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GROWTH IN SPASMODIA: FOREIGN BORROWING AND CRISES

by

Raul V. Fabella

ABSTRACT

We construct a dynamic decision model where foreign borrowing figures as one of the instruments to maximize welfare over a planning horizon. We hypothesize a relation, a rather reasonable one, between the repayment schedule and the debt ceiling. For every period, there exists an optimal per capita debt which together with the optimal consumption path leadsin a sustainable fashion to maximal long-run welfare. In the short run, however, one can actually do better by borrowings exceeding the optimal debt but this path leads for a balance of payments crisis as the debt catches up with the ceiling. The economy goes into a spasm as it resorts to drastic measures. A regime with short memory may mount yet another assault on the debt ceiling and suffer the same fate. Myopia leads to a dismal long-run growth record.

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The purpose of this paper is to highlight the conflict between the short-run and the long-run growth pursuits of an open economy resorting to foreign borrowing. Lending and borrowing are important impetus for growth and development. Both on the firm and on the national level, there is a general agreement that growth can be and have been accelerated by borrowing. It supplements internal savings where this is inadequate and it helps firms and economies tide over temporary cash flow difficulties. Overborrowing can, however, also cost the firm its existence and the economy its prospects for sustained growth. We would therefore like to focus first on the role of foreign borrowing in the growth process of an open economy and hope to identify its limits.

The official government position on the present crisis is precisely that it was the necessity of rapid growth that made massive foreign borrowing an imperative and that international disturbances beyond its control upset the grand design. The position that we take here is that either by a misunderstanding of the role of foreign borrowing or by a perverse disregard for our constraints, the economy pursued a dangerous growth path and made itself vulnerable to international developments; that international disturbances only revealed the internal weakness that led to the final unravelling. They (disturbances) did not figure prominently when the economy went into a spasm in February 1970. Then, massive foreign borrowing also led the way. The current disarray is not, however, an indication that foreign borrowing is harmful per se as some quarters would have it. A simple foreign debt framework in an open economy will show this (cf Neher, 1971).

Let C be the capital owned by resident nationals and let it be the only form of wealth. The source of wealth is savings. Let s be the constant proportion of national income saved, so that

$$\frac{dC}{dt} = \dot{C} = sY$$

Let Y be defined as the sum of factor shares

$$Y = wL + rC$$

Thus

$$\dot{C} = swL + srC$$

$$\hat{C} = \frac{\dot{C}}{C} = sw/c + sr$$

where $c = C/L$. Since the economy is open and financial repression is eschewed, the international interest rate R also prevails in the domestic economy so that $r = R$ as a result of capital mobility.

In a competitive setting which we assume for our economy $r = R = f'(k)$ so that k is determined. If k is determined so is $w = f(k) - kf'(k)$. Let $\bar{w}$ be the wage rate corresponding to R. We have

$$\hat{C} = sr + s\bar{w}/c$$

Thus national wealth grows with savings, diminishes with the wealth-labor ratio and diminishes with international wealth as the total capital stock K is greater than the total capital owned by nationals. The growth rate of the capital wealth $c = C/L$ is

$$\frac{\dot{c}}{c} = \hat{C} - \hat{L} = sr + sw/c - g$$

where $L = g$ is exogeneous. At equilibrium $\dot{C} = 0$ so that the equilibrium per capita wealth is

$$c^* = s\bar{w}/(g - sr)$$

We now introduce international debt, D, defined as

$$D = K - C$$

or in per capita terms

$$d = k - c$$

To get the equilibrium d^* we need only determine k^* since we have determined c^*. Let $\alpha = wL/X$, $(1 - \alpha) = rK/X$. X is total output. A representative k is small.

