

## **THE DYNAMICS OF INDEBTEDNESS IN THE DEVELOPING COUNTRIES: THE CASE OF THE PHILIPPINES**

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### **ABSTRACT**

The relationships between foreign capital inflows, the build-up of debt, and economic growth in a developing country are analyzed using a system dynamics model of the pertinent processes. The Philippines serves as an empirical case to apply the model. The model incorporates the macro-structure of economic growth, the micro-structure of market-clearing mechanisms, and an accounting of the money flows. The study shows that economic policies enhancing debt-servicing ability create better economic performance than those limiting loan giving. Increasing capital-intensity is the most important part of such policies. They are further facilitated by encouraging investment through decreasing taxes and enhancing demand through increasing government spending and promoting exports. Thus, augmentation of domestic resources by foreign capital inflows appears to be a viable economic strategy.

**Keywords:** Economic development, foreign debt, national planning, public policy, system dynamics, feedback, modeling, simulation

### **INTRODUCTION**

Guided by the economic models suggesting that growth rate can be stepped-up by increasing resources for investments, the developing country governments have often resorted to foreign capital borrowing to supplement domestic resources in their efforts to fuel industrialization. The borrowed capital is also often used to finance capital imports necessary to expand the export industries and for capital outlays for upgrading the infrastructure. As further economic expansion is targeted, more capital imports are needed. As a consequence, foreign debt increases, which creates heavy debt service burden. When debt service payments begin to take a greater share of GNP, operating expenses and capital outlays for development purposes are reduced, which curtails growth. A remedy increasingly being suggested to decrease foreign debt is to reduce growth targets by decreasing the expenditure on industrial and infrastructural expansion (Feder 1978; Lal and van Wijnbergen 1985). However, many highly-indebted Latin American and Asian developing countries which adopted this policy, continue to endure high debt service payments while attaining either a minimal or no economic growth (Dietz 1986; Orlando and Teitel 1986). It is, therefore, imperative to search for alternative policies which might be more effective.

This paper examines the relationships between economic growth and foreign capital inflows in an effort to understand the causes of the build-up of external debt coupled with stagnation in economic performance. The case of the Philippines is used as an illustrative example. An attempt is also made to search for appropriate policies for increasing growth without creating a heavy debt burden. The analysis is accomplished through a system dynamics model adapted from one developed by Arif and Saeed (1989) in a study on oil-dependent growth in Indonesia. Additional structure incorporating financial decisions to borrow and service debt have been added to the model of Arif and Saeed and the oil sector originally built into it has been deleted since it is irrelevant to the case of the Philippines. Technical details of this model are reported in Parayno (1989). A complete listing of the model written in DYNAMO can be obtained from the authors on request. Experimentation with this model suggests that economic policies enhancing debt-servicing ability create better economic performance than those limiting loan giving. Such policies include increasing capital intensity and stimulating demand. The economic takeoff resulting from these policies may support high debt servicing which subsequently decreases debt levels and finally, also the dependence on foreign capital inflows.

### **THE PHILIPPINES' DEBT PROBLEM: AN OVERVIEW**

As a part of her industrialization strategy, the Philippines from the late 1960s began to expand her light manufacturing industry which exported much of its production. Thus, in the late 1960s and early 1970s, over which the volume of world exports rose rapidly at an annual rate of 8.5%, the Philippines recorded favorable export earnings. Exports grew by an average of 20.7% per year as contrasted to 7.1% per year in the 1960s, with the share of non-traditional exports in the total increasing from 7.5% in 1970 to 38.0% in 1980 (Remolona, et. al. 1986).

This growth, however, incurred high investment cost. The government built many export processing zones in 1970s to promote exports. Hence, government capital outlays increased by 25% per year from 1974 to 1982, which was a further increase from an already high expansion rate of 21% per year over the 1960s. Private investment rate increased by an average of 30% per year from 1974 to 1982 (Remolona, et. al. 1986; de Dios 1984).

The increase in government capital outlays for the export promotion infrastructure and the apparent import-dependent character of the manufacturing of the export products led to a heavy dependence on foreign capital inflows, which is seen in the increasing percentage of capital-goods imports: from 4.5% of potential output in 1973 to 7.1% in 1975. These heavy imports and the quadruple increase in prices of oil imports from 1973 to 1974 doubled import payments, causing current account deficit to GNP ratio to increase from 1.2% in 1974 to 5.7% and 5.9% respectively in 1975 and 1976 (Remolona, et. al. 1986; de Dios 1984).

