factors have a lot to do with the success of adjustment programs. The story that emerges from Sudan's experience with liberalization efforts is that, while it is true that such policies may influence the levels of some activities such as investment and industrial production, there is no guarantee that the policies will eventually translate to economic growth. Merely directing investments to some sectors such as was the case in Sudan where large amounts of resources were devoted to capital intensive production and infrastructure geared to modern production may be counter productive. This is probably because such efforts are not consistent to a country's productive capacities and the policies so adopted further distort production efficiency. The evidence reported in this paper suggests that general policy prescriptions as appears to be the norm with the International Monetary Fund and the World Bank can create disastrous results.

Appendix

3SLS ESTIMATES

DEPENDENT VARIABLES % growth in (1) GDP per capita (DY), (2) Investment (IY), (3) Industrial Output (R), and (4) Exports (XY)

SAMPLE PERIOD 1970-1990

Variables	1 DY	2 IY	3 R	4 XY
Constant	-8.66 (-3.83)**	13.29 (17.64)**	3.41 (1.10)	4.41 (7.56)**
Investment (IY)	0.58 (3.87)**	—	—	—
Industrial Output (LR)	0.76 (8.28)**	—	—	—
Exports Growth (LX)	0.03 (-0.87)	-0.02 (-0.51)	—	—
Foreign Capital (FKY)	—	0.80 (2.78)**	—	—
Percapita Income (DY)	—	0.47 (6.01)**	0.96 (7.53)**	—
Exports (XY) as % GDP			-0.34 (-0.56)	
Dummy (D)	-6.33 (-3.17)**	5.47 (3.90)*	4.94 (2.07)*	0.21 (0.39)
Exchange Rate (RER(-1))	—	—	—	0.03 (2.32)*
R ²	0.76	0.74	0.66	0.26
DW	2.4	2.3	2.6	1.2

Notes: All variables are in percentage growth rates.

The numbers in parentheses are t-statistics. where * stands for significance at the 5%, level and ** is significance at the 1% level.

Instruments used where: constant, lag of GDP per capita, Industry, Investment, and imports, Agriculture, nominal exchange rate, producer prices of the U.S.

Dummy is from 1979 to 1984.

References

- Ali, A.A. (ed.), *The Sudan Economy in Disarray*, Ithaka Press, 1985a.
- , "The Devaluation Debate: A Documentary," in Ali, *The Sudan Economy in Disarray*, Ithaka Press, 1985b.
- Brown, R., "A Background Note on the Final Round of Economic Austerity Measures Imposed by the Numeiry Regime: June 1984-March 1985," in Barnett, T. and Abdelkarim, A. (eds.), *Sudan: State, Capital, and Transformation*, London, Croom Helm, 1988.
- Chenery, H.B. and A.M. Strout, "Foreign Assistance and Economic Development," *American Economic Review*, 56, 4, Part 1, September 1966.
- and N.G. Carter, "Internal and External Aspects of Development Plans and Performance in Aid-Receiving Countries," in Kachaturrov, T.S. (ed.), *Methods of Long-Term Planning and Forecasting*, London: MacMillan, 1976, 303-333.
- Cotton Public Corporation (1977-1984), *Annual Report*, Sudan. *IMF Memorandum and IBRD Report* (1978), Ministry of Finance, Internal Files, Khartoum, Sudan.
- Hassan, F., "Is Adjustment with Equitable Economic Growth Possible? Evidence from a Developing Country," *The Canadian Journal of Development Studies*, 15, 2, July 1994, 214-244.
- Hausman, J.D., "Specifications Tests in Econometrics," *Econometrica*, 46, 1978, 1257-1270.
- Hussein, M.N., "The IMF and Sudanese Economy Policy," in Barnett, T. and Abdelkarim, A. (eds.), *Sudan: State, Capital and Transformation*, London, Croom Helm, 1988.
- Kimenyi, M.S., "Barriers to the Efficient Functioning of Markets in Developing Countries," *Konjunkturpolitik*, 37, 4, 1991, 199-227.
- Lee, J., "Exports and Propensity to Save in LDCs," *Economic Journal*, 81, 1971, 341-351.
- Levine, R. and D.A. Renelt, "Sensitivity Analysis of Cross Country Growth Regressions," *American Economic Review*, September 1992, 942-963.
- Michaely, M., "Exports and Growth: An Empirical Investigation," *Journal of Development Economics*, 4, March 1977, 49-53.
- Ministry of National Planning, *The Five-Year Plan of Economic and Social Development*, Khartoum, Sudan, 1970.
- Ministry of Finance and Economic Planning, *The Six-Year Plan of Economic and Social Development, 1977/78-1982/83*, Sudan, 1976.
- , *The Economic Recovery Programme, 1979/80-1981/82*, Khartoum, Sudan, 1979.

- _____, *Prospects, Programmes, and Economic Development, 1982/83-1984/85*, Khartoum, Sudan, 1982.
- _____, *Economic Survey*, Khartoum, Sudan, 1991. Ministry of Labor, ILO, and UNFPA *Methodology and Approach of the Migration and Labor Force Survey in the Sudan*, 1991, mimeographed, Khartoum, Sudan.
- Salvatore, D., "A Simultaneous Equations Model of Trade and Development with Dynamic Policy Simulations," *Kyklos*, 36, 1983, 66-89.
- _____ and T. Hatcher, "Exports and Economic Growth with Alternative Trade Strategies," *Journal of Developing Studies*, April 1991, 7-25.
- Voivodas, S.C., "Exports, Foreign Capital Inflow and Economic Growth," *Journal of International Economics*, 3, November 1973, 337-349.
- Wohlmuth, K. and D. Hanshom, "Structural Adjustment in the Sudan," *Development and Peace*, 8, Autumn, 1987.
- World Bank, *Sudan Export Development Study*, Washington, D.C., 1983.
- _____, *Sudan and the World Bank*, Washington, D.C., 1985a.
- _____, *Prospects for Rehabilitation of Sudanese Economy*, I-III, No. 5496-SD, 1985b.
- _____, *Sudan: Problems of Economic Adjustment*, I-III, Report No. 6491-SD, 1987.