

Effects of External Shocks on Asian Developing Countries

By Seiji Naya

The oil price increase of 1973 was followed by a severe economic downturn in the developed countries. As a result, the non-oil developing countries were subjected to a sharp decline in demand for their exports. The developing countries, particularly in Asia, weathered the effects of the oil shock rather well. However, their economies suffered a stronger jolt with the second oil price increase in 1979:

The period after the first oil shock was one of relatively rapid growth for developing countries, favorable conditions for international borrowing and continued growth of world trade. The second oil shock led to a distinctly different situation. Disinflationary policies implemented in developed countries were reflected in high interest rates which persisted despite gradual reduction of inflation—resulting in increasing debt burdens of developing countries. Protectionist pressures in many industrialized countries aggravated the contraction in world trade and the effects of the world recession on traditional exports of developing countries were severe.

The period since the first oil shock witnessed an enormous buildup of developing country debt—much of it was concentrated in a few countries. The external debt problem is a result of a cumulative process and can be dealt with effectively only if necessary structural changes are made.

Worldwide economic recovery appears to be under way, led by a resurgence of real economic growth in the United States. The recovery is welcome news for the Asian developing countries, many of which are greatly dependent on export growth. But there is growing concern that external debt problems which first emerged in Latin America and Africa, and now threaten Asia as well, could stifle world economic recovery as countries are forced to adopt austerity measures to avoid default.

This paper assesses the magnitude of the external shocks in terms of their adverse impact on the balance of payments of 12 Asian developing countries and examines their policy responses. It discusses the debt problem in the context of the world economy and underlines the relationship of economic management with external debt-servicing capacity. It then draws some policy conclusions from the analysis.

Impact of external shocks

The main external factors that affected the Asian developing countries in the past 10 years were inflation, the two oil price increases, and the subsequent recessions in the industrialized countries.⁽¹⁾ For non-oil developing countries, the balance of payments effects of the external shocks

can be classified into two categories. The first consists of losses due to deterioration in the terms of trade. These include the impact of higher oil prices, the relative upward movement of prices of manufactured and capital goods imports, and the downwardly flexible prices of primary commodities.⁽²⁾ The second category includes losses due to recession, largely reflected in falling export volumes due to declining aggregate demand and incomes in industrialized countries. The quantitative impact of these two effects on the 12 Asian developing countries can be assessed on the basis of the methodology used by Balassa.⁽³⁾

In this analysis, the countries under consideration are classified into three groups based on their level of development, as indicated by per capita income and the extent of industrial development, and "openness" to the international economy indicated by trade/GDP ratios. The first group consists of the newly

- (1) In a number of countries, particularly in South and Southeast Asia, internal shocks in the form of harvest failures or booms were very significant as well.
- (2) The terms of trade of oil exporters, such as Malaysia and Indonesia, were favorably affected by higher oil prices.
- (3) Bela Balassa, *The Newly Industrializing Developing Countries After the Oil Crisis*, World Bank Staff Working Paper No. 437, October 1980.

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Fig. Ratio of Trade to GDP (%)

Exports			Imports		
1972	1977	1982	1982	1977	1972
NICs					
37.1	43.5	47.2	Rep. of China	41.3	39.6
75.0	75.2	80.8	Hong Kong	90.8	81.7
15.8	28.4	32.1	Rep. of Korea	35.6	30.6
75.4	125.8	141.9	Singapore	192.2	159.8
Southeast Asia					
16.2	23.7	26.0*	Indonesia	15.5*	13.6
34.1	46.3	46.6	Malaysia	48.2	34.5
13.9	15.0	12.6	Philippines	20.7	20.5
13.7	18.1	18.6	Thailand	22.9	24.0
South Asia					
5.6	5.6	7.3	Burma	14.7	6.6
4.1	6.0	5.3*	India	9.2*	6.4
6.3	7.7	8.2	Pakistan	18.3	16.2
12.4	18.0	24.6*	Sri Lanka	41.3*	16.6

* 1981

Source: ADB, Key Indicators Supplement, October 1983

industrializing countries (NICs)—the Republic of China, Hong Kong, the Republic of Korea, and Singapore. The second group includes the middle-income and natural resource-rich Southeast Asian countries, which for analytical purposes may be further divided into the two net oil importers (the Philippines and Thailand) and the two net oil exporters (Malaysia and Indonesia). The third group consists of the lower income and generally “inward-looking” South Asian countries (Burma, India, Pakistan, and Sri Lanka).⁽⁴⁾ The Figure and Table 1 provide data on the various indicators used for classification of the countries.