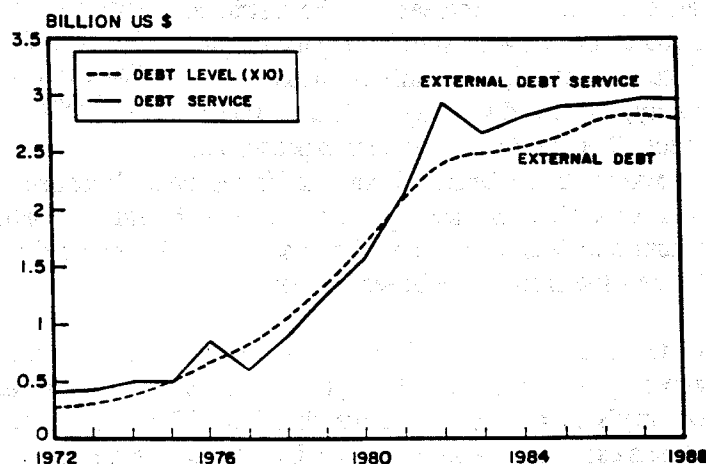


Figure 1: Philippines external debt and external debt service burden, 1972-1988. (Source: Central Bank of the Philippines)

It is, therefore, not coincidental that foreign debt grew rapidly after 1975. From 1973 to 1982 foreign capital inflows in the form of long-term and medium-term loans averaged \$1.5 billion per year. This amount is twice as much as the combined long-term and medium-term debt accumulated during the immediately preceding 10 years which stood at about \$750 million. Figure 1 presents the increasing level of debt the Philippines owed (Remolona, et. al. 1986).

The rapid increase of external debt made it difficult for the country to cover the concomitantly increasing debt service as shown in figure 1. The government resorted to foreign capital borrowing to meet the increasing amount of interest payments, more so to short-term loans when the long-term and medium-term loans offering relatively easy terms became more difficult to obtain in the international financial market. The share of short-term borrowings in the external debt grew to about 43% of total outstanding loans over the period 1981-1983. With the political events of August 1983, the reduction in the confidence of foreign banks in the government caused them to refuse to renew short-term financing. Without replenishment from short-term borrowings, international reserves fell drastically from \$2.54 billion at the start of 1983 to \$1.43 billion at the end of September that year (Remolona et. al. 1986; de Dios 1984; Lamberte et. al. 1985).

As debt payment difficulty intensified, the government declared a 90-day moratorium on payments of principal on its foreign-exchange liabilities and also imposed foreign exchange restrictions. The government then began negotiations with its private creditor banks and the IMF for debt rescheduling and an

additional financing of \$3.6 billion for 1984. The government also agreed to cut expenses as a condition of the financing and increase taxes to augment the foreign capital inflows, so that additional expenses could be met. These conditions are reflected in the GNP figures shown in figure 2.

The GNP actually declined after the balance of payments crisis in 1983. It should be noted that it was during this period that imports were restricted, government expenses cut, and taxes increased. The restricted imports cut down essential inputs to production, creating underutilized industrial capacity, which discouraged further investment. The cut in government expenses and increase in taxes further discouraged investment. Because of the resulting decline of income, consumption was constrained and savings decreased, which further constrained investment. The decreasing income also meant that less taxes would be generated. Consequently, the country became even more dependent on foreign loans for its debt service payments.

In the first half of 1989, the government negotiated for another foreign financing from the IMF by agreeing to a further cut in government expenses and an increase in taxes in order to improve the country's balance of payments situation. This may create in the future substantial negative multiplier effects especially when per capita income has already begun to decrease because of the population growth as shown in figure 2.

### A SYSTEM DYNAMICS MODEL OF ECONOMIC GROWTH AND INDEBTEDNESS

The model used in this study incorporates: 1) the debt accumulation processes; 2) the economic growth mechanisms; and 3) the market-clearing mechanisms, the latter two sets of mechanisms being adapted from the model of Arif and Saeed (1989). The coverage of market-clearing mechanisms is necessary to be able to identify pressure points through which day to day decisions of the actors in the system can be influenced.

The variables of interest in the debt accumulation processes include debt, the acquisition of foreign loans and debt repayments. Those in the economic growth processes include government expenditure, personal consumption, investment, taxes, exports and imports. Finally, the market-clearing mechanisms focus on the optimizing behavior of individuals confined in a bounded information set. The variables considered are general price level, interest rate, wage rate and the technological mix embodied in the capital-labor ratio.

