FOREIGN AID AND DOMESTIC SAVINGS IN TANZANIA

By
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Abstract

The relationship between foreign aid and domestic savings of a recipient country has for a long period of time interested many researchers and policy makers. In this paper the debates on the impact of aid on domestic savings is not only reviewed but also applied to a specific case of Tanzania.

Whereas there is evidence to show that there is a negative relation between domestic savings on one hand and foreign aid on the other, the direction of causation seems, at least for the Tanzanian case, to run from aid to savings. There is need, however, to further investigate the underlying causes of the observed negative relationship between aid and domestic savings in Tanzania.

1. *Introduction*

The role of domestic savings in the economic development process of a country has been succinctly explained by authors like Lewis(1954)[1] and Chenery and Strout (1966)[2] to mention just a few. The authors agree that when domestic savings are properly mobilised and eventually channelled towards the most efficient investment opportunities, they can help to foster the economic development of recipient country.

Most Less Developed Countries (LDCs) are said to be growth constrained by a host of factors. The list of constraints mostly cited contains shortage of capital, skills and domestic savings. To circumvent the savings constraint, a number of

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LDCs have resorted to and often get foreign capital to supplement their domestic savings resources. The controversy surrounding the impact of foreign capital is however that they sometimes substitute for, instead of supplementing the domestic savings resources of a recipient country. Qualitative analysis aimed at dealing with the impact of foreign capital on LDCs savings was done by among others, Rahman (1968) Griffin and Enos (1970) and Weisskopt (1972).

In 1972 Weisskopf (1972) set to test the hypothesis that the level of domestic savings in Less Developed Countries (LDCs) was related not only to their income (Y) but also to the net foreign capital inflow (f) which, due to the unavailability of a more suitable measure, was defined as a difference between imports and exports. Earlier analysis aimed at quantifying the macroeconomic effects of foreign aid on the economic growth of LDCs relied heavily on the Harrod-Domar growth models whereby foreign resources were assumed to foster economic growth in LDCs by adding to the overall availability of savings without in any way substituting for savings made available from domestic sources[3].

In testing this hypothesis however, Griffin and Enos (1970) found a negative relationship between foreign aid and domestic savings in more than 30 LDCs . Critics of the Griffin-Enos findings argue that their findings have been some how blurred by among other drawbacks, the failure to exclude from the regression analysis, cases of LDCs with a net outflow of capital[4]. In arguing for the observed negative correlation between foreign aid and domestic savings in LDCs, Weisskopf emphasised that,

> there are persuasive theoretical reasons for believing that an inflow of foreign capital should have a negative impact on domestic intentions to save. Foreign capital represents an addition to the total supply of resources available to a country and thereby increases the possible magnitude of domestic expenditures. Any plausible utility function, balancing the immediate benefit derived from current consumption and the future benefits to be derived from current investment would lead to a marginal allocation of expenditure partly to consumption and partly to

investment.
But to the extent that private or public decision makers wish to use the additionally available resources to increase private or public consumption, there will be decline in intended domestic savings, for domestic income remained unchained. Thus a case in which foreign capital inflow had no impact on domestic savings would appear to be extreme than typical (p.29).

This paper revisit some of Weisskopfs, assumptions by analyzing the relationship between foreign aid to Tanzania and the country's domestic savings.The paper depart however from Weisskopfts analysis by introducing some aspect of causality between foreign aid and domestic savings in Tanzania. It should be noted that Weisskopf did not consider causality issues.

In section two, the paper reviews the debate on the impact of foreign aid on domestic savings of recipient countries.The purpose of this review is to highlight on the current status of this debate. Section three of the paper deals with causal links between domestic savings and foreign aid by employing the Granger (1969) and Sims (1972) definitions of causality to the Tanzania situation. Econometric results obtained from the application of the above definitions are tabled and discussed in section four. Finally in section five, concluding remarks are made.

