

THEORETICAL ASPECTS OF EXTERNAL DEBT AND ECONOMIC
GROWTH IN DEVELOPING COUNTRIES

by

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The experience during the current decade of large public sector external debt and lagging economic performance in Guyana and Jamaica motivates a reconsideration of the role of foreign debt capital in the economic growth of Commonwealth Caribbean countries. As a first^{step}/in that evaluation, this paper examines theoretically the mechanisms by which external debt might affect domestic economic growth.

The discussion is slanted towards the identification of domestically manipulable variables, and away from the important issues raised by loan charges and loan conditionality. The main reason for this focus is the judgment that LDC governments do have some policy autonomy. Correspondingly, some responsibility for alleviating the current economic malaise must rest with our governments. The identification of domestically controllable variables may assist in the effective discharge of that responsibility, and in a fuller appraisal of public economic policy.

EXTERNAL DEBT AND THE SAVINGS GAP

Conventionally, external debt is thought to accelerate the growth and development process by closing one or both of two resource gaps: the savings-investment gap, and the foreign exchange or trade gap. [Rosenstern-Rodon (1961), Chenery and Strout (1966)].

The analytical basis of the savings-gap approach is the Harrod-Domar growth model extended to the open economy. The Harrod-Domar model, on the assumption of a constant capital-output ratio, makes the ratio of national savings to national income (or equivalently, the ratio of investment to national income) the central dynamic of income growth. The growth problem facing underdeveloped countries, therefore, is that of substantially lifting their investment rates to levels required by their target rates of income growth.

External borrowing is one mechanism for achieving higher investment ratios in the face of low rates of domestic savings. By providing the resources for investment, external debt can aid growth and development. This may be shown in the following simple algebraic model. First, note the following definitional statements for income, savings, trade gap, and capital inflows.

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$$Y(t) = C(t) + I(t) + X(t) - M(t) \quad (1)$$

$$I(t) - S(t) = M(t) - X(t) = D(t) \quad (2)$$

$$I(t) = \underline{ky}Y(t) \quad (3)$$

where Y is income, C is consumption, I is investment, X is exports, M is imports, S is domestic savings, D is capital inflows (assumed to be debt in this paper), k is the incremental capital output ratio, and y is the rate of growth of income.

Substituting for I from equation (2) into equation (3) solving for y and rearranging we get:

$$y = \frac{1}{k} (s + d) \quad (4)$$

where s is the average propensity to save, and d is the ratio of foreign debt to national income.

It is evident from equation (4) that external debt improves the growth rate, provided that debt is used for investment, and that neither the domestic savings ratio nor the output-capital ratio decline sufficiently to offset the positive effect of external capital inflows. These provisos are at the centre of scepticism about the beneficial effects of external debt in savings-gap models.

Not all external debt might be transformed into investment. Rahman (1967) demonstrates that any reasonable intertemporal utility maximising model would predict some allocation of external loan funds to current consumption. Even when loan uses are specified (as is frequently the case with official loans) and there is no credit diversion, external debt may have less "additionality" than the debt statistics imply. The essential fungibility of credit permits the substitution of foreign funds for local budgetary resources in investment projects, thereby freeing local resources for lower priority consumption expenditures. [For further discussion of fungibility, additionality, and substitutability in credit see Von Pischke and Adams (1979) 7].

It might be argued that government consumption expenditures are partially conducive to growth. Such expenditures may improve the living standards and working abilities of the poor, and might even help to maintain social stability. Nonetheless, the allocation of external debt funds to public consumption is difficult to justify in the presence of many feasible investment projects that are compatible with social

goals. On balance, the failure of LDC's governments to effectively transform external debt into investment capital may well be one of the more important reasons why external debt has not had a more beneficial impact on the economies of debtor countries.

In cases where the savings gap is binding, external debt is likely to depress the domestic savings rate. Theoretically this conclusion follows from the proposition that a proportion of debt funds are allocated to consumption, thereby raising the level of total consumption. If income remains constant, or grows less rapidly, the average propensity to save is reduced. A substantial body of literature has developed around this contention. Many empirical studies, notably Weiskopf (1972), Rahman (1968), Griffin and Enos (1970), Chenery and Eckstein (1970), and Leff (1968), demonstrate a negative relationship between domestic savings (or the domestic savings rate) and foreign capital inflows. Empirical disputants are few, Papanek (1973) and Gupta (1970) being the only ones reporting a positive association. The empirical evidence, while statistically overwhelming, is subject to the serious logical objection that the negative correlations provide no basis for inferences about causation, since a negative sign is the outcome of the accounting identities and, more importantly, since capital inflows are frequently motivated by low domestic savings [Papanek (1972)].

The depression of the savings rate, if it does occur, can have mal-consequences that extend into the longrun. Grinols and Bhagwati (1976) on the basis of dynamic simulations, suggest that the savings rate may take many years to recover. In effect, the

debtor country may remain dependent for a long time. Dacy (1975) focusses on the slower rate of growth of income in the post-aid period. Basically, he concludes that foreign capital inflows can promote or retard growth, depending on the private marginal propensity to save and the government propensity to consume foreign capital. A modified version of his model is presented here since it helps to bring out the critical role of government.