Following are the key assumptions implicit in the model structure:

1. The need for loans is created when expenditure exceed revenue and the value of imports exceed the sum of the value of exports and the net factor income.
2. The net factor income is considered exogenous to the system since it is often affected by government policy and actors outside of the system.
3. Loans can be obtained both from domestic and foreign sources.
4. Interest rate on foreign loans is exogenously determined.
5. There is only one commodity whose rate of production depends on the potential production rate

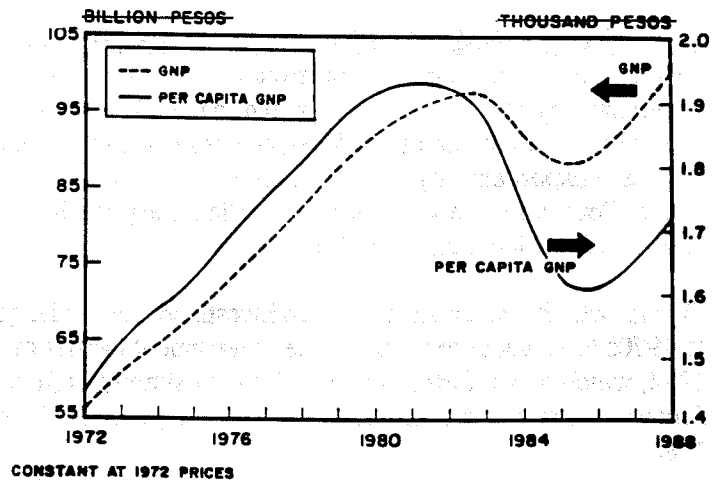


Figure 2: GNP and GNP per capita, 1972-1988 at 1972 prices. (Source: National Economic Development Authority, NEDA, April 1989)

- and the capacity utilization factor. Potential production rate is formulated as a function of capital, workers and government infrastructure facilities (Eisner 1989). Capacity utilization factor depends on the short-run aggregate demands and the inventory condition (Mass 1975).
6. Inventory is increased through production and imports but decreased through government and consumer purchases, capital investment and exports.
  7. Excess inventory can be exported while shortages can be met by imports. Volume of exports and imports can be controlled through specified policy instruments one of which is related to debt. There is no limitation outside of the country for exports and imports.
  8. Capital goods are assumed to be homogeneous.
  9. Money creation is not considered in the model; hence, money-related inflationary effects are not included.
  10. Population growth rate is exogenously determined.

Information relationships in the main sectors of the model are explained below:

### Debt Accumulation Processes

The accumulation of debt is embodied in the positive feedback loops shown in figure 3. Debt increases through acquisition of loans and accrual of interest. As debt increases, debt service consisting of principal payments and interest, rises. The consequent build-up of government expenditure draws down government money balance, which creates a need for taking more loans.

The insidious debt growth process explained above is, however, contained by several negative feedback loops striving to equate revenues and expenses. Increasing government spending decreases government money balance to a low level where it creates a pressure to limit government spending. An increase in revenues expands government money balance, which may call for cutting down taxes that would limit revenues. Also, payment of outstanding interest and capital amount decreases debt, which limits the amount of subsequent payments, while acquisition of more loans increases government money balance which decreases the need for more loans.

These debt accumulation processes are strongly coupled with other mechanisms in the model which can also prevent or facilitate escalation of debt. These are now explained.

### The Economic Growth Mechanisms

The economic growth mechanisms of the model are embodied in the feedback loops representing the multiplier-accelerator principle first proposed by Samuelson (1939). As in the original system dynamic model suggested by Arif and Saeed (1989), the multiplier is represented through a positive feedback loop coupled with a negative feedback loop as shown in figure 4. The multiplication process is created by the mutual dependency of consumption and output. A disturbance in demand produces a change in output and a proportional change in consumption which feeds back to further disturb aggregate demand. The consumption, however, is constrained by the availability of inventory as represented in the negative feedback loop.