2. *The debate on the Impact of Foreign Aid on Domestic Savings in LDCs*

The following discussion traces the debated surrounding the impact of foreign aid on the domestic savings of LDCs from the early 1950s when the Harrod-Domar growth models were in vogue to the late 1980s when the concern of many researchers was diverted to the causal links existing between aid and domestic savings. According to the Harrod-Domar model, a country's rate of growth of output (g) is equal to the savings rate (s) divided by the incremental capital-output ratio (v), i.e:

$$g = s/v \quad \ldots\ldots(1)$$

Where g = output growth rate
s = savings rate

and v = incremental capital output ratio (icor)

Chenery and Strout (1966) influenced largely by the Harrod-Domar model argued that the impact of foreign aid was to supplement recipients domestic savings and thus raise their growth rate to:

$$g^* = (s+f)/v \quad \ldots\ldots(2)$$

where f = foreign aid as a percecnt of recipients Gross National Product

and $g^* > g$

Followers of this approach argue that the increase in output growth would with time, in turn increase incomes in recipient countries where by domestic savings would further rise.Finally, the output growth rate would become self sustaining without the need for further foreign aid injections into the country concerned. Rahman (1968) and later Griffin (1970) and Griffin and Enos (1970) who among other researchers showed empirically and contrary to the Chenery-Strout hypothesis that there was an invérse relationship between foreign aid and domestic savings of some selected recipient LDCs. Their findings therefore casted a shadow of doubt on the Chenery-Strout hypothesis.

Part of the reason cited for the existence of a negative relationship between foreign aid and domestic savings of recipient countries have been explained by Wesskopf (1972) in terms of the wish by decision makers to use the externally available aid resources to supplement private or public consumption. Papeneck (1972) supported the Weisskopf explanation by giving examples of situations which allow foreign aid to be consumed instead of being invested. He cited cases of foreign aid being provided to a recipient which faces starvation caused by long periods of drought. A related situation is when foreign aid is provided to a recipient which is being faced with natural calamities like floods and earthquakes.[5] When extended under the above conditions, foreign aid is not expected to raise domestic savings of a recipient country.

Griffin and Enos (1970) went a step further to suggest other reasons for foreign aid resources to be detrimental to a recipients economic growth. They argued that to begin with, aid is not distributed on the basis of economic need but rather in accordance to political expediency. Donors of foreign aid, according to this hypothesis, have a political motive to be achieved.They (donors) require the recipients to give them political support whenever it is deemed necessary. The following section deals with cases where aid could depress domestic savings.

2.1 *Case where aid could reduce, instead of supplementing domestic savings of a recipient*

The most plausible atmosphere where aid could reduce the domestic savings of a recipient is when the recipient government, in anticipation of inflows of foreign aid, sets to deliberately lower its tax effort[6]. In so doing the foreign aid recipient government reduces the domestic savings which could have been raised through taxation. The recipient government hopes that this domestic savings gap will be filled by the availability of foreign aid savings.

Closely related to the lowering of the tax effort, the recipient government can also alter the consumption habit towards more consumption in anticipation of an inflow aid[7]. Griffin and Enos (1970) have also suggested that the availability of low interest loans to a recipient have an adverse impact of reducing the incentive to save by the private sector. In this case, if the share of the private sector savings is large, the reduction in incentive to save in this sector could be detrimental to total domestic savings.

There are also cases of foreign aid being extended and at favourable terms to a recipient but the absorptive capacity of a recipient has not allowed an efficient utilisation of the aid funds and this has resulted into aid resources being wasted.

Most foreign aid recipient governments approach aid donors with some kind of a shopping list (pack and Pack, 1990). According to this list, projects which are desirable will appear at the top of the list while less desirable ones will appear at the bottom of the list. However, during the time of project implementation, recipient government can not be certain of which projects will receive foreign funds for implementation. They therefore start to implement projects which were ranked high in the list first and by using domestically available funds.

3. *Causal Link Between Domestic Savings and Foreign Aid.*

This paper uses Granger's (1969) definition of causality to examine the causal relationship between foreign aid and domestic savings of a recipient.The gist of Granger's definition of causality hinges on prediction errors[8]. The basic assumption in the definition being that, if after extracting all the information from the own past of a variable, the addition to another variable as a regressor would further reduce the prediction error variance, then the latter is said to be causal. A variable is thus said to be causing another in Granger's sense if it explains the residuals of another variable which can not be explained by the history of that explained variable .