Let private savings be described by the behavioural function:

$$S_p = \alpha Y_D(t) + \beta r(t) \quad \alpha, \beta > 0 \quad (5)$$

where S_p is private domestic savings, Y_D is disposable income, and r is the real rate of interest. Unlike Dacy, I do not assume habit persistence in personal savings and consumption, nor a population growth effect. Also, I assume that real interest rates affect savings decisions.

Disposable income is given by the difference between national income and taxes (R).

$$Y_D(t) = Y(t) - R(t) \quad (6)$$

Government savings is the difference between government tax revenues (R) and government consumption (C_G):

$$S_G(t) = R(t) - C_G(t) \quad (7)$$

Government consumption itself is defined by :

$$C_G(t) = C_G(t-1) + \delta \Delta R(t) + \lambda \Delta D(t) \quad (8)$$

$$\delta, \lambda > 0$$

with the side condition that :

$$c_G(t) \geq c_G(t-1) \quad (9)$$

to reflect the assumption that government consumption expenditures are irreversible. δ is the government propensity to consume tax revenues, and λ is its propensity to consume debt.

$$R(t) = \tau Y(t) \quad (10)$$

$$Y(t) = [1 + y(t-1)] Y(t-1) \quad (11)$$

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is d.*

$$y(t) = s(t)/k \quad (12)$$

where τ is the tax rate.

Combining equations (7), (8) and (10), we get:

$$S_G(t) = S_G(t-1) + \tau(1-\delta) \Delta Y(t) - \lambda \Delta D(t) \quad (13)$$

and combining equations (5), (6), (10), (11) and (12), we obtain:

$$S_p(t) = [\alpha + \delta s(t)k^{-1} - \alpha\tau - \tau s(t)k^{-1}] Y(t-1) + \beta r(t) \quad (14)$$

From equation (13), it is evident that government savings decline so long as the proportion of foreign debt consumed, i.e. $\lambda \Delta D(t)$, exceeds government savings out of the tax revenues generated by income growth. The propensities to consume debt and to consume tax revenue, as well as the tax rate are critical parameters for the level of government savings.

Equation (14) makes clear the depressant effect of taxes on private savings out of income growth. However, if government savings decline, then the income growth effect on private savings must be

large enough to offset this decline if total savings is to recover to pre-debt levels. This means that the growth rate itself must increase rapidly and/or the capital-output ratio must decline.

It is possible for LDC-governments to minimise the depression of domestic savings. Among the measures which can be adopted are restraint in government consumption, appropriate financial policies to stimulate ex ante savings and to restrict financial disintermediation, and the adoption of policies which reduce the capital-output ratio.

With respect to the incremental capital output ratio (ICOR), the nature of investment is crucial. Thirlwall (1974) identifies four means by which investment may ^{reduce} ~~raise~~ the ICOR, which can serve as guidelines to governments. First, investment funds can be allocated to bottleneck sectors. Second, those projects with large positive externalities could be given priority. Third, there are those projects whose production reduce idle capacity in other industry. Fourth, labour intensive techniques could be favoured.

EXTERNAL DEBT AND THE FOREIGN EXCHANGE CONSTRAINT

A foreign exchange constraint may be binding on the economic performance of an LDC if the productive utilisation of domestic resources is effectively restricted by the insufficiency of complementary imports. When the foreign exchange constraint is binding, ex ante domestic savings and foreign savings are complementary [Weisskopf (1972)]. However, external debt can make a development

contribution over and above its contribution to total availability of investment resources.

Developing countries are not self-sufficient in the production of intermediate and investment goods. They are more usually dependent on the imports of capital goods for the realization of investment programmes. In general, therefore, there is a minimum level of imports required for investment. Similarly, there is a minimum level of imports required for current production. The influence of external debt in the context of the imported capital goods constraint is easily shown [e.g. Sengupta (1968)] by stipulating that:

$$M \geq mI$$

which when substituted into equation (3) and rearranged, gives the maximum growth rate of income as:

$$y \leq \frac{x + d}{mk} \quad (15)$$

Given a minimum import investment ratio of "m", the capital output ratio "k", and the export-income ratio "x", an increase in the external debt ratio "d" relaxes the foreign exchange constraint on growth.

The role of debt within the more general minimum imports to national income constraint can be seen from the relationship:

$$Y = \frac{(1 - m_1)}{m_1} (X + D) \quad (16)$$

where m_1 is the ratio of minimum imports to domestic income.