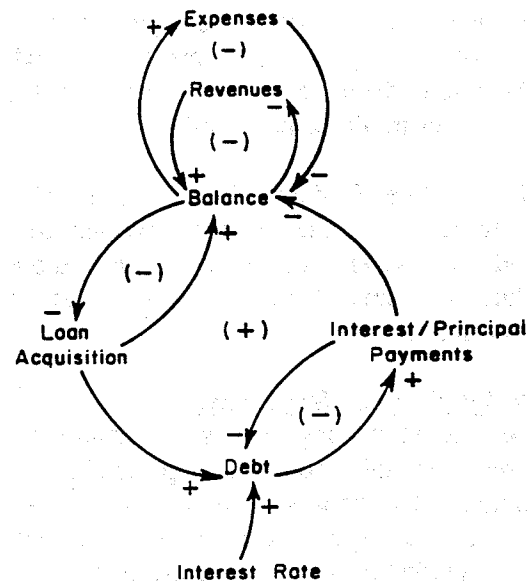


Figure 3: Positive feedback loop contributing to the accumulation of debt and controlling feedbacks coupled with it.

The accelerator mechanism is represented through four positive feedback loops as shown in figure 5. The innermost positive feedback loop represents the classical accelerator implying that a rise in demand creates an increase in capital investment that further increases demand. The first adjoining feedback loop shows that increased demand increases income of the economy that increases savings. A rise in savings depresses interest rates, which encourages investment, thus further enhancing demand. The second adjoining feedback loop establishes that production will rise as demand is increased; the increase in production causing further increase in investment. The third adjoining feedback loop creates increase in production in response to the depletion of inventory resulting from an increased demand. These four feedback loops representing the accelerator reinforce one another.

The positive feedback loops representing multiplier and accelerator are, however, coupled with several negative feedback loops which are created by the market-clearing mechanisms.

#### Market-clearing Mechanisms

The market-clearing processes capture the basic structural mechanism representing the micro-level responses of producers and consumers to changes in the market conditions, since market-clearing for both goods and production factors is the natural micro-complement to the macro-foundations that underlie the model (Barro 1984). The market-clearing mechanisms included in the model are interest rate, general price level, wage rate and technological mix indicated by the capital-labor ratio.

Interest rate is a mechanism that equates investment and saving rates which are decoupled by a pool of uninvested savings. A downward pressure is exerted on interest rate when the level of uninvested savings is in excess of the level necessary to support the desired investment. Interest rate is pushed up when the uninvested savings are less than the desired level needed to support investment. It is also pushed up by a rise in the general price level.

General price level adjusts towards the desired level necessary for equating supply and demand. This means that price is increased when inventory (representing supply) is less than the desired inventory (representing demand), and vice versa. General price level also affects consumption and investment.

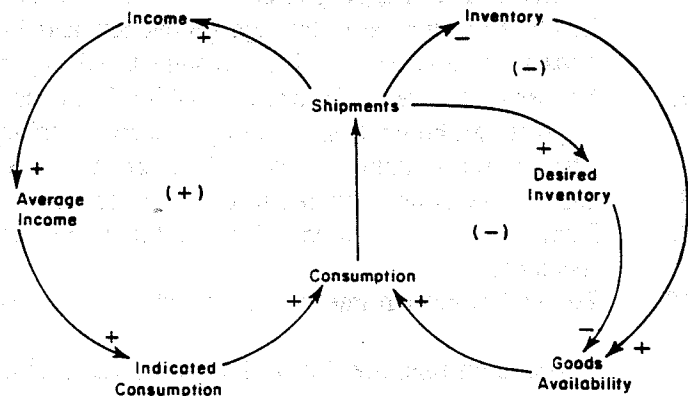


Figure 4: The multiplier mechanism and the controlling feedback loops coupled with it. (Source: Adapted from Arif & Saeed, 1989)

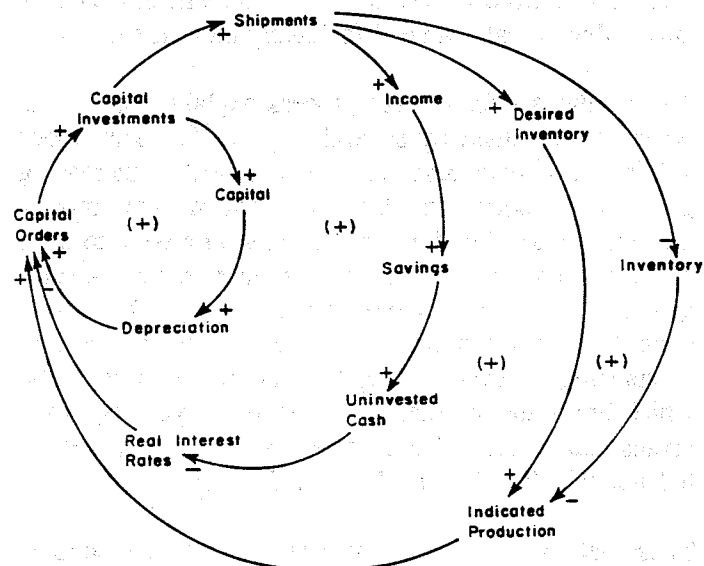


Figure 5: Positive feedback loops contributing to the accelerator process. (Source: Adapted from Arif & Saeed, 1989)

