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Monetary Expansion and Inflation in Asian Clearing Union (ACU) Countries

Deepak Mohanty & Rajiv Ranjan*

This paper attempts to analyse the inflationary process in the ACU countries during the period 1970 to 1990, in an effort to identify the influence of both monetary and structural factors. The study reveals that the moderate inflation rate of ACU countries, excepting Iran, camouflaged some intense inflation episodes during the last two decades. While the income elasticity of demand for money showed wide variation across low income ACU countries, the interest rate showed the desired inverse relationship with money demand. Apart from money supply, structural factors such as agricultural output, import prices and food prices were found to have had major influences on prices. The observed negative correlation between growth and inflation would mean that monetary policy has to bear the responsibility of containing inflation whenever fiscal actions or external shocks or supply rigidities become destabilising since any accommodative action would generate price increases.

1. Introduction

1.01 Inflation is an issue of major concern to all the countries, in particular, the central banks. This is because, the consequences of unchecked inflation can be catastrophic. Despite this realisation, there is no clear consensus on the genesis and control of inflation, particularly in developing countries (DCs) where structural factors are preponderant and differ in nature and intensities. It, therefore, becomes necessary to have a clear understanding of the process of inflation in individual countries. Underscoring this point, the heads of the Central Banks of Asian Clearing Union@ (ACU) in their Twentieth Board Meeting held

* This study was prepared by Shri Deepak Mohanty, Director and Shri Rajiv Ranjan, Research Officer in the Department of Economic Analysis and Policy of the Reserve Bank of India, for the Board of Directors of the Asian Clearing Union (ACU). The authors wish to express their gratitude to the ACU Head Quarters at Tehran, Iran, particularly Mr. M. Firouzdor, General Manager, and the Central Banks of ACU for their co-operation. The authors are grateful to Dr. C. Rangarajan, Governor and Shri S.S. Tarapore, Deputy Governor, Reserve Bank of India for their valuable suggestions. The authors are indebted to Dr. A. Vasudevan, Officer-in-Charge, Department of Economic Analysis and Policy, for guidance and encouragement in preparation of the Study. The technical and secretarial assistance rendered by Ms. Daksha Parajia and Shri A.B. Joshirao is thankfully acknowledged. The judgements expressed in the report, however, are those of the authors. Needless to say, any errors that may remain are those of the authors.

@ Asian Clearing Union (ACU) consists of Bangladesh, India, Iran, Myanmar, Nepal, Pakistan and Sri Lanka.

at Kathmandu in May 1992, proposed that inflation in ACU countries may be examined so as to see the influence of monetary and non-monetary factors on the inflation phenomenon.

1.02 In this study, an attempt has been made to look at the inflation process in the countries of ACU, individually as well as collectively as a group. Further, an attempt has been made to cut across traditional approaches to inflation, and to view the problem by examining the possible factors — monetary and structural — behind the inflationary phenomenon, in particular, the identifiable episodes in these countries. For the purposes of this study we have relied largely on annual time series data available in the Annual Reports of central banks of ACU countries and the data reported by member countries of the International Monetary Fund for the International Financial Statistics. The time period covered is reasonably long — generally of twenty-years beginning 1970-71. The choice of time period is tempered not only by the availability of data but also by the objective of capturing major supply shocks, for example the first oil shock, which seems to have influenced the long-run relationships among major economic variables.

1.03 We have analysed the problem of inflation in each of the ACU countries, both from demand and supply angles. On the demand side, the annual data on money, output and prices trace out the year-to-year movement in these variables and also identify inflationary episodes. The reduced form money demand equation has been tried out by regressing broad money on output and interest rate to bring out the long-term relationship among these variables. The choice of the interest rate variable which appropriately reflects the opportunity cost for holding money often posed a problem due to the regulated nature of the financial system in the countries under review at some stage or the other during the period as a whole. In most cases, therefore, averages of deposit interest rates were considered to bring about a flexibility to the rate variable under the assumption that countries would often ensure that the interest rates are positive in real terms. In the case of India, however, the average money market rate, which is representative of short-term market-related interest rate, has been considered. As for the sources of growth in liquidity, the pressures emanating from the external sector and from the compulsions of domestic budgetary operations of the government have been taken into account. The movements in income velocity of money and money multiplier have also been utilized to provide analytical perspectives.

1.04 On the supply side, the trend in gross domestic product (GDP) of each country is analysed with emphasis on GDP accruing from oil sector in the case of Iran and from agriculture for other countries. In regard to the price structure, it has been viewed with reference to the contributions of its major component

groups. For example, sectors like food prices and fuel prices were considered, to identify the origin of inflation during a particular inflationary episode or the full sample period. This method of analysis has been found to be helpful in determining whether international inflation is transmitted on to the domestic sector. In this context, the general proposition that the rise in import prices exerts cost push effect on the general price level has been tested and has been found to be significant for almost all the countries of ACU. The cost push impact of exchange rate depreciation has also been tested for individual countries as well as in the general model of inflation developed for all the countries. The general model of inflation for all the ACU countries has been developed in a dummy variable framework primarily to identify the structural bottlenecks causing cost push inflation.

1.05 The study is organised as follows : The general relationship between money and inflation and the structural rigidities inherent in developing economies is discussed in Section 2. Section 3 gives an overview of growth and inflation in ACU countries. Inflation in individual ACU countries is analysed in Sections 4 to 10. A general model of inflation for the ACU countries is presented in Section 11. Finally, the major conclusions of the study are provided in Section 12. The terms of reference of the study are given as an Annexure. Statistical data on the major variables utilised for the study are presented in the Appendix.

2. Money and Inflation : The General Framework

2.01 Inflation represents a situation in which prices of goods and services increase continuously over a period of time. In purely statistical terms, the rate of inflation is expressed as a percentage change in the overall price level during a given period. One could use the statistical method to measure inflation by taking any one of the available price indices such as the consumer price index (CPI) and the wholesale price index (WPI) but there are some who utilise the gross domestic product (GDP) deflator as well for the purpose. For the purpose of this study, consumer price index is taken as a representative index in ACU countries with the exception of India where WPI was considered.

2.02 The consequences of inflation are generally well known. The literature on inflation has therefore, rightly focussed on the causes of inflation. There are, broadly speaking, two strands — one emphasizing the monetary aspects and the other pointing to the structural factors at work. More often than not, inflation phenomenon reflects both, but it should be recognised that given the economic structures, policy making would have to be such as to keep a close watch on the movements in monetary variables.

2.03 Following the quantity theory of money, both in its classical and modern versions, the relationship between money, output and prices can be best described by the well known equation of exchange.

$$MV = PY$$

where M denotes money supply,
P denotes price of an unit of output,
Y denotes the amount of output, and
V is the income velocity of money.

Thus, the money value of output would be PY. If one assumes that the velocity is constant, the quantity equation can be seen, as the monetarists following Milton Friedman's new approach to quantity theory would argue, as a theory of nominal output, which would imply that a change in the quantity of money (M) must cause a proportionate change in nominal GNP (PY). The classical economists believed that since the factors of production and production function determined real GNP, changes in nominal GNP consequent on changes in money supply must represent a change in price level.

2.04 The quantity equation could be restated in the form of a simple money demand function.

$$(M/P)^d = kY$$

where M/P is equal to real money balance and k is a constant. This equation states that the quantity of real balance demanded is proportional to income.

2.05 This line of reasoning gives rise to the theoretical separation of real and nominal variables and in its crude form advocates monetary neutrality. Thus, the quantity theory of money would imply that the central bank, which influences the money supply has the ultimate control over the rate of inflation.

2.06 In an ultimate sense, prices cannot rise unless money supply expands in response to demand pull or cost push factors or both. Many of the demand pull and cost push versions of inflation theory can be conveniently treated as a part of the monetary explanation of inflation phenomenon.

Inflation in Developing Countries: The Structural Factors

2.07 There is empirical evidence in support of the fact that money, output, and prices relationships and monetary neutrality approximately hold good in the long run. However, there is considerable debate as to what could be the short run

causes of money supply, or for that matter of inflation. This is more so in the case of developing countries (DCs) where structural factors abound. In many DCs, the share of agriculture in national income is high and the bulk of the labour force depends on agriculture and allied activities. A crop failure or even expectations of a poor harvest would invariably place pressure on price levels. Moreover, in many DCs, the size of the external sector is relatively small, but the domestic economy still depends on certain critical imported goods, thus ensuring that the import demand is high and inelastic. For example, except for Iran, all the other members of the ACU countries spend a major portion of their foreign exchange earnings on import of oil, which is critical for their domestic production and consumption structure.

2.08 The balance of payments situation in most of the ACU countries is partly dependent on unrequitted transfer payments and capital flows from expatriate nationals which in turn are influenced by external environment and expectations about domestic economic performance. These countries have witnessed periodic accumulation of international reserves consequent on commodity boom or inflow of transfer payments. If not sterilised by the central bank, such accretions lead to monetary expansion placing pressure on prices.

2.09 It is generally recognised that a rise in the domestic price of imports exerts cost push effect on the general price level in many DCs. This is also the case with ACU countries. The export base in these countries is also not very diversified. As a result, the export earnings are dependent on certain primary commodities. For example, Sri Lanka depends on tea and coconut, Bangladesh on jute and Iran on oil. Hence, fluctuations in international commodity prices affect export earnings, with both high and low export prices having inflationary implications for the domestic economy. A low export earning or a price shock could aggravate the already difficult balance of payments situation, entailing the need for depreciating the domestic currency and, in the process, push up import costs. A higher export earning owing to varying periodic commodity booms increases wage rate of the export sector triggering wage rate increases in the 'non-tradable' goods producing sector as well. It also has implications on domestic liquidity. The inherent inflationary impact of these developments invariably weakens the competitiveness of exports. The difficult balance of payments situation of the developing countries does not leave much room for imports to augment domestic supply of essential commodities in the event of a sharp decline in domestic output.

2.10 Despite large unemployment rates, the domestic money wage rates in many DCs are inflexible downward. The organised labour force could bargain to keep the real wage rate higher than the market clearing equilibrium wage rates.

More often than not the real wage rates far outstrip productivity gains. The bulk of agricultural and industrial prices in DCs represents mark ups on wage and other cost increases, and as the wage rates are often linked to increase in costs, there is a general cost push effect triggering off wage-price spiral. That this phenomenon exists in spite of large unemployment only serves to show that organised labour with the requisite skills represents a distinct and a segmented part of the overall labour force, with market for it being largely influenced by demand rather than supply factor. In ACU countries too, there are clauses in the labour contracts that provide for linking of wages/allowances with cost of living changes.

2.11 ACU countries, barring Iran, are low income countries where demand for food is highly inelastic and unemployment levels are very high. This prompts governments of these countries to undertake social welfare programmes, adding to the government expenditure. In addition, persistent internal disturbances and external aggression have, of late, compelled governments of some ACU countries to step up government spending on defence and internal security. In many DCs, because of low tax base the governments find it difficult and sometimes politically unacceptable to mobilise additional taxes. In such an event, the government expenditure would tend to far exceed government revenue, giving rise to large fiscal deficits. Governments often find it convenient to finance deficit by *seigniorage*. Central banks in DCs are often accommodative in this regard, raising in the process the supply price of full employment output with the apprehension of causing unemployment. This phenomenon has been widely prevalent in ACU countries too.

2.12 The process of structural change in DCs clearly entails a change in relative prices. Since money prices are often inflexible downward, changes in relative prices require increases in the general price level. In a passive money environment, this may well result in an inflationary situation. Thus, both structural and monetary factors are intertwined, but for analysis to be clear, it is necessary to distinguish one set of factors from the other.

3. Growth and Inflation in ACU Countries : An Overview

3.01 The recent growth experience of the economies of the Asian Clearing Union (ACU) countries compares well with that of the growth of the DCs as well as the world GDP. The growth in per capita income, however, has lagged behind that of industrial countries except for Sri Lanka and Pakistan. The export performance of the member countries of the ACU, except for Myanmar, has been quite encouraging when compared to high income countries (Table 3.1).

Table 3.1 : Some Macro Indicators

		Per cent			
		GDP Growth (1980-1990)	Per Capita GDP Growth (1965-1990)	Inflation Rate (1980-1990)	Export Growth in US Dollars (1980-1990)
A. Asian Clearing Union					
Bangladesh	(210)	4.3	0.7	9.6	7.6
India	(350)	5.3	1.9	7.9	6.5
Iran	(2490)	2.5	0.1	13.5	21.1
Nepal	(170)	4.6	0.5	9.1	—
Pakistan	(380)	6.3	2.5	6.7	9.0
Myanmar	(—)	2.4	—	8.8	-10.1
Sri Lanka	(470)	4.0	2.9	11.1	6.8
B. World		3.2	1.5	14.7	4.3
Low & Middle Income Countries		3.2	2.5	61.8	4.1
High Income Countries		3.1	2.4	4.5	4.3

Figures in brackets against the countries are per capita income in US dollars in 1990.
Source : World Development Report, 1992.

3.02 The ACU countries, excepting Iran and Sri Lanka, experienced moderate inflation rates during 1980 - 1990. The average growth in Consumer Price Index was higher at 13.5 per cent for Iran and 11.1 per cent for Sri Lanka. The rest of the ACU countries recorded single digit inflation rates. In contrast, the inflation rate in DCs as a whole averaged 61.8 per cent which essentially reflects the hyper inflation of Latin American countries. However, inflation in the industrial countries was substantially lower at 4.5 per cent as compared to the ACU countries. Even if one takes data for a longer time period from 1975-76 to 1989-90, the inflation profile of ACU countries does not alter very much. (Table 3.2).

3.03 The growth in broad money during the period 1975-76 to 1989-90 varied between 24.0 per cent for Iran and 13.3 per cent for Myanmar. The average growth rates in output in the ACU countries other than Iran have been fairly good within a range of 3.5 per cent to 6.0 per cent. The increase in consumer price index, on the other hand, was higher in the region of 6.9 per cent for India and 17.7 per cent for Iran. Money has an impact both on output and prices. The process of

money creation is a process of credit creation. Money is created as a result of credit given to the government, private sector and the foreign sector. Since credit facilitates the production process, it has a favourable impact on output. But at the same time the rise in money supply raises aggregate demand with an upward pressure on prices. Hence, it becomes necessary to consider both the output effect and the price effect to judge the overall effect on the economy. This gets reflected in the income elasticity of demand for money. At a disaggregated level, in Nepal, a broad money growth of 20.0 per cent and real GDP growth of 3.8 per cent resulted in an inflation rate of 8.9 per cent during 1975-76 to 1989-90. In Pakistan, despite a lower growth of 15.5 per cent in broad money, the inflation rate was 8.0 per cent, which could not be brought down even by a very high growth rate of 6.0 per cent in real GDP (Table 3.2). This indicates that the variation in income elasticity of demand for money across ACU countries has been substantial. The elasticity for money demand in Nepal for instance, has been high compared to that of Pakistan.

Table 3.2 : Money, Output and Prices : 1975-76 to 1989-90 (Annual Average)
(In Per cent)

	Broad Money	Real GDP	Consumer Prices
Bangladesh	21.4	4.1	9.5
India	18.2	4.9	6.9
Iran	24.0	-0.1	17.7
Nepal	20.0	3.8	8.9
Pakistan	15.5	6.0	8.0
Myanmar	13.3	3.5	9.9
Sri Lanka	19.9	4.4	10.7

Source : Annual Reports of respective central banks of ACU countries.

3.04 The low average inflation rate, however, hides the wide year to year fluctuations and some apparent cyclical patterns in inflation rate obtained in each of these countries (Table 3.3). Pakistan had the lowest range (maximum minus minimum) of 10.4 per cent, it had also the lowest coefficient of variation of 0.4. Myanmar had the highest range as well as a coefficient of variation of near unity. In terms of the mean rate, India's performance was by far the best of the ACU countries. However, the coefficient of variation tended to be higher than all the other ACU countries except Myanmar.

Table 3.3 : Inflation in ACU Countries : 1975-76 to 1989-90

	Mean	Coefficient of Variation	Maximum	Minimum
Bangladesh	9.5	0.6	18.8	-8.4
India	6.9	0.7	17.7	-1.1
Iran	16.5	0.5	28.9	4.1
Nepal	8.9	0.5	15.9	-0.6
Pakistan	8.0	0.4	14.0	3.6
Myanmar	9.9	1.0	31.6	-4.0
Sri Lanka	11.7	0.6	26.1	1.2

Source : Annual Reports of respective central banks of ACU countries.

3.05 An examination of the annual inflation rate for the period 1971-72 to 1990-91 indicates a heavy bout of inflation following the first oil shock for all the ACU countries, though the length of its impact varied from country to country (Table 3.4). For example, the impact was quite severe and fairly prolonged, between three to four years, for India, Myanmar and Pakistan. Nepal and Sri Lanka were affected for two successive years. A more or less similar pattern, though less severe, could be noticed in respect of the second oil shock of late 1970s, with the exception of Myanmar. Apart from these two inflationary episodes emanating from the oil shocks, many other adverse shocks having an impact on prices could be identified. They are : (i) instability in primary commodity production, particularly foodgrains; (ii) inelastic nature of both exports and imports which impinges on movement of exchange rate adding to cost push factors; (iii) the inflation indexed wage rate structure of the organised labour force which has the inherent tendency to continuously shift the supply curve upwards; (iv) the constant upward pressure on the administered prices; and (v) the smaller tax base with a greater reliance on the indirect taxes. Besides, some specific factors were at work in some cases. For example, the large scale and prolonged civil disturbance in Sri Lanka since 1987 was an important contributor to inflation in recent years in that country. Myanmar has been through a prolonged bout of severe inflation since 1987-88, reflecting mainly the release of latent inflation. Iran has been through prolonged inflationary phase between 1980-81 and 1988-89 coinciding with the war period.

Table 3.4 : Consumer Price Index : Growth Rates

(In Per cent)

Year	Bangladesh	India	Iran	Nepal	Pakistan	Myanmar	Sri Lanka
1971-72	—	5.6	—	-1.9	4.7	2.1	6.3
1972-73	—	10.0	—	8.5	9.6	7.7	9.7
1973-74	—	20.2	—	18.1	30.2	25.2	12.3
1974-75	—	25.2	15.5	16.7	26.6	25.1	6.7
1975-76	-8.4	-1.1	9.9	-0.6	11.7	31.6	1.2
1976-77	2.6	2.1	16.6	2.6	9.2	22.4	1.2
1977-78	12.7	5.2	25.1	11.3	6.9	14.9	12.1
1978-79	7.9	0.0	10.0	3.4	8.3	-3.9	10.8
1979-80	18.8	17.1	11.4	9.7	10.5	-4.0	26.1
1980-81	12.3	17.7	23.5	13.4	14.0	5.6	18.0
1981-82	16.5	9.8	22.8	10.5	11.1	0.0	10.8
1982-83	9.8	4.9	19.2	14.2	4.7	1.1	14.0
1983-84	9.5	7.5	17.7	6.3	7.3	5.2	16.6
1984-85	11.2	6.5	10.5	4.1	5.6	5.6	1.5
1985-86	9.8	4.4	4.1	15.9	4.4	5.3	8.0
1986-87	10.3	5.8	20.8	13.3	3.6	6.3	7.7
1987-88	11.4	8.2	27.7	11.1	6.3	14.7	14.0
1988-89	8.0	7.5	28.9	8.1	10.4	22.0	11.6
1989-90	9.3	7.4	—	9.7	6.0	22.5	21.5
1990-91	8.8	10.3	—	—	12.7	—	—

4. Inflation in Bangladesh

4.01 Bangladesh experienced a very high inflationary situation at the time of its birth as a nation. In 1974-75 the inflation rate was as high as 67 per cent. It is only from 1975-76 that the Bangladesh economy could stabilise, with the general price level dropping by 8.4 per cent. In the subsequent years inflation rates were nowhere closer to the rate of 1974-75, although Bangladesh has been frequently experiencing double-digit inflation. During the period 1974-75 to 1990-91, the growth in broad money supply worked out to 19.7 per cent per annum. The growth in output has been 3.6 per cent and the average inflation rate has been 12.8 per cent. Excluding the year 1974-75 which is clearly an outlier, the growth in broad money supply works out higher at 20.8 per cent; the growth in output is also higher at 4.0 per cent, but the inflation rate is much lower at 9.4 per cent. The money supply for the second half of the 1970s grew by 21.0 per cent with the output growth at 3.9 per cent and the inflation rate at 6.7 per cent. For the 'eighties, though the growth in money supply dropped marginally to 20.7 per cent, the inflation rate accelerated to 10.6 per cent with a modest improvement in output growth to 4.1 per cent. Thus, the trade-off between output and prices appears to have been very costly as even a marginal rise in output has given rise to a substantial increase in inflation rate (Table 4.1).

Table 4.1 : Bangladesh : Money, Output and Prices

(In Per cent)

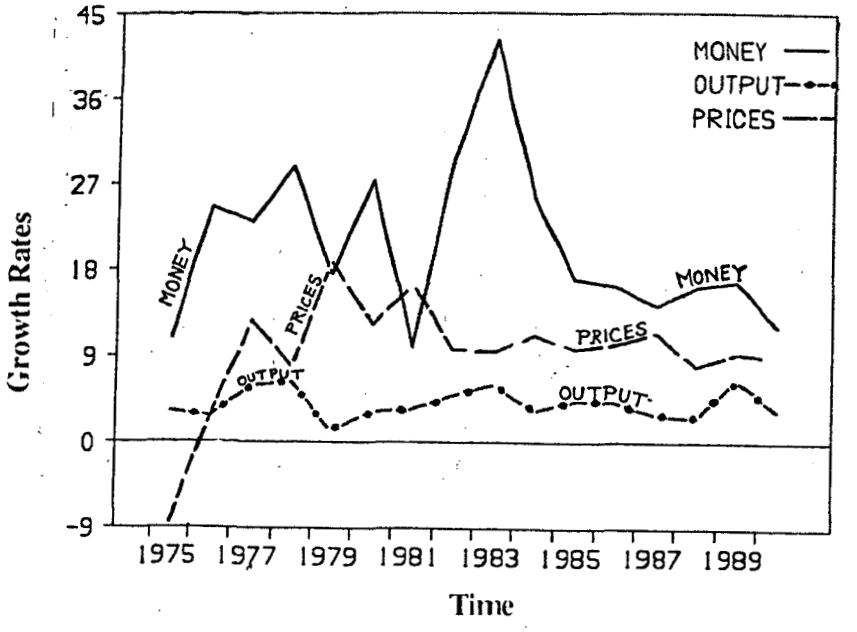
	Money	Output	Prices
1975-76	10.9	3.2	-8.4
1976-77	24.6	2.7	2.6
1977-78	23.1	6.0	12.7
1978-79	28.9	6.3	7.9
1979-80	17.6	1.2	18.8
1980-81	27.5	3.3	12.3
1981-82	10.0	3.5	16.5
1982-83	29.7	5.0	9.8
1983-84	42.2	6.1	9.5
1984-85	25.6	3.3	11.2
1985-86	17.1	4.3	9.8
1986-87	16.3	4.2	10.3
1987-88	14.3	2.9	11.4
1988-89	16.3	2.5	8.0
1989-90	16.9	6.6	9.3
1990-91	12.1	3.4	8.8
Average (Total)	20.8	4.0	9.4
Average (1975-76 to 1979-80)	21.0	3.9	6.7
Average (1980-81 to 1990-91)	20.7	4.1	10.6

Source : Economic Trends, Statistics Department, Bangladesh Bank

4.02 The growth in money, output and prices as plotted in Graph 4.1 indicates that the peaks in price level appears to have been followed by the peaks in money supply growth during the second half of the 'seventies. The relationship between growth of money supply and prices seems to have been weakened during the 'eighties. In 1983-84 the growth of money supply touched an all-time high of 42.2 per cent followed by an equally high growth rate of 25.6 per cent, whereas the growth in inflation was at 9.5 per cent followed by 11.2 per cent in the subsequent year. Notwithstanding the lower growth rates in money supply subsequently, there appears to be a tendency on the part of the inflation rate to hover around the

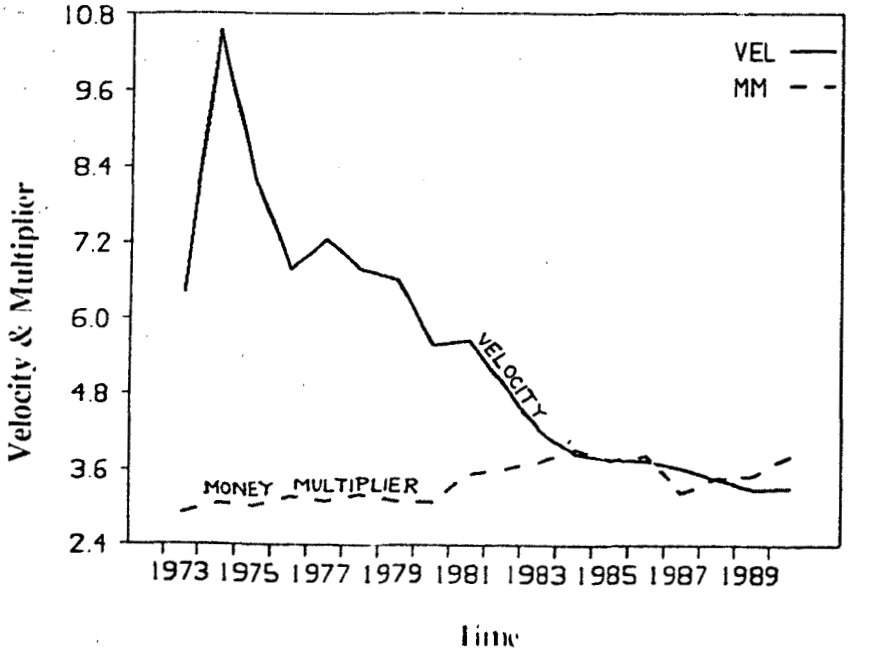
Graph 4.1 : BANGLADESH

Money Outputs & Prices : Growth Rates (1975-76 to 1990-91)



Graph 4.2 : BANGLADESH

Income Velocity & Money Multiplier (1973-74 to 1990-91)



double- digit figure during the 1980s. The relationship between growth in money supply, output and prices could be perceived from the secular drop in income velocity from a very high value of more than 8 in 1975-76 to slightly above 3 in 1990- 91. The drop in velocity has been accompanied by an increase in the broad money multiplier over time, although the value of the money multiplier has moved within the narrower range of 3 to 4 (Graph 4.2).

4.03 The money demand equation is estimated for the period 1975-76 to 1989-90 by regressing real broad money (RBM) on real output (GDPR) and deposit rate of interest (DROI).

$$\begin{array}{lcl} LRBM = & -31.2 + 2.7\ LGDPR & -0.03\ DROI \\ & (-9.7)\ \ (10.3) & \qquad (-1.4) \end{array}$$

$$\bar{R}^2 = 0.96, \quad DW = 1.45$$

(Figures in bracket represent 't' statistic)

The parameter estimates, as may be seen, are of the desired sign with income elasticity of demand for money (2.7) being highly significant. The responsiveness to interest rate seems to be weak.

