Foreign Capital Inflow, Domestic Savings and Economic Growth: The Experience of The Sudan (1960/61-1974/75)

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I. Foreign Aid, Domestic Savings and Growth: Theory and Evidence

(A) The Theoretical Debate on the Effect of Aid on Savings and Growth

(1) The Orthodox Macroeconomics of Aid

(i) Foreign Capital Imports and Domestic Savings

The traditional view on the effect of foreign capital inflows rests on the assumption that foreign aid adds to national savings and investment and therefore affects income positively. In two pioneering studies both Millikan and Rostow (1957) on the one hand, and Rosentein-Rodan (1961) on the other, argue that the main function of foreign capital inflow is to increase the rate of domestic capital formation which could then be maintained in the future without any further aid. Foreign capital inflow produces an additional output through introducing additional resources and know-how. "The proportion that can be saved out of this additional product can be very much higher than average savings at

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the pre-existing income level." (Rosentein-Rodan 1961:107). A similar argument was adopted by Chenery and Strout (1966) when they argued that foreign aid increases savings and hence paves the way for self-sustaining growth. More recently, and following the spritied attack on aid launched by Griffin (1970), several authors emphasized the traditional view about the positive impact exerted by foreign capital inflows on domestic savings. Kennedy and Thirlwall (1971:136) argue that, "if production is expanded as a result of capital imports it will be possible to have increased consumption without any diminution of domestic savings." Frances Stewart (1971) pointed out that even though aid may lead to extra consumption, some of the expenditure classified under this category — e.g., nutrition, education, etc. — represents investment in human capital and may well raise the growth rate and savings. Another argument in favour of the orthodox view on aid was put by Eshag (1971). He maintained that as long as the elasticity of supply of labour and goods and services in LDCs is not zero, domestic savings will respond positively to foreign capital inflows. In his view, this would be the case if the growth in public consumption does not exceed the rise in government tax revenue plus the rise in private savings generated by the increase in domestic income.

(ii) Foreign Aid, Capital Output Ratio and Growth

Chenery and Strout argue that since growth in LDCs is limited by a number of constraints, there is likely to be under-utilization of factors such as labour, natural resources and specific types of productive capacity. They maintain that by relieving these bottlenecks, foreign assistance can make fuller use of labour resources and hence lead to a favourable change in the composition of output and employment. Kennedy and Thirlwall (1971) argued that although at a micro (project) level foreign capital inflows may lead to higher capital intensity, it is quite possible for the overall capital output ratio in the economy to fall. They argue that this happens since the greater availability of foreign exchange could enable a more productive use to be made of capital resources as a whole. Also the particular projects undertaken could have external effects on the output of other sectors. Mrs. Stewart (1971) argued that even if projects financed by foreign aid involve a high capital output ratio, it does not necessarily mean that they are

undesirable. She claimed that the present value of the returns to the project for the whole of its life may be higher for some projects with a high capital output ratio than for some shorter lived assets with lower capital output ratio.

(2) The Recent Challenge to Previous Assumptions

(i) The Inverse Relation between Foreign Capital Flows and Domestic Savings[1]

The traditional view that foreign aid does not reduce domestic savings has been met with serious doubts from recent studies on the field. The critics of this traditional view employed both theoretical as well as empirical evidence to demonstrate their hypothesis that foreign capital inflows affect domestic savings adversely. Griffin and Enos (1970) – whose remarks stimulated the recent controversy on the interrelationship between foreign and domestic savings – attributed the negative correlation between growth and foreign aid they observed in 12 Latin American countries to the decline in domestic savings rate which follows foreign capital inflows. Elsewhere, Griffin (1971) outlined the theoretical mechanism through which an inflow of capital may cause the domestic savings rate to fall. By implying that savings are substantially influenced by government policy, Griffin maintained that government's savings effort will be less vigorous if greater foreign resources are available. Specifically, if governments have a fixed growth rate as their objective whose achievement requires a given investment, then if any resources for investment come from abroad, a government will change its policies and programmes to reduce domestic savings by an equivalent amount.[2] Moreover, he argued that as savings depend in part on investment opportunities, some of which are pre-empted by foreign capital, then again foreign capital inflows will be offset in part by a compensatory decline in domestic savings. He added, "... regardless of whether one approaches savings and consumption theory in the spirit of Fisher or Keynes, the results are similar:

1 Although this inverse relationship is also suggested by some authors of orthodox persuasion, e.g., Friedman (1958) and Bauer (1970), our concern will be primarily with the radical school as it has contributed more significantly to the foreign aid-domestic savings controversy.