Wage rate clears the labor market by maintaining unemployment rate at its frictional value. It is reduced when unemployment rises. This reduced wage rate, however, increases the demand for workers and the resulting increase in the hiring of workers finally restores the balance between the workers and the unemployed.

The technological mix allows the substitution of workers for capital in the production process without compromising on production efficiency. It is assumed that the optimal capital-labor mix will rise when the real wage rate is higher than the average value of the marginal revenue product of workers. This adjustment mechanism, however, involves relatively long adjustment times.

The presence of multiple growth and adjustment paths in the form of positive and negative feedback loops makes possible the existence of many economic patterns, including increasing growth at a high level of debt on the one hand and decreasing growth at a high level of debt on the other. Korea is an example of the former economic pattern while the Philippines and many other developing countries in South Asia and Latin America are examples of the latter pattern (Power 1983).

Many simulation experiments were performed to understand the economic pattern experienced in the Philippines and to prepare a policy framework for a change. These are discussed in the next section.

### **UNDERSTANDING THE PHILIPPINES' DEBT SERVICE PROBLEM**

Before simulation experiments are conducted with the model, initial values representing the conditions of the Philippines in 1972 are substituted. These include exports, imports, debt, net factor income, fractional government purchases and population growth, besides other economic variables. These initial values are given in the Appendix. The simulation of this modified model will be called the base run. The growth-debt pattern observed in the Philippines taken as the reference mode for further exploratory experimentation is generated by progressively introducing the different policies adopted by the Philippines to the base run case.

The different policies incorporated into the model for generating the reference mode are the following: 1) increasing government spending in the early 1970s; 2) cutting taxes to encourage investments in export promotion in 1976; 3) keeping wage to a minimum to attract foreign investments; 4) promoting exports without, however, restricting imports; 5) rescheduling debt and limiting debt service to 20% of export earnings; 6) decreasing government spending and increasing tax in 1984 when heavy debt burden precipitated in 1983. The increase in world interest rates in 1978 decreasing the availability of the long-term loans is also introduced.

The policy of increasing government spending is implemented by stepping up the initial value of spending of 11% of average income to 22%. Tax reduction is implemented by decreasing the initial fractional gross profit tax by 25% in 1976. The policy of establishing a minimum wage rate to attract foreign investment is simulated by fixing in 1976 the value of wage rate instead of letting it float.

The rise in exports is introduced by increasing the share of exports in income by 30% of its initial value of 17.7% and making foreign trade respond faster to excess inventory. This would, however, also expand imports since exports selected by the government for promotion call for installing additional infrastructure and capital investment with high import content. This effect is simulated by increasing the fraction of income forming imports from 18.5% to 24%.

The policy of limiting debt service payments to 20% of the export earnings is simulated by formulating external debt service as the minimum of the outstanding interest and principal payments and 20% of the export value. Rescheduling is requested in the model when liquidity problems occur. The liquidity

problem is assumed to take place when the level of external debt is 150% of the export value and government money balance is less than the desired government money balance (Schelzig 1989).

The government response in 1983 to the accumulation of a heavy debt burden in limiting spending and increasing taxes is simulated by reducing the share of income forming government spending by 20% and increasing the fractional gross profit taxes by 50%.

The reference mode simulation incorporating above policy agenda is shown in figure 6. It is observed that investment decreases after the policies of reducing government spending and increasing taxes are introduced. Income also diminishes and then rises slowly. The low levels of income and investment can not support the increasing population, which creates rising unemployment. As population continues to increase, income per capita declines.

Though the debt service burden is reduced in the short run, the economy continues to be saddled with increasing debt in the long run. Since income does not grow as fast as the build up of the external debt, it becomes very difficult for the country to repay its debt. Thus, debt repayment is unable to reduce the level of external debt. To augment available domestic resources for repaying its debt, the country requires additional foreign capital inflows. But unless these capital inflows rebound the economy to a higher level of income, the country will sink to a crisis of high debt burden, low income and worsening unemployment rate.