$$k = \frac{K}{L} = \left(\frac{1 - \alpha}{\alpha}\right) \frac{w}{r}$$

which k will be k^*? Note that $r = R$ and there exists a $\bar{w}$ for R so

$$k^* = \frac{1 - \alpha}{\alpha} \frac{\bar{w}}{R} - \frac{s\bar{w}}{g - sR}$$

$$= \bar{w} \left(\frac{g(1 - \alpha) - sR}{R(g - sR)}\right)$$

and

$$d^* \gtreqless 0 \quad \text{if} \quad g(1 - \alpha) \gtreqless sR$$

Thus per capita debt rises with the growth rate of labor (and output), g; rises with the rise in capital intensity. It decreases with the rise in domestic savings and international interest rate R. It is tempting to try to understand the present crisis in terms of this model: rapid population growth necessitated a rapid growth of output which called for capital investments raising the capital intensity. The oil crisis and corollaries caused the debt market to tighten and the international rate to rise. Thus our explosive foreign debt. The chief problem with this system is the exogeneity of the growth rate which is locked in with the growth rate of labor. The debt per capita is endogenous. The relevant scenario should be that the foreign debt is exogenous and growth is endogenous. Debt is an instrument to effect rapid growth. This is the structure that is implied by the official government position. In other words from the given framework, one cannot deduce what foreign debt to incur and why we go into periodic crises.

An Optimal Growth Path with Borrowing

Consider an economy with national income Y defined in the usual aggregative way as

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

where $C(t)$ = aggregate consumption for period t

$I(t)$ = aggregate investment for period t

$X(t)$ = exports receipts for period t

$M(t)$ = import payments for period t

The economy is assumed to make good on any current account deficit (surplus) by borrowing (lending) in the international capital market and thus attaining always a balance of payments equilibrium. Let $D(t)$ be the foreign loan incurred in a given period t so that with a BOP equilibrium we have

$$X(t) + D(t) = M(t) + R(t)$$

where $R(t)$ is the repayment due the outstanding debt to be made at time t. How $R(t)$ behaves relative to $D(t)$ is crucial to our formulation. In fact we assume the following:

(a) $R(t) = g(D(t), \overline{D(t)})$ $\qquad g' \geq 0, \quad g' = \partial g/\partial D(t)$

(b) $g'(Dt) \rightarrow \infty$ as $D(t) \rightarrow \overline{D(t)}$

Assumption (a) says that $R(t)$ is a nondecreasing function of $D(t)$. Why will debts incurred in period t raise repayment this same period. For every period t, there exists a "debt ceiling", $\overline{D(t)}$, which borders the safe and the dangerous level of borrowing. This ceiling is determined by income per capita, export growth rate, political situations, etc. But most of all, its level is determined by borrowings and repayments in preceeding periods: the higher were previous periods' borrowings, the lower is $\bar{D}(t)$ and vice-versa. Now as borrowing in one period approaches $\bar{D}(t)$, the loan maturities become shorter and the interest rates effective rise. If a period is chosen to be long enough, repayments of $D(t)$ will start in t itself and increases with no limit.

Let $\rho(t)$ be the ratio of current repayment to current borrowing:

$$\rho(t) = R(t)/D(t) = \frac{g(D(t))}{D(t)}$$

The behavior of $\rho(t)$ relative to $D(t)$ is also crucial in our analysis:

As $D(t) \rightarrow \bar{D}(t)$, $\rho(t) \rightarrow \infty$. We now have

$$Y(t) = C(t) + I(t) + D(t)(\rho(t) - 1)$$

In per capita terms

$$y(t) = c(t) + i(t) + d(t)(\rho(t) - 1)$$

We define investment at time t as

$$I(t) = dK/dt + \mu K(t) \qquad \mu > 0$$

where μ is the constant depreciation rate.

$$i(t) = \frac{dK/dt}{L(t)} - \frac{\mu K(t)}{L(t)}$$

Let $k = K(t)/L(t)$. Then

$$\dot{k} = \frac{dK/dt}{L} - k\,\frac{dL/dt}{L}$$

$$\frac{dK}{dt}/L = \dot{k} + k\hat{L}$$

where $\hat{\hat{L}} = n\ (dL/dt)/L$. Let $\hat{L} = g$ be given exogenously. Thus

$$i(t) = \dot{k} + (n + \mu)k$$

Letting $y(t) = f(k(t))$, f well-behaved, i.e., $f'(k) > 0$, $f''(k) < 0$, and $\lambda = (n + \mu)$, we have

$$f(k(t)) = c(t) + \dot{k} + \lambda k(t) + d(t)(\rho(t) - 1)$$

and finally

$$(1) \quad \dot{k} = f(k(t)) - c(t) - \lambda k(t) - d(t)(\rho(t) - 1)$$

Note that for as long as $\rho(t) < 1$, being a net debtor $(d(t) > 0)$ always helps capital deepening. This in turn raises per capita output $f(k(t))$ next period so that capital deepening further occurs. On the other hand, the larger is growth rate of labor, the lower, and the higher is the depreciation rate the faster, is capital deepening.