The magnitude of the external shocks can be measured by the total balance of payments impact in relation to total output (see Table 2, column one). The 10 net oil importers experienced adverse effects averaging 17.5% of GNP between 1974 and 1982. The effects were larger for the more “open” countries such as Singapore, Hong Kong and Sri Lanka, and smaller for the relatively “closed” economies such as Burma and India.⁽⁵⁾ The positive effects on the two oil exporters can also be seen in Table 2; the favorable effect on Indonesia, which is much more dependent on oil than Malaysia, was comparable in magnitude to the adverse effects on the more open oil importers.

To decompose the impact of external shocks into the terms of trade and export volume effects, some assumptions were made regarding economic trends in the absence of external shocks. It was assumed that average real growth rates during the period before the first oil shock would have continued and that market shares of exports and relative prices of exports and imports would have more or less remained unchanged during 1974-1982.⁽⁶⁾ The question then posed was: given these trends, what would the balance of payments picture look like for each country? Adverse terms of trade effects were estimated by contrasting base year values with changes that occurred in relative prices of a country's exports and imports due to, in the case of exports, world prices rising faster from the 1971-

Table 1 Output and Employment in Selected Developing Asian Countries

Per capita GNP (at constant US\$)	1972	1978	Share of manufacturing in GDP (%) 1978	Share of industrial labor force in total labor force (%) 1978
NICs (Average)	917	1774	28	42
Rep. of China	896	1574	38	37
Hong Kong ^(a)	1243	2710	25 ^(b)	57
Rep. of Korea	454	814	24	37
Singapore ^(a)	1075	1998	26	38
Southeast Asia (Average)	244	358	17	13
Indonesia	115	184	9	11
Malaysia	444 ^(c)	651	17	16
Philippines	214	291	25	16
Thailand	204	308	18	8
South Asia (Average)	120	180	16	16
Burma ^(a)	81	106	10	20
India	90	113 ^(d)	17	11
Pakistan	117	158	16	19
Sri Lanka	192	344 ^(d)	23	15

(a) GDP (b) 1977 (c) 1973 (d) 1981

Sources: ADB, Key Indicators of DMCs of ADB, April and October 1983; ADB, Industrial Growth and Employment in Developing Asian Countries: Issues and Perspectives for the Coming Decade, Economic Staff Paper No. 7, March 1982, by Ulrich Hiemenz

(4) It should be noted that Burma is virtually self-sufficient in oil and that Sri Lanka is relatively “open,” especially since 1977 when trade liberalization policies were implemented.

(5) Burma was not so much affected by oil prices since it is nearly self-sufficient. Pakistan had significant adverse effects due to its heavy dependence on oil imports and, to a lesser extent, commodity price declines resulting in further terms of trade losses.

(6) In the case of the terms of trade, the average for the period 1971-1973 was used as the base year. For export volumes it was assumed the growth trend of 1963-1973 would have continued.