2 This point has been demonstrated mathematically by Rahman (1967).

in part, foreign capital supplements consumption, or what is the same thing reduces domestic savings[3] (if the level of income is given) or reduces the proportion of income saved (if the level of income rises) " (Griffin 1973:864).

The precise channels through which an increase in foreign capital leads to a reduction in domestic savings are described by Griffin as follows.[4] First, public savings will decline due to (i) reduction in taxation (ii) less effort to collect taxes (iii) an inelastic tax system combined with inflation (iv) a change in the composition of government expenditure in favour of consumption. Secondly, private savings will decline due to (i) the availability of finance on soft terms (ii) pre-emption of profitable opportunities which would have generated savings by local investors.

(ii) Foreign Capital Imports, Capital Output Ratio and Growth

Based on his belief that most foreign capital supplements consumption and raises the capital output ratio, Griffin argues that foreign aid may do nothing to foster development, and may even retard it. His proposition can be shown algebraically. Let the growth rate, $g = \Delta Q/Q$; the incremental capital-output ratio, $v = I/\Delta Q$, where I is investment; the savings ratio, $s = S/Q$; and foreign aid = F. The growth rate in the absence of capital imports is

$$(1) \quad g = \frac{s}{v}$$

Growth with foreign capital inflows (g^*) is

$$(2) \quad g^* = \frac{s^* + (1-c)F}{v^*}$$

where s^* is the new savings ratio

v^* is the new capital-output ratio

c is the propensity to consume out of foreign capital inflows.

Growth due to capital imports is, therefore,

$$(3) \quad g^* - g = \frac{s + \Delta s + (1-c)F}{v + \Delta v} - \frac{s}{v}$$

3 However, as it will be seen in sub-section (*B*) below, this situation arises only when the positive coefficient relating foreign aid to consumption is greater than unity.

4 For the relevance of these mechanisms to the Sudan, see El Shibly (1980:159-227).

It follows that the effect of foreign aid on growth may be negligible or even negative if Δs is negative, Δv is positive and c is large. (See Thirlwall 1974).

To reinforce this theoretical proposition, Griffin provided several situations where the capital-output ratio is likely to rise in response to foreign capital inflows. First, he argues that for political reasons, aid donor countries would concentrate on large dramatic projects which can stand as a monument to their generosity.[5] As a result of such projects, the effectiveness of investment will almost surely diminish. Secondly, because of tied aid, which involves goods whose prices are often higher than world prices, "a country may become 'locked in' to a high cost resource supply..., and this might permanently lower the productivity of its investments," (Griffin 1970:109). Thirdly, because aid alters the pattern of investment in favour of social overhead capital and economic infrastructure, the resulting bias against directly productive activities should tend to raise the aggregate capital-output ratio.

(B) The Statistical Evidence

(1) The Impact of Capital Inflows on Savings and Investment

Several recent studies have examined the statistical relationship between domestic savings and foreign capital. Most of them used single equation regression techniques and the majority have specified savings as the dependent variable rather than investment. Table 1 summarizes some of the findings of these studies. The evidence cited, based on both time-series and cross-country analysis, indicates generally the existence of a negative relationship between domestic savings and foreign aid. This relationship, however, cannot be meaningfully interpreted as solid evidence that foreign aid retards domestic savings. The negative sign of the coefficient relating the two variables may well be picking up the fact that some of the aid itself is consumed. In cases where investment is considered as the dependent variable, the coefficients are not negative but substantially less than unity. Papanek (1972) summarized the results of time-series studies of nine countries

5 A typical example of this type of project in the Sudan is the Kenana sugar factory which is reckoned to be the largest of its kind in the world.