4.04 Bangladesh is a predominantly agricultural economy as evident from the high share of agriculture in GDP. Though the share of agriculture has declined over time from 49.8 per cent in 1975-76 to about 35.1 per cent, there has not been any commensurate improvement in industrialisation, as the share of industry had inched up marginally from 8.9 per cent in 1975-76 to 9.1 per cent in 1991-92. Though the external sector of Bangladesh constitutes a relatively small part of the economy, the domestic economy is heavily dependent on the external sector for supply of critical items - capital goods, raw materials and some essential commodities. The external sector of Bangladesh, however, has undergone dynamic transformation over the years as would be evident from the drop in current account deficit from 8.8 per cent of GDP in 1975-76 to just 0.6 per cent in 1990-91. The turn-around has come about mainly due to large inflow of private transfers which has increased from 3.4 per cent of GDP in 1975-76 to 7.2 per cent in 1990-91. The growth in private transfers has significant implications on the money supply via growth in foreign assets of the banking system. Exports of Bangladesh have also diversified over time from mere raw jute in 1975-76 to readymade garments and marine products by the end of the 'eighties.

4.05 An examination of annual inflation data indicates that Bangladesh experienced a heavy bout of inflation ranging between 12 to 19 per cent coinciding

with the second oil shock from 1979-80 to 1981-82. In the subsequent years, double-digit inflation rate was in evidence only in two years - 1986-87 and 1987-88. The inflation rate has been in single digit since 1988-89, following the favourable effects of the IMF-supported medium-term Structural Adjustment Facility (SAF) covering the period 1986-87 to 1988-89.

4.06 The predominance of agriculture is evident in the price structure. Food and agriculture-based raw materials account for nearly two-third of the weight in the price index. The decomposition of inflation by these components for the period 1974-75 to 1990-91 reveals that the rise in raw material prices accounted for 39.4 per cent of inflation, followed by food of 38.1 per cent and fuel of 7.6 per cent. The high inflation rate of the period 1979-80 to 1981-82 was mainly accounted for by the rise in food prices contributing 51.6 per cent to the overall rise in the general price level; the direct contribution of fuel being 14.6 per cent, reflecting the lower energy intensity of the Bangladesh economy (Graph 4.3). The growth in agricultural production followed a cyclical pattern with the peaks in growth in agricultural price index coinciding with the troughs in agricultural production index. The inflationary implications of the fluctuations in agricultural production is clearly brought out in Graph 4.4.

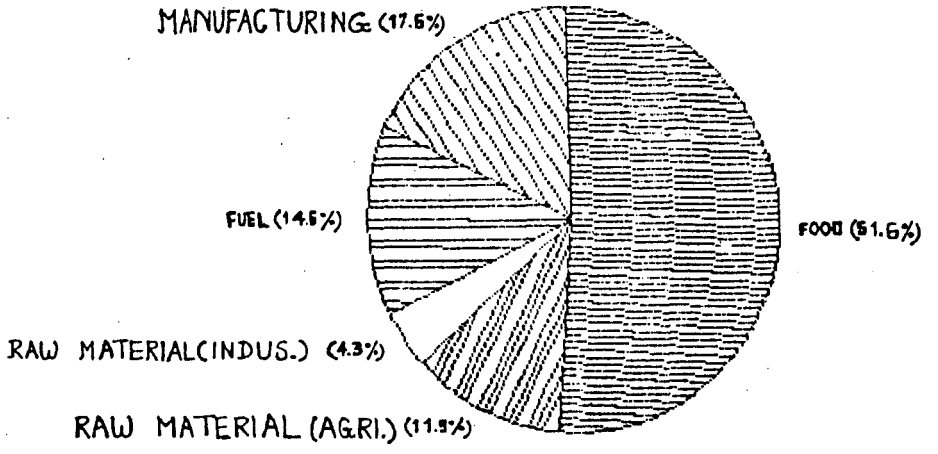
4.07 The expansion of broad money was mostly accounted for by net borrowing of the government. The share of government borrowing, however, progressively declined from 51.6 per cent in 1973-74 to 36.5 per cent in 1981-82. But the other public sector borrowing had gone up from 30.3 per cent to 53.5 per cent during the same period. But subsequent to 1981-82, the share of both the net borrowing of the government and public sector have dropped progressively with credit to private sector showing a substantial increase. In 1990-91, the borrowing of the private sector worked out to 71.3 per cent of broad money, followed by 21.4 per cent for public sector and only 8.7 per cent of net government borrowing, marking a major structural shift. The net foreign assets have also played a major role since 1986-87 adding to the total liquidity in the system in contrast to the earlier period (Appendix Table 3.1).

4.08 The import dependence of Bangladesh economy, the influence of foreign assets on money supply growth and the vulnerability of the economy to fluctuations in agricultural production which occur with almost predictable frequency could be identified as some of the major structural variables explaining the recent inflation episode in Bangladesh.

4.09 The structural aspect of inflation is tested by regressing consumer prices (CPI) on broad money (BM), agricultural gross domestic product (AGDP), and exchange rate (EXRT) in the standard double log format.

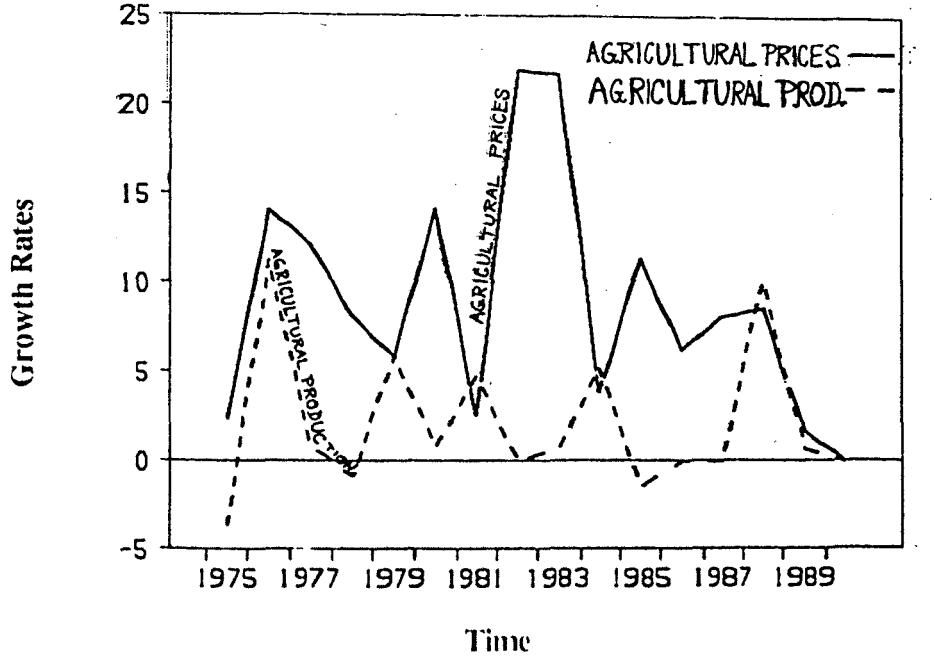
Graph 4.3 : BANGLADESH

Price Composition (1979-80 to 1981-82)



Graph 4.4 : BANGLADESH

Agricultural Production & Prices (1974-75 to 1988-89)



$$LCPI = 2.5 + 0.35\ LBM - 0.08\ LAGDP + 0.37\ LEXRT$$
$$(0.4)\ (3.9) \qquad (-0.2) \qquad (2.0)$$

$\bar{R}^2 = 0.99$, DW = 1.58

(Figure in bracket represent 't' statistic).

4.10 The estimated parameters are of expected sign, broad money and exchange rate were found to be significant at the conventional 5 per cent level. It could be seen that apart from growth in liquidity, the structural variables in the form of exchange rate and agricultural output have had major impact on inflation in Bangladesh.

5. Inflation in India

5.01 During the 21-year period from 1971-72 to 1991-92, the average annual rate of growth of broad money (BM) came down from 18.1 per cent during the 'seventies to 17.6 per cent during the 'eighties. The fall in the money supply expansion was accompanied by a substantial improvement in the growth of real GNP from 2.8 per cent per annum during the 'seventies to 5.5 per cent per annum during the 'eighties. The average rate of inflation also dropped from 9.4 per cent in the 'seventies to 8.0 per cent in the 'eighties. Apparently, thus, there does not appear to be a trade-off between inflation and output; rather, the improved performance of the economy has helped to moderate the inflationary pressure. The drop in the inflation rate during the 'eighties was accompanied by a secular fall in the income velocity. Money multiplier, however, showed an increasing trend (Graph 5.1).

5.02 We have estimated the money demand equation for the period 1970-71 to 1990-91 by regressing the real broad money (RBM) on real GNP (GNPR) and call money market rate (DROI). The equation is of good-fit with the parameter estimate being significant at the conventional 5 per cent level. The results of the regression equation are given below.

$$LRBM = -17.1 + 2.0\ LGNPR - 0.17\ LDROI$$
$$(-18.8)\ (24.5) \qquad (-2.6)$$

$\bar{R}^2 = 0.99$, DW = 1.87

(Figures in bracket represent 't' statistic.)

The income elasticity of demand for money works out to 2.0. The demand for money is also negatively related to short term interest rates, as the theory postulates.

5.03 The annual data on prices for the period reveal that India has undergone severe bouts of inflation thrice. During the period 1972-73 to 1974-75, prices rose sharply - the sharpest ever since India's independence — following the first oil shock. During the second oil shock in 1979-80 and 1980-81, India experienced another bout of double-digit inflation. Subsequently, till the end of the 'eighties, the inflation rate had been in single-digit. Thereafter the inflation rate accelerated; it rose from 7.4 per cent in 1989-90 to 10.3 per cent in 1990-91 and further to 13.6 per cent in 1991-92 (Table 5.1).

TABLE 5.1 : India : Money, Output and Prices

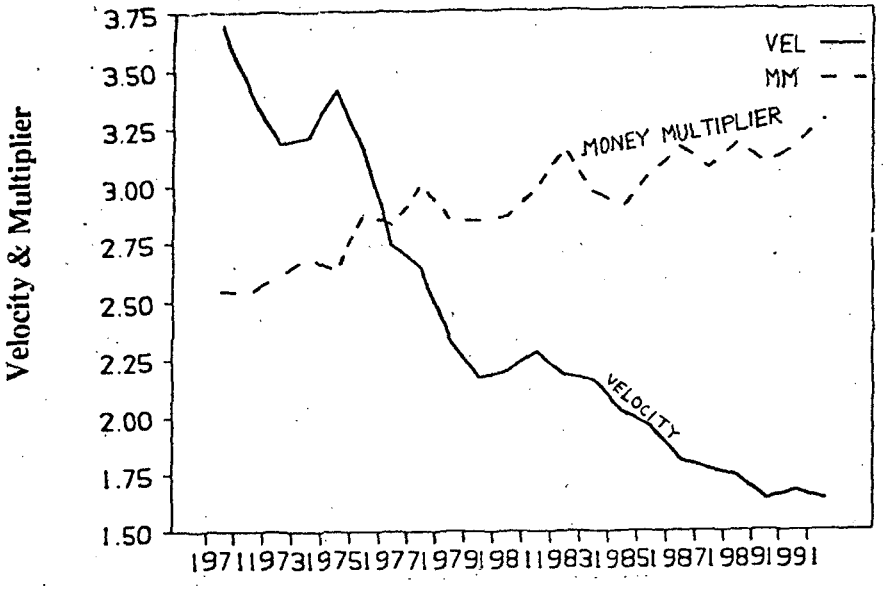
(In Per cent)

	Money	Output	Prices
1971-72	15.6	0.9	5.6
1972-73	17.7	-0.3	10.0
1973-74	21.6	4.9	20.2
1974-75	10.9	1.6	25.2
1975-76	15.0	9.2	-1.1
1976-77	23.6	1.3	2.1
1977-78	18.4	7.5	5.2
1978-79	21.9	5.6	0.0
1979-80	17.7	-4.9	17.1
1980-81	18.1	7.3	17.7
1981-82	12.5	5.8	9.8
1982-83	16.1	2.6	4.9
1983-84	18.1	7.9	7.5
1984-85	18.9	3.8	6.5
1985-86	15.9	4.1	4.4
1986-87	19.3	3.6	5.8
1987-88	16.0	4.2	8.2
1988-89	21.9	10.6	7.5
1989-90	19.4	5.2	7.4
1990-91	16.1	5.7	10.3
1991-92	17.4	1.4	13.6
Average (Total)	17.7	4.2	9.0
Average (1971-72 to 1979-80)	18.1	2.8	9.4
Average (1980-81 to 1989-90)	17.6	5.5	8.0

Source : Economic Survey of Government of India

Graph 5.1 : INDIA

Income Velocity & Money Multiplier (1970-71to 1991-92)



5.04 A decomposition of price index by its components during the first oil shock reveals that the major thrust to prices emanated from primary goods which directly accounted for 44.4 per cent of inflation while the share of fuel was of the order of 7.4 per cent. GNP showed a very modest - almost meagre - growth of 0.9 per cent in 1971-72 and negative growth of 0.3 per cent in 1972-73 and 1.6 per cent during 1974-75. The low growth of GNP was mainly due to negative agricultural growth. The situation was aggravated by a high money supply growth of 15.6 per cent in 1971-72 and 17.7 per cent in 1972-73 and 21.6 per cent in 1973-74.

5.05 The second episode of inflation, which coincided with the second oil shock, was also accompanied by high money supply growth, which was compounded by a negative growth rate of 4.9 per cent in GNP during 1979-80 because of severe drought conditions and the consequential crop failure. The third episode of inflation was during the first two years of the 'nineties when the mounting balance of payments deficit under the impact of Gulf War and unsustainable fiscal deficit prompted demand to outstrip supply. The devaluation of the Indian rupee in July 1991 and the severe import compression that followed, alongwith the reduced GNP growth rate from 5.7 per cent in 1990-91 to 1.4 per cent in 1991-92 gave rise to a high degree of inflation during these two years.

5.06 Disaggregated price index data for 1979-80 to 1981-82 reveal that unlike in the years of the first oil crisis, India was hard-hit by increase in fuel prices which

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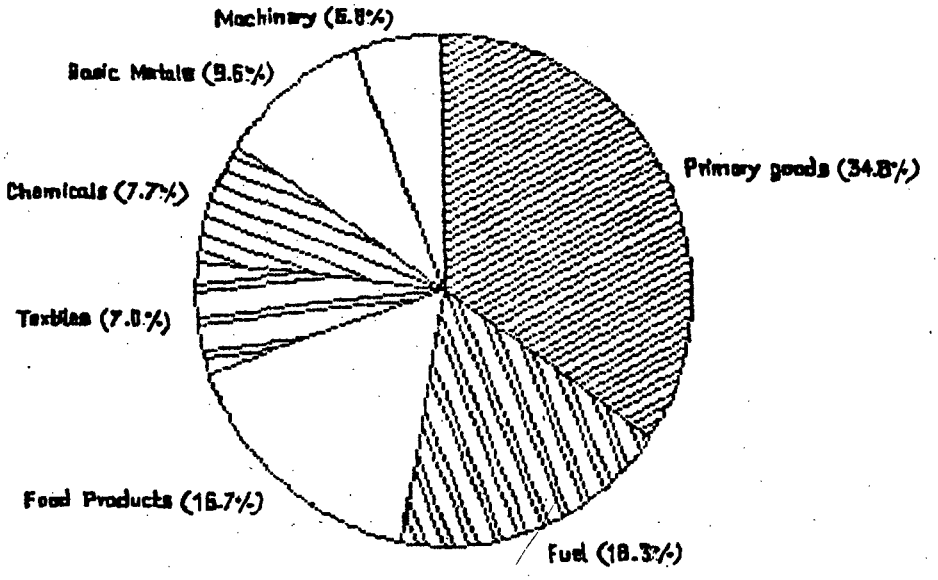
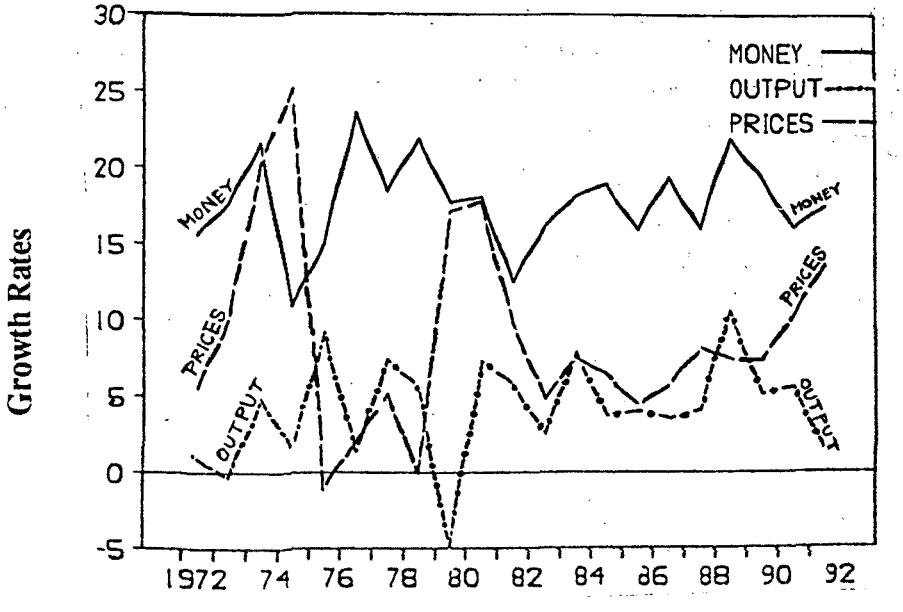
Graph 5.2 : IN

Price Composition (1979-80 to 1981-82)



Graph 5.3 : INDIA

Money, Output & Prices : Growth Rates



contributed to the extent of 18.3 per cent to inflation. No doubt, primary goods prices accounted for about 34.8 per cent of inflation during the second episode, but it needs to be noted that its relative importance has diminished from 44.4 per cent recorded during the first oil shock (Graph 5.2).

5.07 Graph 5.3 shows that the peaks in inflation rate during the first and second oil shocks were either accompanied or followed by the peaks in growth in money supply. The relationship seems to have somewhat weakened during the 'eighties as the inflation rate did not exhibit the volatility of the 'seventies. The growth rates in Wholesale Price Index (WPI), Food Price Index (FPI) and Import Price Index (MPI) clearly indicate that the high inflation rate of the first two oil shocks was due mainly to spurt in import prices and in food price index. During the 'eighties, the impact of food price index on the overall inflation rate appeared to have been somewhat moderate (Graph 5.4). The growth in WPI and Agricultural Production Index (AGI) indicates that the wide fluctuation in WPI during the 'seventies was accompanied by fluctuations in agricultural output. Though agricultural output has shown some variations in the 'eighties, the inflation rate has been somewhat steady, indicating the reduced vulnerability of the Indian economy to supply shocks (Graph 5.5). The Indian export sector has however become highly import intensive. Despite the gradual increase in domestic crude oil production, the economy depends on import of oil to a very substantial extent. Increase in import prices has always been passed on to consumers through cost-push factors.

5.08 On the demand side, the increase in gross fiscal deficit from 2.9 per cent of GDP in 1970-71 to 4.1 per cent in 1979-80 and subsequently to 8.4 per cent in 1990-91 has prompted the government to resort to direct borrowing from the banking sector. Government borrowing accounted for more than 1/3rd of broad money supply, adding to demand pressure (Appendix Table 3.2).

5.09 Going by the experiences of the three episodes of inflation, it could be said that apart from money supply, the growth in real output, import and food prices are major structural variables explaining inflation in India, though the influence of the last of the variables seems to have waned somewhat during the 'eighties. Yet for the overall period as a whole, the price equation estimated in the Structuralist-Monetarist tradition for the period 1970-71 to 1988-89 brings out the importance of imports (MPI) and food prices (FPI) in addition to money supply (BM) in price determination in India.

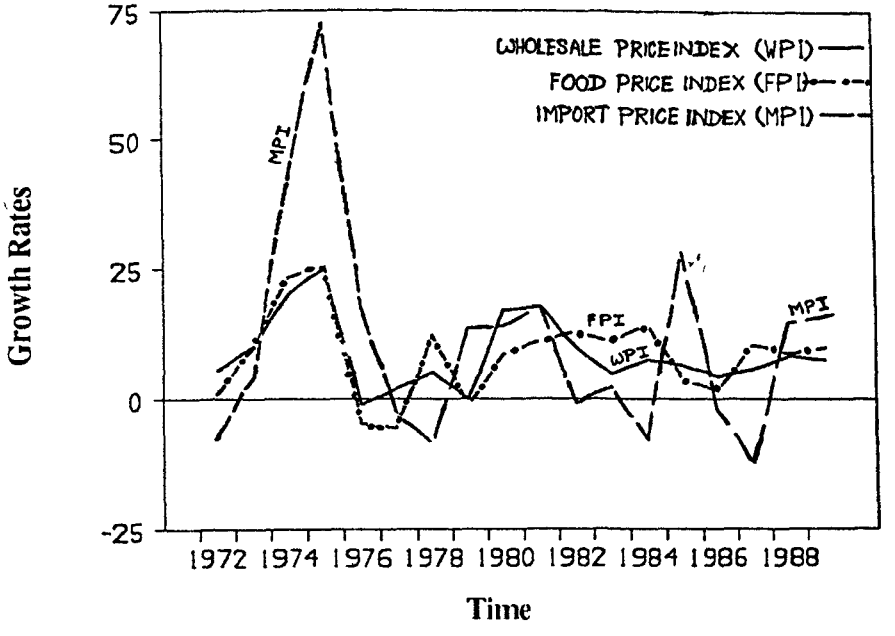
$$LWPI = 4.6 + 0.3\ LBM - 0.6\ LGNPR + 0.13\ LMPI + 0.6\ LFPI$$
$$(2.2)\ (3.9) \qquad (-2.4) \qquad (3.1) \qquad (6.0)$$

$\bar{R}^2 = 0.99$, D.W. = 1.47

(Figures in bracket represent 't' statistic.)

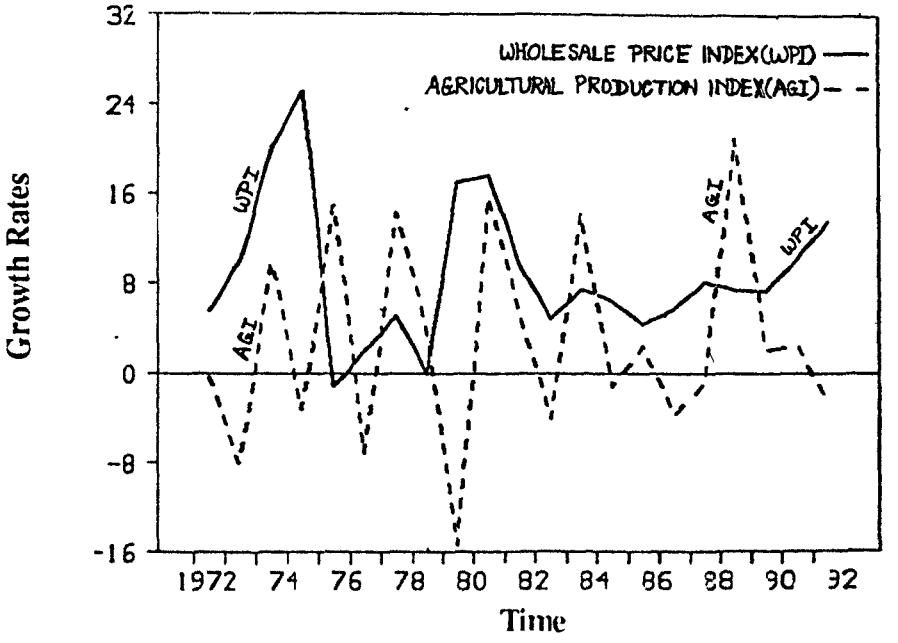
Graph 5.4 : INDIA

Price Indices: Growth Rates (1971-72 to 1988-89)



Graph 5.5: INDIA

Agricultural Production & Prices (1971-72 to 1991-92)



5.10 All the parameter estimates are of expected sign and highly significant at the conventional 5 per cent level.

6. Inflation in Iran

6.01 The economy of Islamic Republic of Iran is structurally very different from the rest of the ACU countries. Further, there have been rapid structural shifts due to a variety of events affecting the Iranian economy. The structural shift could be easily gauged from the rapid change in the sectoral composition of GDP. The share of oil in GDP at constant prices sharply declined from 40.2 per cent in 1975-76 to 12.9 per cent in 1985-86, though subsequently it improved to 16.1 per cent in 1988-89. The share of industry which had improved from 17.0 per cent in 1975-76 to 20.3 per cent in 1980-81, dropped to 18.9 per cent in 1988-89. The performance of agriculture however, has been good with its share going up from *10.3 per cent in 1975-76 to 15.9 per cent in 1988-89 (Table 6.1).*

Table 6.1 : Iran : Gross Domestic Product at Constant Prices

(Share in Per cent)

	Agriculture	Oil	Industry	Services	Total
1975-76	10.3	40.2	17.0	32.5	100.0
1980-81	14.1	12.9	20.3	52.7	100.0
1985-86	14.4	12.9	20.3	52.4	100.0
1988-89	15.9	16.1	18.9	49.1	100.0

Source : Annual Reports of Bank Markazi, Iran.

6.02 The GDP growth which was as high as 7.4 per cent per annum during 1974-75 to 1977-78, following the oil price boom, recorded a negative growth rate of 11.6 per cent per annum during 1978-79 to 1980-81. During the 'eighties the performance of the economy suffered a great deal due to war and the economic sanctions that followed. Performance of the key petroleum sector was seriously affected early in the war. Crude oil production slipped to a low of less than 1.5 million barrels per day in 1980-81 which is about a quarter of the rate of production sustained during the mid-'seventies.