We now assume that the economy maximizes a non-discounted stream of utilities over the growth horizon starting from t_o to t_1. The well-behaved utility function U is defined over per capita consumption c. The central problem calls for a time path of $c(t)$ and the value of $d(t)$ that maximizes the stream subject to the equation (1) above:

$$\max \int_{t_o}^{t_1} U(c)dt$$

(2) s.t. $\dot{k} = f(k(t) - c(t) - \lambda k(t) - d(t)(\rho(t) - 1)$

The Hamiltonian corresponding to the problem is

$$H = U(c) + q[f(k(t)) - c(t) - \lambda k(t) - d(t)(\rho(t) - 1)]$$

The 1° necessary conditions are:

(i) $\frac{\partial H}{\partial c} = U'(c) - q = 0$

(ii) $\frac{\partial H}{\partial d} = -q[(\rho(t) - 1) + d(t) \frac{\rho(t)}{D(t)} [\varepsilon_{RD} - 1] L(t) = 0$

Since $d(t) = D(t)/L(t)$ and $D(t) = d(t)L(t)$ so that $\partial D(t)/\partial d(t) = L(t)$. Thus (iia) becomes

(iib) $\frac{\partial H}{\partial d} = -q[\rho(t) - 1 + (t)(\varepsilon_{RD} - 1)]$

or $[\rho(t)\ \varepsilon_{RD} - 1] = 0$

or $(g' - 1) = 0$

The canonical equation of the costate variable q is

(iii) $\dot{q} = \frac{-\partial H}{\partial k} = -q[f'(k) - \lambda] = 0$

From (i) we have

$$\dot{q} = U''(c)\,\dot{c}$$

$$\frac{\dot{q}}{q} = \frac{U''(c)\,\dot{c}}{U'(c)}$$

Thus

$$(3) \qquad \dot{c} = \frac{1}{\varepsilon(c)}\,[f'(k) - \lambda] = 0$$

where $\varepsilon(c) = (U''(c)/U'(c)$. Together with $\dot{k} = f(k) - c(t) - \lambda k(t) - d(t)(\rho(t) - 1)$, these constitute the two fundamental differential equations in $c(t)$ and $k(t)$ since $d(t)$ is determined independently from (iib).

<u>The Consumption Turnpike</u>

A Golden age or a balanced growth path is indicated if $\dot{k} = 0$ implying

$$(4) \qquad c(t) = f(k) - \lambda k(t) - d(t)(\rho(t) - 1)$$

This simply means that K, L and output Y are all growing at the same rate. There are however many c's that satisfy this equation corresponding to different k's. The balanced growth path that implies the highest sustainable path of per capita consumption is called the Golden Rule path. Differentiating (4) and setting to zero gives:

$$f'(k) = \lambda$$

At the Golden Rule path, consumption per capita is no longer growing, i.e., $\dot{c} = 0$. The Golden Rule path is the "consumption turnpike" because the economy travels fastest on this path. One may ask why this is so when $\dot{c} = 0$? Consumption per capita is not rising because it shall have reached its maximum on the path, like a car hurtling at constant maximum velocity on the turnpike. As the growth horizon becomes longer and longer it becomes more and more logical to spend longer and longer time on the Golden Rule path.

Approaches to the Turnpike

We will now see how the economy planning rapid growth over a long growth horizon could go about getting as close to the turnpike as possible. We will compare different growth strategies with and without foreign borrowing.

The crucial consideration is the Golden Rule $f'(k) = \lambda$. Now for capital scarce economies, the returns to capital is very high and certainly exceeds the growth rate of labor minus the depreciation rate $(f'(k) > \lambda)$. Capital accumulation and capital deepening is then what is called for in this framework to get closer to the turnpike. How will different regimes go about achieving this?

a. Raising the Savings Rate; No Borrowing

Let $c(0)$ be the initial consumption per capita. We know from (1) that a drop in $c(t)$ raises $\dot{k}$ which in turn raises k for the next period. This causes $f'(k)$ to fall towards λ. The price of this strategy is a fall in $c(0)$ from its original position before it begins to rise towards the turnpike value $c(t)^*$. The difficulty here is that if the initial point consumption is already very low, one may not be able to decrease it any further and the consequent approach to the turnpike may take very long.

b. Massive Borrowing without a Rise in the Savings Rate: The No-Debt Ceiling Case $(\bar{D} = \infty)$