**Table 2 Balance of Payments Effects of External Shocks and Policy Responses to the Shocks
(Averages of 1974 to 1982)**

		External shocks as % of GNP	Balance of payments effects (%)			Policy response (%)			
			Terms of trade effects	Export volume effects	Total	Increase in export market shares	Import substitution	Effects of lower GNP growth rate	Net external financing
NICs	Rep. of China	-12.7	-43.8	-56.2	100.0	132.9	16.3	13.5	-62.7
	Hong Kong	-26.7	-35.6	-64.4	100.0	85.2	-2.2	13.6	3.4
	Rep. of Korea	-13.3	-83.2	-16.8	100.0	104.5	17.1	4.6	-26.2
	Singapore	-46.3	-98.1	-1.9	100.0	67.0	-41.8	17.5	57.2
Southeast Asia	Indonesia	23.6	83.6	16.4	100.0	2.3	-1.1	0.5	-101.7
	Malaysia	6.4	71.6	28.4	100.0	39.9	-25.4	4.3	-118.8
	Philippines	-14.5	-75.1	-24.9	100.0	17.5	2.3	-2.6	82.9
	Thailand	-15.2	-90.1	-9.9	100.0	25.5	8.6	2.6	63.4
South Asia	Burma	-1.8	-158.5	58.5	100.0	-153.9	-0.8	111.4	143.3
	India	-4.6	-72.8	-27.2	100.0	8.3	-2.3	2.2	91.9
	Pakistan	-26.8	-46.7	-53.3	100.0	-8.1	0.8	-5.6	112.9
	Sri Lanka	-23.5	-76.5	-23.5	100.0	-8.6	14.8	-17.5	111.3

Source: S. Naya and D.H. Kim, *Balance of Payments Impacts of External Shocks in Selected DMCs* (in progress)

1973 base than the price index of a country's exports and, in the case of imports, of rises in a country's import prices at a more rapid rate than world prices. Trend values for export demand were compared with hypothetical values derived for each country by considering what would have happened if export demand had increased in line with world demand after 1971-1973—the difference comprising the export volume effect. Actual balance of payments situations were then compared with the trend and hypothetical imports and exports in order to assess the policy responses.

Table 2 shows that the terms of trade effect on the balance of payments was generally stronger than the export volume effect, except for two of the NICs and Pakistan. This suggests that oil prices had more severe immediate effects than the world recessions on the balance of payments in most of these countries.⁽⁷⁾ About three-fourths to four-fifths of the effect was due to terms of trade losses and the remainder was due to export volume declines.

Table 2 sets out four types of economic adjustment to external shocks (see columns five to eight). One form of adjustment is for a country to export more. Table 2 shows that "increase in export market shares" was the predominant form of adjustment response by the NICs. Export market shares of the two oil-importing Southeast Asian countries increased to a much smaller yet still significant extent. Export shares of South

Asian countries (and competitiveness) declined, except for India, which showed a modest increase over the hypothetical value.⁽⁸⁾

Closely related to increased competitiveness was success in import substitution (Table 2, column six).⁽⁹⁾ The Republic of China and the Republic of Korea were able to replace a significant amount of imports with domestic production while expanding exports. (For Hong Kong and Singapore, import substitution is not a viable policy option.) Thailand did better than the Philippines in import substitution, while the countries most associated with import-substitution industrialization policies (Burma, India and Pakistan) had the poorest records.⁽¹⁰⁾

A further means of adjustment is to lower the trend growth rate, thus reducing aggregate demand. Given the income elasticity of import demand, a decline in aggregate demand will result in a fall in import expenditure. Moderation of average real GNP growth below trend values was a significant form of adjustment in three of the NICs, though it was less so for the Republic of Korea as well as for Thailand and India.⁽¹¹⁾

The extent of adjustment by means of increased export market shares, import substitution and import savings through lower growth in relationship to balance of payments effects of external shocks determines the degree to which net external borrowing is undertaken. Net external financing (shown in Table 2) is the difference between the actual resource gap (ac-

tual imports minus exports adjusted for world prices) and the trend resource gap

(7) It should, however, be noted that oil price increases formed only one, though a major, source of terms of trade losses. In the case of oil exporters it should also be noted that the hypothetical rise in oil exports above trend values was offset somewhat by declines in hypothetical volumes of non-oil exports—thus reducing the export volume effect.

(8) Burma's huge percentage slide in export market share should be viewed in the context of the very small size of external shock effects relative to GNP.

(9) This effect is measured by the difference between hypothetical imports, calculated for the actual GNP growth of a country assuming constant import demand elasticities based on 1963-1973 values, and actual imports during 1974-1982. Greater efficiency of domestic firms producing tradables, increased use of domestic energy as a share of total energy, and/or restrictions on imports, could account for positive import substitution.

(10) Sri Lanka had fairly high import substitution and it was the only country in South Asia that extensively liberalized imports, though only in 1977.