6.03 Exports of oil and gas were severely affected. From US $ 2460 million in 1972-73 exports of oil had increased to US $ 19,386 million in 1979-80 and then dropped to US $ 6,255 million in 1985-86 and US $ 9,673 million in 1988-

89. The reduction of oil exports not only put a strain on balance of payments but also on government revenue. Oil revenue which was as high as 38.3 per cent of GDP in 1974-75, dropped to 2.3 per cent in 1986-87 and 2.8 per cent in 1988-89. On an average, oil revenue as percentage of GDP declined from 29.6 per cent during 1973-74 to 1977-78 to 11.2 per cent during 1978-89 to 1988-89. Even revenue from other sources as a percentage of GDP showed a marginal decline from 8.5 per cent during 1973-74 to 1977-78 to 8.1 per cent during 1978-89 to 1988-89. There was no doubt a drop in government expenditure from 39.6 per cent to 27.7 per cent of GDP during the same period but this was not proportionate to the fall in revenue. As a result, fiscal deficit widened from 1.6 per cent to 8.5 per cent of GDP during the same period. The fiscal scenario was adversely affected by war expenditure which averaged about 3.5 per cent of GDP during 1981-82 to 1988-89. The large budget deficit financed through central bank credit had an expansionary effect on money supply. Broad money supply expanded at an annual average rate of 36.7 per cent during 1974-75 to 1979-80 but the output growth recorded a negative growth of 0.8 per cent during the same period mainly due to decline in output for 3 consecutive years from 1978-79. The high growth of money supply during the 'seventies was mainly due to a large accretion of foreign assets which had increased from 17.6 per cent of the total assets of the central bank of Iran in 1971-72 to 33.9 per cent in 1979-80, touching a peak of 43.6 per cent in 1974-75, following the oil boom. The share of foreign assets however, declined drastically during the 'eighties to 5.2 per cent. During the 'eighties, though the share of foreign assets declined, money supply still showed a high growth rate of 18.1 per cent. Monetary expansion during the 'eighties came about through a rapid increase in government borrowing from the central bank from Rial 1857.6 billion in 1980-81 to Rial 10975.7 billion in 1988-89. As a result, the share of government borrowing in the total assets of the central bank increased from 29.2 per cent in 1979-80 to 83.3 per cent in 1988-89 (Appendix Table 3.3). During the 'eighties, except for three years of positive growth in GDP, (viz. 1981-82 to 1983-84), economic growth has been generally negative due to the war and the extensive damage caused to infrastructure and the productive capacity of Iran and import compression stemming from the deteriorating balance of payment situation. The manufacturing sector which is highly dependent on imports, suffered a great deal due to import compression. On an average, the 'eighties recorded a negative growth of 0.4 per cent. Inflation rate accelerated from 16 per cent during the latter half of the 'seventies to 19.5 per cent during the 'eighties (Table 6.2).

6.04 The growth in money, output and prices is plotted in Graph 6.1 which indicates that though the money supply growth rate had decelerated from its peak level in the mid-1970s, it again picked up since 1985-86 following the escalation of war. Growth in output has widely fluctuated, being negative, for most of the

Table 6.2 : Iran : Money, Output and Prices

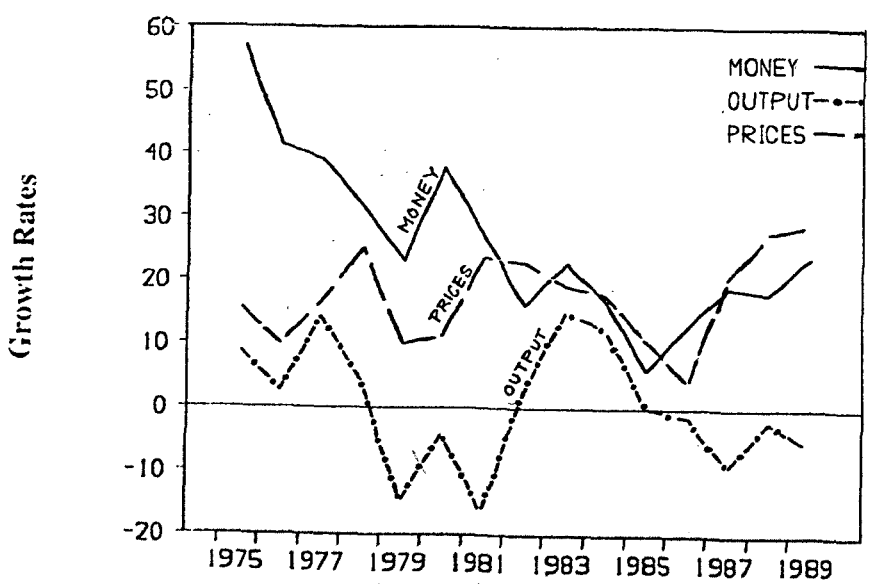
(In Per cent)

	Money	Output	Price
1974-75	57.1	8.7	15.5
1975-76	41.4	2.6	9.9
1976-77	39.1	14.2	16.6
1977-78	31.6	4.0	25.1
1978-79	23.0	-14.5	10.0
1979-80	37.7	-4.0	11.4
1980-81	27.0	-16.3	23.5
1981-82	16.1	2.8	22.8
1982-83	22.8	15.2	19.2
1983-84	16.9	12.4	17.7
1984-85	6.0	0.1	10.5
1985-86	13.0	-1.4	4.1
1986-87	19.1	-9.1	20.8
1987-88	18.1	-1.9	27.7
1988-89	23.8	-5.7	28.9
Average (Total)	26.2	0.5	17.6
Average (1974-75 to 1979-80)	36.7	-0.8	16.0
Average (1980-81 to 1988-89)	18.1	-0.4	19.5

Source : Annual Reports of Bank Markazi, Iran.

Graph 6.1 : IRAN

Money, Output & Prices : Growth Rates (1974-75 to 1988-89)

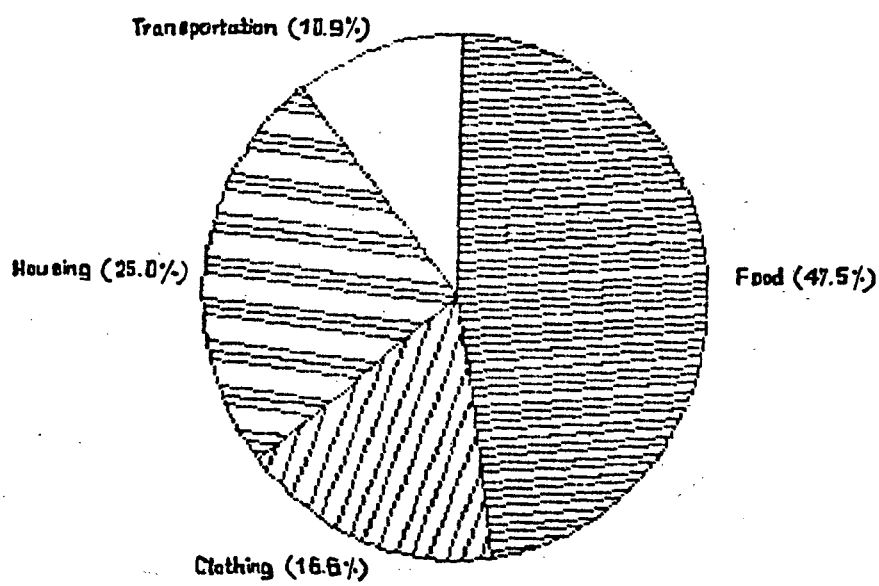


years after 1984-85. The inflation rate would have been much higher but for the policy of effective government control on prices, the distribution of goods at the wholesale level and the policy of rationing with the out-break of the war.

6.05 A decomposition of prices by its components indicates that the upward thrust to the price level has mostly emanated from the growth of food prices which accounted for 47.5 per cent of the inflation rate during 1973-74 to 1988-89. During the inter-war years food prices have always come under pressure due to periodic declines in production as well as drop in imports of essential goods as a result of the economic blockade of the country (Graph 6.2). Food prices not only reflect the prices of domestic production but also import prices. It can be seen from Graph 6.3 that the peaks in the growth rate of food prices have roughly coincided with troughs in domestic agricultural production index.

Graph 6.2 : IRAN

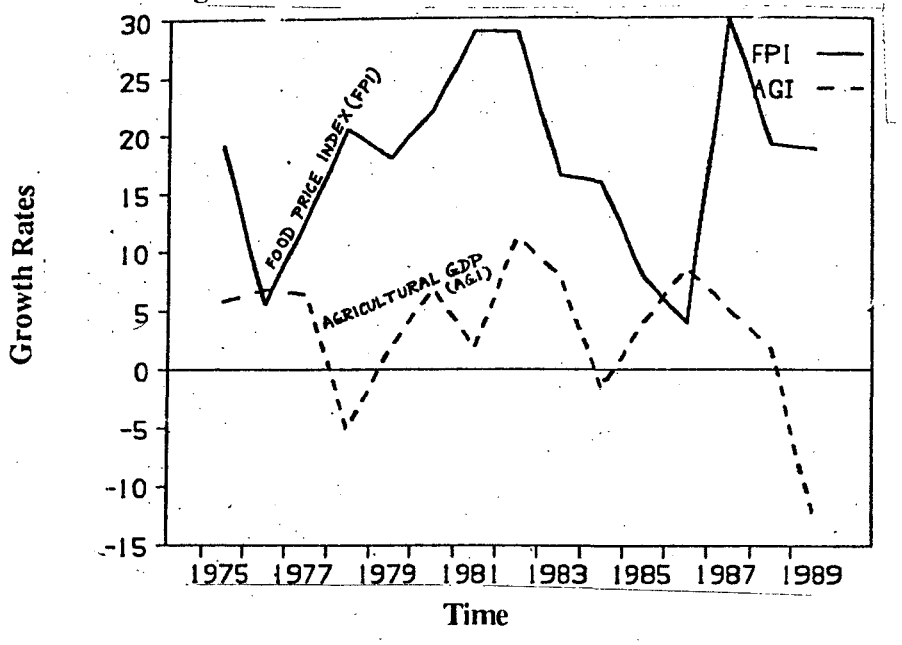
Price Composition (1973-74 to 1988-89)



6.06 The inflationary impact of expansion of domestic liquidity during the 'eighties could have been much severe but for the decline in the income velocity from its peak level in 1984. Money multiplier also showed a contemporaneous decline (Graph 6.4). Due to the peculiar nature of inflation in Iran, and probably also data infirmities, the money-demand equations did not yield satisfactory results. However, we have estimated price equation for the period 1974-75 to 1988-89 by regressing consumer price index (CPI) on real gross domestic product (GDPR), broad money (BM) and consumer price index with one period lag. The estimated equation is given below.

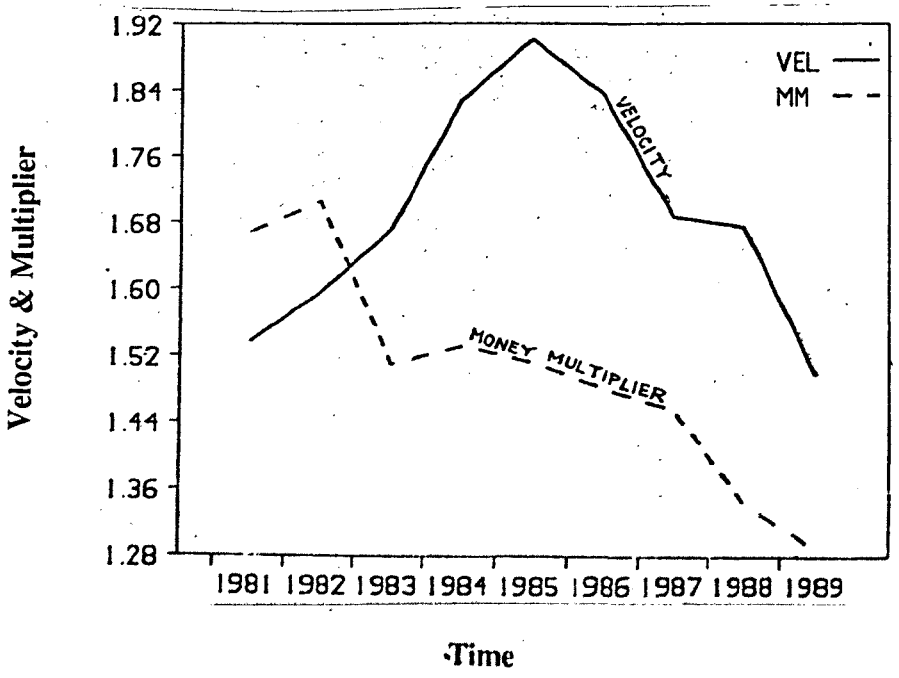
Graph 6.3 : IRAN

Agricultural GDP & Prices (1974-75 to 1988-89)



Graph 6.4 : IRAN

Income Velocity & Money Multiplier (1980-81 to1988-89)



$$LCPI = \underset{(1.1)}{1.3} + \underset{(1.0)}{0.1\,LBM} - \underset{(-1.2)}{0.2\,LGDPR} + \underset{(9.5)}{0.9\,LCPI(-1)}$$

$\bar{R}^2 = 0.99$, DW = 1.54, h = 1.022

(Figures in bracket represent 't' statistic.).

6.07 Though the parameter estimate of real GDP was of the correct negative sign, it was not found to be significant at the conventional 5 per cent level. However, the price expectation proxied by consumer price index with one period lag was found to be highly significant at one percent level. Thus it would appear that in the Iranian economy the inflationary expectation has always been very high - during the 'seventies as a direct result of oil price boom, and during the 'eighties, due to the compulsions of the war economy. Prices have however been kept under check through a process of price control and rationing of essential commodities since mid-1980s.

6.08 Fluctuations in production of oil (OILPD) through its impact on overall liquidity was also found to be a significant variable in explaining inflation in Iran during the period 1974-75 to 1988-89.

$$LCPI = \underset{(1.4)}{4.3} + \underset{(11.8)}{0.9\,LBM} - \underset{(-2.3)}{1.2\,LGDPR} + \underset{(2.6)}{0.5\,LOILPD}$$

$\bar{R}^2 = 0.96$, DW = 0.80

(Figures in bracket represent 't' statistic)

6.09 The results show that apart from broad money and real output, the production of oil in Iran was a significant variable in the explanation of inflation.

7. Inflation in Myanmar

7.01 In Myanmar, the annual growth in money supply was 14.0 per cent and the inflation rate 13.5 per cent with the annual output expanding by 3.8 per cent during the 'seventies. During the 'eighties, while the rise in broad money at 14.0 per cent remained the same as in 'seventies, the average inflation rate dropped to 8.8 per cent despite a deceleration in the growth of output to 2.4 per cent. The low inflation rate during the major part of the 'eighties camouflages the severe undercurrent of suppressed inflation that Myanmar had undergone following a prolonged period of price controls. The experience of the price increase during 1987-88 to 1989-90 on some liberalisation of controls, thus vividly captures the

release of latent inflationary forces. The earlier bout of severe inflation was in the early 'seventies following the first oil shock, when the inflation rate had accelerated from 7.7 per cent in 1972-73 to 31.6 per cent in 1975-76. The second oil shock did not have any influence on the Myanmar economy.

7.02 The growth in money, output and prices as depicted in Graph 7.1, reveals that the peaks in prices were preceded by peaks in money supply growth rate till the mid-1980s. This pattern was not sustained subsequently. In fact, notwithstanding the negative growth rate of money supply of about 30 per cent in 1988-89, the inflation rate has accelerated to 22 per cent in 1988-89 and 22.5 per cent in 1989-90 from 6.3 per cent in 1986-87. This phenomenon may also be attributed to the sharp decline in real output for three consecutive years, 1986-87 to 1988-89. The overhang of high liquidity built over time has clearly had an impact on prices (Table 7.1).

Table 7.1 : Myanmar : Money, Output and Prices

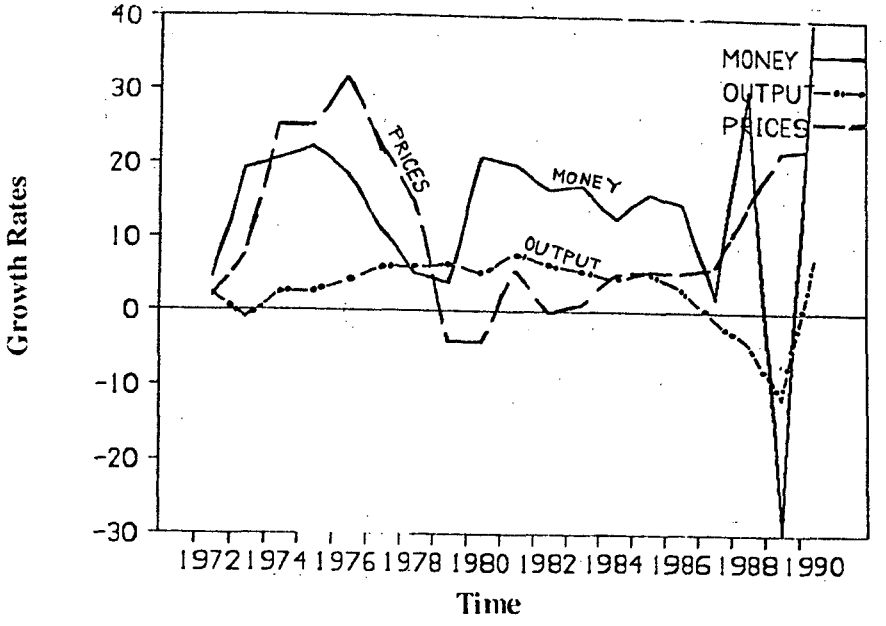
(In Per cent)

	Money	Output	Prices
1971-72	4.6	2.4	2.1
1972-73	19.3	-1.0	7.7
1973-74	20.6	2.6	25.2
1974-75	22.2	2.7	25.1
1975-76	18.7	4.1	31.6
1976-77	11.0	6.1	22.4
1977-78	5.1	5.9	14.9
1978-79	4.0	6.5	-3.9
1979-80	20.9	5.2	-4.0
1980-81	20.0	7.9	5.6
1981-82	16.6	6.4	-0.0
1982-83	17.1	5.6	1.1
1983-84	12.7	4.4	5.2
1984-85	16.2	5.6	5.6
1985-86	14.7	3.2	5.3
1986-87	2.1	-1.1	6.3
1987-88	30.3	-4.0	14.7
1988-89	-29.6	-11.4	22.0
1989-90	39.6	7.4	22.5
Average (Total)	14.0	3.1	11.0
Average (1971-72 to 1979-80)	14.0	3.8	13.5
Average (1980-81 to 1989-90)	14.0	2.4	8.8

Source :International Financial Statistics (IMF)

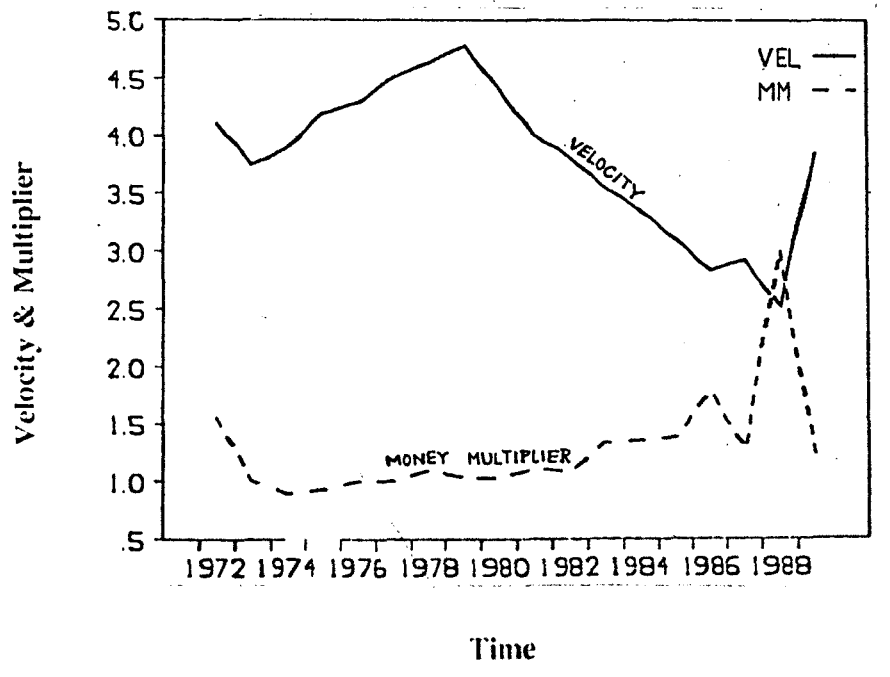
Graph 7.1 : MYANMAR

Money, Output & Prices : Growth Rates (1971-72 to 1989-90)



Graph 7.2 : MYANMAR

Income Velocity & Money Multiplier (1971-72 to 1988-89)



7.03 The income velocity which had shown a declining trend during the most part of the 'eighties has shown a sharp increase in 1988-89. The money multiplier which had shown an increasing trend, within a narrow band, shot up during 1988-89 but subsequently dropped to its earlier range in 1989-90 (Graph 7.2).

7.04 The income elasticity of broad money was estimated for the period 1971-72 to 1989-90 by regressing real broad money (RBM) on real output (GNPR) and rate of interest on deposits (DROI), the equation being :

$$LRBM = \underset{(-2.9)}{-19.9} + \underset{(3.7)}{2.3}\ LGNPR \ \underset{(-0.7)}{-0.2}\ LDROI$$

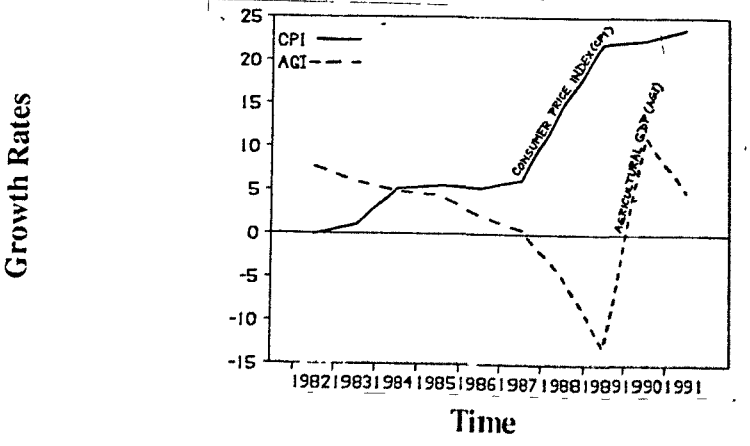
$$\bar{R}^2 = 0.88, \quad DW = 1.87$$

(Figures in bracket represent 't' statistic.)

The income elasticity of money is estimated at 2.3 with the estimate being significant at the conventional 5 per cent level. The interest rate variable is not significant.

7.05 The Myanmar economy is characterised by a high share of agriculture in GDP as well as in exports which influenced price behaviour (Graph 7.3). Merchandise exports showed a declining trend from 9.1 per cent of GDP in 1981-82 to 2.7 per cent in 1987-88 and subsequently improved to 3.5 per cent in 1989-90 and 4.1 per cent in 1990-91. Merchandise imports had also declined from 14.7 per cent in GDP in 1981-82 to 5.4 per cent in 1988-89, severely affecting infrastructure and industry. The external current account showed persistently high deficit resulting in substantial increase in the debt-service ratio. The balance of payment constraint has given rise to raw material and capital goods shortage and widespread speculative activities, while the over-valued exchange rate has diverted exports to unofficial channels resulting in substantial loss in foreign exchange.

Graph 7.3 : MYANMAR
Agricultural GDP & Prices (1981-82 to 1990-91)



7.06 The current account deficit has its domestic spill-over effects. The domestic fiscal scenario has been further aggravated by stagnation in domestic revenue during the 'eighties. Government revenues which had increased from 9.9 per cent of GDP in 1973-74 to 17.0 per cent in 1981-82 continuously declined to 9.1 per cent in 1988-89. This has given rise to the reemergence of fiscal deficit in 1984-85 which has since been growing from 0.8 per cent of GDP in 1985-86 to 3.2 per cent in 1988-89. Poor government revenue performance, coupled with the provision of credit to finance the operations of State Economic Enterprises (SEEs) and the central government, has led to deterioration in fiscal position which in turn has entailed expansion of total liquidity. The growing budget deficit has been cushioned by an accommodative monetary policy, leading to pressure on prices.

7.07 As the economy has exhibited inherent structural imbalances, an attempt has been made from the late 'eighties to reform the economic system, including bringing about a measure of price flexibility.

7.08 The estimated price equation for Myanmar highlights the fiscal imbalance. The ratio of budget deficit to GDP (BD/GDP), emerges as an important factor along with money supply (BM) in explaining the inflationary situation during the period 1973-74 to 1989-90.

$$\underset{}{\text{LCPI}} = \underset{}{14.8} + \underset{(2.6)}{1.3\ \text{LBM}} - \underset{(-2.7)}{2.0\ \text{LGNPR}} + \underset{(3.3)}{4.8\ (\text{BD/GDP})}$$
$$\underset{(4.8)}{}$$

$$\bar{R}^2 = 0.86,\ DW = 1.62$$

(Figures in bracket represent 't' statistic.)

7.09 All the parameter estimates are of expected sign and significant at 5 per cent level. The long period of price and exchange rate controls and the limited outward orientation, however, point to the structural rigidities of the system during the period as a whole. These get captured by both real output movements and fiscal developments, the latter in particular being very important as government has been the main propeller of economic activity.

8. Inflation in Nepal

8.01 Nepal experienced a single-digit inflation rate of 7.5 per cent a year during the 'seventies, despite a high annual growth of broad money supply of 19.5 per cent and a relatively low yearly growth of output of 2.6 per cent. Though the rate of growth of money supply increased marginally to 19.6 per cent during the

'eighties, inflation rate accelerated to 10.6 per cent. The higher inflation rate, however, was accompanied by a substantial improvement in the growth of real GDP to 4.2 per cent, giving credence to the trade-off hypothesis between inflation and output (Table 8.1).

8.02 The growth in money, output and prices is plotted in Graph 8.1 which indicates that the peaks in price index have broadly followed the peaks in money supply growth. The growth in output apparently has had a moderating effect on prices. Though the inflation rate during the 'eighties has been relatively high, the volatility seems to have reduced due to consistently positive and high growth of output since 1984-85.