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THE IMPACT OF FOREIGN CAPITAL INFLOWS ON SAVINGS AND INVESTMENT

	No. of Observations	Time-Series or Cross-Country	Savings or Investment	Regression Coefficient
Griffin and Enos	32	C	S	-0.73
Griffin	32	C	S	-0.73
Rahman	31	C	S	-0.25
Areskoug	22	T	I	+0.40
Weisskopf	38	T	S	-0.23
Chenery (JPE)	16	T	S	+0.64 to -1.15
Chenery (EDR)	90	C	S	-0.49
Chenery (EDR)	90	C	I	+0.11

Source: Papanek (1972).

undertaken by these authors as shown in Table 2 below. The regression coefficients of all four countries studied by Weisskopf, who was considering savings as the dependent variable, bear negative signs with their magnitudes between zero and minus one. The same is true for six of the nine countries studied by Chenery (EDR 148) with the remaining three bearing very small positive coefficients, the largest being 0.07. The wide disparity between the coefficients estimated by Areskoug (1969) renders his results relatively less reliable.

(2) Conceptual and Statistical Problems

The concepts of savings and foreign flows in LDCs have often been fraught with ambiguity and confusion. National savings (S_n) is differentiated from investment (I) by the balance on current account (F) using the following identity (Newlyn 1973 and 1977):

$$\begin{aligned} S_n &= Q + CFT - C \\ &= I + X - M + FQ + CFT \\ &= I + \Delta FA - \Delta FL + KFT \\ &= I + F \end{aligned}$$

where Q is national income; C is consumption; X and M are exports/imports of merchandise and non-factor services; FQ is net

Table 2

TIME-SERIES ANALYSIS OF THE EFFECT OF FOREIGN CAPITAL INFLOWS ON SAVINGS

	Weisskopf (generally 1953-66)	Chenery (JPE) (generally 1950-64)	Areskoug (generally 1950-64)
Colombia	-0.07	-0.36	-1.53
Costa Rica	-0.58	-0.26	
Honduras	-0.88	-0.25	
Mexico	-0.06	-0.76	-0.58
Chile		-0.42	+0.01
Brazil		+0.07	-1.02
Guatemala		+0.02	+4.30
Panama		-1.15	-0.57
Paraguay		+0.04	+1.54

Source: Papanek (1972).

factor income receipts; CFT and KFT are current and capital net transfers; and FA and FL are foreign assets and liabilities.

Newlyn argues that, "confusion has arisen from the relationship between the correct use of the account convention in question and the behavioural effects of capital inflows on resource use. This stems from the definition of national savings which entails its reduction by any increase in consumption which is financed by external capital. This representation of consumption expenditure out of extra revenue sources as dis-savings is entirely justified in accounting terms but it does not reflect clearly the behaviour which is being examined in an examination of the effect of capital inflow on the use of domestic resources." (Newlyn 1973:868). Hence, the negative sign relating foreign aid and domestic savings is not necessarily an indication that the domestic savings effort is weakened as a result of these foreign flows.

On the other hand, some writers focussed on the direction of the causal relationship between foreign capital inflows and savings. They argue that it is the deterioration in domestic savings that *causes* increases in capital imports. Mrs. Stewart (1971) explains further that both domestic savings and foreign aid may vary inversely as a joint result of a common cause such as an overvalued exchange rate or simply "need". Papanek (1972) extends

such exogenous influences on the two variables to include wars, terms of trade and weather conditions.

As such, and as a result of these genuine conceptual and statistical difficulties, the theoretical arguments underlying the recent unresolved controversy over the role of foreign aid in LDCs cannot be adequately tested empirically through specifying savings functions. Alternatively, the specification of consumption functions seems to pose lesser problems and the coefficients, so estimated, are probably easier to handle. This being so, the empirical investigations in section III below will consider the strong criticism mentioned above. Accordingly, the focus will be on the impact of foreign capital inflows on domestic consumption.

II. Past Trends and Pattern of Foreign Resource Allocation in The Sudan

(A) Past Trends in Official Capital Inflows

Since 1960/61, the amount of official foreign capital inflows to the Sudan has been fluctuating around a rising trend. Table 3 below presents data on foreign aid and expresses it as a proportion of GDP, together with the economy's average savings ratio over the period covered. Owing to the favourable economic conditions including a satisfactory foreign reserve position and a tolerable level of government current expenditure — which characterized the early 1960s — the economy received in that period only moderate flows of foreign capital. Similarly, because of the low import-intensive nature of the investment activities envisaged by the Ten-Year Plan (1962), the ratio of foreign capital inflows to investment was comparatively low over the 1960s.