The simulation of figure 6 resembles in essence the historical pattern described in the earlier section of this paper. It must be recognized, however, that the model used in this study incorporates only the general economic relationships, excluding the mechanisms of political change. Thus, the political upheaval of August 1983 which partly explains the historical pattern depicted, is outside of the scope of the model. If socio-political explanation should be injected into the growth-debt problem of the Philippines, the model would have to be further extended to include the socio-political relationships. This might make the model much too complex to analyze easily. The problem of socio-political change may, however, be dealt with separately from the problem of economic change by appropriately partitioning the system (Saeed 1988, Saeed 1990). Our model deals only with economic change. Thus, it may not be expected to track history at every point although it should replicate the general economic pattern, which it does.

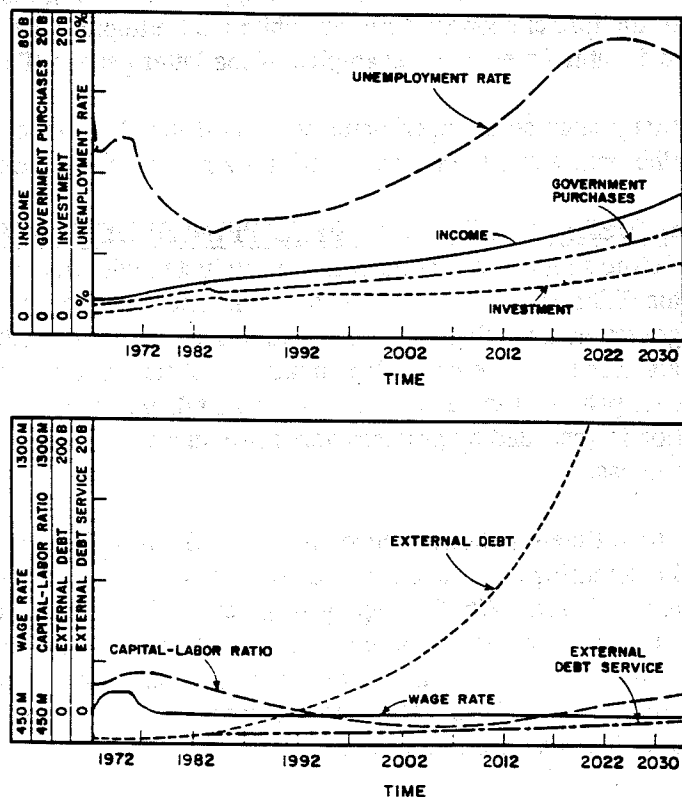


Figure 6: Reference mode.

### **SUSTAINING ECONOMIC GROWTH WITHOUT HEAVY DEBT SERVICE BURDEN**

The preceding simulation shows that the policies of decreasing government spending, increasing taxes and limiting debt service payments do not alleviate the debt problem which has beset many developing countries for many years. Such policies may appear to decrease the balance of payments, since expenses

and debt service payments are reduced, they would also limit economic expansion because investments are discouraged. Thus, a reduction in the balance of payments may give only short-term benefits since the structural tendency to slow-growth is still present. To reduce a continually increasing external debt is almost impossible in a stagnant economy. In our search for an appropriate strategy, we keep in view the economic pattern in which the high level of debt of a country will finally be repaid by an economic takeoff that may be achieved through high investment.

In their simulation experiments searching for an appropriate growth strategy for Indonesia, Arif and Saeed (1989) suggested government intervention to increase capital intensity so that investment is encouraged. The specific policies accomplishing this are keeping interest rate at a low level and wage rate at a high level. These policies were seen to apply to our case equally well and are introduced in 1989 in all the simulation experiments that follow, searching for an appropriate growth strategy for the Philippines.

Additionally, we also experimented with several well-known alternative development and debt management policies. These policies are: 1) increasing government purchases; 2) encouraging investment through tax cuts; 3) encouraging investment through increasing savings propensity; 4) expanding exports and restricting imports; and 5) not limiting external debt servicing. Each of these policies is introduced in the model producing the reference mode in 1989.

The policy of increasing government purchases is implemented by stepping up by 10% the fraction of income forming government purchases. The policy of encouragement of investment through tax cuts is achieved by making a 50% reduction in the fractional gross profit tax. The policy of encouragement of investment through increasing propensity to save is introduced by decreasing propensity to consume by 10%. Trade policies include making foreign trade respond faster to excess inventory and intensifying exports as debt increases but limiting imports. The policy of not limiting external debt servicing is implemented by removing the restriction of external debt servicing to 20% of the export earnings.