Table 8.1 : Nepal : Money, Output and Prices

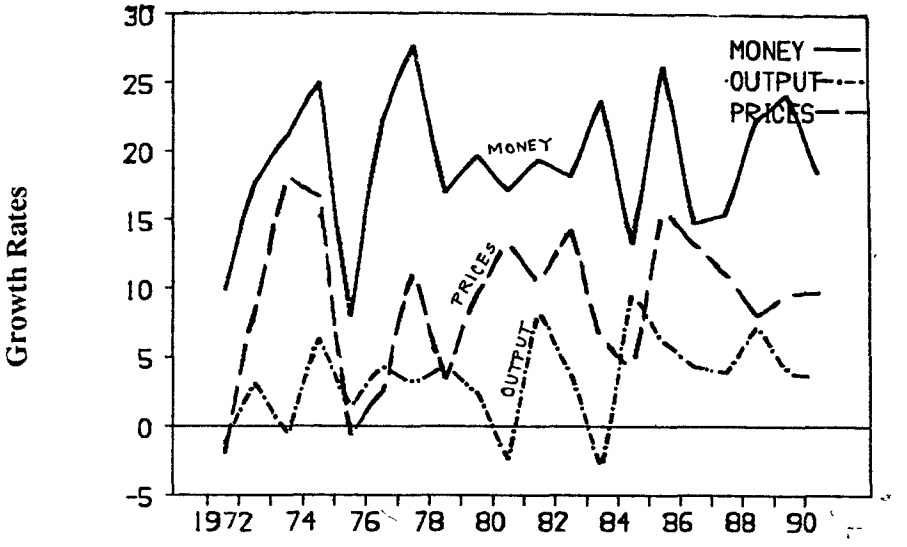
(In Per cent)

	Money	Output	Prices
1971-72	17.7	-1.2	-1.9
1972-73	21.2	3.1	8.5
1973-74	25.0	-0.5	18.1
1974-75	8.0	6.3	16.7
1975-76	22.3	1.5	-0.6
1976-77	27.7	4.4	2.6
1977-78	17.0	3.0	11.3
1978-79	19.6	4.4	3.4
1979-80	17.2	2.4	9.7
1980-81	19.3	-2.3	13.4
1981-82	18.2	8.3	10.5
1982-83	23.7	3.8	14.2
1983-84	13.4	-3.0	6.3
1984-85	26.2	9.7	4.1
1985-86	14.9	6.1	15.9
1986-87	15.4	4.3	13.3
1987-88	22.4	3.9	11.1
1988-89	24.2	7.3	8.1
1989-90	18.6	3.9	9.7
Average (Total)	19.6	3.4	9.2
Average (1971-72 to 1979-80)	19.5	2.6	7.5
Average (1980-81 to1989-90)	19.6	4.2	10.6

Source : Quarterly Economic Bulletin, Nepal Rastra Bank (Source for Output is International Financial Statistics, IMF)

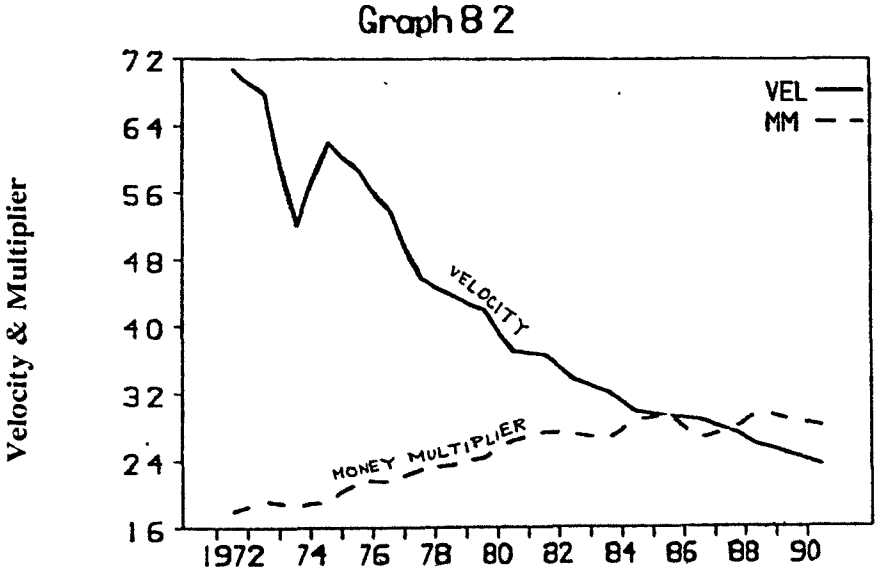
Graph 8.1 : NEPAL

Money, Output & Prices : Growth Rates (1971-72 to 1990-91)



Graph 8.2 : NEPAL

Income Velocity & Money Multiplier : (1971-72 to 1990-91)



8.03 The income velocity showed a secular fall from 7.0 during the early 'seventies to around 2.0 during 1990-91. The broad money multiplier showed a consistent increase from the early 'seventies to the mid-'eighties and thereafter seems to have stabilised around 2.5. The secular fall in the velocity indicates that increased monetisation of Nepalese economy had a sobering effect on the inflation rate (Graph 8.2).

8.04 The impetus to money supply growth seems to have emanated from large foreign assets of the banking system. Foreign assets as a percentage of broad money which was as high as 93.4 per cent in 1971-72, declined to 42.2 per cent in 1979-80 and further to 14.4 per cent in 1984-85. However, foreign assets have again shown a rising trend, increasing to 17.2 per cent in 1985-86 and 42.9 per cent in 1990-91. During the 'eighties, the net claims of government have also increased substantially from Rs.1,262.7 million in 1980-81 to Rs.16,815.6 million in 1990-91, accounting for 20.0 per cent of broad money in 1980-81 and 44.6 per cent in 1990-91, thus underscoring the increasing demand pressure emanating from government's budgetary operations (Appendix Table 3.5).

8.05 The annual data on inflation reveal that severe bouts of inflation followed the first and second oil shocks. The inflationary pressure has again revived in 1985-86 when the inflation rate jumped from 4.1 per cent in 1984-85 to 15.9 per cent in 1985-86. Though subsequently the inflation rate has fallen, it has remained close to a double digit figure.

8.06 The money demand equation for Nepal for the period 1971-72 to 1989-90 indicates high income elasticity of demand for money at 2.8. The estimated equation is given below :

$$LRBM = -23.5 + 2.7\ LGDPR - 0.4\ LDROI$$
$$(-9.5)\ (10.7) \qquad (-2.7)$$

$$\bar{R}^2 = 0.97,\ DW = 1.91$$

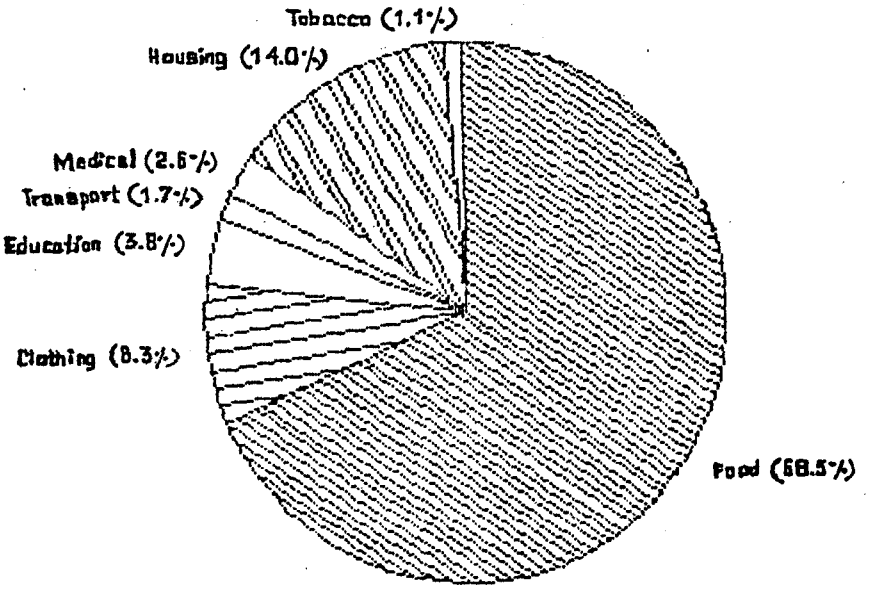
(Figures in brackets represent 't' statistic.)

The parameter estimates have expected desired signs and are significant at the conventional 5 per cent level.

8.07 Structurally, the Nepalese economy is dominated by the high share of agriculture in gross domestic product. The share of agriculture however declined from 76.5 per cent of GDP in 1970-71 to 58.6 per cent of GDP in 1990-91, while the share of industry increased only modestly from 11.4 per cent to 13.6 per cent. The consumption basket is also dominated by food and food items. A decompo

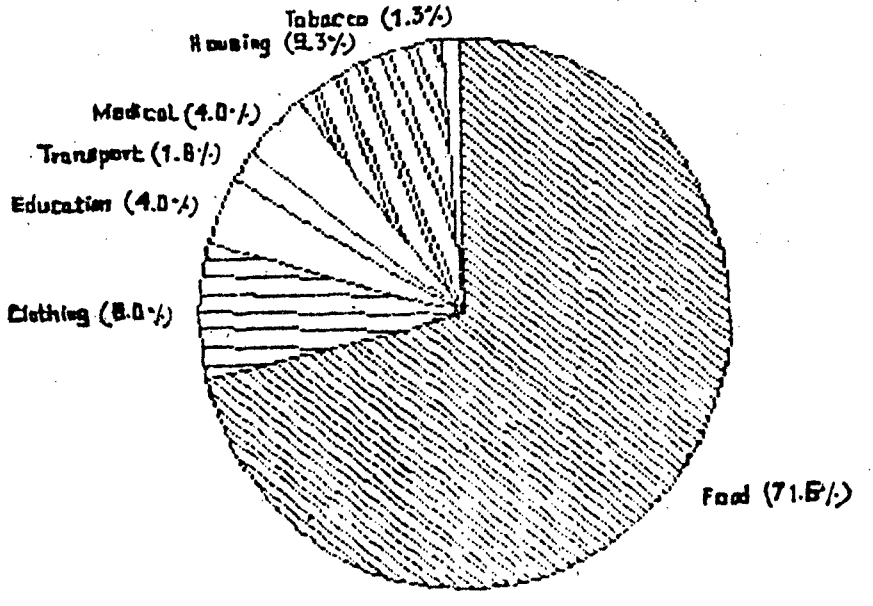
Graph 8.3 : NEPAL

Price Composition (1979-80 to 1982-83)



Graph 8.4 : NEPAL

Price Composition (1985-86 to 1987-88)

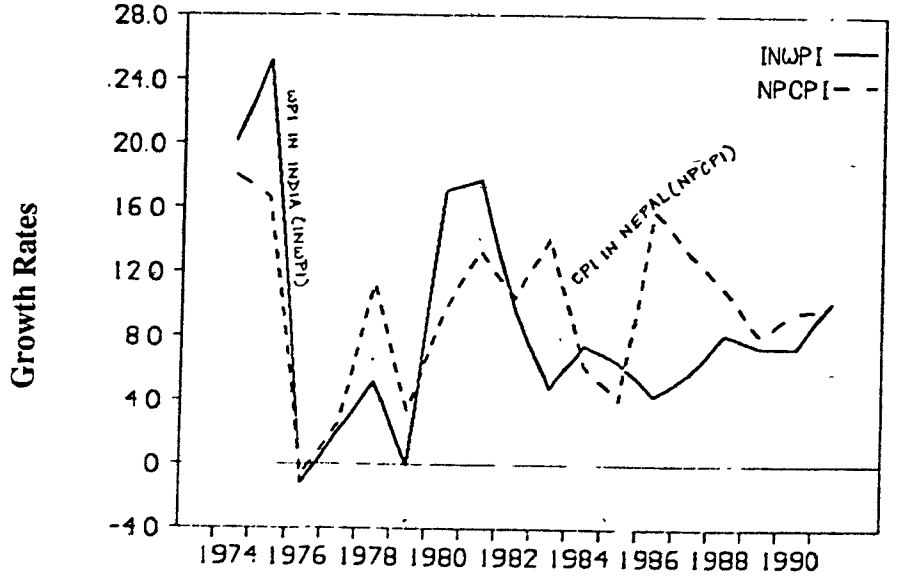


sition of prices by its component reveals that during the period 1976-77 to 1990-91 the rise in food prices directly accounted for 56.8 per cent of inflation. The food price again was a major component of inflation, accounting for 68.5 per cent of inflation during 1979-80 to 1982-83, following the second oil shock. The inflation in the recent period (1985-86 to 1987-88) was also due to increase in food prices which accounted for 71.6 per cent of inflation (Graph 8.3 and 8.4).

8.08 Nepal has a long and open border with India which provides an arbitrage opportunity in case of a price differential between the two countries. Hence, consumer prices in Nepal broadly follow developments on the price front in India. It can be seen from Graph 8.5 that during the 'seventies while the Consumer Price Index in Nepal broadly followed the growth in WPI in India, the relationship seems to have weakened during the 'eighties, with the Nepalese inflation rate overshooting the Indian inflation rate. However, the inflation rates between the two countries have again converged during the early 1990s.

Graph 8.5 : NEPAL

Prices in India & Nepal : Growth Rates (1973-74 to 1990-91)



8.09 The price equation which regresses consumer prices (CPI) in Nepal on broad money (BM), gross domestic product (GDPR), food price (FPI) and the impact of inflation in India (INWPI), clearly brings out the significant impact of rise in food prices and to some extent the rise in the inflationary situation in India on consumer prices in Nepal during the period 1972-73 to 1990-91.

$$LCPI = -1.7 + 0.06\ LBM + 0.2\ LGDPR + 0.7\ LFPI + 0.1\ LINWPI$$
$$(-2.8)\quad (3.2)\qquad (-2.7)\qquad (21.5)\qquad (3.4)$$
$$\bar{R}^2 = 0.99,\ DW = 1.72$$

(Figures in bracket represent 't' statistic.)

8.10 The high inflation rate of 1985-86 was due to the devaluation of the Nepalese Rupee on November 30, 1985 which was passed on to the economy as a cost-push factor. Though the inflation rate subsequently declined, the lagged effect of devaluation exerted pressure on prices. The adverse situation arising from the lapse of the Indo-Nepal trade and transit treaties from March 23, 1989 brought about considerable slowdown in the economic activities in general and in the non-agricultural sector in particular. This not only put pressure on prices of commodities imported from India but also on prices of commodities imported from the third countries essentially on account of the continuing depreciation of the Nepalese currency.

9. Inflation in Pakistan

9.01 Over the 20-year period beginning 1971-72 and ending with 1990-91, the annual expansion of broad money supply averaged 15.1 per cent, real GNP 5.8 per cent and prices 10.2 per cent. The growth of 13.7 per cent in broad money during the 'eighties was however lower than that of 16.9 per cent during the 'seventies, while the output growth rate was slightly lower at 5.6 per cent compared with 6.1 per cent during the 'seventies. However, there was a more than proportionate drop in inflation rate from 13.1 per cent in the 'seventies to 7.8 per cent during the 'eighties. The impetus to money supply growth emanated from non-sterilised expansion in foreign assets of the central bank. The net foreign assets increased from 13.0 per cent of total assets of the central bank in 1970-71 to 67.4 per cent in 1982-83, then gradually dropped to 18.2 per cent in 1990-91 (Appendix Table 3.6). The net private unrequitted transfers had increased from 3.9 per cent of GNP in 1975-76 to 8.1 per cent in 1980-81 and then to 9.2 per cent in 1985-86 before dropping to 4.9 per cent in 1990-91. Considering the significant fall in the inflation rate during the 'eighties, the output loss from 6.1 per cent in the 'seventies to 5.6 per cent in the subsequent decade may not be considered very substantial. Nevertheless the data provide a weak evidence of trade-off between output and inflation (Table 9.1).

Table 9.1 : Pakistan : Money, Output and Prices

(In Per cent)

	Money	Output	Prices
1971-72	6.7	1.6	4.7
1972-73	25.1	7.5	9.6
1973-74	11.5	7.7	30.2
1974-75	9.0	4.1	26.6
1975-76	16.6	4.4	11.7
1976-77	19.1	3.9	9.2
1977-78	23.0	10.4	6.9
1978-79	23.5	8.0	8.3
1979-80	17.6	7.1	0.5
1980-81	13.2	5.4	14.0
1981-82	11.4	6.9	11.1
1982-83	25.3	8.4	4.7
1983-84	11.8	4.2	7.3
1984-85	12.6	8.1	5.6
1985-86	14.8	7.0	4.4
1986-87	13.7	4.7	3.6
1987-88	12.2	3.6	6.3
1988-89	4.6	4.1	10.4
1989-90	12.6	4.4	6.0
1990-91	17.9	4.8	12.7
Average (Total)	15.1	5.8	10.2
Average (1971-72 to 1979-80)	16.9	6.1	13.1
Average (1980-81 to 1990-91)	13.7	5.6	7.8

Source : Annual Reports of the State Bank of Pakistan

9.02 In order to know the money demand, we have regressed real broad money (RBM) on real gross national product (GNPR) and rate of interest on deposits (DROI) in the standard double-log formulation for the period 1971-72 to 1990-91.

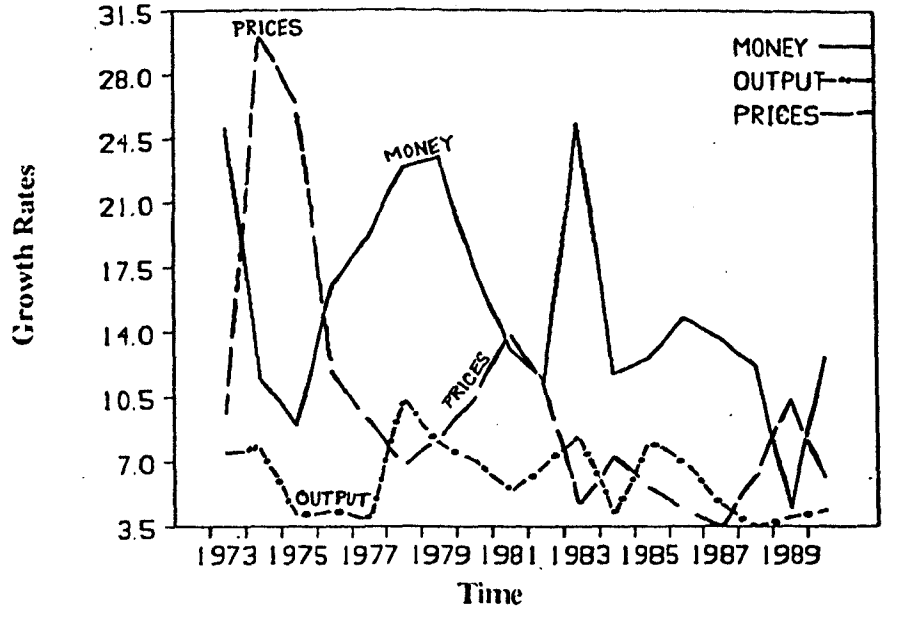
$$LRBM = -4.7 + 1.1\ LGNPR - 0.08\ LDROI$$
$$(-6.9)\quad (6.5)\qquad (-0.6)$$

$$\bar{R}^2 = 0.96, \quad DW = 1.50$$

(Figures in bracket represent 't' statistic).

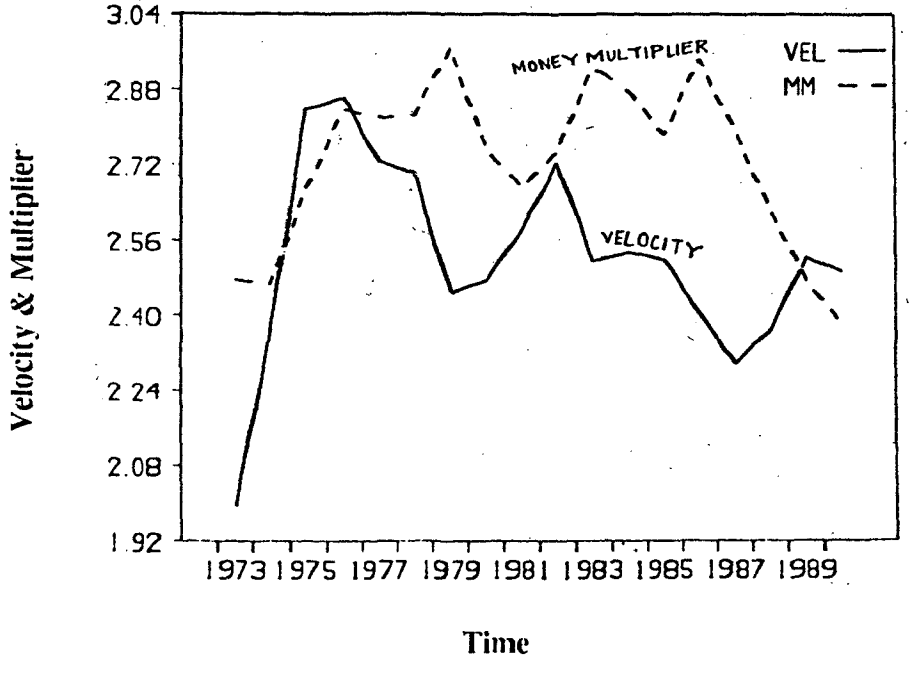
Graph 9.1 : PAKISTAN

Money, Output & Prices : Growth Rates (1972-73 to 1989-90)



Graph 9.2 : PAKISTAN

Income Velocity & Money Multiplier (1972-73 to 1989-90)



9.03 The parameter estimates of output and interest rate are of expected sign and output is significant at the conventional 5 per cent level. It can be seen that the income elasticity of money works out to 1.1.

9.04 The growth rates of money, output and prices are plotted in Graph 9.1. The graph does not indicate any contemporaneous relation between growth in money supply and inflation. The peaks in growth in money supply appear to have preceded the peaks in growth in inflation rate for the 'seventies. However, this relationship seems to have been altered during the 'eighties where despite wide fluctuations in the growth of money supply, the inflation rate appears to have been moderate.

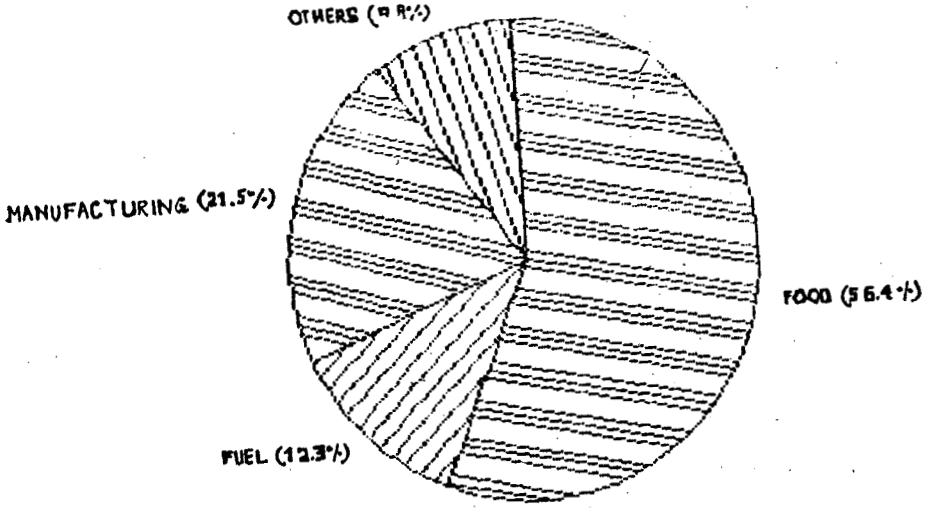
9.05 An examination of annual inflation rates for the entire 20-year period indicates heavy bouts of inflation coinciding with the two oil shocks and also during the most recent period starting from 1988-89. The income velocity of money had also peaked during the first two oil shocks and also during the most recent period. The broad money multiplier had also increased and remained well above the income velocity from mid-1970s to mid-1980s. However, both velocity and broad money multiplier have dropped during the later part of the 'eighties with much sharper drop in the latter (Graph 9.2).

9.06 A decomposition of the inflation rate by major components for the period 1971-72 to 1990-91 indicates that about 51.2 per cent of inflation rate is accounted for by an increase in food prices followed by 23.4 per cent for manufacturing and 17.1 per cent for fuel and other commodities accounting for the balance 8.3 per cent. Following the first oil shock, the inflation rate had accelerated during 1972-73 to 1974-75, surprisingly a major upsurge to prices emanated from growth in food prices which accounted for 56.4 per cent of inflation rate. The direct impact of fuel prices on inflation was rather low at 12.3 per cent (Graph 9.3). An examination of the growth rate in agricultural production index and growth of food price index reveals that during the period 1972-73 to 1974-75 agricultural prices were extremely sensitive to agricultural production. During the 'eighties though the peaks in food price index roughly coincide with troughs in agricultural production index, the sensitivity seems to have reduced considerably as food prices appear to have stabilised to a substantial extent (Graph 9.4).

9.07 Pakistan experienced a double digit inflation for the second time during 1979-80 to 1981-82, coinciding with the second oil shock, but the impact of this price rise was less severe compared to the earlier oil shock. Unlike the first oil shock, the fuel price rise accounted for the major part of inflation, the contribution of food prices at 49.2 per cent being slightly lower than the average of the period

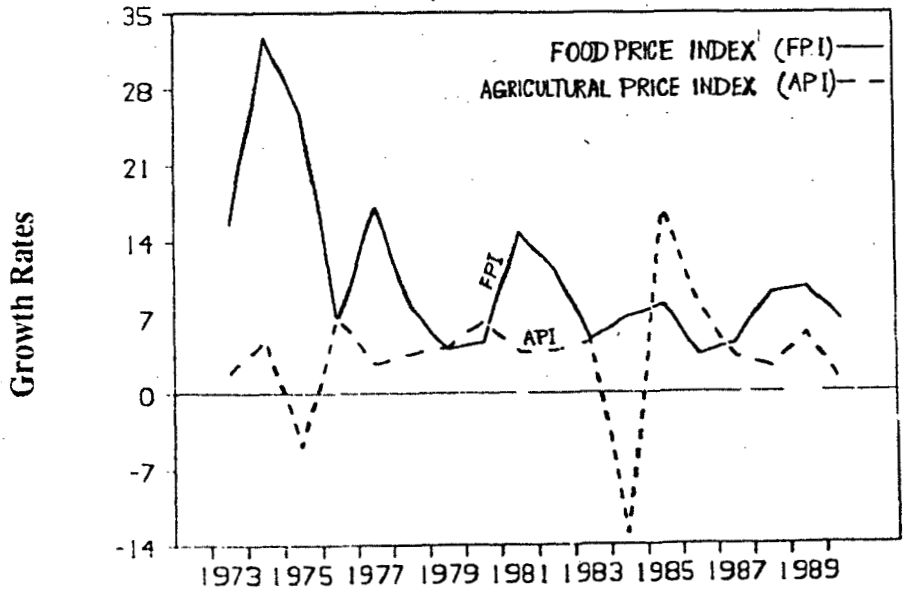
Graph 9.3 : PAKISTAN

Price Composition (1972-73 to 1974-75)



Graph 9.4 : PAKISTAN

Agricultural Production & Prices (1972-73 to 1989-90)



1971-72 to 1990-91. Thus, the resilience of the agricultural sector over time has reduced the vulnerability of Pakistan's economy to external shocks. Rise in fuel prices accounting for 29.1 per cent of inflation during the second oil shock as compared to 12.3 per cent during the first oil shock and 17.1 per cent for the whole period, emerges as the major factor.

9.08 The revival of inflation to double-digit level starting from 1988-89 after a prolonged period of price stability subsequent to the second oil shock appears to have emanated from sudden increase in import prices which has transmitted into the domestic manufacturing prices which accounted for 29.6 per cent of inflation compared to an average of 23.4 per cent for the whole period. That import prices in recent period have far out-stripped the growth in consumer price index is evident from Graph 9.5.

9.09 Thus, apart from monetary factors and international transmission of inflation through rise in import prices, sharp increases in the food price index point to the structure of production which may be considered as a major structural bottleneck explaining inflation.