However, the first years of the Five-Year Plan revealed an even lesser inflow of official foreign capital following the concentration of the original plan on the mobilization of domestic resources. The years 1970/71 and 1972/73 witnessed the lowest ratio of foreign capital to GDP standing at 1.7% and 1.6% respectively. This trend started to change towards the end of the period covered in the aftermath of the liberalization policies introduced by the authorities toward the second half of the Five-Year Plan which resulted in more dependence on foreign aid. The ratio of

Table 3

GDP, SAVINGS, INVESTMENT AND FOREIGN CAPITAL INFLOW

Ls. mn.

	Net Official Foreign Capital Inflow* (1)	Domestic Savings (2)	Investment (+) (3)	GDP (4)	(2)/(4) %	(1)/(4) %	(1)/(3) %
1960/61	9.1	28.6	49.1	369.5	7.7	2.4	18.5
1961/62	10.3	30.0	54.5	398.8	7.5	2.6	18.9
1962/63	11.8	49.5	65.7	406.7	12.2	2.9	18.0
1963/64	11.6	60.3	76.1	431.8	14.0	2.7	15.2
1964/65	10.8	55.3	69.1	459.0	12.0	2.4	15.6
1965/66	16.8	34.7	52.2	488.1	7.1	3.4	32.2
1966/67	14.4	54.1	71.8	493.3	11.0	3.0	20.6
1967/68	15.1	55.3	70.4	527.3	10.5	2.9	21.4
1968/69	10.7	60.3	70.9	564.0	10.7	1.9	15.1
1969/70	13.1	62.9	76.0	630.4	10.0	2.1	17.2
1970/71	11.6	61.7	73.2	674.5	9.1	1.7	15.8
1971/72	20.2	61.9	72.6	697.3	8.9	2.9	27.8
1972/73	17.9	85.9	95.2	896.8	9.6	1.6	18.8
1973/74	41.3	108.2	140.2	1246.2	8.7	3.3	29.5
1974/75	134.9	132.0	214.6	1510.8	8.7	8.9	62.9

Source: Bank of Sudan and Department of Statistics

* Foreign flows excluding interest and amortisation

(+) It deserves mentioning that columns (1) plus (2) do not add up to (3) because column (1) measures only the official foreign capital inflow which is calculated by adding up the amount of aid received from the donors each year; and it excludes outflows.

official foreign capital inflows to GDP rose to 8.9% in 1974/75, and the ratio of official aid to total investment reached an unprecedented level of 62.9%. Apart from the rise in the import-intensity of the investment activities undertaken, the rise in foreign aid ratios is largely a reflection of the increasing flows from Arab governments and Arab international organizations which increased their net disbursements to the Sudan from Ls. 1.4 mn. in 1970/71 to Ls. 73.5mn. in 1974/75. (Economic Prospectus on the Sudan, 1977).

(B) Official Foreign Aid and the Pattern of Resource Allocation

It has been customary for foreign aid donors to have significant influence on the activities which the resources transferred to LDCs are allocated. Although some may suggest that the allocation of investible resources among the very broad sectors — such as agriculture, industry, etc. — would have remained roughly the same with more or less aid, it is quite likely that, as the evidence below reveals, the availability of foreign aid influenced the selection of, or the relative emphasis on, particular projects within these sectors. To this extent, foreign capital inflows often have a significant influence on the pattern of inter-sectoral allocation of resources in the country concerned. Table 4 below shows the sectoral distribution of the official foreign inflow to the Sudan during the period 1958-1975.