Each of the above strategies is tested for three intensities of government reactions to the changing balance deficit - moderate, prudent and radical. It is assumed that moderate government behavior does not normally resort to drastic tax increases when balance deficit develops as a result of the increasing expenditure. Prudent behavior reduces government purchases as debt increases. It is represented by adding a negative causal link from the level of debt to fractional government purchases - as the level of debt increases, fractional government purchase decreases. Radical behavior increases taxes as government expenses increase. It is formulated by increasing the slope of the function representing government's response to money balance changes in changing the tax rate. Each of these policies is introduced in the model producing the reference mode in 1989.

The simulation results are compared in table 1 giving the relative-order magnitudes of the selected indicators compared to the magnitudes of figure 6, in each case taken as 1. These indicators are income per capita, unemployment rate, external debt to income ratio, external debt service to income ratio, capital-labor ratio and net exports respectively in year 2030.

The comparative results of table 1 show that the growth forces are weakened by the demand-limiting effects of decreasing government purchases as debt level increases. Income per capita for all policy runs has relatively lower magnitude in the prudent behavior assumption than in the other two assumptions. Debt to income and debt service to income ratios are higher. Unemployment rate is higher and capital-labor ratio lower. As demand is limited by reduction in government purchases, investment is decelerated causing a reduction in income.

The limited debt servicing capacity which is further abated by decreasing income in the prudent behavior



produces greater debt levels than in the other two assumptions. When investment lags behind population growth, unemployment rises, which in turn makes the system move towards a higher labor intensity that further wanes investment. This results in a worsening economic condition. On the other hand, though the radical behavior produces slightly better results than prudent behavior, there is no definite effect on investment. While investment is promoted by increase in government purchases it is, however, discouraged by a tax increase.

*Table 1: Performance of alternative development and debt policies under different government behaviors.*

Nature of Intervention	Economic Indicators	Relative magnitude of economic indicators		
		Moderate Behavior	Prudent Behavior	Radical Behavior
Base Run	Income per capita	1.00	0.77	0.75
	Unemployment rate	1.00	3.52	3.50
	ED/income	1.00	1.21	1.36
	EDS/income	1.00	1.10	1.14
	KLR	1.00	1.08	1.04
	Net exports	1.00	2.92	2.91
1. Increasing government purchases	Income per capita	1.56	1.07	1.39
	Unemployment rate	0.81	1.17	0.93
	ED/income	0.60	0.82	0.70
	EDS/income	0.97	1.11	1.05
	KLR	1.54	1.20	1.49
	Net exports	-0.25	5.01	3.40
2. Encouraging investment through tax cuts	Income per capita	2.04	1.40	2.00
	Unemployment rate	0.58	0.91	0.59
	ED/income	0.53	0.75	0.57
	EDS/income	0.92	0.97	0.92
	KLR	1.65	1.50	1.64
	Net exports	-16.50	0.10	-14.67
3. Encouraging investment through increasing propensity to save	Income per capita	0.83	0.61	0.82
	Unemployment rate	1.40	1.64	1.40
	ED/income	0.90	1.20	0.93
	EDS/income	1.23	1.37	1.24
	KLR	0.90	0.78	0.91
	Net exports	7.68	8.12	7.83
4. Expanding exports and restricting imports	Income per capita	1.28	0.89	1.24
	Unemployment rate	1.00	1.32	1.04
	ED/income	0.69	0.94	0.74
	EDS/income	1.04	1.16	1.08
	KLR	1.35	1.08	1.34
	Net exports	3.20	5.86	4.51
5. Not limiting debt service to percent export earnings	Income per capita	1.02	0.87	0.80
	Unemployment rate	1.20	1.35	1.42
	ED/income	0.13	0.13	0.27
	EDS/income	2.23	2.15	3.43
	KLR	1.15	1.05	1.05
	Net exports	4.56	6.17	6.78

The simulation results using the policies of increasing government purchases, cutting taxes and promoting exports but restricting imports with the moderate behavior assumption show the most favorable performance of the system. The simulation incorporating a high propensity to save limits demand which weakens the growth engine and thus decreases income. The simulation which does not restrict debt service payments to a percentage of export earnings shows a large decrease in the level of debt. These simulation results point toward the premise that to achieve an economic takeoff without the increasing debt

burden, the engine of growth should be strengthened by increasing demand while maintaining a high rate of debt repayment as income rises.