9.10 The structural aspect of inflation is tested by regressing Consumer Prices (CPI) on broad money (BM), import prices (MPI) and agricultural output (AGI) in standard double log format for the period 1970-71 to 1990-91.

$$\underset{}{\text{LCPI}} = \underset{(2.7)}{4.2} + \underset{(4.7)}{0.6\,\text{LBM}} + \underset{(3.0)}{0.3\,\text{LMPI}} - \underset{(-1.9)}{0.8\,\text{LAGI}}$$

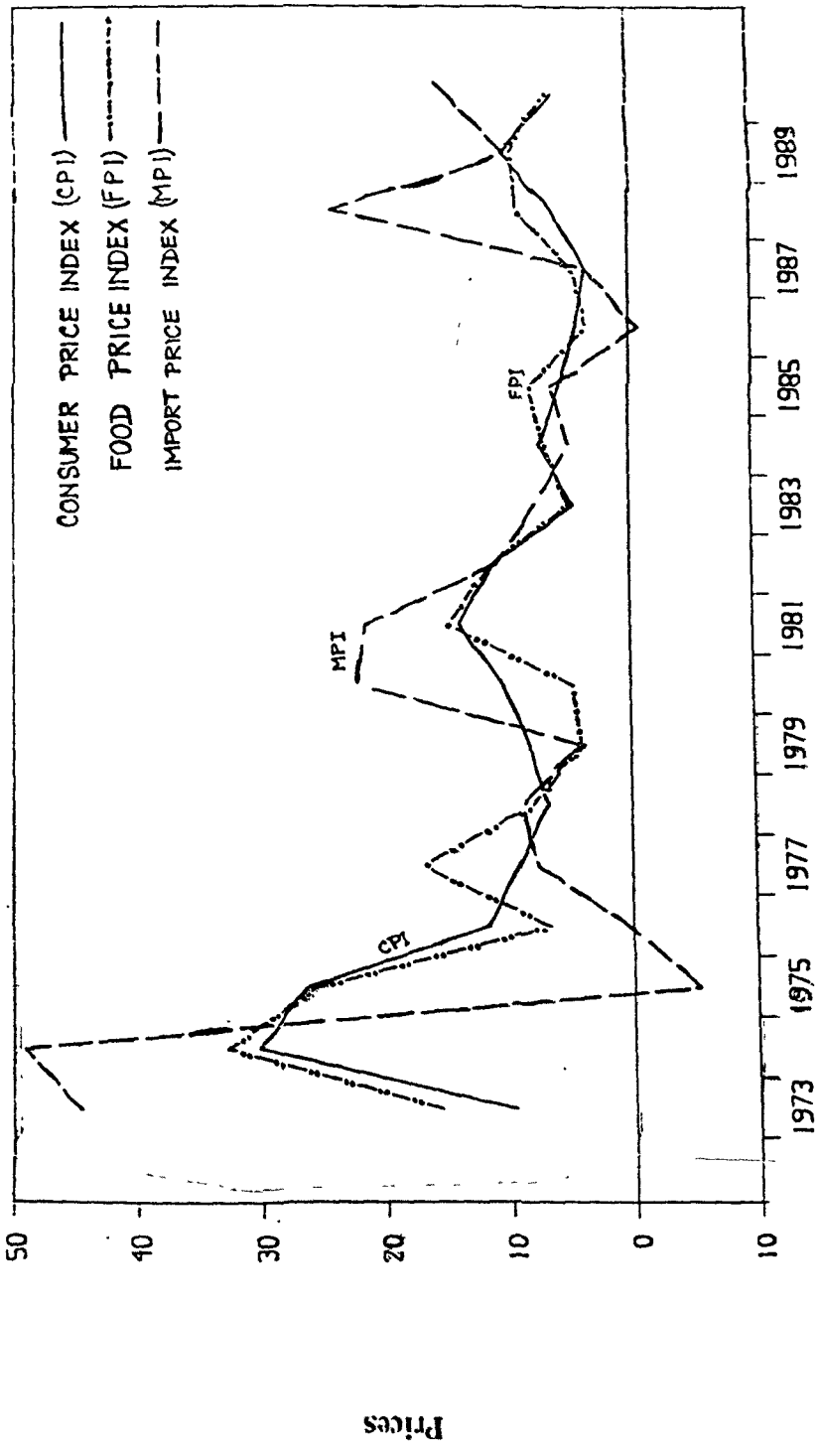
$$\bar{R}^2 = 0.97, \quad DW = 0.96$$

(Figures in bracket represent 't' statistic.)

9.11 The parameter estimates are of expected signs and found to be significant at the conventional 5 per cent level except for AGI which is significant at 10 per cent.

9.12 It may be seen that a one per cent increase in agricultural output, *ceteris paribus*, could result in a reduction in CPI to the extent of 0.8 per cent, whereas growth in money supply and in import prices showed a strong positive relationship with inflation.

Graph 9.5 : PAKISTAN
Prices : Growth Rates (1972-73 to 1989-90)

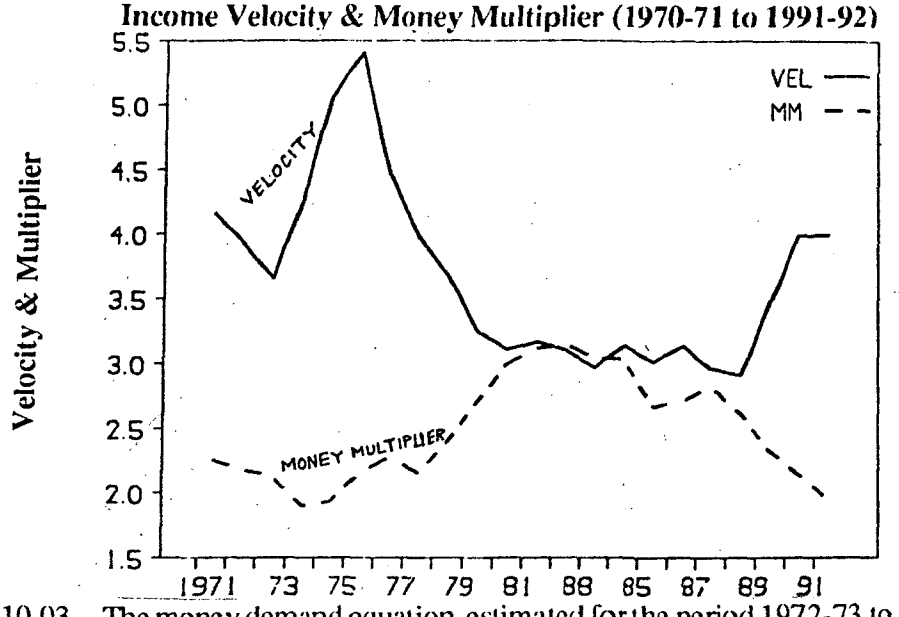


10. Inflation in Sri Lanka

10.01 The 20-year data on money, output and prices from the period 1971-72 through 1990-91 show that the average annual growth in broad money supply was of the order of 17.5 per cent, while the increases in real output and inflation rate were 4.2 per cent and 10.6 per cent, respectively. The growth in broad money supply at 19.8 per cent during the 'seventies was, however, very high compared to 15.6 per cent in the 'eighties. Notwithstanding a fall in the growth of money supply, inflation rate accelerated from 7.0 per cent in the 'seventies to 13.6 per cent in the 'eighties. Acceleration in inflation rate was also accompanied by not much of an improvement in the rate of growth of output from 4.0 per cent in the 'seventies to 4.4 per cent in the 'eighties (Table 10.1).

10.02 The high growth rate of money supply was also accompanied by a highly volatile income velocity and money multiplier. The income velocity had somewhat stabilised during the early 'eighties but subsequently moved up sharply (Graph 10.1).

Graph 10.1 : SRI LANKA



10.03 The money demand equation estimated for the period 1972-73 to 1991-92 by regressing real broad money (RBM) on real gross domestic product (GDPR) and the interest rate (DROI) is given below.

$$LRBM = -12.9 + 1.7\ LGDPR - 0.01\ DROI$$
$$(-2.8) \quad (3.3) \quad (-0.2)$$

$$\bar{R}^2 = 0.82, \quad DW = 0.31$$

(Figures in brackets represent 't' statistic.)

10.04 The parameter estimates are of expected sign and the income elasticity of broad money works out to 1.7 and is significant at the conventional level of 5 per cent.

Table 10.1 : Sri Lanka : Money, Output and Prices

(In Per cent)

	Money	Output	Prices
1971-72	10.3	0.5	2.7
1972-73	15.7	3.4	6.3
1973-74	4.5	4.0	9.7
1974-75	10.0	3.5	12.3
1975-76	4.1	2.7	6.7
1976-77	32.9	3.0	1.2
1977-78	37.9	4.3	1.2
1978-79	25.0	8.2	12.1
1979-80	38.2	6.2	10.8
1980-81	31.9	5.8	26.1
1981-82	23.1	4.1	18.0
1982-83	24.8	6.9	10.8
1983-84	22.1	4.0	14.0
1984-85	16.6	5.1	16.6
1985-86	11.5	5.3	1.5
1986-87	5.1	4.5	8.0
1987-88	14.7	1.6	7.7
1988-89	16.5	2.6	14.0
1989-90	-5.8	2.2	11.6
1990-91	11.3	6.4	21.5
Average (Total)	17.5	4.2	10.6
Average (1971-72 to 1979-80)	19.8	4.0	7.0
Average (1980-81 to 1990-91)	15.6	4.4	13.6

Source : Annual Report (Various Issues), Central Bank of Sri Lanka

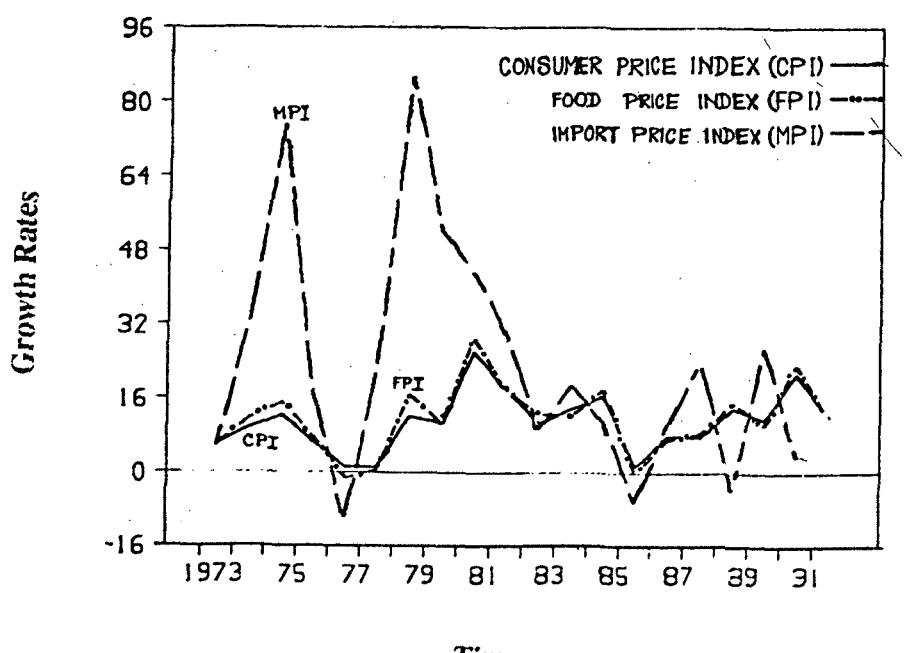
10.05 The annual data on inflation reveal an acceleration of the inflation rate during 1973-74 and 1974-75 following the first oil shock. Though the inflation

rate subsequently dropped sharply to 6.7 per cent in 1975-76 and 1.2 per cent in 1977-78 and 1978-79, Sri Lanka has experienced a persistently long bout of high inflation from 1978-79 through 1984-85. Following a brief period of moderate inflation, there has been a revival of inflationary pressure from the year 1988-89.

10.06 Unlike other ACU countries, Sri Lankan economy has not undergone much of structural shift. The agricultural sector which accounted for about 27 per cent of GDP in 1970-71 still retains its share at the same level even in 1990-91; the share of industry, has shown an increase of just under 1 percentage point from 16.8 per cent in 1970-71 to 17.7 per cent in 1990-91. The Sri Lankan economy had experienced rapid globalisation with exports increasing from 14.3 per cent of GNP in 1970-71 to 28.5 per cent of GNP in 1980-81. Subsequently exports have hovered around this range. Imports had shown a more than proportionate increase from 16.4 per cent of GNP in 1970-71 to as high as 54.9 per cent of GNP in 1980-81. Though subsequently the proportion of imports to GNP has declined, it still accounted for 38.3 per cent in 1985-86 and 37.9 per cent in 1990-91. The economy showed a large trade balance and a somewhat lower current account balance. Due to the openness of the economy, the domestic inflation rate has always been considerably influenced by export and import prices.

Graph 10.2 : SRI LANKA

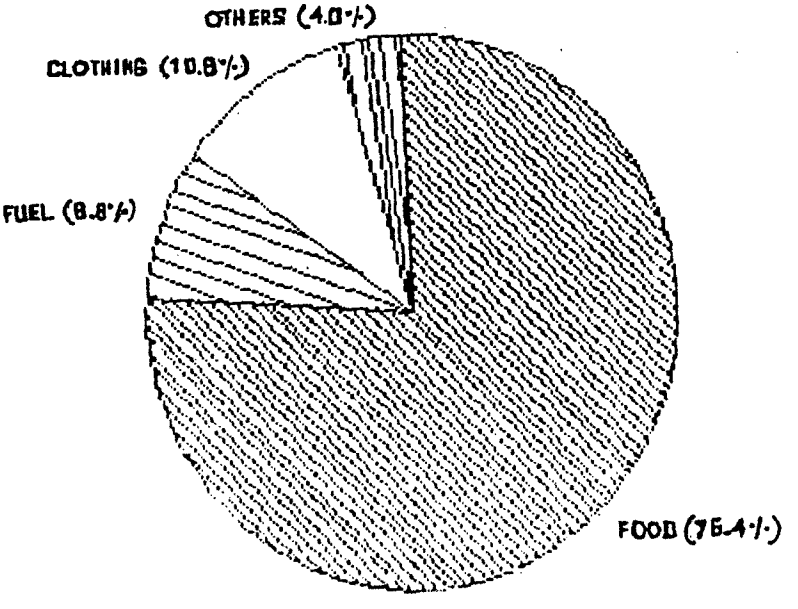
Price Indices : Growth Rates (1972-73 to 1991-92)



10.07 It may be seen from Graph 10.2 that growth in the consumer price index has moved in tandem with the growth in the food price index, whereas the import price index has shown wide fluctuations. The peaks in the consumer price index during the 'seventies and the first half of the 'eighties have roughly coincided with the peaks in the movement of import price index, giving evidence that the economy is highly dependent on import of food articles and changes in the import price of food get reflected in the domestic food price index. The decomposition of the inflation rate for the period 1972-73 to 1990-91 indicates that the direct contribution of food prices to the inflation rate was of the order of 56.8 per cent and that of fuel at 7.0 per cent. During the first bout of inflation in 1973-74 and 1974-75, the contribution of food prices to inflation increased sharply to 76.4 per cent and that of fuel showed an increase to 8.8 per cent. Wide fluctuations in domestic agricultural production coupled with increase in import prices of food and fuel contributed to the inflationary situation of 1973-74 and 1974-75 (Graph 10.3). In the inflation episode of 1978-79 to 1984-85, it is again the food component which contributed as much as 71.2 per cent. Unlike the earlier period, this phase of inflation was both accompanied and followed by a very high growth of money supply - the rate of growth of broad money had jumped from 4.1 per cent in 1975-76 to 32.9 per cent in 1976-77 and further to 37.9 per cent in 1977-78. Though in the subsequent year, money supply growth dropped to 25.0 per cent, it again accelerated to 38. 2 per cent in 1979-80.

Graph 10.3 : SRI LANKA

Price Composition (1973-74 to 1974-75)



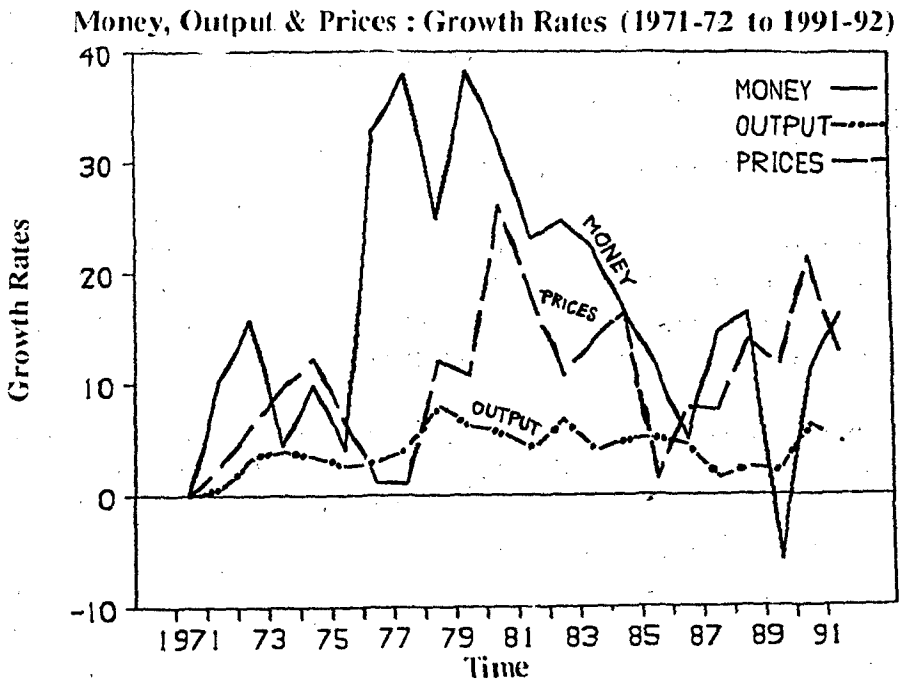
10.08 The impetus to money supply mainly emanated from spurt in net foreign assets of the Central Bank of Sri Lanka which jumped up from Rs.108.5 million in 1976-77 to Rs.3,705.8 million in 1977-78 and to Rs.6,807.6 million in 1979-80. As a percentage of broad money the net foreign assets increased from 1.7 per cent in 1976-77 to 42.5 per cent in 1977-78 and 45.2 per cent in 1979-80. But for a reduction in net government credit from Rs.3267.3 million in 1976-77 to Rs.1,863 million in 1978-79 and Rs.2,920.4 million in 1979-80, the growth in liquidity would have been much higher. In other words, the expansionary effect of the growth of external assets was largely moderated by the contraction induced by the government sector. Though subsequently the share of foreign assets dropped from 18.3 per cent in 1980-81 to 8.5 per cent in 1983-84, this was more than compensated by net government borrowing which increased from Rs.2,920.4 million in 1979-80 to Rs.17,533.1 million in 1983-84 adding to aggregate domestic liquidity (Appendix Table 3.7). The inflationary impact of expansion of liquidity during 1976-77 to 1984-85 would have been much severe but for the continuous drop in income velocity from about 5.4 per cent in 1976-77 to about 3.4 per cent in 1984-85.

10.09 Till 1977-78 price controls and rationing had a sobering effect on inflation. However, price control was removed on a large number of consumer items in November 1977. Subsequently the increase in wages of both private and public sector employees in December 1977, the removal of rice and sugar subsidy from a large portion of household items in 1978-79, and the upward revision of price of wheat-flour, gave an upward thrust to general price level. The gradual depreciation of the Rupee since August 1977 culminating in the floating of Rupee in 1977-78 resulted in a considerable increase in the import price index. Added to it was the increase in import price index during 1979-80 following the second oil shock and withdrawal of price subsidy for many essential items such as rice and sugar. Thus the sharp increase in prices during the late 'seventies was the result of the combined effect of several cost push and demand pull factors. To be more specific, the cost push factors resulted from the depreciation of the Sri Lankan Rupee, the increase in some indirect tax rates, the upward adjustment of utility and service charges, the increase in prices of petroleum products, the price hike in imported products, and the upward revision of prices of major consumer items. The demand pressure arose from the continuous expansion of government expenditures, the increased inward remittances by migrant labour and the continued domestic monetary expansion.

10.10 The inflation of 1982-83 and 1984-85 was brought about by a sharp increase in the prices of export commodities which subsequently affected the domestic market price of these commodities. Upward revisions of administered prices also contributed to the inflation.

10.11 Though monetary expansion has been below average during the period 1988-89 to 1990-91, the inflation rate accelerated from 7.7 per cent in 1987-88 to 14.0 per cent in 1988-89 and 21.5 per cent in 1990-91. The growth rates in money, output and prices plotted in Graph 10.4 show that unlike the earlier period, the root cause of Sri Lankan inflation in the most recent period is anything but monetary expansion. The central bank's efforts at reducing money supply was neutralised by sharp increase in income velocity from below 3 to about 4. Drought conditions, escalation of civil disturbances which periodically disrupted the transport facility resulting in supply shortages, higher tariff on electricity and upward revision in many excise duties contributed to the inflationary situation. The substantial wage increase granted in several key sectors of the economy in 1988-89 contributed to maintenance of a high effective demand.

Graph 10.4 : SRI LANKA



10.12 The fiscal operation of the government has shown inherent imbalances over the years, though the government expenditure as a per cent of GDP has escalated from 28.5 per cent in 1970-71 to 49.4 per cent in 1990-91, government revenue has lagged behind. As a result, the ratio of budget deficit to GDP has mounted from 7.9 per cent in 1970-71 to 21.6 per cent in 1990-91. The high borrowing requirement of the government with periodic spurts in net foreign assets has always kept the aggregate demand very high. The transmission of international inflation through both export and import price indices and periodic crop failures has added to the inflationary pressure. In the recent period supply

bottlenecks have arisen due to escalation of several disturbances putting inflationary pressures.

10.13 Some structural variables along with broad money (BM) were tested for inflation in Sri Lanka. The equation was estimated in linear form for the period 1971-72 to 1990-91. The structural variables are agricultural gross domestic product (AGDP) and import prices (MPI). The estimated equation is as follows:

$$CPI = \underset{(2.35)}{328.2} - \underset{(-1.56)}{0.01\ AGDP} + \underset{(2.51)}{0.01\ BM} + \underset{(2.83)}{0.71\ MPI}$$

$\bar{R}^2 = 0.97, \quad DW = 1.21$

(Figures in bracket represent 't' statistic.)

10.14 The parameter estimates are of expected signs and found to be significant at the conventional 5 per cent level except for AGDP which is significant at 10 per cent. Apart from money supply, the import prices and agricultural output largely explain price changes in Sri Lanka.

11. General Model of Inflation for ACU Countries

11.01 It is difficult to specify a fully satisfactory general model of inflation that accurately describes the inflationary process in all the ACU countries which could fully serve the needs of policy-makers. Theories of inflation are not mutually exclusive but overlap and must interact in a dynamic model.

11.02 Assuming adaptive expectation hypothesis in price formation, a reduced form price equation was estimated for the member countries. The movement in price as reflected in the consumer price index (CPI) was regressed on real gross domestic product (GDPR), broad money (BM) and prices with one period lag (CPI-1). Typically, in such models current inflation is not only a function of excess demand, but also expected inflation rate, which reflects past inflation rates. The model was set up by pooling the relevant variables of the respective ACU countries with slope dummies to identify each country.

11.03 The model has been set up in a dummy variable framework as follows :

CPI = f[GDPR, CPI(-1), GDPRSDB, GDPRSDI, GDPRSDIR, GDPRSDN, GDPRSDP, GDPRSDS]

where :

CPI = Consumer Price Index

BM = Broad Money

GDPR	=	Real Gross Domestic Product
CPI(-1)	=	Consumer Price Index with one period lag
GDPRSDB	=	GDP slope dummy for Bangladesh
GDPRSDI	=	GDP slope dummy for India
GDPRSDIR	=	GDP slope dummy for Iran
GDPRSDN	=	GDP slope dummy for Nepal
GDPRSDP	=	GDP slope dummy for Pakistan
GDPRSDS	=	GDP slope dummy for Sri Lanka

The slope dummies are obtained by allowing only the gross domestic product (GDPR) of the respective countries to be different across the sample partition.

11.04 The equation was estimated in standard double log formulation. The estimated equation is as follows :

$$LCPI = 1.64^* + 0.61\ LBM^* - 0.87\ LGDPR^* + 0.05\ LCPI(-1)^*$$
$$(1.87)\quad (19.5)\qquad (-7.11)\qquad (1.84)$$

$$+ 0.89\ GDPRSDB^* - 0.37\ GDPRSDI^* + 0.36\ GDPRSDIR^*$$
$$(8.34)\qquad (-9.64)\qquad (+3.26)$$

$$+ 0.04\ GDPRSDN^* - 0.61\ GDPRSDP^* + 0.29\ GDPRSDS^*$$
$$(1.96)\qquad (-20.3)\qquad (6.3)$$

$\bar{R}^2 = 0.97, \quad DW = 0.70, \quad h = 7.68$

* Significant at 5.0 per cent level.

(Figures in bracket represent 't' statistics)

The parameter estimates of GDPR carry expected negative sign and those of broad money and CPI(-1) were of expected positive sign. The equation was of good fit ($\bar{R}^2 = 0.97$) with all the variables being significant at conventional 5.0 per cent level, though the equation showed sign of autocorrelation.

11.05 On the basis of the equation, the estimated short-run and the long-run elasticities of price with respect to broad money and real output across ACU countries are given in Table 11.1.

Table 11.1 : Implicit Elasticities

Country	Short-run elasticity of price with respect to		Long-run elasticity of price with respect to	
	Broad Money	Real Output	Broad Money	Real Output
Bangladesh	0.61	0.02	0.65	0.02
India	0.61	-1.24	0.65	-1.31
Iran	0.61	-0.52	0.65	-0.54
Myanmar	0.61	-0.87	0.65	-0.92
Nepal	0.61	-0.83	0.65	-0.88
Pakistan	0.61	-1.48	0.65	-1.56
Sri Lanka	0.61	-0.59	0.65	-0.62

The specification of the model allows only for varying impact of real output on prices across countries, the impact of broad money remaining the same.

11.06 From our earlier analysis of price behaviour in the individual ACU countries, it was found that food prices exerted considerable influence on the aggregate prices. In the above equation, when the price variable (CPI-1) was replaced by food price index with one period lag (FPI-1), the price elasticity with respect to broad money did not show any perceptible change, underlining the importance of money supply in price determination.

11.07 Though growth in money supply and real GDP are major factors influencing inflation, certain common structural rigidities such as agricultural production, deteriorating terms of trade and balance of payments dis-equilibrium can nevertheless be identified as factors typical to each country having influence on the price behaviour.

11.08 We identified two major structural factors as important for the ACU countries :

(i) Susceptibility of the economy to fluctuations in agricultural output (IAGO).

(ii) The exchange rate expressed in terms of the ratio of domestic currency to foreign currency (EXRT).

Although GDPR would reflect the impact of movements in agricultural output, IAGO was included to highlight the influence of agricultural sector which had emerged as the most common structural variable for the ACU countries in our disaggregated analysis. *A priori*, it could be reasoned that as agricultural output (IAGO) increases inflation tends to fall. A rise in the exchange rate (EXRT), which reflects devaluation of the domestic currency and which can also be considered as a proxy for imported inflation is likely to have a cost push effect on inflation. Thus, the expected sign of the parameters would be: negative for IAGO and positive for EXRT.