To start with, the table reveals an obvious bias of official aid toward industry, water and transport with meagre attention to social services like health, education, etc., as they are 'not directly productive'. It is also the case that even the scarce amount of foreign aid directed toward social services (5.1%) bears a significant urban bias and catered only for the needs of the high income groups. This stems from the fact that aid is very seldom directed to building primary and secondary schools or establishing health centers in the rural areas. This attitude of the aid donors to influence the pattern of investment in such a way typifies their interest in the directly productive and profitable sectors irrespective of the overall development of the economy.[6] To achieve this goal, aid donors often pressurized the planning authorities to follow a certain pattern in resource allocation. This was especially so in the year 1973/74 when the international organizations enforced a drastic change in the allocation of total planned investment in the Five-Year Plan. After the Plan was actually implemented, the planning authorities were persuaded to re-examine the allocation of resources among different sectors in such a way as to favour the transport sector at the expense of the agricultural and the services sectors. Table 5 below shows how the amended Plan raised the share of transport and communications from planned investment to 34% as compared to only 14% in the original Plan. This was associated with a reduction in the share of agriculture from 38%

6 This attitude is, of course, more profound in the case of private capital inflows.

Table 4

SECTORAL DISTRIBUTION OF OFFICIAL FOREIGN INFLOWS TO THE SUDAN 1958-1975

Ls. mn.

	Total Loans	%	Industrial	%	Agric. & Irrigation	%	Trans. & Communi-cation.	%	Services	%	Others	%	Total
International Organizations	87.0	20.6	1.4	1.6	40.9	47.0	35.2	40.5	9.5	10.9	-	-	100%
Western Countries	112.9	26.8	2.0	19.5	28.7	25.4	16.7	14.8	10.0	8.9	35.55	31.4	100%
Arab Countries	131.2	31.2	7.0	5.3	39.8	30.4	23.5	25.0	2.1	1.6	48.8	37.2	100%
Eastern Countries	90.1	21.4	38.6	42.8	3.8	4.2	27.3	30.3	-	-	20.4	22.6	100%
Total	421.2	100.0	69.0	16.4	113.2	26.9	111.7	26.7	21.6	5.1	104.7	24.1	100%

Source: Foreign Loans Section: Ministry of Finance and National Economy

Table 5

THE SECTORAL DISTRIBUTION OF PUBLIC INVESTMENT IN THE ORIGINAL AND AMENDED FIVE-YEAR PLAN (1970/71–1974/75)

	Original		Amended	
	Amount	%	Amount	%
Agriculture and Irrigation	80.7	38	155.8	23
Industry and Mining	36.4	17	117.8	18
Power	13.8	6	37.2	6
Transport and Communication	29.6	14	228.7	34
Services	42.4	19	92.4	14
Miscellaneous	13.1	6	34.3	5
TOTAL	215.0	100	666.2	100

Source: The Six Year Plan (1977).

to 23% and that of services from 19% to 14%.

Another characteristic of foreign capital inflow was its regional bias. Following the same colonial model, foreign aid concentrated on the relatively more prosperous northern region — with the idea that growth would be accentuated and sufficient resources would be transferred later to the poorer southern region. This led to a serious regional imbalance which very nearly precipitated a political tragedy. It also stands as evidence to the motivations underlining the provision of aid, and the extent to which aid donors influence the allocation of investible resources.[7]

III. Foreign Aid, Domestic Expenditure and Growth

(A) The Data

This study covers the period 1960/61-1974/75. In 1966, the

7 The subsequent governments during the period under review were also responsible for not taking sufficient measures that ensure the elimination of the regional imbalance.

Department of Statistics switched from providing National Accounts series on the basis of fiscal years to calendar years; and then in 1969/70 to fiscal years again. Continuity has been achieved in this study by taking the average of two successive calendar years so as to have all the series in an homogenous fiscal years form. Inevitably, under such circumstances the statistics used are by no means perfect. Nevertheless, the presumption that they are completely unreliable is unwarranted. The figures used in this study incorporate the latest revisions made by the Department of Statistics in 1977 to minimize error margins. They have also been compared with the figures provided by various international organizations to achieve consistency.

Data on net official foreign capital inflows are obtained from the Bank of Sudan. They are calculated by adding up the amount of aid received from the donor countries each year. Private foreign inflows are calculated by subtracting the sum of the official foreign inflows, the running down in foreign reserves, and errors and omissions from the balance of payments deficit. This method is basically similar to that used by Papanek (1971).

Data on gross domestic product (GDP) and domestic expenditure are from the National Income Accounts issued by the Department of Statistics following the U.N. revised Standard National Accounting System (SNA).