The Granger causality definition is explained by means of the following model.[9]

$$X_t = \sum_{j-1}^{m} \alpha_j Y_{t-j} + \sum_{j-1}^{n} \beta_j X_{t-j} + \epsilon_t \quad \text{.....(3)}$$

$$Y_t = \sum_{j-1}^{m} \lambda_j X_{t-j} + \sum_{j-1}^{n} \pi_j X_{t-j} + U_t \quad \text{.....(4)}$$

Where

X_t and Y_t are relevant variables

X_{t-j} and Y_{t-j} are the variable lagged j periods

α_j β_j λ_j and π_j are arbitrary coefficients

and $E(\epsilon t, Ut) = 0$, i.e the error terms are not correlated

Causality in the above model can be determined by observing the size of the coefficients α_j and λ_j. If some $\alpha_j > 0$ then the variable X_t is causing Y_t. In case some $\lambda_j > 0$ and $\alpha_j > 0$ then variable X_t is causing Y_t and Y_t in turn is causing variable X_t. In other words, there is a feedback situation.

The model that is dealt with in this paper to analyze causal links between domestic savings and foreign aid in Tanzania assumes, like the Snyder (1990) model that the omitted variable is per capital income (Y/N). Hence , domestic savings in Tanzania is assumed to be a function of foreign aid which is on the other hand influenced by per capita income and domestic savings. It is assumed that foreign donors allocate aid resources to recipients according to their needs. The model can be further simplified to:

$$S/Y = a_{10} + a_{11}(Y/N) + a_{12}(A/Y) \quad \text{.....(5)}$$
$$A/Y = a_{20} + a_{21}(Y/N) + a_{22}(S/Y) \quad \text{.....(6)}$$

According to the Griffin-Enos or to use Snyders (1987) terminology, in the revisionist hypothesis, causation runs from foreign aid to domestic savings. Thus in the equations 5 and 6, $a_{12} < 0$ while $a_{11} = a_{22} = 0$. This hypothesis suggests that foreign aid to Tanzania is exogenously determined by donors and does not take into account the recipients requirements. Other researchers argue that in equations 5 and 6, $a_{12} = 0$, $a_{12} < 0$ and $a_{22} = 0$. This hypothesis suggests that there is no causation running from foreign aid to Tanzania's domestic savings and foreign aid is given on the basis of recipients needs. Before analyzing these two hypotheses in detail let us examine first the data that is available.

4. *Data*

4.1 *Domestic Savings*

Like in other LDCs data for aggregate domestic savings in Tanzania is not measured directly but as a residual of national disposable income over final consumption. Since final consumption data is also not obtained directly, this residual method of obtaining domestic savings is fraud with large statistical errors (Lipumba et al, 1990). A more dependable way of obtaining domestic savings which is also used in this paper is to subtract foreign savings from gross fixed capital formation GFCF i.e. (GFCF-savings). Domestic savings in Tanzania for the 1961-1990 period is obtained through this method.

Efforts to mobilise domestic savings in Tanzania can not be adequately analyzed independent of the development policies embarked upon by the government since the early 1960s. When Tanzania become politically independent from Britain in 1961, the country had all the characteristics of a newly independent country, including among others: low income, low level of education land widespread poverty.[10] The development policy adopted immediately after independence aimed at changing the inherited state of the economy. Various development plans made by the government focused at eradicating ignorance, poverty and diseases. Experience however showed that the plans had to depend on foreign assistance from abroad for implementation.

Year 1967 represent a watershed in development policy in Tanzania , for during the year, the government nationalised all the major means of production, distribution and exchange, By 1988 a total of over 400 parastatals (including some charged with the responsibility of mobilising domestic savings) had been established to take over running of the nationalised enterprises. However, despite the extensive nationalisation of 1967 and the parastatals formed thereafter, the level of domestic savings in Tanzania is still low and the private sector continues to be the dominant source of domestic savings in Tanzania. Domestic savings and foreign aid ratios in Tanzania appear in Table 1.

Table 1: Foreign Aid and Domestic Savings Ratios in Tanzania (Tsh m where applicable)