(11) Burma's case appears to be anomalous. Table 3 shows actual GNP growth rose substantially between 1974-1983, yet Table 2 gives a reduced growth rate below the trend value as a large source of adjustment. The apparent contradiction is partly because of the very small size of external shocks relative to GNP in Burma and partly due to the sensitivity of the measures used in Table 2 to changes induced by "internal shocks."

Table 3 Macro-Economic Trend Indicators (%)

		Growth rate of GNP				Domestic savings ratio			Gross domestic investment ratio			Resource gap		
		1964-73	1974-82	1981	1982	1964-73	1974-82	1980-82	1964-73	1974-82	1980-82	1964-73	1974-82	1980-82
NICs	Rep. of China	11.2	7.3	5.5	3.4	25.0	35.5	31.7	24.7	30.3	29.4	-0.3	-5.2	-2.3
	Hong Kong	na	8.8	10.8	2.4	na	25.5	26.7	na	26.7	29.7	na	1.2	3.0
	Rep. of Korea	9.7	7.2	7.1	5.3	14.5	22.4	23.0	22.6	27.4	27.7	8.1	5.0	4.7
	Singapore	12.0 ^(a)	8.1	9.9	6.3	18.8 ^(a)	30.0	38.5	30.9 ^(a)	40.9	45.5	12.1	10.9	7.0
Southeast Asia	Indonesia	na	7.0	7.9	2.2	6.4 ^(a)	22.9	23.8	12.2 ^(a)	21.2	21.6	5.8	-1.7	-2.2
	Malaysia	na	6.8	6.9	3.9	19.2	26.8	23.5	18.5	28.7	31.9	0.3	1.9	8.4
	Philippines	5.3	5.5	3.8	3.0	17.4	24.0	23.9	21.0	29.9	29.8	3.6	5.9	5.9
	Thailand	7.7	6.4	6.3	4.2	21.6	22.9	19.2	23.4	26.2	24.5	1.8	3.3	5.3
South Asia	Burma	-0.2	5.1	6.3	7.1	6.2	11.7	18.3	12.3	19.2	23.1	6.1	7.5	4.8
	India	3.3	3.8	5.6	2.0	13.8	19.6 ^(b)	21.0 ^(c)	18.3	22.5	24.0 ^(c)	4.5	2.9	3.0 ^(b)
	Pakistan	0.8	1.4	6.5	5.6	11.7	12.6	6.9	15.4	15.9	16.7	3.7	3.3	9.8
	Sri Lanka	4.7	7.0	5.4	5.0	10.0	5.3 ^(b)	14.4 ^(c)	16.5	22.8	34.1 ^(c)	6.5	17.5	19.7 ^(b)

(a) 1965-73 average (b) 1974-81 average (c) 1980-81 average

Source: S. Naya and D.H. Kim, *Balance of Payments Impacts of External Shocks in Selected DMCs* (in progress)

(trend imports minus exports at 1971-1973 prices).⁽¹²⁾

The Republic of China, Indonesia, the Republic of Korea, and Malaysia were net lenders as far as the residual resource gap measure is concerned.⁽¹³⁾ All the other countries (except Hong Kong) relied, to varying degree, on net external finance.

The relative size of this type of policy response among oil importers was smallest for the NICs. Net external finance was prominent in the adjustment process of the Philippines and Thailand, but such response in the Philippines substantially exceeded that in Thailand. In South Asia net borrowing actually exceeded 100% of the effects of the external shocks in three of the four countries and was by far the predominant mode of adjustment.

The adjustment responses to external shocks show a distinct pattern among the country subgroups. The NICs relied mainly on increased export market penetration and secondarily on import savings and import substitution. Only Singapore had much recourse to net external finance. The Southeast Asian oil importers increased their export market shares but mainly relied on net external finance. The South Asian countries opted for borrowing—a course that only India kept to under 100% of the effects of external shocks. The nature of policy responses has important implications for the external debt of a country.