As for the statistics on exports and imports, they are provided by the Bank of Sudan. In this respect, it is worth mentioning that their system of compiling differs from that of the revised SNA. As a result, the data used in this study is based on the efforts made by the Department of Statistics to reconcile the two systems.

(B) Official Foreign Flows and Domestic Consumption

Most models of economic growth postulate that any increase in foreign capital would be devoted entirely to raising the level of capital accumulation. Along these lines, the dual-gap theory emphasizes that foreign aid can bridge the savings constraint in LDCs by adding to domestic savings, and hence foster economic growth in these countries. On the other hand, some economists argue that a large fraction of foreign capital is used to increase consumption rather than investment. They also believe that aid is essentially a substitute to domestic savings. To test these

arguments, we examined the relationship between domestic consumption (C), GDP (Q) and official foreign capital inflows (F_o) using multiple regression analysis and found the following, where the unit of measurement is millions of Sudanese pounds:[8]

$$C = 142.5486 + 0.6206\ Q + 2.0435\ F_0$$
$$\quad\ (27.1) \qquad (.051) \qquad (.486)$$

$$-\ R^2 = 0.998 \qquad DW = 1.895$$

The result reveals a positive significant association between GDP and domestic consumption. This, of course, supports the predictions of the traditional macroeconomic theory of consumption. The result also shows a high positive significant relationship between official foreign flows and domestic consumption with the marginal propensity to consume out of foreign capital of 2.04. This high marginal propensity to consume implies that all foreign inflows are consumed and they are also associated with a fall in domestic savings. This fall in domestic savings seems to have resulted from a reduction in both government and private savings. The availability of foreign aid has apparently reduced the vigour of the government's savings effort — particularly its efforts to tax conspicuous consumption. Private savings may have also suffered because of the effect of the "new products" which are often associated with aid.[9]

Hence, our result sharply contrasts with the conventional assumption of a predominant investment effect. Indeed, such a high positive and significant response of consumption to foreign aid is incompatible with the hypothesis of "effectively pursued policies of output maximization" and suggests that the so-called "Havelmo Hypothesis" should be rejected on these grounds. Alternatively, our finding supports the hypothesis of the dominant international and internal demonstration effects which simultaneously accentuate domestic consumption.[10]

8 In all the regressions estimated in this paper, the figures in parentheses are the standard errors of the coefficients: DW is the Durbin-Watson statistic; and R^2 is the coefficient of determination.

9 For more about the effect of the "new products," see James and Stewart (forthcoming).

10 For the mechanism of these effects, see Nurkse (1962) and Hazari (1976).

(C) Official Foreign Capital and Aggregate Investment

After investigating the effect of official foreign flows on domestic consumption, we turn to examine its impact on investment expenditure. Multivariate regression analysis is also used in this respect and we regressed aggregate investment (I) against GDP (Q) and official foreign flows (F_0). The following result was obtained:

$$I = 25.4048 + 0.0662\ Q + 0.6568\ F_0$$
$$(7.35) \quad (.014) \quad (.136)$$
$$R^2 = 0.993 \quad DW = 1.966$$

The equation reveals a high positive association between foreign capital inflow and investment with the coefficient relating the two variables (i.e. the marginal propensity to invest out of official aid) standing at 0.66. When this coefficient was added to the marginal propensity to consume of 2.04 (estimated above), a marginal propensity to spend borrowed capital of 2.70 was obtained. This propensity is obviously very high. Nevertheless, it can be rationalized. One plausible explanation is provided by the extent to which foreign aid influences the balance of payments. An investigation into this reveals that the coefficient relating the trade deficit and official foreign flow is 1.42.[11] This adverse effect of aid on the balance of payments seems to have followed from its impact on both imports and exports. The coefficient relating official foreign flows and imports was found to be fractionally higher than unity (1.03), which implies that official aid increases imports by more than the amount of the inflow. The debt servicing burden which is associated with these foreign flows has considerably reduced the export earning available for development purposes. In 1974/75, 30% of export earnings were absorbed in repaying the accumulated debts. This has generated further pressures on the balance of payments.