If the initial consumption level is rather low and forced saving may not generate enough or may cause social unrest, the economy resorts to borrowing in the foreign market. Suppose at first that no debt ceiling exists, i.e., the country is so small so that $g' = 0$ for all relevant $D(t)$. Then from (iib) we note that $(\rho(t)\, \varepsilon_{RD} - 1) < 0$ and the rule is "incur as much debt as is available to you". This massive infusion of foreign resource speeds up capital deepening so that $f'(k)$ drops drastically. The approach to the turnpike is very rapid indeed.

c. Massive Borrowing with Binding Debt-Ceiling: The Anti-Turnpike Property

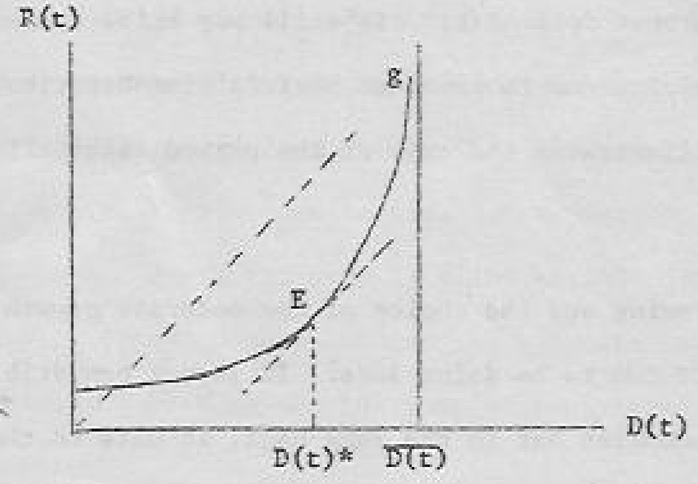
Suppose the debt ceiling is a binding constraint due to such factors as the size of the economy, the size of previous borrowings and outstanding debt, etc., then the possibility of $\rho(t) > 1$ is not remote. Let us see what happens if the government, due to inadvertence or foolhardiness, challenges by massive borrowing the debt-ceiling in the name of rapid growth. As $D(t)$ approaches $\bar{D}(t)$, $g' \to \infty$ and $\rho(t)$ rises rapidly until at some point $\rho(t) > 1$. A rising $d(t)$ now begins to cause massive capital shallowing as k drops and k as well so that $f'(k)$ rises negating the original gains from borrowing at a discreet distance from $\bar{D}(t)$. The economy, so to say, suffers a spasm as its repayments outstrip its borrowing. Drastic measures are taken in the current accounts arena: the currency is devalued, imports are discouraged via foreign exchange rationing and added tariffs and local savings is forced through inflation so that consumption levels per capita $c(t)$ falls. Furthermore, a loan restructuring program is negotiated with foreign lenders to allow the economy to borrows more under certain conditionalities. This effectively pushes the debt-ceiling $\overline{D(t)}$ upwards to $\overline{D(t)}*$.

This haemorrhage causes the total debt to drop below $\bar{D}(t)^*$ in the next period and the economy restabilizes. As the picture improves, a government with a short memory will again challenge the debt ceiling in an effort to speed up growth by massive borrowing. Again a convulsion visits the economy as it again tailspins away from the turnpike. A growth path of this sort is referred to here as a "spasmodic growth path." It is essentially characterized by the recurrence of the "anti-turnpike property" inherent in the unbridled foreign borrowong strategy. In the long-run, the growth record of an economy on the spasmodic growth path will be dismal, good intentions notwithstanding.