11.09 The model was therefore re-estimated by stacking the variables for the seven ACU countries for the reference period 1970-71 to 1989-90. Allowing for missing observations in respect of certain countries, we obtained 126 observations. With eleven explanatory variables, this allows for 114 degrees of freedom, which is a fairly large sample size for a robust statistical estimation. The model was estimated in double log specification following the OLS regression method. The estimated equation is as follows :

$$\begin{aligned}
LCPI = &-1.36 + 0.52\ LBM^{*} - 0.58\ LGDPR^{*} + 0.04\ LEXRT - 0.30\ LIAGO^{*} \\
&(-1.0)\quad (12.2)\qquad (-3.2)\qquad\quad (0.66)\qquad (-3.27) \\
&+0.04\ LCPI(-1)^{**} + 0.42\ GDPRSDB^{*} - 0.49\ GDPRSDI^{*} + 0.93\ GDPRSDIR^{*} \\
&(1.4)\qquad\quad (2.4)\qquad\quad (-8.53)\qquad\quad (3.8) \\
&+0.05\ GDPRSDN^{**} - 0.58\ GDPRSDP^{*} + 0.47\ GDPRSDS^{*} \\
&(1.64)\qquad\quad (-19.8)\qquad\quad (5.66)
\end{aligned}$$

$\bar{R}^2 = 0.98, \quad DW = 0.88, \quad h = 6.58$

* Significant at 5.0 per cent level.
** Significant at 10.0 per cent level.
(Figures in bracket represent 't' statistics)

The equation was of good fit ($\bar{R}^2 = 0.98$). Though the parameter estimate of exchange rate turned out to be statistically insignificant, it carried the expected positive sign. However, the parameter estimate of agricultural output (IAGO) turned out to be highly significant.

11.10 On the basis of this equation, the estimated short-run and the long-run elasticities of prices with respect to broad money, real GDP and agricultural output across ACU countries are given in Table 11.2.

Table 11.2 : Implicit Elasticities

Country	Short-run elasticity of price with respect to			Long-run elasticity of price with respect to		
	Broad Money	Real Output	Agricultural Output	Broad Output	Real Output	Agricultural Output
Bangladesh	0.52	-0.16	-0.30	0.54	-0.16	-0.31
India	0.52	-1.07	-0.30	0.54	-1.12	-0.31
Iran	0.52	0.35	-0.30	0.54	0.36	-0.31
Myanmar	0.52	-0.58	-0.30	0.54	-0.60	-0.31
Nepal	0.52	-0.53	-0.30	0.54	-0.55	-0.31
Pakistan	0.52	-1.17	-0.30	0.54	-1.21	-0.31
Sri Lanka	0.52	-0.11	-0.30	0.54	-0.12	-0.31

11.11 Though the price elasticities with respect to broad money work out lower than the earlier equation, the inclusion of structural variables does not seem to have reduced the impact of money supply on inflation. Our analysis shows that while supply shocks could trigger price increases, they are always sustained by excessive growth in money supply. Inflationary process thus is, in a very substantial sense, monetary in character.

12. Conclusions

12.01 During the last two decades, the ACU countries excepting Iran, experienced average annual inflation rates of 9 to 11 per cent, the corresponding rate for Iran being higher at 17.6 per cent. Though the inflation rate of the ACU countries was nowhere close to the hyper inflation in other lower and middle income countries, it, nonetheless, was higher than the rate in the high income countries. The apparent low average inflation rate over the twenty-year period, however, camouflages some intense inflation episodes which varied from country to country in duration and periodicity. All the ACU countries experienced inflation following the first oil shock. This was so when the second oil shock took

place, with the exception of Myanmar where prices were strictly administered. The Iranian economy has shown a persistently high inflation rate following the war with Iraq since the early 'eighties. In the 'eighties, - particularly in latter years - the inflation rate has hovered around the double-digit figure in some countries for diverse reasons : in Bangladesh before the structural adjustment programme; Sri Lanka, following the civil disturbance; and Myanmar, following introduction of some price flexibility. India experienced a double-digit inflation rate in the early 'nineties, reflecting mainly the balance of payments crisis emanating from severe fiscal imbalance and structural inefficiencies.

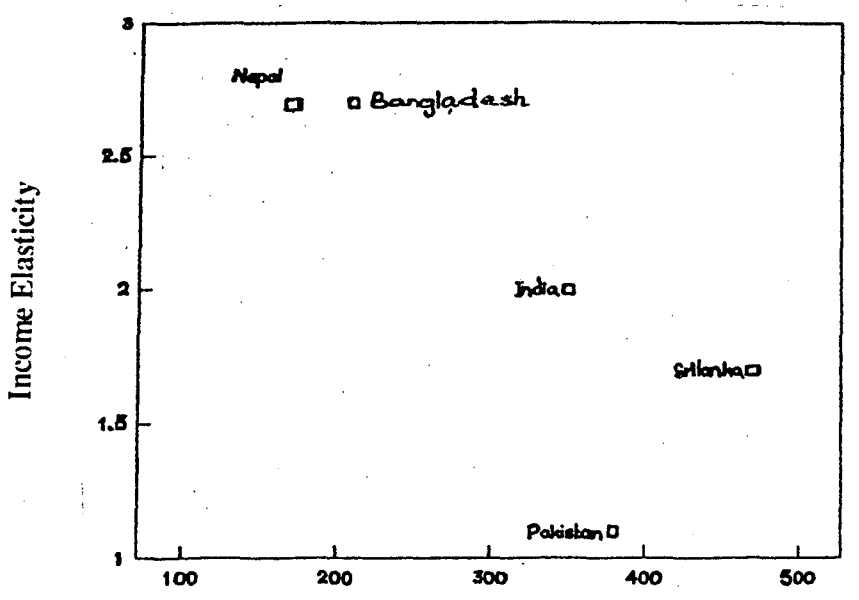
12.02 The study has shown that the long-term relationship among money, output and prices reflected wide variation in the income elasticity of demand for money among the low income ACU countries from 1.1 per cent in the case of Pakistan to as high as 2.7 per cent in the case of Bangladesh and Nepal; interest rate showed the desired inverse relationship with money demand (Table 12.1). These results are in line with the theoretical expectations about the demand for money functions in the developing countries.

Table 12.1 : Income and Interest Elasticity of Broad Money of Low Income ACU Countries

	Country	Period	Income Elasticity	Interest Elasticity	$\bar{R}^2$	DW Statistics
1.	Bangladesh	1975-76 to 1989-90	2.7* (10.3)	-0.03@** (-1.4)	0.96	1.45
2.	India	1970-71 to 1990-91	2.0* (24.5)	-0.17* (-2.6)	0.99	1.87
3.	Myanmar	1971-72 to 1989-90	2.3* (3.7)	-0.2 (-0.7)	0.88	1.87
4.	Nepal	1971-72 to 1989-90	2.7* (10.7)	-0.4* (-2.7)	0.97	1.91
5.	Pakistan	1971-72 to 1990-91	1.1* (6.5)	-0.08 (-0.6)	0.96	1.50
6.	Sri Lanka	1972-73 to 1991-92	1.7* (3.3)	-0.01@ (-0.2)	0.82	0.31

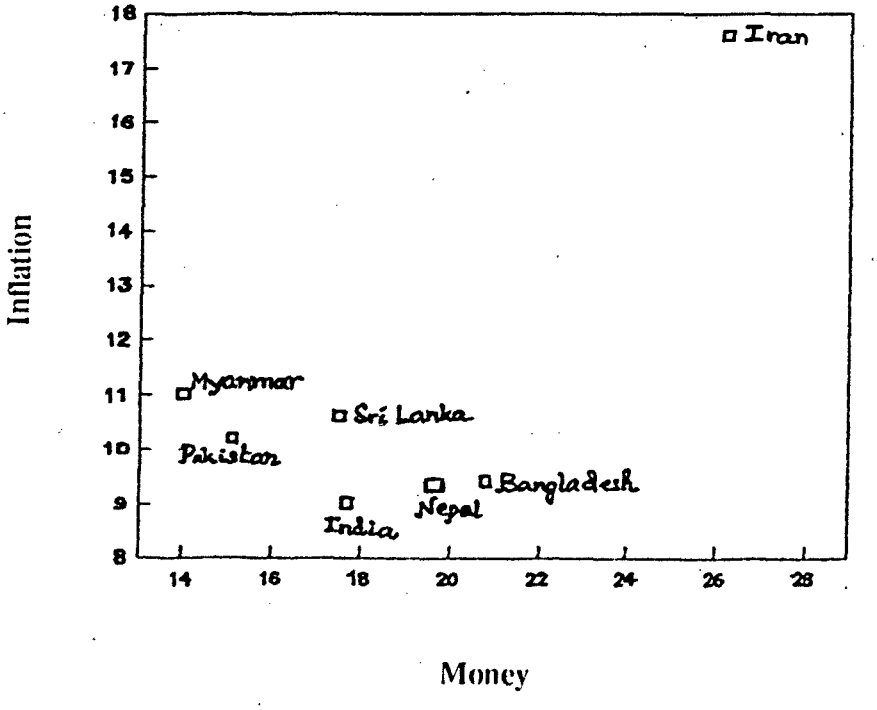
Figures in bracket represent 't' statistic.
@ Implies semi-elasticity
* Significant at conventional 5 per cent level
** Significant at conventional 10 per cent level

Graph 12.1 : Income and Money Demand



Graph 12.2 : Money and Inflation

(In Per cent)



12.03 The wide variations in income elasticity can be explained by the differences in the levels of economic development in these countries. Income elasticity plotted against per capita income (Graph 12.1) shows an inverse relationship - lower the per capita income, higher is the income elasticity. Further, the negative correlation between per capita income and income elasticity was found to be statistically significant at the conventional 5 per cent level.

12.04 The estimated reduced form price equation for the ACU countries showed that money supply is a major determinant of inflation but its magnitude again showed wide variations, pointing towards the presence of structural rigidities (Table 12.2). The average inflation rate shown against the rate of growth in money supply (Graph 12.2) reveals that among the low income ACU countries, India, Nepal and Bangladesh showed a higher rate of growth of money supply and yet experienced relatively lower inflation rates whereas Myanmar, Pakistan and Sri Lanka recorded higher inflation rates despite lower monetary expansion.

12.05 Among structural factors, domestic output, particularly agricultural output, import prices, exchange rate and food prices were found to have major influence on prices. For example, prices in Myanmar, Iran, India and Nepal seem to be highly sensitive, in declining order, to the changes in gross domestic product. Pakistan, Bangladesh and Sri Lanka, on the other hand, seem to be more susceptible to fluctuations in agricultural output than those in overall output. India and Nepal seem to be vulnerable to fluctuations in food prices. Fluctuations in oil production affected the inflation rate in Iran through the liquidity impact.

Table 12.2 : Price Equation : Elasticities

	Country	Period	BM	GDPR	AGI	MPI	FPI	OSV
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1.	Bangladesh	1979-80 to 1989-90	0.35* (3.9)	—	-0.08 (-0.2)	—	—	0.37* (2.0)
2.	India	1970-71 to 1988-89	0.3* (3.9)	-0.6* (-2.4)	—	0.13* (3.1)	0.6* (6.0)	—
3.	Iran	1974-75 to 1988-89	0.9* (11.8)	-1.2* (-2.8)	0.5@* (2.6)	—	—	—
4.	Myanmar	1973-74 to 1989-90	1.3* (4.8)	-2.0* (-2.7)	—	—	—	4.8* (3.3)
5.	Nepal	1972-73 to 1990-91	0.06* (3.2)	0.2* (2.7)	—	—	0.7* (21.5)	0.1* (3.4)

Contd..

Country	Period	BM	GDPR	AGI	MPI	FPI	OSV
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
6. Pakistan	1970-71 to 1990-91	0.6* (4.7)	—	-0.8* (-1.9)	0.3* (3.0)	—	—
7. Sri Lanka#	1971-72 to 1990-91	0.01* (2.5)	—	-0.01** (-1.56)	0.71* (2.83)	—	—

Figures in bracket represent 't' statistic.
@ : Refers to oil production
* : Significant at 5 per cent level
** : Significant at 10 per cent level
# : Linear Equation.

Notations

BM : Broad Money
GDPR : Gross Domestic/National Product
AGI : Agricultural Output/GDP
MPI : Import Price Index
FPI : Food Price Index
OSV : Other Structural Variables (exchange rate for Bangladesh, ratio of budget deficit to GDP for Myanmar, and Wholesale Price Index of India for Nepal).

12.06 The growth in liquidity in countries like Iran, Nepal and Pakistan, mainly emanated from the external sector through the rise in foreign assets. In the remaining countries, expansion in government borrowing played a more important role.

12.07 In countries like Sri Lanka, Bangladesh, Pakistan and India, the changes in import prices are reflected in domestic prices. Import prices can be treated as a proxy to world inflation. The domestic price elasticity with respect to import prices is the highest in the case of Sri Lanka at 0.45 and the lowest in the case of India at 0.12, reflecting the degree of openness of their respective economies.

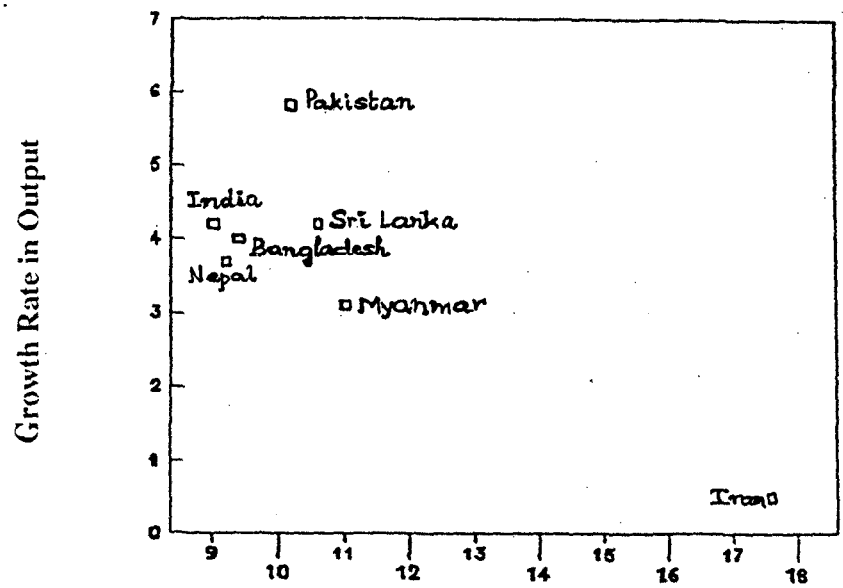
12.08 The cross section data on GDP growth and inflation in the ACU countries during the period as a whole does not provide firm evidence of trade-off between inflation and growth. However in some sub-periods for some countries, *viz.*, Bangladesh, Myanmar, Nepal and Sri Lanka there may be a case of trade-off, although this by itself does not mean that the Phillips' curve mechanism is valid

in ACU countries as was the case with developed countries during the 'fifties and 'sixties.

12.09 The average growth rate plotted against the inflation rate (Graph 12.3) indicates that ACU countries which had experienced high inflation rate showed lower growth of GDP during the period as a whole. The inverse relationship was validated by the high negative correlation between economic growth and inflation which was found to be statistically significant at the conventional 5 per cent level. To put it differently, in the case of ACU countries, lower inflation rate has been growth engendering.

Graph 12.3 : Growth and Inflation

(In Per cent)



12.10 An important policy fall-out of this study is that monetary policy will have to be extremely vigilant about the developments in both the domestic and international spheres, since any accommodative action could generate price increases, given the structural factors. Monetary policy has to clearly bear the responsibility of containing inflation whenever fiscal actions or external shocks or supply rigidities become destablising.

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ANNEXURE

Terms of Reference of the Study on 'Monetary Expansion and Inflation in Asian Clearing Union (ACU) Countries'

During the 20th Board Meeting of the Asian Clearing Union held in Kathmandu on May 14 and 15, 1992, a study on 'Monetary Expansion and Inflation in Asian Clearing Union (ACU) Countries' was proposed to be taken up by the ACU Secretariat in coordination with the member-countries to examine the link between monetary expansion and inflation in the developing countries of the region. The basic objective of the study will be to review the experience of ACU countries and draw lessons for policy making.

The terms of reference of the study are as follows :

(i) to examine the episodes of inflation in the ACU economies and their genesis, nature and link with macro-economic fundamentals;

(ii) to test the hypothesis whether inflation is a monetary or a non-monetary phenomenon in the developing countries of the region and, if it is a non-monetary phenomenon, to identify the structural and other bottlenecks operating in the economies which may play a central role in determining rates of inflation;

(iii) to examine the possible trade-off between inflation and growth and the policy implications thereof; and

(iv) to suggest measures to control inflation in the light of the above findings of the study.

(v) to determine the impact of external factors on the rate of inflation in the ACU countries

(vi) to determine the validity of the Phillip's curve in ACU countries.

Appendix Table 1.1 : Money Demand Equations of Low Income ACU Countries

	Period	Equation	$\bar{R}^2$	DW Statistics
1. Bangladesh	1975-76 to 1989-90	LRBM = -31.2* + 2.7 LGDPR* - 0.03 DROI** (-9.7) (10.3) (-1.4)	0.96	1.45
2. India	1970-71 to 1990-91	LRBM = -17.1* + 2.0 LGDPR* - 0.17 LDROI* (-18.8) (24.5) (-2.6)	0.99	1.87
3. Myanmar	1971-72 to 1989-90	LRBM = -19.9* + 2.3 LGNPR* - 0.2 LDROI (-2.9) (3.7) (-0.7)	0.88	1.87
4. Nepal	1971-72 to 1989-90	LRBM = -23.5* + 2.7 LGDPR* - 0.4 LDROI* (-9.5) (10.7) (-2.7)	0.97	1.91
5. Pakistan	1971-72 to 1990-91	LRBM = -4.7* + 1.1 LGNPR* - 0.08 LDROI (-6.9) (6.5) (-0.6)	0.96	1.50
6. Sri Lanka	1972-73 to 1991-92	LRBM = -12.9* + 1.7 LGDPR* - 0.01 DROI (-2.8) (3.3) (-0.2)	0.82	0.31

Figures in bracket represent 't' statistic.

* Significant at conventional 5 per cent level

** Significant at conventional 10 per cent level

Notations

RBM : Real Broad Money

GDPR : Real Gross Domestic/National Product

DROI : Call Money Market Rate for India and Rate of Interest on Deposits for others.

Appendix Table 1.2 : Price Equations

Country	Period	Equation	$\bar{R}^2$	DW/h Statistics
1. Bangladesh	1979-80 to 1989-90	LCPI = 2.5 + 0.35 LBM* - 0.08 LAGDP + (0.4) (3.9) (-0.2) 0.37 LEXRT (2.0)	0.99	1.58
2. India	1970-71 to 1988-89	LCPI = 4.6* + 0.3 LBM* - 0.6 LGNPR* + (2.2) (3.9) (-2.4) 0.13 LMPI* + 0.6 LFPI* (3.1) (6.0)	0.99	1.47
3. Iran	1974-75 to 1988-89	(a) LCPI = 1.3 + 0.1 LBM - 0.2 LGDPR (1.1) (1.0) (-1.2) + 0.9 LCPI (-1)* (9.5)	0.99	1.54/ h=1.022
		(b) LCPI = 4.3 + 0.9 LBM* - 1.2 LGDPR*+ (1.4) (11.8) (-2.3) 0.5 LOILPD* (2.6)	0.96	0.80
4. Myanmar	1973-74 to 1989-90	LCPI = 14.8* + 1.3 LBM* - 2.0 LGNPR* (2.6) (4.8) (-2.7) + 4.8 (BD/GDP)* 3.3	0.86	1.62
5. Nepal	1972-73 to 1990-91	LCPI = -1.7* + 0.06 LBM* + 0.2 LGDPR* (-2.8) (3.2) (2.7) + 0.7 LFPI* + 0.1 LINWPI* (21.5) (3.4)	0.99	1.72
6. Pakistan	1970-71 to 1990-91	LCPI = 4.2* + 0.6 LBM* - 0.8 LAGI* (2.7) (4.7) (-1.9) + 0.3 LMPI* (3.0)	0.97	0.96
7. Sri Lanka	1971-72 to 1990-91	CPI = 328.2* + 0.01 BM* - 0.01 AGDP** (2.35) (2.5) (-1.56) + 0.71 MPI* (2.83)	0.97	1.21

Figures in bracket represent 't' statistic. *Significant at conventional 5 per cent level
** Significant at conventional 10 per cent level

Notations

CPI	:	Consumer Price Index
BM	:	Broad Money
GDPR	:	Gross Domestic/National Product
AGI	:	Agricultural Output/GDP
MPI	:	Import Price Index
FPI	:	Food Price Index
EXRT	:	Exchange Rate per US $
BD/GDP	:	Ratio of Budget Deficit to GDP
INWPI	:	Wholesale Price Index of India
OILPD	:	Oil Production.

Appendix Table 2.1.: Bangladesh - Some Macro Aggregates

YEAR	GDPR	GDPC	AGDP	BM	MPI	EXRT	AGI	GREV	GEXPN	GDEF	DROI	CPI for Middle Income Group in Dhaka					
												General	Food	Fuel	Housing	Clothing	Misc.
1973-74	28324.4	7988.4	12812.5	1244.5	—	7.96	110	3885	4251	-864	—	100	100	100	100	100	100
1974-75	27363.9	13291.8	12132.9	1259.6	—	8.88	105	5295	5299	-330	3.51	167	177	153	179	119	138
1975-76	28247.9	11503.3	12860.6	1396.8	—	15.05	111	9087	8153	1444	4.23	153	153	155	204	111	147
1976-77	29018.4	11817.3	12392.7	1739.8	—	15.43	107	9243	11995	-3728	4.32	157	150	164	218	110	150
1977-78	30752.3	15534.4	13691.9	2141.1	—	15.12	119	12371	13167	209	4.22	177	174	168	237	128	161
1978-79	32702.2	18726.2	13838.7	2760.0	—	15.22	120	16361	15085	4274	4.27	191	185	183	258	141	186
1979-80	33096.9	21461.7	13972.7	3245.0	100.0	15.49	119	18695	21215	874	4.31	227	225	218	302	154	206
1980-81	34181.4	23098.8	14389.1	4136.0	113.5	16.26	126	22628	20026	4976	6.98	255	245	293	349	177	233
1981-82	35380.0	25762.6	15349.6	4548.7	118.7	20.06	127	27604	32445	-7396	7.29	297	288	377	375	195	265
1982-83	37132.4	29220.8	16027.8	5898.2	112.5	23.80	133	32194	34007	3135	7.36	326	313	461	402	200	299
1983-84	39389.3	35464.2	16826.4	8385.8	110.9	24.94	133	31945	32680	9003	8.11	357	350	466	417	225	335
1984-85	40693.3	40693.3	16997.0	10534.2	110.8	25.96	134	32446	38314	2873	8.13	397	388	503	454	255	392
1985-86	42459.5	46622.7	17554.9	12338.1	88.5	29.89	141	39436	50482	-5924	8.54	436	429	539	507	274	419
1986-87	44234.7	53920.1	17625.0	14353.1	89.9	30.63	139	41264	—	—	8.59	481	483	542	551	293	460
1987-88	45513.5	59713.6	17490.1	16408.0	91.4	31.24	139	49365	—	—	8.69	536	535	562	648	319	524
1988-89	46660.3	65959.8	17303.7	19078.1	97.2	32.14	139	51847	—	—	8.88	579	566	621	723	348	598
1989-90	49752.7	73757.0	19035.4	22297.6	103.0	32.92	153	74719	98341	-2828	9.06	633	606	674	808	374	707
1990-91	51444.2	83439.2	19342.1	25004.4	108.8	35.72	154	—	—	—	9.11	689	648	945	867	399	721
1991-92	53482.0	90328.7	—	—	112.0	38.14	—	—	—	—	—	724	684	1008	893	410	756

Definition of Variables

GDPR : Real Gross Domestic Product in Taka Crores (@ 1984-85 Prices)
GDPC : Gross Domestic Product in Taka Crores (@ Current Prices)
AGDP : Agricultural Gross Domestic Product in Taka Crores (@ 1984-85 Prices)
BM : Broad Money in Taka Crores
MPI : Import Price Index (1979-80 = 100)
EXRT : Official Exchange Rate (Taka per US $)
AGI : Index of Agricultural Production
GREV : Government Revenue in Billion Taka
GEXPN : Government Expenditure in Billion Taka
GDEF : Budgetary Deficit in Billion Taka
DROI : Rate of Interest on Scheduled banks Deposits (Weighted Average as at end quarter)

Sources: 1. Bangladesh Bureau of Statistics , Dhaka
2. Economic Trends,Bangladesh Bank.
3. International Financial Statistics ,Yearbook, 1992,IMF.

Note : 1 billion = 100 Crore.