Another explanation for the high marginal propensity to spend out of official foreign flows can be found in the process of

11 The estimated equation was as follows:
It is to be recalled that F_0 is not equal to (M–X) as the official foreign flows are calculated through adding up the loans received each year from the donor countries.

$$(X-M) = 0.9498 - 0.6261\ Q + 1.4238\ F_0$$
$$(5.83) \quad (.012) \quad (.135)$$
$$R^2 = 0.971 \quad DW = 2.025$$

monetizing the subsistence sector. When the integration of the non-monetary sector in the market economy takes place through the introduction of imported "new products" in this sector, subsistence producers will be persuaded to sell their products so as to finance their new consumption habits.[12] In this manner, aggregate domestic consumption will rise considerably.

The estimated marginal propensity to invest out of official aid is considerably higher than that observed by other authors. Areskoug (1969), who was studying the same relationship in 22 countries found this propensity to be 0.40. Chenery (EDR 148) who was studying 90 countries observed a coefficient of 0.11. However, before we can conclude that the investment generated through foreign aid is reflected in higher growth rate, it is important to examine the effectiveness of this investment. This can be done by examining the performance of industries which have largely been financed through foreign aid. It has been found by El Rasheed (1977) that the capacity utilization of public factories (whose finances are dominated by foreign aid) in 1969/70 averaged only 27% of the installed capacity of these factories. He also observed significant losses in the performance of these factories reaching Ls. 919.355 mn. in 1974/75. In contrast, the domestically financed investment activities, which usually adopt labour intensive techniques seem to be operating at a high rate of capacity utilization.

Furthermore, investment associated with official foreign aid has resulted in a "truncated" managerial structure in the country. This is particularly the case for aid originating in the Arab states.[13] It has been common for these countries — which lack managerial and technical know-how — to persuade trained Sudanese cadre to work abroad. It has often been the case that this has taken place with the assistance of the Sudanese government. The effect was a net migration of talented managers and technicians out of the Sudan. This has substantially reduced the productivity throughout the economy.

Another factor behind the low effectiveness of investment

12 The introduction of these "new products" is often accompanied by sophisticated psychological methods of advertising to promote their sale.

13 It has already been shown in section II that loans originating in these countries constitute a considerable proportion (31.2%) of the total official aid in the period 1958-1975.

associated with aid is the concentration of aid donors on "monument" projects with low economic returns for the recipient country, but with high political dividends for the donors. A typical example of such projects is provided by the Kinana sugar factory, which is regarded to be the largest of its kind in the world.

Moreover, foreign aid can be used only to finance the foreign exchange cost of the projects concerned. As the Pearson report recognized, such donor policy "encourages an uneconomic bias toward capital-intensive projects with large foreign exchange component." (Pearson 1969:177). The heavy local cost associated with such projects often results in budgetary problems and instigates additional import demand. With the tremendous strain on the existing resources resulting from the excessive current expenditure, such projects almost certainly enhance the inflationary pressures in the economy.

(D) Official Capital Imports and Economic Growth

We now turn to examine what is possibly the principal reason which the aid critics have advanced for their hypothesis: the retarding effect of foreign aid on growth. In this connection, various specifications involving both supply and demand determinants of growth have been tried. However, the following equation where the real growth rate $[\,d(Q/P)/(Q/P)\,]$ is explained by the rate of growth of export volume $[d(X/M_p)/(X/M_p)]$ and the ratio of real official foreign flows to real GDP $[(F_0/M_p/(Q/P)]$, seems to provide the best statistical fit. The deflation of exports and official foreign flows by the import price index (M_p) allows us to obtain the volume of imports that can be purchased by these magnitudes. When regression analysis was used, the following equation was obtained:

$$\left[\frac{d(Q/P)}{(Q/P)}\right] = \underset{(.039)}{0.0823} + \underset{(.138)}{0.2895}\left[\frac{d(X/M_p)}{(X/M_p)}\right] - \underset{(.965)}{1.1197}\left[\frac{(F_0/M_p)}{(Q/P)}\right]$$

$$R^2 = 0.581 \qquad DW = 1.995$$

The equation shows that the rate of growth of exports has been an important factor in explaining the variance in growth. The implication is that exports are a key factor in promoting economic growth because of their buying power over imports and their positive effect on domestic savings. As such, measures aiming at export expansion are of crucial importance to the economy.[14] As for the influence exerted by official foreign flows on the growth rate, the equation shows a negative coefficient, but it is not significant at the 95% level of confidence. There seems to be no evidence that aid has resulted in stimulating growth in the Sudan.[15]