d. Moderate Borrowing with Debt-Ceiling The Sustainable Growth Path

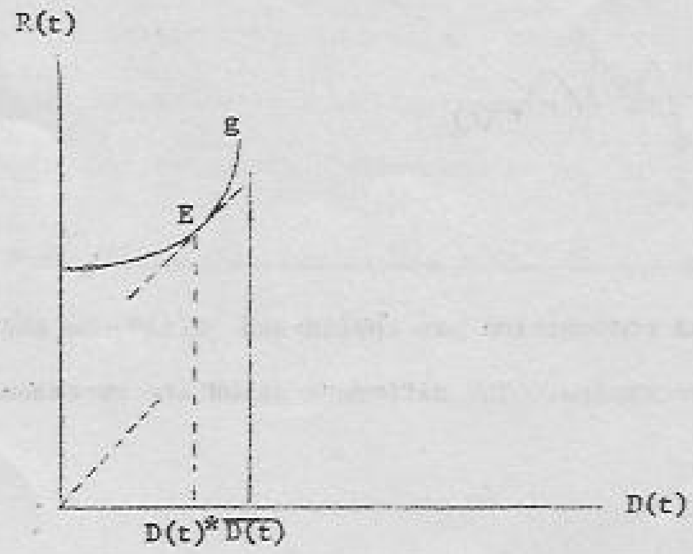
Moderation and good sense in this case means borrowing up to a point where $\rho(t)\ \epsilon_{RD} = 1$ or also $g' = 1$. This implies that the economy borrows up to a point where the marginal repayment equals the marginal debt acquisition. Since $g' = 0$ for $D(t)$ much lower than $\bar{D}(t)$ and begins to rise only as $\bar{D}(t)$ is approached, the outstanding debt is positive or $d(t)^* > 0$. Figure 1 illustrates this:

Figure 1



This is a case where some repayment of previous debt is to be made ($R(t) > 0$, $D(t) = 0$) regardless of what happens in period t. $g(D(t))$ is represented by a curve sloping upwards. At point E, the marginal condition of (b) is satisfied with $\rho(t) < 1$. It is possible that the repayment due in period t is so large and the debt ceiling for the period so low that at E, $\rho(t) > 1$. Figure 2 illustrates this:

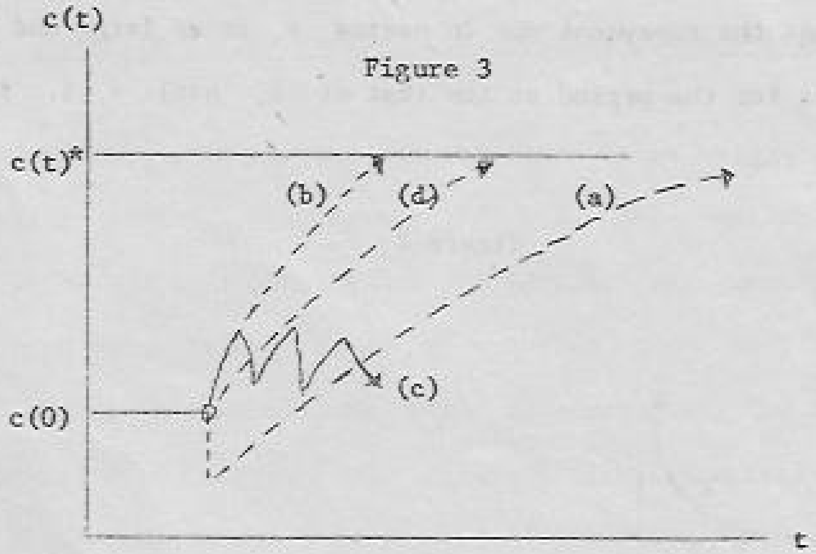
Figure 2



Thus although the current debt D(t)* is still way below the ceiling, the economy is convulsing due to previous periods' immoderation; $\dot{k}$ is negative. This illustrates the case of the period right after the spasm is undergone.

Moderate borrowing and the choice of the moderate growth path may seem in the short run to be doing less. It is not compatible with megalomanic tendencies but in the long haul, it gets to the turnpike faster than any growth path and thus achieves a much better growth record.

We now juxtopose in Figure 3 the different growth paths that we have been discussing.



c(0) is the initial consumption per capita and c(t)* is the turnpike consumption per capita. The different paths are represented by the different arrows. Path (a) reflects our case (a) in the text where no borrowing is resorted to and the approach to the turnpike is done by increased savings. Note that the consumption per capita drops first before it climbs up in time and approaches $c(t)^*$ over the long (long) haul. Again the drop in a low enough $c(0)$ by forced savings may ignite social unrest and may not generate enough savings anyway. Secondly, the wait may be too long so that unrest may again loom in the horizon.

Path (b) involves borrowing without limit since no constraint is binding. The approach to the turnpike is most rapid. But this is not realistic and need not be belabored further. Path (c) is of great interest. Initially, massive foreign borrowing in the name of growth causes a rapid approach to the turnpike. But self-congratulations is premature because along the way, the debt-ceiling catches up with the economy and its goes into a tailspin which shoves it unceremoniously away from the turnpike. Consumption per capita falls as the economy frantically tries to meet its repayments. As the economy stabilizes, the economy, again overeager, returns to massive borrowing and experiences yet another spasm and so on.