Appendix Table 2.2 : India - Some Macro Aggregates

YEAR	GNPR	GNPC	BM	MPI	EXRT	AGI	GDEF	GREV	GEXPN	DROI	Wholesale Price index (1981-82 =100)						
											Primary Goods	Food	Non-Food	Mine-rals	Fuel	Manu factu-res	Gene-ral Index
1970-71	89465	39424	10649	35.3	7.500	111.5	-13.6	33.3	39.3	5.68	37.9	42.5	41.5	8.6	31.9	36.9	35.6
1971-72	90281	41957	12314	32.8	7.501	111.2	-16.0	40.6	49.3	6.30	38.3	43.0	41.1	9.8	33.9	40.6	37.5
1972-73	89997	46171	14492	34.2	7.594	102.3	-21.8	45.7	55.2	4.69	42.0	47.2	44.8	10.6	35.1	45.0	41.3
1973-74	94395	56629	17624	48.9	7.742	112.4	-17.0	49.7	58.1	6.64	53.8	58.3	61.0	19.2	41.8	51.7	49.7
1974-75	95885	66748	19550	84.5	8.102	108.8	-23.6	75.3	77.0	13.52	67.4	73.2	68.1	36.3	46.3	62.4	62.2
1975-76	104660	70946	22480	99.1	8.376	125.1	-32.0	91.7	93.3	10.40	62.9	69.8	58.1	37.6	51.2	63.1	61.5
1976-77	105996	76303	27781	96.3	8.960	116.2	-36.9	102.6	104.1	11.28	63.3	66.0	69.3	38.4	54.0	64.6	62.8
1977-78	113903	87118	32906	88.0	8.739	132.8	-37.9	113.5	114.8	10.18	69.7	74.0	73.9	40.8	54.7	66.1	66.1
1978-79	120302	93724	40112	100.0	8.193	137.9	-50.8	129.6	133.5	8.05	68.6	73.2	70.6	42.0	57.2	66.4	66.1
1979-80	114379	102595	47226	114.1	8.126	116.9	-63.0	144.0	159.0	8.47	78.4	79.6	80.9	66.7	66.1	79.7	77.4
1980-81	122772	122772	55774	134.2	7.863	135.3	-88.6	161.1	180.3	7.24	90.2	88.5	90.5	95.0	82.7	94.8	91.1
1981-82	129928	143256	62752	133.1	8.659	142.7	-87.3	195.9	208.4	8.61	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1982-83	133299	158761	72868	136.3	9.455	137.0	-107.3	225.1	244.2	7.27	107.0	111.0	101.0	103.0	107.0	104.0	104.9
1983-84	143861	185779	86089	125.8	10.099	156.4	-133.3	255.2	287.2	8.30	118.0	127.0	112.0	100.0	113.0	110.0	112.8
1984-85	149292	207153	102367	161.7	11.363	154.6	-175.8	296.1	351.3	9.95	126.0	132.0	125.0	105.0	117.0	118.0	120.1
1985-86	155399	232047	118679	158.8	12.369	158.4	-222.5	361.2	430.7	10.00	126.0	134.0	120.0	107.0	130.0	124.0	125.4
1986-87	160975	257250	141632	139.4	12.611	152.5	-272.0	420.7	518.1	9.97	137.0	148.0	134.0	104.0	139.0	129.0	132.7
1987-88	167703	291647	164275	160.0	12.962	151.3	-278.8	480.8	597.1	9.83	153.0	161.0	163.0	101.0	143.0	139.0	143.6
1988-89	185543	349105	200245	185.5	13.917	183.2	-320.6	557.4	694.9	9.73	160.0	177.0	160.0	99.0	151.0	152.0	154.3
1989-90	195237	392524	239184	—	16.226	187.0	-371.5	675.2	826.0	11.03	164.0	179.0	166.0	102.0	157.0	169.0	165.7
1990-91	206375	465827	277603	—	17.504	192.0	-368.6	755.2	916.3	15.57	185.0	201.0	194.0	109.0	176.0	183.0	182.7
1991-92	209306	535055	325996	—	22.742	186.6	—	—	—	19.35	218.0	241.0	229.0	114.0	199.0	203.0	207.6

Definition of Variables

GNPR : Real Gross National Product in Rupees Crore (@ 1980-81 Prices)
GNPC : Gross National Product in Rupees Crore (@ Current Prices)
BM : Broad Money in Rupees Crore
MPI : Import Price Index (1978-79 = 100)
EXRT : Exchange Rate (Rupees per US $)
AGI : Index of Agricultural Production
GDEF : Budgetary Deficit in Billion Rupees
GREV : Government Revenue in Billion Rupees
GEXPN : Government Expenditure in Billion Rupees
DROI : Money Market Rate

Sources: 1. Economic Survey of Government of India
2. International Financial Statistics, Yearbook, 1992, IMF.

Note: 1 Billion = 100 Crore.

Appendix Table 2.3 : Iran - Some Macro Aggregates

YEAR	GDPR	GNPC	OILGDP	BM	EXRT	AGI	GDEF	GREV	GEXPN	Consumer Price Index (1974-75 = 100)				
										Food	Clothing	Housing	Transpor-tation	General Index
1970-71	—	—	—	—	76.38	—	—	—	—	—	—	—	—	—
1971-72	—	—	—	296.3	76.38	—	—	—	—	—	—	—	—	—
1972-73	—	—	—	399.4	76.38	—	-57.0	302.1	359.1	77.5	76.6	71.2	91.8	77.9
1973-74	2825.1	—	1373.0	515.8	69.07	286.50	-13.2	464.8	478.0	83.9	88.9	83.7	95.1	86.6
1974-75	3070.8	3149.6	1441.6	810.1	67.63	303.30	140.0	1394.4	1254.4	100.0	100.0	100.0	100.0	100.0
1975-76	3149.3	3573.7	1264.5	1145.5	67.64	324.00	12.7	1582.1	1569.4	105.6	108.9	420.2	108.3	109.9
1976-77	3597.5	4684.0	1440.4	1593.5	70.22	344.70	-169.8	1836.4	2006.2	119.2	121.1	163.4	123.0	128.1
1977-78	3742.6	5483.2	1362.7	2097.0	70.62	327.30	-458.0	2034.2	2492.2	143.7	146.7	225.2	162.2	160.2
1978-79	3198.5	4197.6	989.8	2578.6	70.47	333.40	-608.9	1598.9	2207.8	169.7	163.6	224.3	176.6	176.2
1979-80	3069.5	6161.8	754.2	3550.0	70.47	356.40	-528.3	1699.6	2227.9	207.4	187.2	211.9	193.4	196.3
1980-81	2568.0	6932.4	330.5	4508.1	70.61	362.90	-972.5	1325.9	2298.4	267.5	232.1	227.3	249.4	242.5
1981-82	2639.4	8355.8	273.6	5236.1	78.33	404.00	-937.0	1770.1	2707.1	344.8	282.1	249.0	328.7	297.9
1982-83	3040.3	10756.1	526.8	6430.7	83.60	436.00	-665.5	2501.9	3167.4	401.9	351.8	279.3	422.7	355.2
1983-84	3417.8	13742.8	531.1	7514.4	86.36	429.00	-898.6	2773.7	3672.3	466.2	444.5	335.1	508.6	418.1
1984-85	3421.3	15150.8	452.5	7966.9	90.03	446.70	-639.4	2714.2	3353.6	502.4	496.4	378.5	594.8	462.1
1985-86	3373.1	16522.2	436.2	9002.1	91.05	485.80	-647.0	2666.2	3313.2	522.3	501.5	393.7	627.3	480.9
1986-87	3067.0	18106.8	372.1	10722.6	78.76	510.20	-1449.5	1707.3	3156.8	678.8	544.1	427.9	739.7	580.9
1987-88	3008.0	21231.1	424.1	12668.2	71.46	519.30	-1469.1	2171.5	3640.6	809.1	636.6	527.6	1061.5	741.8
1988-89	2837.6	23533.8	455.5	15687.6	68.68	452.60	-2125.2	2085.4	4210.6	961.2	990.5	675.9	1456.3	956.2

Definition of Variables

GDPR	:	Real Gross Domestic Product in Billion Rials (@ Constant Prices)
GNPC	:	Gross National Product in Billion Rials @ Current Prices
OILGDP	:	Oil Gross Domestic Product in Billion Rials (@ Constant Prices)
BM	:	Broad Money (M2) in Billion Rials
EXRT	:	Exchange Rate (Rials per US $)
AGI	:	Agricultural Gross Domestic Product in Billion Rials (@ Constant Prices)
GDEF	:	Budgetary Deficit in Billion Rials
GREV	:	Government Revenue in Billion Rials
GEXPN	:	Government Expenditure in Billion Rials
DROI	:	Rate of Interest on Deposits

Sources: 1. Annual Report of Bank Markazi, Iran
2. International Financial Statistics , Year book, 1992, IMF.

Appendix Table 2.4 : Myanmar - Some Macro Aggregates

YEAR	GDPR	GDPC	BM	CPI	EXRT	AGI	GDEF	GREV	GEXPN	DROI
1970-71	28969	10438	2504	29.2	4.7619	—	—	—	—	0.75
1971-72	29675	10772	2620	29.8	4.7916	—	—	—	—	0.75
1972-73	29390	11736	3125	32.1	5.4565	—	—	—	—	0.75
1973-74	30155	14700	3769	40.2	4.9283	—	-855	1453	2349	0.75
1974-75	30958	19348	4606	50.3	4.8598	—	-572	1934	2601	0.75
1975-76	32241	23478	5466	66.2	6.3676	—	-678	2172	2990	0.75
1976-77	34207	27426	6067	81.0	6.7673	—	-129	3277	3533	0.75
1977-78	36242	29619	6377	93.1	7.1194	—	196	4266	4147	0.88
1978-79	38604	31800	6631	89.4	6.8844	—	196	4755	4787	1.50
1979-80	40609	35333	8017	85.9	6.6538	—	851	5690	5194	1.50
1980-81	43831	38609	9619	90.7	6.5983	—	473	6176	6119	1.50
1981-82	46618	42879	11213	90.6	7.2807	7.7	709	7303	7046	1.50
1982-83	49230	46811	13135	91.6	7.7903	6.0	338	7445	7898	1.50
1983-84	51393	49823	14797	96.4	8.0355	4.9	307	7640	7936	1.50
1984-85	54252	53597	17187	101.8	8.3855	4.4	-93	7741	8509	1.50
1985-86	55989	55989	19715	107.2	8.4749	2.1	-443	7620	9015	1.50
1986-87	55397	59028	20125	114.0	7.3304	0.5	-1482	7320	9790	1.50
1987-88	53178	66369	26227	130.7	6.6535	-4.8	-1515	7201	9621	1.50
1988-89	47095	71059	18453	159.5	6.3945	-12.9	-2300	6463	9443	1.50
1989-90	50561	—	25757	195.3	6.7049	11.3	-5189	11842	17566	1.50
1990-91	—	—	35021	241.6	6.3386	5.0	—	—	—	5.88
1991-92	—	—	51006	294.5	6.2837	—	—	—	—	—

Definition of Variables

GDPR : Real Gross Domestic Product in Million of Kyats (@ 1985-86 Prices)
GDPC : Gross Domestic Product in Million of Kyats (@ Current Prices)
BM : Broad Money in Million of Kyats
CPI : Consumer Price Index
EXRT : Exchange Rate (Kyats per US $)
AGI : Agricultural Gross Domestic Product (Growth Rates)
GDEF : Budgetary Deficit in Million of Kyats
GREV : Government Revenue in Million of Kyats
GEXPN : Government Expenditure in Million of Kyats
DROI : Rate of Interest on Deposits

Sources : 1.International Financial Statistics (IFS), Yearbook, 1992,IMF.
2. Central Bank of Myanmar.

Appendix Table 2.5 : Nepal - Some Macro Aggregates

YEAR	GDPR	GDPC	BM	EXRT	GDEF	GREV	GEXPN	DROI	National Urban Consumer Price Index (1983-84 =100)							
									Food	Clothing	Housing	Transport	Medical	Education	Tobacco	General
1970-71	28474	8768	1072.1	10.125	—	—	—	—	—	—	—	—	—	—	—	—
1971-72	28134	8938	1261.8	10.125	—	—	—	—	—	—	—	—	—	—	—	—
1972-73	29011	10369	1529.2	10.125	—	—	—	—	36.9	47.3	28.5	38.2	45.5	38.5	47.5	37.1
1973-74	28872	9969	1911.0	10.500	—	—	—	—	45.1	52.8	30.9	45.0	48.7	43.5	49.7	43.8
1974-75	30701	12808	2064.4	10.560	—	—	—	—	52.2	57.9	38.7	56.5	56.7	49.8	60.0	51.1
1975-76	31148	14802	2524.0	11.003	—	—	—	4.00	50.1	59.6	42.1	59.5	61.9	52.0	68.7	50.8
1976-77	32519	17394	3223.0	12.500	-381.5	1416.4	1797.9	4.00	50.2	62.3	46.0	63.1	66.7	54.5	75.6	52.1
1977-78	33500	17280	3771.1	12.500	-258.8	1685.9	1944.7	4.00	57.7	65.4	49.1	63.2	67.9	58.6	73.1	58.0
1978-79	34975	19732	4511.4	12.111	-207.3	2004.1	2211.4	4.00	58.6	68.7	55.3	66.6	71.8	60.7	73.8	60.0
1979-80	35804	22215	5285.3	12.000	-225.2	2178.7	2403.9	4.00	65.0	73.8	61.0	72.3	75.0	63.6	76.9	65.8
1980-81	34973	23351	6307.7	12.000	-116.5	2811.7	2928.2	4.00	73.8	78.3	70.7	86.9	80.0	81.7	82.4	74.6
1981-82	37891	27307	7458.0	12.336	-893.3	3381.3	4274.6	4.00	81.9	86.9	78.4	89.5	87.4	86.7	88.0	82.4
1982-83	39323	30988	9222.4	13.244	-2151.8	3350.7	5502.5	4.29	95.0	92.7	90.1	95.2	93.6	94.3	97.0	94.1
1983-84	38152	33761	10455.2	14.545	-1672.3	4114.8	5787.1	4.50	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1984-85	41846	39390	13196.6	16.459	-1883.5	4760.4	6643.9	4.50	101.3	105.3	113.6	108.8	109.4	105.4	108.1	104.1
1985-86	44417	44417	15159.0	18.246	-1975.8	5333.0	7308.8	4.50	120.1	115.1	125.8	119.2	125.1	115.9	119.5	120.6
1986-87	46325	50428	17498.2	21.230	-2530.4	6635.2	9165.6	7.17	138.3	126.6	135.4	133.8	140.2	132.2	132.7	136.6
1987-88	48152	59246	21422.6	21.819	-2320.7	8134.8	10455.5	8.50	155.1	135.6	149.5	149.2	154.5	151.8	141.6	151.7
1988-89	51644	68858	26605.1	23.289	-5199.9	8585.0	13784.9	8.50	164.2	145.3	175.7	168.6	169.5	153.3	155.8	164.0
1989-90	53639	78259	31552.4	27.189	-4563.5	10400.3	14963.8	8.50	181.9	170.5	195.4	181.7	165.1	170.9	159.6	179.9
1990-91	55564	88711	37705.5	29.369	-3192.7	11873.3	15066.0	—	200.4	185.9	216.9	183.3	174.5	189.5	177.9	197.5
1991-92	—	—	—	37.255	—	—	—	—	—	—	—	—	—	—	—	—

Definition of Variables

GDPR	:	Real Gross Domestic Product in Million Rupees (@ 1985-86 Prices)
GDPC	:	Gross Domestic Product in Million Rupees (@ Current Prices)
BM	:	Broad Money in Million Rupees
EXRT	:	Exchange Rate (Nepalese Rupees per US $)
GDEF	:	Budgetary Deficit in Million Rupees
GREV	:	Government Revenue in Million Rupees
GEXPN	:	Government Expenditure in Million Rupees
DROI	:	Rate of Interest on Deposits

Sources: 1. Quarterly Economic Bulletin (mid-April to mid-October) Nepal Rastra Bank.
2. International Financial Statistics, Yearbook, 1992, IMF.

Appendix Table 2.6 : Pakistan - Some Macro Aggregates

YEAR	GNPR	GNPC	BM	CPI	MPI	EXRT	AGI	GDEF	GREV	GEXPN	DROI	Wholesale Price Index (1980-81=100)				
												Food	Raw Material	Fuel	Manufac-turing	Gene-ral Index
1970-71	32362	45620	22975	29.7	14.7	4.762	70.5	269.3	6020.6	5751.3	3.11	29.2	31.2	16.4	33.7	29.3
1971-72	32883	49268	24518	31.1	26.9	4.762	74.3	-239.0	6064.8	6303.8	3.88	30.6	31.6	19.1	34.6	30.6
1972-73	35360	61258	30666	34.1	38.9	8.681	75.8	52.2	7532.9	7480.7	3.59	35.4	39.8	19.8	39.6	35.5
1973-74	38085	81058	34190	44.4	58.0	9.994	79.6	-677.1	11047.6	11724.7	3.94	47.0	50.9	27.3	50.8	47.1
1974-75	39651	105787	37266	56.2	54.9	9.900	75.8	-3159.2	12980.4	16139.6	4.67	59.1	56.9	37.2	59.0	58.3
1975-76	41410	124415	43460	62.8	55.1	9.900	81.1	-2409.4	15204.1	17613.5	5.30	63.1	65.2	40.5	65.2	63.2
1976-77	43022	141166	51773	68.6	59.3	9.900	83.4	-374.7	17786.9	18161.6	6.32	73.9	72.8	42.5	73.5	70.4
1977-78	47480	172064	63659	73.3	64.7	9.900	86.5	-813.2	21968.7	22781.9	6.23	79.8	77.2	42.8	76.3	74.8
1978-79	51270	192571	78612	79.4	67.2	9.900	90.2	-4126.7	25725.1	29851.8	6.11	83.1	88.7	49.2	81.5	79.9
1979-80	54888	228886	92424	87.7	82.2	9.900	96.3	-2946.9	31898.2	34845.1	6.18	87.1	91.7	73.7	92.1	87.3
1980-81	57863	270288	104621	100.0	100.0	9.900	100.0	-1495.0	37720.7	39215.7	5.95	100.0	100.0	100.0	100.0	100.0
1981-82	61851	317502	116510	111.1	110.8	9.900	104.0	-1168.5	41934.0	43102.5	6.05	111.3	104.4	105.5	103.4	107.4
1982-83	67069	367807	146025	116.3	119.4	11.847	109.0	-7082.9	49100.5	56183.4	6.24	116.9	105.3	116.0	110.2	113.1
1983-84	69892	413944	163267	124.8	125.2	13.117	95.0	-7939.7	61008.8	68948.5	6.39	125.2	129.0	125.5	124.5	124.4
1984-85	75586	463375	183905	131.8	133.0	14.046	111.0	-16505.9	66027.3	82533.2	5.76	135.4	117.9	135.9	127.8	130.9
1985-86	80903	507678	211111	137.6	132.2	15.928	120.0	-18040.0	78560.8	96600.8	8.80	140.2	116.8	155.9	132.1	137.0
1986-87	84733	551809	240023	142.5	136.9	16.648	124.0	-30699.4	92915.7	123615.1	7.07	146.7	129.4	155.8	141.2	143.8
1987-88	87749	639120	269344	151.5	170.2	17.399	127.0	-44133.2	103408.7	147541.9	7.67	160.2	155.6	170.8	151.8	158.2
1988-89	91321	711143	281638	167.2	187.5	18.003	134.0	-47948.2	119146.0	167094.2	7.95	175.8	169.0	180.7	168.9	173.5
1989-90	95357	791611	317221	177.3	215.0	20.541	135.0	-32593.9	132646.6	165240.5	8.23	187.6	182.4	187.1	184.1	186.2
1990-91	99973	919951	374158	199.8	252.8	21.707	142.0	-52727.0	136550.5	189277.5	9.82	204.5	195.4	218.5	216.6	208.0

Definition of Variables

GNPR : Real Gross National Product in Million Rupees (@ 1959-60 Prices)
GNPC : Gross National Product in Million Rupees (@ Current Prices)
BM : Broad Money in Million Rupees
CPI : Consumer Price Index (1980-81 = 100)
MPI : Import Price Index (1980-81 = 100)
EXRT : Exchange Rate (Rupees per US $)
AGI : Index of Agricultural Production (1980-81 = 100)
GREV : Government Revenue Reciepts in Million Rupees
GDEF : Budgetary Deficit in Million Rupees
GEXPN : Government Expenditure in Million Rupees
DROI : Rate of Interest on Scheduled Banks Deposits (Weighted average rates of return)

Source: Annual Report of State Bank of Pakistan (various issues).

Appendix Table 2.7 : Sri Lanka - Some Macro Aggregates

YEAR	GDPR	GDPC	BM	MPI	EXRT	AGI	GDEF	GREV	GEXPN	DROI	Colombo Consumer Price Index (1952 = 100)					
											General	Food	Clothing	Fuel	Rent	Misc.
1970-71	12967	12967	3114.8	16.0	5.95	17802	-898	2698	3594	-	138.2	136.6	137.3	136.1	109.8	153.2
1971-72	13034	13486	3434.9	17.0	6.15	17306	-1153	2997	4146	7.2	141.9	139.1	145.0	140.8	109.8	159.5
1972-73	13474	14542	3974.2	18.0	6.69	17911	-1168	3322	4493	7.2	150.8	147.5	163.4	145.9	109.8	169.4
1973-74	14016	17737	4153.9	24.0	7.60	17768	-960	3670	4637	7.2	165.4	164.8	186.1	164.4	109.8	170.0
1974-75	14505	23119	4568.1	42.0	8.00	18803	-767	4360	5332	7.2	185.8	189.7	204.6	221.0	109.8	178.3
1975-76	14896	25746	4757.0	49.0	8.44	18350	-1704	4668	6715	7.2	198.3	204.3	208.2	237.1	109.8	191.9
1976-77	15345	28216	6320.9	44.0	9.73	18574	-2518	5340	8072	7.2	200.7	202.1	211.7	265.2	109.8	203.8
1977-78	15999	34681	8716.8	54.0	10.42	20506	-1671	6277	8364	8.4	203.2	203.3	223.8	257.5	109.8	208.4
1978-79	17311	40098	10892.1	100.0	19.58	21618	-5290	11245	16626	8.4	227.8	237.5	226.2	262.1	109.8	224.8
1979-80	18389	48885	15057.6	152.0	20.13	22047	-6300	12158	19426	8.4	252.3	263.3	231.2	328.5	109.8	252.4
1980-81	19456	61814	19860.2	217.0	21.52	22734	-12157	13444	27515	12.0	318.2	339.7	239.1	563.9	109.8	293.8
1981-82	20257	77625	24446.8	282.0	22.67	24313	-10158	14775	25901	12.0	375.4	399.6	257.8	767.9	109.8	345.7
1982-83	21664	94679	30509.9	309.0	22.98	24952	-13927	16209	33768	12.0	416.1	450.4	273.8	816.4	109.8	377.1
1983-84	22532	110664	37256.9	367.7	25.16	26212	-12846	23318	37865	12.0	474.2	506.3	291.1	1087.6	109.8	433.7
1984-85	23691	136638	43427.4	407.9	26.08	26113	-10482	34062	44546	12.0	553.1	598.0	307.5	1282.7	109.8	496.9
1985-86	24938	146005	48408.9	383.1	27.63	28366	-15678	36248	54174	12.0	561.2	598.4	324.2	1332.1	109.8	524.4
1986-87	26067	159852	50860.3	424.0	32.90	29106	-18202	37238	57202	12.0	606.0	641.4	374.5	1347.6	109.8	599.7
1987-88	26474	173395	58335.0	525.7	38.10	27409	-17073	42144	62376	12.0	652.8	697.0	400.9	1358.7	109.8	650.7
1988-89	27153	198250	67945.8	508.2	42.76	27984	-28195	41749	69010	12.0	744.1	802.0	419.8	1535.1	109.8	742.6
1989-90	27755	222467	64019.4	645.7	46.19	27666	-21778	53979	77634	13.5	830.2	884.6	490.0	1718.9	109.8	860.2
1990-91	29539	284553	71238.3	670.7	54.42	30100	-25153	67964	90932	15.1	1008.6	1090.9	610.2	1934.2	109.8	1021.0
1991-92	30940	331742	82818.6	-	56.60	30869	-28022	71529	101080	15.1	1131.5	1220.3	678.4	2252.2	109.8	1146.0

Definition of Variables

GDPR : Real Gross Domestic Product in Million Rupees (@ 1970 Prices)
GDPC : Gross Domestic Product in Million Rupees (@ Current Prices)
BM : Broad Money in Million Rupees
MPI : Import Price Index
EXRT : Exchange Rate (Rupees per US $)
AGI : Agriculture,Forestry and Fishing Gross Domestic Product (@ 1970 Prices)
GDEF : Budgetary Deficit in Million Rupees
GREV : Government Revenue in Million Rupees
GEXPN : Government Expenditure in Million Rupees
DROI : Rate of Interest on Deposits

Sources: 1. Annual Reports of Central Bank of Sri Lanka
2.International Financial Statistics, Yearbook, 1992, IMF.