(E) Impact of Private Foreign Flows on Expenditure and Growth

(1) Effect on Domestic Consumption

The purpose here is to examine the extent to which private foreign flows have influenced the consumption habits of the population. Many economists argue that private foreign investment is largely concentrated in industries producing consumer goods. They argue that the effect of this is to impair the savings effort in the host country. To examine this hypothesis, we used multivariate regression analysis — adding the non-official capital flows F_p to the explanatory variables used in section *(B)* above, and obtained:

$$C = \underset{(26.5)}{138.9481} + \underset{(.057)}{0.6341}\,Q + \underset{(.553)}{2.0808}\,F_0 + \underset{(2.21)}{0.7335}\,F_p$$

$$R^2 = 0.998 \qquad DW = 1.816$$

As in the previous equation of section *(B)*, the coefficient on the official aid variable remains positive and significant. The coefficient on private foreign flows is also positive but insignificant.[16]

14 For a detailed strategy based on export-led growth see El Shibly (1980).

15 Dacy (1975) showed that even if the effect of aid on growth is favourable during the aided period, its effect during the post-aided period — i.e., after aid is terminated — is most likely to be adverse.

16 When domestic savings were substituted for domestic consumption in this equation, a negative coefficient relating domestic savings and private foreign flows was observed. This coefficient was significant at the 90% level of confidence.

(2) Effect on Aggregate Investment

A similar procedure was followed to estimate the effect of private foreign capital on investment (I). The following result was obtained:

$$I = \underset{(7.31)}{26.2178} + \underset{(.016)}{0.0622}\,Q + \underset{(.154)}{0.6459}\,F_0 - \underset{(.617)}{0.2415}\,F_p$$

$$R^2 = 0.994 \qquad DW = 1.967$$

In this equation, the significant positive impact of official flows on investment observed in section (*C*) above has been confirmed. The private foreign flows coefficient is negative but insignificant indicating that the quantitative effects of these flows on aggregate investment are negligible. This could be the result of foreign private investment displacing indigenous investors. One way of this displacement taking place is through foreign-owned firms securing finance from the banking sector at the expense of local enterprise.[17] The greater efficiency which characterizes these foreign firms often prevents the entry of indigenous producers. Hence the effect of foreign private flows in raising aggregate investment is offset by their negative effect on local investors.

(3) Effect on Growth

Following the same technique used in section (*D*) above, an attempt has been made to estimate a growth equation incorporating the ratio of real private foreign flows to real GDP $[(F_p/M_p)/Q/P)]$ besides the other explanatory variables. The following result was obtained:

$$\left[\frac{d(Q/P)}{(Q/P)}\right] = \underset{(.044)}{0.0811} + \underset{(.148)}{0.2886}\left[\frac{d(X/M_p)}{(X/M_p)}\right] - \underset{(1.06)}{1.1188}\left[\frac{(F_0/M_p)}{(Q/P)}\right] - \underset{(2.23)}{0.0946}\left[\frac{(F_p/M_p)}{(Q/P)}\right]$$

$$R^2 = 0.583 \qquad DW = 1.986$$

17 For more details about this, see Bhatia and Khatkhate (1975).

This result confirms the significant positive effect exerted by exports on the growth rate. The coefficient of official and private foreign flows are both negative but insignificant.

IV. Concluding Remarks

It has been shown that foreign aid has neither helped to foster the rate of growth of the economy nor relax its savings constraint.[18] Reference has also been made to the offsetting role played by debt servicing on export earnings available for development purposes. These results have important consequences on the realization of self-supporting growth in LDCs. It has often been the case that perspective plans have been drawn up in LDCs which envisage the dispensation of foreign assistance to these countries at some future date. In the light of our findings about the consequences of foreign aid, the necessary rises in the rate of growth of domestic savings and the rate of growth of exports, which are the pre-condition for any progress toward eliminating dependence on foreign assistance, will not be possible to attain.

18 For a dual-gap analysis of the Sudan, which emphsizes the importance of the savings constraint on the growth of the economy, see El Shibly and Thirlwall (1981).

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