	Y	S	S/Y	F	F/Y	N*	Y/N
1961	4102	3690	0.81	37.2	0.009	9.42	435
1962	4454	4308	0.91	31.0	0.006	9.82	453
1963	4932	4675	0.94	51.3	0.010	10.02	492
1964	6030	4852	0.80	78.2	0.010	10.77	559
1965	6140	4877	0.79	83.5	0.013	11.04	556
1966	7042	5422	0.79	127.3	0.018	11.87	593
1967	7343	5816	0.74	84.0	0.011	12.26	598
1968	7874	5863	0.72	122.8	0.015	12.68	620
1969	8271	5973	0.61	122.0	0.014	13.08	632
1970	9173	5613	0.55	270.0	0.029	13.51	678
1971	9814	5407	0.54	385.2	0.039	13.87	707
1972	11172	6100	0.46	325.0	0.029	14.22	785
1973	13103	6040	0.34	481.0	0.036	14.57	899
1974	15994	5504	0.29	1038.0	0.064	14.95	1069
1975	19011	5549	0.22	1031.0	0.054	15.37	1236
1976	24419	5404	0.17	1510.0	0.061	15.87	1538
1977	28868	5172	0.14	2044.0	0.070	16.40	1760

- table continued -

	Y	S	S/Y	F	F/Y	N*	Y/N
1978	32167	4553	0.08	2427.2	0.075	17.00	1892
1979	42118	3434	0.07	2320.0	0.055	17.51	2405
1980	49102	3858	0.07	1872.0	0.038	18.09	2215
1981	58226	4495	0.08	2954.0	0.050	18.69	3115
1982	70509	4893	0.04	3719.0	0.052	19.29	3655
1983	88092	4274	0.04	1895.0	0.021	19.90	4426
1984	120621	5513	0.03	2675.0	0.022	20.52	5878
1985	159648	5295	0.02	3318.0	0.020	21.16	7544
1986	226950	5635	0.02	14233.0	0.062	21.80	10410
1987	331217	6676	0.01	18313.3	0.055	22.46	14746
1988	406542	7078	0.01	31467.3	0.077	23.13	17576
1989	499999	6260	0.01	42735.7	0.085	23.81	20999
1990	690421	7002	0.01	50616.4	0.073	24.51	28168

Source: BOT (1982) and own calculations from various issues of Economic Survey, from 1982 to 1992.

Note: Y = Gross Domestic Product (GDP)
S = Domestic Savings
S/Y = Ratio of domestic savings to GDP
F = Foreign Aid
F/Y = Ratio of Foreign Aid to GDP
N = Population (in millions)
Y/N = income per capita

4.2 *Foreign Aid*

Historically, Tanzania has since the early 1960s, been receiving foreign aid with the aim of utilising the externally available resources for development purposes. The equitable income distribution policies adopted by the government as enshrined in the 1967. Declaration helped to attract the sympathy of many foreign donors like the World Bank and other

donor agencies and governments. Some of the donors including the World Bank volunteered to finance various regional plans as spelled out by national development plans . Other donors undertook to finance the development of infrastructure like roads and railways. Even some of the publically owned industrial establishments in Tanzania were started with the assistance of foreign donors. In the early 1980s up to the late 1980s some foreign assistance was made available in the form of import support programmes. When the country was faced with an unprecedented economic problems in the 1980s it had to enter to an agreement with International Monetary Fund before the Fund could release loans to Tanzania with the purpose of financing an agreed Structural Adjustment Programme. Table 1 shows that while in 1961 total foreign aid disbursed to Tanzania was only Tsh. 37.2m, by 1980 this amount had grown to nearly Tsh 1900m, and by 1991 this flow was nearly Tsh. 5061m. Section 5 discusses the results.

5. *The Evidence*

Both the Ordinary Least Squares (OLS) and the two stage Least Square (2SLS) estimation techniques were employed for the regressions. The problem frequently encountered was that of auto correlation. Even after correcting for auto correlation using the standard Autoregressive error method (ARI) the problem seemed to persist. However , the variables being dealt with in this paper are to a great extent, related. Next the paper discusses the results obtained.

5.1 *Impact of Aid on Domestic Savings*

Sample period 1961 - 1990

$$S/Y = \underset{(9.6)}{0.77} - \underset{(4.1)}{8.75}\, F/Y \qquad R^2 = 0.67 \quad \text{DW} = 1.43 \qquad \ldots\ldots\ldots(7)$$

Notes: The variables are as defined previously.
Figures below each coefficient estimate are t-statistics

It can be observed that the results in equation (7) are in line with the Griffin-Enos (1970) hypothesis that foreign aid is related negatively to the domestic savings of a recipient country (in this case, Tanzania).