External debt of Asian developing countries

Total external debt comprises public debt, publicly guaranteed private debt and non-guaranteed private debt; information on short-term debt and non-guar-

Table 4 Current Account Deficits as Percent of GDP

		1980	1981	1982	Average 1974-1982
NICs	Rep. of China	-2.4	1.1	4.7	0.5
	Hong Kong				
	Rep. of Korea	-9.1	-7.2	-3.9	-5.6
	Singapore	-13.8	-10.3	-8.7	-10.7
Southeast Asia	Indonesia	4.0	-0.8	-6.8	-0.9
	Malaysia	-0.8	-9.2	-13.3	-2.3
	Philippines	-6.8	-5.9	-8.4	-5.3
	Thailand	-6.2	-7.1	-2.7	-4.7
South Asia	Burma	-5.9	-5.3	—	-3.5 (1975-81)
	India	-1.1	—	—	0.6 (1974-80)
	Pakistan	-4.6	-2.6	-4.2	-5.4
	Sri Lanka	-16.1	-10.4	-12.3	-5.7

Source: ADB, *Key Indicators*, April and October 1983

anteed private debt is very scanty. Until recently, the debt problem appeared to be confined to areas outside Asia. The emergence of a debt problem in Asia (and elsewhere) can be traced to two basic causes: first, the unexpected deterioration in external conditions, and second, the quality of economic policies and management in developing countries. The terms and conditions of new loans to Asian developing countries have become, in general, increasingly unfavorable since the late 1970s. The terms and conditions of new loans to the South Asian countries continued to be highly concessional, while the average interest rates on new borrowings in 1981 by the NICs and Southeast Asian countries were double those of 1970 and the average maturity and grace period decreased significantly. Also, the

proportion of loans at variable interest rates increased considerably.

Various measures can be used to assess the dimensions of the external debt problem. The buildup of external debt closely tracks the investment-saving or resource gap (Table 3) and the current account deficit (Table 4). Other indicators such as

(12) The "resource gap" measure includes only merchandise trade and excludes non-factor services and transfers for which no price indices are available.

(13) The measure made herein reflects that the actual (but still positive) resource gap turned out to be smaller than the indicated trend resource gap. In the Republic of Korea, the actual current account deficits have been substantial and have led it to become the largest borrower among the 12 countries.

Table 5 Critical Interest Rates of Asian Developing Countries

	Marginal saving rate (%)		Incremental capital output ratio		GDP growth rate (%)		Critical interest rates ^(a)			
	1964-73	1974-82	1964-73	1974-82	1964-73	1974-82	So = 5%		So = 10%	
	1964-73	1974-81	1964-73	1974-81	1964-73	1974-81	1964-73	1974-81	1964-73	1974-81
NICs	30.7	33.9	2.3	4.1	10.3	7.7	13.9	8.4	15.1	8.6
Southeast Asia ^(b)	28.9	31.5	3.4	4.4	6.6	6.3	9.1	7.4	10.2	7.7
Philippines	30.8	34.7	3.7	4.9	5.3	5.6	9.4	7.3	11.6	7.8
South Asia ^(b)	20.4	13.2	4.9	5.2	3.6	3.5	4.8	2.3	5.3	1.2

(a) The critical interest rates will be calculated under the assumptions of 5% or 10% initial savings rate (So).

(b) NICs comprise of Rep. of China, Hong Kong, Rep. of Korea and Singapore; Southeast Asia includes Malaysia, Philippines and Thailand; and South Asia includes India, Burma and Pakistan. Indonesia and Sri Lanka were not considered in the calculation because their marginal saving rates calculated from the constant price national income statistics showed somewhat perplexing movements.

Sources: Computed from the data given in World Bank, *The World Bank Data Tape* (1981) and ADB, *Key Indicators of Developing Member Countries* (April and October 1983)

the debt-service to export ratio, the debt-service to GNP ratio, reserves to import ratio, etc., are also commonly used. Debt indicators alone may not accurately present the complete picture—debt problems frequently arise in countries that do not appear to be heavy borrowers but simply are not able to earn foreign exchange due to low export ability. Since long-term capacity to meet debt obligations is dependent on the borrower's ability to generate production and exports out of externally financed investments, the various aspects of economic management need to be examined.