Figure 7 shows the result of combining the policies of increasing government purchases, encouraging investment through tax cuts, increasing exports, restricting imports and not limiting debt servicing under the moderate behavior assumptions. A sustained increase of income and income per capita is seen but this is achieved by acquiring more loans. External debt, therefore, is high; yet, because of the faster rate of growth of income, external debt to income ratio remains low. Investment rate is high because of favorable low tax rate; unemployment rate, therefore, is maintained at low values. External debt service to income ratio is also maintained at a low value. This set of policies appears to be the best for realizing a sustainable growth and tolerable debt levels.

**CONCLUSION**

This study suggests that policies which are intuitively thought to reduce debt levels through a decrease in the need for foreign loans, do not eliminate the country's debt service burden. These policies, instead, limit demand through reducing target growth rates in general and reducing government spending in particular. While they may create a temporary relief through a decrease in government spending in that deficit is decreased, the subsequent negative multiplier effects adversely affect growth in income. In effect, the depressed income growth rate reduces the country's creditworthiness. Also the reduction in income generates a lower level of taxes which may further decrease the ability to pay the debts the country owes to the foreign banks and international financial institutions. Debt level may not increase fast but neither will it decrease fast. As growth rate is depressed, the country ends up still being burdened by a high debt service.

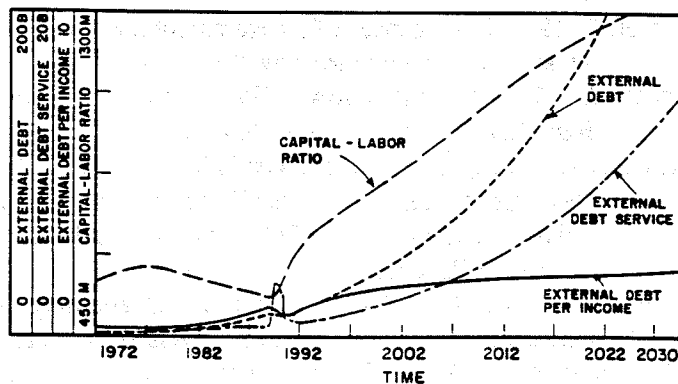
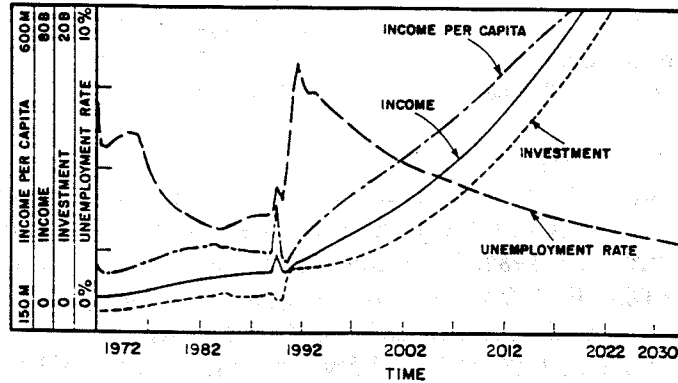


Figure 7: Simulation run showing the best set of policies under the moderate behavior.

Limiting debt service to a proportion of the export earnings does not take the country out of its heavy debt burden. As debt repayment is reduced, debt level decreases very slowly. At the same time, with no apparent increase in investment, income remains depressed and the country continues to be in heavy debt.

Our analysis shows that the best set of policies propelling an economic takeoff not only requires the normal government influence on the market to intensify capital investment through keeping the interest rate low and wage rate high, it also should stimulate demand and investment. As income increases, debt servicing ability is also increased so that the level of debt decreases. The high level of income, therefore, eliminates the burden of debt servicing.

This study, however, does not consider the inflationary effects resulting from money creation and the

changes in the foreign exchange rates. It also does not take into account the effects of income distribution on consumption and investment rates. These effects, if considered, would curtail growth, although, they may not change the proposed policy implications of our analysis.

### APPENDIX

Values of key parameters in the base run case.

Fractional gov't purchases	= 11% of GNP
Exports	= 17.7% of GNP
Imports	= 18.5% of GNP
Net Factor Income	= US\$ -78.65 million
Foreign Debt	= US\$ 2.732 billion
Pop'n Growth Rate	= 2.6% per year

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