Path (d) is the sustainable path. In the short run, it is not as impressive as the unmitigated borrowing path (c) but in the long run, it takes the economy to a higher per capita consumption.

The behavior of the real return to capital requires some comment. The predicted behavior is that $f'(k)$ which is at first rather high, drops progressively through the growth phase and shoots up again thru the crisis phase thus bouncing the economy away from the optimal growth path. While this is no more than the natural theoretical corollary of the succession of relative abundance and relative scarcity of capital, causal empirical observation seems to point otherwise. This is especially disturbing in the retreat stage. When the Central Bank tightened the screw on money supply, the nominal rate of interest rose to up to 40%. But the inflation rate was running at a galloping 45%. The real interest rate (nominal minus inflation rate) is then negative. A liquidity squeeze with galloping inflation, ordinarily an anomalous partnership comes naturally in the wake of (a) the uncontrolled spending precipitated by the last political exercise and (b) the devaluation made imperative by the foreign exchange crisis. Furthermore, there appears to be a substantial demand for Central Bank bills giving 30% interest which highlights the shortfall in nominal rate. A possible explanation is that banks and savers alike see the current inflation rate as abnormal due to the confluence of the irresponsible election spending and the devaluation. The expected normal inflation rate may be much lower. A second source of explanation is the disequilibrium nature of the situation where interest adjustment upwards has some stickiness and some money illusion. The general feeling now is that capital has become costlier to obtain, and interbank rate of 60% confirms this.

Corruption and the Growth Path

The preceeding discussion assumes implicitly that borrowed funds are used in the most efficient way. In other words, the dynamics is assumed to unfold in a corruption-free environment with the policymakers preoccupied only with maximum long-run welfare. We observe that a crisis can develop even in this sterilyzed milieu. If we move from the germ-free sorroundings, the tendency to tailspin is even more pronounced.

Suppose corruption on the one hand and grossly unproductive investments on the other (palaces, dollar salting, 10%, etc.) become the order of the day with the onset of foreign borrowing. In other words, besides the public agenda there is a hidden agenda which siphons off resources. Then there arises a need to distinguish between productive and unproductive borrowing. Let the actual borrowing per capita be $d(t)$. Due however to the demands of the hidden agenda, what really turns up to help true capital deepening is productive borrowing, $d(t)^P = d(t) - d(t)^U$, so that

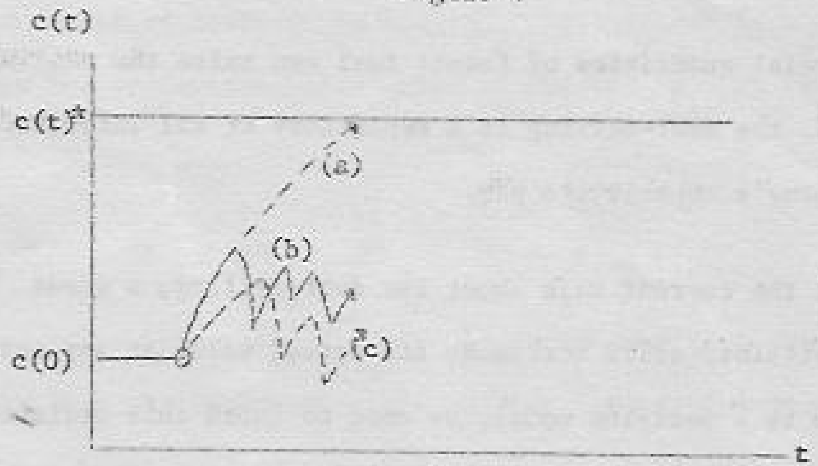
$$(5) \quad \dot{k} = f(k(t)) - c(t) - \lambda k(t) - d(t)^P (\rho(t) - 1)$$