One methodology useful for this purpose is the derivation of the critical interest rate (CIR). The CIR is the interest rate that equates the real rate of economic growth with the rate of growth of external debt.⁽¹⁴⁾ In other words, the CIR is the maximum interest rate that can be paid on external debt without increasing the ratio of debt outstanding to GDP. The CIR links external debt to domestic economic management by incorporating the efficiency of investment (represented by the incremental capital-output ratio—ICOR) and the degree to which domestic savings are mobilized (represented by the marginal saving rate—MSR). The ICOR and MSR are two major domestic determinants of a country's long-run debt servicing capacity (see Table 5 and Table 3).

The CIR analysis reveals that the debt-servicing capacity of Asian developing countries has deteriorated since the first oil shock. For the NICs, on average, the CIR fell from 14-15% to about 8.5%. The main reason for this decline was the rise in the ICOR on average from 2.3 to 4.1. The latter was due to investment in heavy industry and excess capacity resulting from the prolonged recession and a deliberate shift to more skill-intensive and capital-intensive lines of production. In Southeast Asia the CIR declined from 9-10% to around 7.5%—again mainly due to a rise in the ICOR. The MSR was maintained at a relatively high level on average, indicating that declines in debt-

servicing capacity were due largely to investment management problems. The CIR in South Asia, on average, fell from about 5% to 2.3-1.2%—indicating a low long-term debt-servicing capacity in contrast to the other groups. This reflects the very high ICOR in these countries and the somewhat low MSR—indicating that overall economic management associated with an inward-looking development strategy has been less effective than in the other country subgroups. The CIR analysis complements the results in the earlier part of this paper dealing with adjustment responses to external shocks: the more open, outward-looking countries generally have a better debt-servicing capacity than the inward-looking countries.

Policy conclusions

It is imperative that indebted Asian countries reduce their current account and budget deficits—imports must be cut and lower growth must in some cases be accepted. If further debt problems are to be avoided and world recovery is to be sustained, it is also important that the developing countries make every effort to restore their international competitiveness and broaden their export base.

Progress was made in structural adjustment in the past two years—especially with regard to energy, government deficits, import liberalization, rationalization of the financial system, and agricultural development. But there must also be a shift from large capital-intensive industries to export-oriented small-scale and medium-scale industries. Exports of the agricultural sector need to be revived by giving sufficient incentives to producers, increasing investment in technology and research, and allowing markets to function with less bureaucratic controls.

Sound economic management is necessary to reduce adverse effects of external events and to take full advantage of favorable circumstances. The analysis of external shocks and of the debt problem in this paper shows that an outward-looking approach to development coupled

with efforts to mobilize and efficiently allocate domestic resources are the main elements of a successful strategy. The relative resilience of the NICs and their more recent responses to the economic recovery that has begun in the industrialized countries attest to the merit of such an approach.

The prospects for sustained world recovery are good. The low rates of inflation, the continued moderation of oil prices and the strong rebound of the U.S. economy are encouraging. It is, however, likely that protectionism will inhibit world trade and also the transmission of growth impulses, but there are promising signs that the major industrialized countries are committed to preserving the open environment in world trade. There is also a possibility of a financial crisis in the developing world that will lead to reduced imports of developing countries and, in turn, dampen recovery in industrialized countries—considering that developing countries now purchase a significant portion of exports of industrialized countries such as Japan and the U.S.

While developing countries make greater efforts in adjusting to past shocks and reorient their development strategies, it is essential that capital inflows are maintained at reasonable levels. In South Asia, official flows will continue to be predominant. However, for developing countries with large foreign trade sectors and which provide significant markets for developed country exports, commercial finance will be important. The IMF has emphasized that a major condition for the success of present efforts at adjustment is the continued availability of finance from the commercial banking community. ●

(14) The CIR formula is: $CIR = r(S_1 - S_0) / (kr - S_0)$, where r = the rate of growth of GDP in current prices, S_1 = marginal saving rate, S_0 = initial saving rate, K = incremental capital-output ratio. See Jungsoo Lee, "The External Debt-Servicing Capacity of Asian Developing Countries," *Asian Development Review*, Vol. 1, No. 2, 1983, pp. 78-81.