Unlike the insignificant estimates obtained by Griffin and Enos, the results obtained here as equation 7 indicates are significant at the conventional level of test. It should be noted however that in Tanzania the period extending from the late 1970s to the late 1980s had been characterised by various economic crises. These include, inter alia, the oil crisis in 1973, drought and crop failure in 1973 resulting into famine in 1974 and the 1978 -1979 war with Uganda following the latter's invasion of Tanzania. The Weisskopf proposition that public decision makers wish to use aid resources for consumption instead of using them for savings purposes could explain the negative relationship observed in equation 7. Other explanations like those given by Papaneck (1972) could also be plausible in explaining the negative relationship observed in this equation.

5.2 *Some Aspects of Causality*

In this section, the paper uses the methodology developed by Granger (1969) to discuss some causality test results as they apply to the Tanzanian situation.

Equations 8 and 9 presents some causality test results obtained.

$$S/Y = 0.74 - 0.18Y/N - 8.6F/Y\ (-1) \quad \ldots\ldots(8)$$
$$(9.5)\quad (-0.1)\quad (-4.1)\qquad R^2 = 0.76$$
$$DW = 1.14$$

$$F/Y = 0.05 + 0.0007Y/N - 0.044S/Y\ (-1) \quad \ldots\ldots(9)$$
$$(8.1)\quad (1.3)\quad (-4.7)\qquad R^2 = 0.56$$
$$DW = 1.79$$

Causality in Granger's sense can in fact be inferred from the simple model shown in equation (8) and (9) provided of course that the causal relationship between the dependent and the independent variables occur with a one period lag on the

dependent variables. If this condition is fulfilled, domestic savings this year (equation 8) will respond to last years foreign aid flows. It is plausible also that there will be cases of instantaneous causality.

If the Griffin suggestion that foreign aid flows are determined by political factors and the recipient, savings was responding to the aid flows (i.e case where aid is causing savings), then a_{11} in equation 8 would be significant and negative. If however, in accordance with the Papaneck hypothesis, a recipient received foreign capital because her domestic savings level was low (i.e a situation whereby low savings is the cause of foreign aid) the coefficient a_{22} in equation 9 would be insignificant while a_{33} would be significant and negative.

Causality tests, presented above tend also to support the Griffin hypothesis that in Tanzania, foreign aid could be determined by political factors and that the country's domestic savings is responding to foreign aid flows. Briefly stated, the results tend to support the hypothesis that foreign aid is causing low domestic savings. This is because, as can be observed from equation 8 the coefficient on foreign aid is negative (-8.6) and significant ($t = -4.1$).

5. *Concluding Remarks*

This paper has attempted to analyze the relationship between foreign savings in Tanzania during the 1961 -1990 period. It has shown that Tanzania was a recipient of both multilateral and bilateral aid. Donors were willing to extend assistance to Tanzania mainly because of the equitable distribution of income policies as spelt out in the 1967 Arusha declaration which aimed at nationalising the major means of production distribution and exchange for the benefit of all Tanzanians. However, even some of the parastatals that were created following the Arusha declaration and assigned the task of mobilising domestic savings have not performed efficiently. Thus the level of domestic savings in Tanzania is still low and continue

to constrain the country's development process.

With respect to the relationship between foreign aid and domestic savings in Tanzania, the result obtained herein tend to support the Griffin-Enos hypothesis that these two variables are negatively related. The direction of causation that is suggested by the results obtained here runs from foreign aid to domestic savings. The policy implication emanating from such a causation would be to reduce the level of foreign aid to Tanzania so that the level of domestic savings can rise. However, in Tanzania the period under consideration was, as it has been explained throughout the paper, a crisis ridden period. Some of the foreign aid funds were used for example to import food when the country was hit by drought in the early 1980s.

Papaneck, (1972) has strongly argued that when foreign aid is used to supplement consumption, it can not be expected to raise domestic savings as well . Apart from drought, Tanzania also experienced most of the other conditions explained by Papaneck which made foreign aid to have negative relationship with domestic savings. This paper is of the opinion that future research in this field should concentrate on the examination of the factors which are responsible for this negative relationship between foreign aid and domestic savings in Tanzania.

Notes

1.See A. Lewis (1954)
2.Chenery and Strout (1966)
3.H. Chenery and A. Strout (1966)
4.See among others, P.Bowles (1987)
5.Papaneck (1972)
6.K.Griffin and J. Enos (1970)
7.P. Bowles (1987)
8.Granger (1969)
9.See P. Bowles (1987)
10.BOT (1992)

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