Thus k rises slower than it should without the encroachment of the hidden agenda. The benefits from borrowing is reduced and manifests itself in slower growth. The debt service angle however remains exactly as before, i.e., $\rho(t) = R(t)/D(t)$ with $d\rho(t)/dD(t) \to \infty$ as $D(t) \to \overline{D(t)}$. $D(t)^u$ is not relevant here. Regardless of how the loans are used, the repayment schedule is the same. As long as current $D(t)$ is still way below $\overline{D(t)}$, $\rho(t) < 1$ and $\dot{k}$ still positive. At some point as $\overline{D(t)}$ is approached, $\rho(t) > 1$ and debt repayment rises faster than debt acquisition. The economy reverses capital deepening and a crisis develops. But this is not all. Repayment starts from $d(t)$ not $d(t)^P$, i.e., in the retreat

$$(6) \quad \dot{k} = f(k(t)) - c(t) - \lambda k(t) - d(t)(\rho(t) - 1)$$

Thus k falling faster than warranted by its previous rise. The repayment is the same as previously but the repayment base $(k(t))$ is smaller so the crisis is more pronounced. Corruption and grossly unproductive investment has two effects: slower growth and more acute BOP crises. Graphically it may be demonstrated by Figure 4.

Figure 4



Path (a) reflects the path with massive borrowing and no debt ceiling Path (d) reflects the path with massive borrowing, with a binding debt ceiling but no corruption. Path (c) reflects the growth path with massive borrowing, a binding debt ceiling and with corruption and unproductive investment. Note that compared with path (b), the growth in $c(t)$ is slower and the dips are deeper.

Debt-Ceiling Uncertainty

The debt-ceiling $\overline{D(t)}$ at any given period t is a function of the outstanding debt, the prevailing international lending rate and the rate and the host of international disturbances in that period. For example, a tight money policy in the U.S. and Europe can lower the debt-ceiling of a country through its effect on the lending rates. The collapse of prices of commodities a country exports can also change the lender's definition of the debt-ceiling. The discovery of commercial quantities of fossil fuel can raise the ceiling. In other words, the debt-ceiling is a repository of all information about the econcmy's capacity to pay.

For all the current talk about the debt-ceiling, a great amount of uncertainty still sorrounds its actual value at any period t. Since ours is a decision model, we need to imbed this decision element into our model. Let the properties of g be as before. For simplicity of notation, we drop the period indicator t in $D(t)$, $\overline{D(t)}$. Let $\bar{D}$ be a normally distributed random variable $\tilde{\bar{D}}$ with mean $\bar{D}^e$ and variance $\sigma_{\bar{D}}^2$ subjectively defined. We have thus

$$(6) \qquad R(t) = g(D, \tilde{\bar{D}})$$

where g has the same property as above. The nature of our assumption allows us to express the problem in terms of $R(t)^e$, the average current repayment. A Tayior Series expansion of (6) gives.

$$R(t) = g(D, \bar{D}^e) + g_{\bar{D}}'(D, \bar{D}^e) + \frac{g_{\bar{D}}''}{2}(D, \bar{D}^e)(D - \bar{D}^e)^2$$

where $g_{\bar{D}}''$ is the second partial with respect to $\bar{D}$. Taking expectation

$$R(t)^e = g(D, \bar{D}^e) + g_{\bar{D}}'' \sigma_{\bar{D}}^2 = h(D, \bar{D}^e)$$

The parameter of interest is now $\bar{D}^e$. Of interest is whether h retains the properties which which we endowed g. We have

$$\frac{\partial h}{\partial D} = \frac{\partial g}{\partial D} + \frac{\sigma_{\bar{D}}^{2}}{2} \frac{\partial g_{\bar{D}}''/D}{D}$$

Having said nothing about $g_{\bar{D}}''$, we cannot say what the sign of this expression would be. The nature of the problem, however, compels us to assume that $\partial g_{\bar{D}}''/\partial D$ is positive and likewise approaches infinity as $D \to \bar{D}^e$.

Example: Let $g(D, \bar{D}) = a + b/(\bar{D} - D)$ where a may be considered the debt service due to outstanding debt in period t. It is clear that $\partial g/\partial D > 0$ and approaches infinity as $D \to \bar{D}$. We also have

$$\frac{\partial g}{\partial \bar{D}} = \frac{-b}{(\bar{D} - D)^2} < 0$$

and

$$\frac{\partial^2 g}{\partial \bar{D}^2} = \frac{2b}{(\bar{D} - D)^3} > 0$$

and finally

$$\frac{\partial}{\partial D} \left(\frac{\partial^2 g}{\partial \bar{D}^2}\right) = \frac{12b}{(\bar{D} - D)^6} > 0$$