In addition to permitting higher levels of income and higher rates of feasible growth, external debt finance can lower the incremental

capital-output ratio. This occurs when the availability of intermediate imports results in the elimination of production bottlenecks and higher levels of capacity utilisation [Chenery and Strout (1966), McKinnon (1966)]

These productivity and income effects are reversible when capital-inflows cease [Bhagwati and Grinols (1975)]. The reduced availability of intermediate inputs cause underutilisation of installed capacity. Further, the reduction of imports reduces total investment by a multiple of $(1 + \lambda)$ times the reduced imports. The fall in investment then has a multiplier effect on incomes of $(1 + \alpha k^{-1})^t k^{-1}$, where α is the average propensity to consume out of incomes. The reversibility of income growth and productivity have the policy implication that LDC governments during and after the period of capital inflows should adopt measures to reduce the severity of the foreign exchange constraint. Policy measures of this nature are especially necessary since capital inflows have the potential for creating short-run and medium-run balance of payments problems.

EXTERNAL DEBT AND THE BALANCE OF PAYMENTS

Foreign debt capital generates an obvious reverse foreign exchange movement in the form of debt service and amortization payments. Avramovic and his associates (avramovic 1964) develop the notion of a debt cycle, during the early stages of which net capital imports are sufficient to accommodate growth requirements and debt payments. In the later stages of the debt cycle, service charges and amortization are

more likely to exceed new capital inflows thereby making demands on available foreign exchange resources as well as on domestic savings.

Furthermore, the debt-stimulated growth in income and expenditures leads to an increased demand for imports. Expenditures of debt funds may themselves generate complementary demands for imports which can possibly exceed the foreign exchange provided by the debt [Polak (1943)].

For these reasons, it is important that countries pursuing an external debt-financed development strategy endeavour to generate foreign exchange savings. This may imply the early adoption of export promotion policies. Harrod (1963) recognised sixteen years ago that the foreign exchange slack can also be provided by restraining the growth rate of consumption.

EXTERNAL DEBT, DEPENDENCE, AND DESTABILISATION

Bhagwati and Grinols (1975) systematically examine the widespread, controversial proposition that external capital inflows can be drastically reduced by "donor" countries as an instrument of economic destabilisation. They demonstrate that for the five countries simulated, namely Ghana, India, Israel, Philippines, and South Korea, one could identify a 'resource crunch' and a 'productivity effect', which can politically undermine radical governments. The analytics of their proposition are broadened here to take fuller account of the arguments developed in earlier sections of this paper.

An abrupt cessation of debt inflows may create a resource crunch in that the higher levels of income and private consumption associated with external debt are not only not sustainable into the post-debt period, but are also drastically reduced, thereby creating economic dislocation and political disaffection. External debt might have depressed the level and growth rate of domestic savings, Government consumption would have risen under the influence of debt receipts. Given its limited (or zero) reversibility, government consumption expenditures do not rapidly adjust downwards in response to the reduced inflow of debt funds. Instead, efforts may be made to sustain pre-existing levels of government consumption by unpopular increases in the effective tax rate (T). The failure of government consumption to decline combined with the possibly further tax-induced depression in personal savings prevent the required recovery in the national savings rate, and further depress the growth rate of income. In any event, significant cutbacks in government consumption if they occur will be troublesome, especially if the related employment opportunities were partisanly distributed.

The cessation of debt also means the reduced availability of foreign exchange. Governments may then attempt to accommodate their own foreign exchange consumption demands by reducing the availability of imported goods to private households and enterprises. The reduced supply of consumer goods can result in excess demand inflation, especially since some amount of central bank money creation replaces foreign debt. (Since nominal interest rates are generally rigid, inflation reduces real rates of interest and further depresses savings).

The reduced availability of intermediate imports has the negative productivity effect on income and output described in the section on foreign exchange constraints.

The combination of stagflation, rising effective rates of taxation, and growing disparities in consumption might increase economic discontent and political disaffection to the point where governments lose legitimacy and are removed. In this sense, external debt can have a politically destabilising effect.

However, it should be apparent from the roles of public consumption, fiscal and credit policy, and import policy in the above scenario that domestic economic policy at different stages of the debt cycle are central to the influence of external debt on domestic economic performance. LDC governments are not incapable of substantially moderating resource crunches and negative productivity effects. Policy measures related to public consumption, investment and taxation, to private savings rates, and to financial market conditions can help.

CONCLUSION

This theoretical appraisal of the role of external debt in the economic growth of lesser developed countries lead to the conclusion that public sector external debt can have significant net beneficial effects on the economic performance of debtor countries. Whether these benefits accrue or not depends greatly on the conduct of domestic economic policy. To be sure, external debt does have some negative features. Lenders are never altruistic or pure.

Nonetheless, the negative consequences can be substantially moderated by appropriate domestic policy. In the final analysis, external debt, like domestic debt, can only help those debtors who help themselves.

1. develop issue of optimal control using these variables.
2. will have to be politically instituted so include this.
3. Cost-benefit analyses at macro level - rate of return vs cost of debt service.
Micro economic aspect of debt
See what put money in - probably shaped by donors.
When use money, not have output that gets foreign exchange directly to pay for debt.
4. Form of debt for underdev. c'ties vs other countries.

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