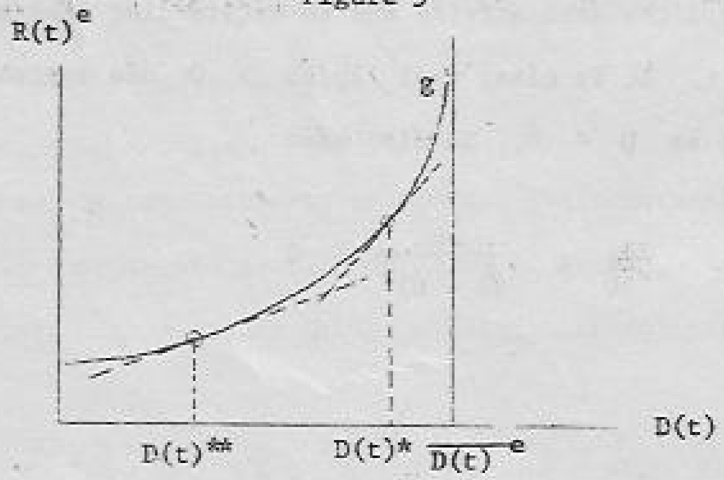
Likewise, it is clear that the expression approaches infinity as $D \to \bar{D}$.

What is the implication of this in our overall analysis? Note first that the condition (iib) being $g' = 1$ now becomes

$$\frac{\partial h}{\partial D} = 1$$

Thus the optimal current borrowing $D(t)^{**}$ is smaller than $D(t)^{*}$ in a riskless situation $(\sigma_{\bar{D}}^2 = 0)$, since $g' < 1$ $\sigma_{\bar{D}}^2 > 0$.

Figure 5



The presence of uncertainty in $\bar{D}$ has caused policymakers to act more conservatively by going easy on current borrowing. The greater is the uncertainty $(\sigma_{\bar{D}}^2)$, the more conservative is the optimum current borrowing.

Although under normal circumstances, $\bar{D}$ is considered by the economy as a parameter, the picture changes somewhat in a crisis situation. The economy negotiates a restructuring of its debt which essentially means further rollovers and more loans. This is tantamount to raising $\bar{D}$.

The Philippines in Spasmodia

Although it is dangerous to interpret history on the basis of any model not to say of a highly simplified one, interpretations are being made anyway. We are going to do the same if only to enrich the pool of interpretations.

The Marcos era (1966 -) experienced two balance of payments crises both resulting in devaluations and massive retrenchments that created massive dislocations. The first one was in early 1970 culminating in the devaluation of February 21. The immediate cause was the massive government deficit brought about by the presidential election of November 1969. The underlying cause was the massive growth of foreign debt to finance the huge agricultural and industrial programs. In three years from 1966 to 1969, foreign debt rose to 100%. Internal debt was 18.4% of GNP in 1969, up from 14.7% of GNP in 1965. Credit was relaxed with the drop in rediscount rates and reserve requirements. As a result between 1966 and 1968, rice producttion rose 18% while it rose only 9% between 1960 to 1966. But the prosperity was shortlived and the collapse came soc after the presidential election drove government deficit through the ceiling.

The decade of the seventies which preceeded the 1983 crisis told in broad outlines a similar story. Beginning in 1975, the government embarked on massive foreign borrowing to finance its grand programs in energy self-reliance, food self-sufficiency, transport and structure, etc., all in the name of rapid growth. The pattern continued even after the interest rates became prohibitive after the 1979 oil shock. This enormous indebtedness fueled a GDP growth rate of 6.3% for the decade, respectable by Third World, though anaemic by South - and Southeast Asian standards. Why our growth was only respectable but less than impressive despite our massive borrowings remains a point to ponder. The hypothesis of the hidden agenda stands unrefuted. Then 1980 recession and 1983 Opec cartel collapse drove loanable funds into hiding. By mid-1983, the foreign debt stood at $25 billion and the spasm came soon after.

Growth has turned into a retreat. If our horizon includes the seventies and the eighties, our average growth rate would be dismal by any standards. Under normal democratic circumstances, the helmsmen who have brought about this prostration should already have resigned or been hooted out. Anybody could have with massive foreign borrowing provided semblance of growth in the short run. It is sustained growth that tests competence.

Sustainable growth does not fit very well in a "macho" scheme of things. It abhors instant smokestacks that seldom belch, instant edifices that get boarded up, instant trees that bear no flowers and assure no seeds for the future.

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