Appendix Table 3.1 : Bangladesh — Liabilities & Assets of the Bangladesh Bank

(Taka in Crores)

Year	Total Liabilities (Broad Money) = (2)+(7)	Net Foreign Assets	Govern-ment (Net)	Other Public	Private Sector	Net Other Assets	Net Domestic Assets (3) to (6)	(2) as % of (1)	(3) as % of (1)	(4) as % of (1)	(5) as % of (1)	(7) as % of (1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
1973-74	1244.5	62.5	641.9	376.6	320.3	-156.8	1182.0	5.0	51.6	30.3	25.7	95.0
1974-75	1259.6	179.1	626.9	587.5	289.4	-423.3	1080.5	14.2	49.8	46.6	23.0	85.8
1975-76	1396.8	-14.9	721.2	689.1	346.3	-344.9	1411.7	-1.1	51.6	49.3	24.8	101.1
1976-77	1739.8	112.7	731.3	736.1	515.9	-356.2	1627.1	6.5	42.0	42.3	29.7	93.5
1977-78	2141.0	29.1	824.3	925.1	723.2	-360.7	2111.9	1.4	38.5	43.2	33.8	98.6
1978-79	2760.0	216.3	856.2	1235.6	925.8	-473.9	2543.7	7.8	31.0	44.8	33.5	92.2
1979-80	3244.9	-40.8	1042.3	1511.3	1396.3	-664.2	3285.7	-1.3	32.1	46.6	43.0	101.3
1980-81	4136.0	-361.1	1662.8	1847.4	1763.0	-776.1	4497.1	-8.7	40.2	44.7	42.6	108.7
1981-82	4548.8	-1129.8	1662.4	2435.2	2364.7	-783.7	5678.6	-24.8	36.5	53.5	52.0	124.8
1982-83	5898.3	-457.3	1606.4	2462.6	3097.5	-810.9	6355.6	-7.8	27.2	41.8	52.5	107.8
1983-84	8465.9	-1.6	2069.0	2552.0	4914.5	-1068.0	8467.5	-0.0	24.4	30.1	58.1	100.0
1984-85	10534.2	-239.8	1988.3	3229.5	6890.6	-1334.4	10774.0	-2.3	18.9	30.7	65.4	102.3
1985-86	12338.1	-141.0	1853.2	3972.8	8356.2	-1703.1	12479.1	-1.1	15.0	32.2	67.7	101.1
1986-87	14353.0	176.1	1978.7	4355.6	8974.0	-1131.4	14176.9	1.2	13.8	30.3	62.5	98.8
1987-88	16408.0	599.8	1717.5	4359.7	10896.3	-1165.3	15808.2	3.7	10.5	26.6	66.4	96.3
1988-89	19078.1	777.3	1270.4	4633.7	13359.7	-963.0	18300.8	4.1	6.7	24.3	70.0	95.9
1989-90	22297.6	427.5	2014.7	5011.6	16004.5	-1160.7	21870.1	1.9	9.0	22.5	71.8	98.1
1990-91	25004.4	1751.7	2187.8	5357.7	17822.9	-2115.7	23252.7	7.0	8.7	21.4	71.3	93.0

Source : Economic Trends, Statistics Department, Bangladesh Bank
Note : 1 billion = 100 Crore

Appendix Table 3.2 : India — Components of Broad Money

(In Rs. Crores)

Year	Net Bank Credit to Government	Bank Credit to Commercial Sector	Net Foreign Exchange Assets of Banking Sector	Government's Currency Liabilities to the Public	Banking Sector's Net Non-Monetary Liabilities	Broad Money (M3) (1) to (5)	(1) as % of (6)	(2) as % of (6)	(3) as % of (6)	(4) as % of (6)	(5) as % of (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1970-71	5270	5728	540	385	-1273	10650	49.5	53.8	5.1	3.6	-12.0
1971-72	6417	6523	608	411	-1645	12314	52.1	53.0	4.9	3.3	-13.4
1972-73	7725	7675	571	457	-1932	14496	53.3	52.9	3.9	3.2	-13.3
1973-74	8681	9503	650	502	-2330	17006	51.0	55.9	3.8	3.0	-13.7
1974-75	9533	12731	414	531	-3659	19550	48.8	65.1	2.1	2.7	-18.7
1975-76	10619	15615	939	555	-5248	22480	47.2	69.5	4.2	2.5	-23.3
1976-77	11259	18850	2528	568	-5424	27781	40.5	67.9	9.1	2.0	-19.5
1977-78	13470	21222	4445	593	-6825	32905	40.9	64.5	13.5	1.8	-20.7
1978-79	15516	25536	5359	591	-6900	40102	38.7	63.7	13.4	1.5	-17.2
1979-80	20014	31011	5343	592	-9734	47226	42.4	65.7	11.3	1.3	-20.6
1980-81	25718	36641	4712	619	-11934	55756	46.1	65.7	8.5	1.1	-21.4
1981-82	30633	43462	2643	657	-14661	62734	48.8	69.3	4.2	1.0	-23.4
1982-83	35257	51162	1828	682	-16061	72868	48.4	70.2	2.5	0.9	-22.0
1983-84	40642	60726	1546	719	-17644	85989	47.3	70.6	1.8	0.8	-20.5
1984-85	50343	70953	3134	777	-22850	102357	49.2	69.3	3.1	0.8	-22.3
1985-86	58321	82803	3872	940	-27257	118679	49.1	69.8	3.3	0.8	-23.0
1986-87	72020	94741	4815	1192	-31136	141632	50.9	66.9	3.4	0.8	-22.0
1987-88	84370	107487	5672	1380	-34634	164275	51.4	65.4	3.5	0.8	-21.1
1988-89	97373	132663	6800	1475	-38066	200245	48.6	66.3	3.4	0.7	-19.0
1989-90	118093	156765	6818	1555	-44047	239184	49.4	65.5	2.9	0.7	-18.4
1990-91	141373	178734	8672	1621	-52797	277603	50.9	64.4	3.1	0.6	-19.0
1991-92	158609	200388	19527	1696	-54224	325996	48.7	61.5	6.0	0.5	-16.6

Source : Economic Survey of Government of India (various issues) Note : 1 billion = 100 Crore

Appendix Table 3.3 : Iran — Liabilities & Assets of the Bank Marakazi

(Billion Rials)

Year	Total Assets/ Liabilities (2) to (8)	Foreign Assets	Claims on Public Sector (Govern-ments)	(Pub. Corp. & agencies)	Claims on Banks	Others	Customers' Under-takings	Notes & Coins in Till	(2) as % of (1)	(3) as % of (1)	(4) as % of (1)	(5) as % of (1)	(7) as % of (1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
1971-72	315.1	55.5	138.8	10.1	14.5	-	96.2	-	17.6	44.0	3.2	4.6	30.5
1972-73	383.7	84.9	160.2	16.9	20.2	3.1	98.0	0.4	22.1	41.8	4.4	5.3	25.5
1973-74	600.1	150.6	201.1	34.5	44.6	5.7	163.0	0.6	25.1	33.5	5.7	7.4	27.2
1974-75	1198.1	522.9	151.3	157.3	37.2	13.4	313.3	2.7	43.6	12.6	13.1	3.1	26.1
1975-76	1286.0	519.8	147.2	271.4	98.7	12.5	234.3	2.1	40.4	11.4	21.1	7.7	18.2
1976-77	1796.0	694.0	192.8	466.7	149.1	19.2	267.9	6.3	38.6	10.7	26.0	8.3	14.9
1977-78	1958.7	842.9	238.9	359.8	174.9	25.2	309.0	8.0	43.0	12.2	18.4	8.9	15.8
1978-79	2546.8	830.1	660.6	481.3	194.2	49.2	319.4	12.0	32.6	25.9	18.9	7.6	12.5
1979-80	3210.2	1087.7	938.7	611.9	265.9	10.1	287.9	8.0	33.9	29.2	19.1	8.3	9.0
1980-81	3937.8	729.4	1857.6	562.3	393.9	17.7	353.8	23.1	18.5	47.2	14.3	10.0	9.0
1981-82	5159.8	1061.2	2608.2	599.0	421.6	71.7	378.4	19.7	20.6	50.5	11.6	8.2	7.3
1982-83	5984.4	936.2	3479.7	527.5	465.4	64.0	502.5	9.1	15.6	58.1	8.8	7.8	8.4
1983-84	6627.5	833.1	4191.1	658.5	468.1	24.7	444.9	7.1	12.6	63.2	9.9	7.1	6.7
1984-85	7198.2	589.5	5037.7	658.3	506.1	46.2	351.8	8.6	8.2	70.0	9.1	7.0	4.9
1985-86	8023.6	687.6	5725.2	692.6	355.9	196.8	332.5	33.0	8.6	71.4	8.6	4.4	4.1
1986-87	9522.4	736.1	7456.1	631.0	295.0	46.7	346.5	11.0	7.7	78.3	6.6	3.1	3.6
1987-88	11023.0	726.4	8904.0	636.7	315.0	59.0	354.5	27.4	6.6	80.8	5.8	2.9	3.2
1988-89	13177.7	680.7	10975.7	675.6	319.9	129.5	351.1	45.2	5.2	83.3	5.1	2.4	2.7

Source : Annual Report of Bank Markazi,Iran (various issues)

Appendix Table 3.4 : Myanmar — Monetary Survey

(Millions of Kyat)

Year	Foreign Assets (Net)	Domestic Credit (3+4+5)	Claims on Central Government (Net)	Claims on Nonfin. Pub. Ents. (Net)	Claims on Private Sector (M2)	Total Liquidity (2)	(3) as % of (2)	(4) as % of (2)	(5) as % of
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1970-71	100	3322	2731	109	482	2504	82.2	3.3	14.5
1971-72	67	3710	3036	186	488	2620	81.8	5.0	13.2
1972-73	-54	4611	3872	54	685	3125	84.0	1.2	14.9
1973-74	89	4721	3897	51	773	3769	82.5	1.1	16.4
1974-75	349	5561	5185	-204	580	4606	93.2	-3.7	10.4
1975-76	301	6883	6699	-606	790	5466	97.3	-8.8	11.5
1976-77	47	7489	6109	44	1336	6067	81.6	0.6	17.8
1977-78	15	8076	7646	-1313	1743	6377	94.7	-16.3	21.6
1978-79	-122	9575	7455	-243	2363	6631	77.9	-2.5	24.7
1979-80	502	11464	5422	4033	2009	8017	47.3	35.2	17.5
1980-81	1038	12958	4070	6757	2131	9619	31.4	52.1	16.4
1981-82	388	16551	2962	11049	2540	11213	17.9	66.8	15.3
1982-83	-316	19737	538	16729	2470	13135	2.7	84.8	12.5
1983-84	-627	23986	229	21129	2628	14797	1.0	88.1	11.0
1984-85	-625	27326	-2151	27081	2396	17187	-7.9	99.1	8.8
1985-86	-1317	31141	-3227	31606	2762	19715	-10.4	101.5	8.9
1986-87	-818	41484	1365	37110	3009	20125	3.3	89.5	7.3
1987-88	-480	41819	-2877	41698	2998	26227	-6.9	99.7	7.2
1988-89	-69	46829	-1639	45667	2801	18453	-3.5	97.5	6.0
1989-90	-723	37693	34367	64	3262	25757	91.2	0.2	8.7
1990-91	9	49699	41573	918	7208	35021	83.6	1.8	14.5

Sources: 1. International Financial Statistics, Yearbook, 1992 (IMF).
2. Total liquidity (M2) since 1976-77 is based on data provided by Central Bank of Myanmar.

Appendix Table 3.5 : Nepal — Monetary Survey

(In Million Rs.)

Year	Foreign Assets	Total Claims Govt. on (Net)	claims on Govt. enterprises	claims on private Sector	Capital & Other Items (net)	Broad Money (M3) (1) to (5)	(1) as % to (6)	(2) as % to (6)	(3) as % to (6)	(4) as % to (6)	(5) as % to (6)
	(1)	(2)	(3)	(4)	(5)	(6)	(9)	(10)	(11)	(12)	(14)
1970-71	1047.6	-145.3	37.3	320.8	-188.3	1072.1	97.7	-13.6	3.5	29.9	-17.6
1971-72	1179.1	-80.3	41.8	400.3	-279.1	1261.8	93.4	-6.4	3.3	31.7	-22.1
1972-73	1383.0	42.2	96.1	459.0	-451.1	1529.2	90.4	2.8	6.3	30.0	-29.5
1973-74	1451.5	139.9	128.6	701.7	-510.7	1911.0	76.0	7.3	6.7	36.7	-26.7
1974-75	1029.1	285.7	568.7	783.4	-602.5	2064.4	49.8	13.8	27.5	37.9	-29.2
1975-76	1575.0	479.8	567.3	716.2	-814.3	2524.0	62.4	19.0	22.5	28.4	-32.3
1976-77	1875.2	749.8	511.0	864.2	-777.2	3223.0	58.2	23.3	15.9	26.8	-24.1
1977-78	1783.3	965.5	867.7	1071.1	-916.5	3771.1	47.3	25.6	23.0	28.4	-24.3
1978-79	2288.0	1129.3	1079.9	1331.6	-1317.4	4511.4	50.7	25.0	23.9	29.5	-29.2
1979-80	2231.9	1258.3	1131.0	1916.5	-1252.4	5285.3	42.2	23.8	21.4	36.3	-23.7
1980-81	2414.5	1262.7	1400.6	2498.1	-1268.2	6307.7	38.3	20.0	22.2	39.6	-20.1
1981-82	3097.4	2061.5	1343.4	2638.2	-1682.5	7458.0	41.5	27.6	18.0	35.4	-22.6
1982-83	2611.4	4089.6	1702.2	2699.1	-1879.9	9222.4	28.3	44.3	18.5	29.3	-20.4
1983-84	2539.8	5028.7	1621.8	3174.0	-1909.1	10455.2	24.3	48.1	15.5	30.4	-18.3
1984-85	1897.6	6492.1	2022.2	4036.6	-1251.9	13196.6	14.4	49.2	15.3	30.6	-9.5
1985-86	2600.0	7495.7	2659.3	5167.9	-2763.9	15159.0	17.2	49.4	17.5	34.1	-18.2
1986-87	3059.9	8712.3	2811.1	6279.7	-3364.8	17498.2	17.5	49.8	16.1	35.9	-19.2
1987-88	5573.6	9259.0	2901.6	8308.7	-4620.3	21422.6	26.0	43.2	13.5	38.8	-21.6
1988-89	6203.5	12345.1	2998.2	11241.0	-6182.7	26605.1	23.3	46.4	11.3	42.3	-23.2
1989-90	9338.9	13940.2	2828.2	12893.2	-7448.1	31552.4	29.6	44.2	9.0	40.9	-23.6
1990-91	16163.3	16815.6	2199.3	15582.4	-13055.1	37705.5	42.9	44.6	5.8	41.3	-34.6

Source : Quarterly Economic Bulletin (mid-April to mid-October) 1991, Nepal Rastra Bank

Appendix Table 3.6 : Pakistan — Liabilities and Assets of Issue Department of State Bank of Pakistan

(Million Rs.)

Year	Total Liabilities/ Assets	Gold & Foreign Assets	Domestic Assets	Assets with RBI pending transfer to Pakistan	(2) as % of (1)	(3) as % of (1)	(4) as % of (1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1970-71	9492.1	1238.7	8205.5	48.0	13.0	86.4	0.5
1971-72	8105.5	3240.1	4737.0	128.5	40.0	58.4	1.6
1972-73	10412.5	4011.1	6273.0	128.5	38.5	60.2	1.2
1973-74	10546.0	4014.0	6419.9	112.1	38.1	60.9	1.1
1974-75	11642.1	4425.3	7107.0	109.8	38.0	61.0	0.9
1975-76	13308.0	6169.7	7036.0	102.2	46.4	52.9	0.8
1976-77	16757.9	4076.0	12595.9	86.0	24.3	75.2	0.5
1977-78	19605.1	9780.7	9686.6	137.8	49.9	49.4	0.7
1978-79	25248.0	7778.8	17290.2	179.9	30.8	68.5	0.7
1979-80	29178.5	16330.1	12536.7	311.7	56.0	43.0	1.1
1980-81	36362.3	15322.2	20818.8	221.3	42.1	57.3	0.6
1981-82	39279.4	14292.0	24770.1	217.4	36.4	63.1	0.6
1982-83	47368.9	31940.1	15161.3	267.4	67.4	32.0	0.6
1983-84	53724.8	28751.2	24720.0	253.6	53.5	46.0	0.5
1984-85	58858.9	16099.6	42503.2	256.2	27.4	72.2	0.4
1985-86	65636.5	24287.5	41050.5	298.5	37.0	62.5	0.5
1986-87	77796.2	27762.2	49663.5	370.5	35.7	63.8	0.5
1987-88	91205.7	22659.7	68163.5	382.5	24.8	74.7	0.4
1988-89	100981.6	21633.3	78959.1	389.2	21.4	78.2	0.4
1989-90	118515.1	25650.1	92465.5	399.5	21.6	78.0	0.3
1990-91	142170.5	25918.0	115806.7	445.7	18.2	81.5	0.3

Source : Annual Report of the State Bank of Pakistan (various issues)

Appendix Table 3.7 : Sri Lanka — Liabilities and Assets of the Central Bank of Sri Lanka

(SL Rs. Million)

Year	Total Liabilities (Broad Money) (M2) = (2) + (6)	Net Foreign Assets	Government (Net)	Private Sector	Net Other Assets	Net Domestic Assets (3) to (5)	(2) as % of (1)	(3) as % of (1)	(4) as % of (1)	(6) as % of (1)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1970-71	3114.7	-599.2	2559.2	1616.1	-461.4	3713.9	-19.2	82.2	51.9	119.2
1971-72	3434.3	-398.7	2717.2	1763.3	-647.5	3833.0	-11.6	79.1	51.3	111.6
1972-73	3974.2	-318.2	2764.4	2171.4	-643.4	4292.4	-8.0	69.6	54.6	108.0
1973-74	4154.0	32.1	2659.6	2155.3	-693.0	4121.9	0.8	64.0	51.9	99.2
1974-75	4568.0	-147.1	2526.3	3302.1	-1113.3	4715.1	-3.2	55.3	72.3	103.2
1975-76	4777.1	-361.6	2809.9	3422.9	-1094.1	5138.7	-7.6	58.8	71.7	107.6
1976-77	6321.0	108.5	3267.3	3984.8	-1039.6	6212.5	1.7	51.7	63.0	98.3
1977-78	8716.8	3705.8	2989.3	5785.5	-3763.8	5011.0	42.5	34.3	66.4	57.5
1978-79	10892.1	5589.9	1863.0	8811.9	-5372.7	5302.2	51.3	17.1	80.9	48.7
1979-80	15057.6	6807.6	2920.4	12051.4	-6721.8	8250.0	45.2	19.4	80.0	54.8
1980-81	19860.2	3630.7	8972.0	16831.7	-9574.2	16229.5	18.3	45.2	84.8	81.7
1981-82	24446.8	2940.3	12789.1	21177.4	-12460.0	21506.5	12.0	52.3	86.6	88.0
1982-83	30509.9	2450.1	17150.2	25247.4	-14337.8	28059.8	8.0	56.2	82.8	92.0
1983-84	37256.8	3154.7	17533.1	31759.9	-15190.9	34102.1	8.5	47.1	85.2	91.5
1984-85	43427.3	9950.9	14554.4	35371.8	-16449.8	33476.4	22.9	33.5	81.5	77.1
1985-86	48408.9	9183.2	20347.6	38878.5	-20000.4	39225.7	19.0	42.0	80.3	81.0
1986-87	50860.4	9180.2	22546.1	41562.6	-22428.5	41680.2	18.0	44.3	81.7	82.0
1987-88	58334.8	9291.2	27047.9	48517.6	-26521.9	49043.6	15.9	46.4	83.2	84.1
1988-89	67945.9	7058.5	36064.5	60802.5	-35979.6	60887.4	10.4	53.1	89.5	89.6
1989-90	76433.5	4732.1	36118.7	66202.5	-30619.8	71701.4	6.2	47.3	86.6	93.8
1990-91	91017.3	10206.5	39197.1	80667.1	-39053.4	80810.8	11.2	43.1	88.6	88.8

Source : Annual Report (various issues), Central Bank of Sri Lanka.

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NOTES

Industrial Employment in the Eighth Plan Issues and Options

Deepak Gupta*

This paper analyses the behaviour of output, value added and employment in overall factory sector during the period 1973-74 to 1987-88. Notably, the employment elasticity of output has become negative in the recent period of 1983-84 to 1987-88. In view of this, the Eighth Plan's calculations to achieve full employment by 2000 AD seem to be quite ambitious. The future employment strategy for manufacturing sector in particular, would have to place emphasis on small and decentralised segments of manufacturing sector as a major source of industrial and employment growth.

Widespread unemployment and the resulting poverty are the most formidable problems confronting the Indian economy. Since the beginning of development planning, several policies have been tried but their impact has been limited, notwithstanding the significant growth in employment over the years. However, a relatively high growth of population and additions to labour force in the face of relatively sluggish economic activity has led to an increase in the volume of unemployment, the backlog of unemployment being as much as 28 million persons at the beginning of 1990-91.

Against this background the Eighth Five Year Plan, 1992-97 has provided a sharply focussed medium-term perspective to the need for reducing unemployment to a negligible level within the next ten years. In support of this goal, the Eighth Plan has presented a studied assessment of employment prospects and the unemployment situation in the country by sectors and by different categories and an estimate of the target of employment growth required to achieve near full employment by the turn of the century. The Eighth Plan document has also enunciated a strategy of policies and programmes towards expansion of employment opportunities in different sectors of the economy. The document has recognised that while the adoption of an employment-oriented growth strategy will be necessary to attain the goal of near full employment over a period of time, special employment programmes for the poor and the vulnerable, would still be

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necessary in the interim. The document has, however, cautioned, based on their varying degrees of success in the past, the need for a major restructuring of the special employment programmes so as to have them closely integrated with the sectoral programmes of output and employment growth. In the context of the effects of structural reforms on employment, the Plan has considered that the most effective way of dealing with the problem is to create appropriate conditions, particularly in the informal sector, to generate larger productive employment by making entry of individuals and tiny units into processing, repair, transport and other services sectors easier, and access to credit, space and other inputs wider.

It is against this context that an attempt is made in this paper to analyse the behaviour of output, value added and employment in overall factory sector (a proxy for organised sector) during the period 1973-74 to 1987-88 so as to appreciate the rationale for the Eighth Plan's perspective. Furthermore, the relevant data concerning public and private sector employment have also been analysed to arrive at policy implications. The data for this study have been taken from various issues of Annual Survey of Industries, National Accounts Statistics and Economic Survey. The value added and output are at constant (1980-81 = 100) prices. The period 1973-74 to 1987-88 has been consciously chosen for the reasons that National Industrial Classification (NIC)-70 is being followed to classify factories since ASI 1973-74 and the latest data available at the time of study being of 1987-88. Besides this, the period 1973-74 to 1987-88 corresponds with Planning Commission's study (1990) quoted in this paper.

The paper has been divided into four sections. Section I analyses the growth in employment, output and value added in Factory Sector. Section II evaluates the employment effects of structural and technological changes. Section III examines the behaviour of employment in public and private sectors. Section IV, the concluding section, focusses on the future employment strategy in the light of the findings of the previous sections and sums up the discussion.

SECTION I

Growth in Employment, Output and Value Added in Factory Sector

Employment data reported in Table 1 reveal that overall employment in the factory sector declined at an annual average rate of 0.51 per cent during 1983-84 to 1987-88 as against the positive growth of 5.07 per cent and 2.39 per cent during the earlier periods of 1974-75 to 1977-78 and 1977-78 to 1983-84, respectively. In absolute terms, the employment has increased from 58.2 lakh persons in 1973-74 to 80.1 lakh persons in 1982-83. However, it has fallen to 77.8 lakh persons in 1987-88. Notably, the groups showing a fall in employment during

1980s (1983-84 to 1987-88) were food products (-3.82 per cent), cotton textiles (-4.48 per cent), jute textiles (-3.54 per cent) and wood furniture (-2.11 per cent) representing by and large the traditional industry groups.

The gross output of the factory sector too has grown at a lower annual rate of 4.82 per cent during 1983-84 to 1987-88 as against a higher growth of 11.67 per cent and 7.42 per cent, respectively during the periods 1974-75 to 1977-78 and 1977-78 to 1983-84. During the 1980s (i.e.,1983-84 to 1987-88), the output growth declined in respect of food products, cotton textiles, wool and silk textiles, rubber products, chemicals, basic metals,non-electrical machinery, transport equipments and electricity. Notably, the jute textiles showed a fall in its value of output (at constant prices) mainly because of closure of a large number of jute mills during the above period. The closure was necessitated because of low demand for jute both in domestic and international markets arising on account of the emergence of synthetic substitutes.

As regards gross value added, it too witnessed a fall in growth to 5.16 per cent during 1983-84 to 1987-88 as against a higher growth of 8.29 per cent and 9.89 per cent during the earlier periods of 1974-75 to 1977-78 and 1977-78 to 1983-84, respectively.

From the above, it emerges that though the gross output and gross value added have recorded lower growth during the 1980s (1983-84 to 1987-88), nevertheless in absolute terms, they have increased across the board in almost all the 17 industry groups. The overall employment on the other hand has shown an absolute fall during the 1980s. The absolute fall in employment in the years 1983-84 through 1987-88 in such traditional groups like food products, cotton textiles, jute textiles, wood products, paper products, transport equipments etc., is a reflection of the fact that some of the units in these industry groups became sick and were closed down during this period. The available data on sickness indicate that sickness is more prominent in textiles, jute and paper products (see, Deepak Gupta, 1992). Furthermore, the existing units have had to employ modern labour-replacing and capital-augmenting technologies so as to achieve efficiency and economy in their scales of operations. It may be pointed out that changes in employment and output would go hand in hand, under conditions of static technological environment. However, the fall in absolute employment vis-a-vis lower growth in output and value added (during 1983-84 to 1987-88) seems to indicate that there had been some shift in the technology parameters. This seems to be generally true in respect of individual industry and for the factory sector as a whole.

SECTION II

Employment Effects of Structural and Technological Changes

For the entire period, the employment elasticity of output* works out to 0.28, but what is significant to note is that while one per cent growth in output was accompanied by 0.44 per cent growth in employment during the period 1973-74 to 1977-78, the corresponding figure for 1977-78 to 1983-84 works out to only 0.24 (Table 2). And if one looks only at last five years of the reference period (1983-84 to 1987-88), it turns out to be negative. In terms of value added also, the elasticities show a similar pattern i.e. declining from 0.61 (during 1973-74 to 1977-78) to 0.19 (during 1977-78 to 1983-84) and becoming -0.07 during the latest period (Table 3). For the entire period, the employment elasticity of value added works out to 0.26. Whichever indicator is considered, it comes out clearly that employment generating capacity of output growth has declined during the period under reference and particularly sharply in recent years (1983-84 to 1987-88). We already noted that traditional industry groups recorded lower growth in output in the recent period. Significantly enough, these industry groups witnessed higher labour productivity (ratio of value added to workers) and higher capital intensity (capital/ labour ratio) during the period 1974-75 to 1985-86 (see, P.S.Raikhy and Deepak Gupta, forthcoming). This suggests that the deceleration in employment can be traced to increasing capital intensity and resulting higher labour productivity in these groups.

The Indian industrialisation process has been undergoing a structural change over the past four decades by and large in a historically well-established pattern from primary raw material based to metal based and presently to industries using processed intermediates and inputs. The transition from the first to the second and then to the third type of industries implies a movement to higher technology and the consequential increase in labour productivity. It is likely that the combined effect of this movement could result in decline in employment potential of output growth. The slow-down in employment growth in organised manufacturing could, to some extent, be attributed to this structural change. As regards employment elasticity, it may be seen from Table 2 that barring food products, textile products and metal products, the elasticities in other groups, though positive, have become smaller in 1983-84 to 1987-88 as against the earlier period (1977-78 to 1983-84), indicating higher degree of mechanisation.

From the above, it emerges that increase in employment elasticity in some of the industry groups, *e.g.*, food products, textile products and metal products,

* The elasticity parameter has been derived by using the following equation.
Log Y = a + b log x

has been more than offset by a decline in elasticities in a number of industries. It appears that a slower growth in employment than in output/value added was mainly caused by technological change within individual industry groups and structural changes as such may not have had more than a limited contribution to this phenomenon. But it is surprising, as some of the recent studies (see, T.S.Papola, 1989) reveal, that there has been a declining trend in the average size of employment per factory even though there has been some increase in total employment and output. This indicates that new units in most industries are of relatively small size. Besides, it seems that over the period, there has been an increase in sub-contracting where large factories have found it more economical for various reasons, particularly for effecting reduction in labour costs, to subcontract a sizable part of their work to smaller units, which may either be factories or even smaller establishments that could legally be designated as factories. Insofar as the latter is the case, the employment figures reported in the factory sector fail to represent the total employment generated in producing the reported output. This has also been corroborated by Sarath Davala (1992) who argued that full time employment has been declining and various forms of insecure work such as contract, temporary and casual labour has been on the increase. As regards the view of the industry sources that decline in organised employment is due to the phenomenon of labour legislation, Papola (1991) has discounted such a possibility by citing certain case studies and pointed out that there seems little substance and evidence in favour of the contention that the deceleration in employment growth and decline in employment elasticity in the organised industry has been caused by the highly protected labour legislation. Industry seems to have become more capital intensive in the wake of modernisation and the emergence of high technology segments. Entrepreneurs, one could argue, seem to be making decisions on the use of technology in response to demand in the domestic and international markets.

SECTION III

Public Vs. Private Employment

An analysis of employment growth in non-agricultural establishments in the private sector as well as in public sector during 1973 to 1987 gives interesting findings (Table 4). During 1973 to 1977, employment in the public sector has increased at an annual average rate of 3.56 per cent as against a marginal growth of 0.07 per cent in the private sector. This has to be viewed against the domestic regulatory industrial policy framework imposing restrictions on the entry of private entrepreneurs through licensing, reservation of industries for public sector and other control measures in operation during the above period.

The second period of 1977 to 1983 witnessed a deceleration in employment growth in the public sector, whereas the private sector registered a substantive increase in the growth of employment. During the last period 1983 through 1987, the public sector has seen a further decline in the growth of employment while there has been a negative growth of employment in the private sector. As a result, growth of overall employment, declined during 1983 to 1987 as compared to the earlier period of 1977 to 1983.

As regards the employment elasticity with reference to real GDP, it has declined in the non agricultural establishments in the private sector as well as in the public sector; this elasticity has come down from 0.56 during 1977 to 1983 to 0.28 during 1983 to 1988 (Table 5).

Implications

The decline in the growth of public sector employment during 1977-83 and 1983-87 with a simultaneous increase in the private sector employment (1973 to 1983) can be explained in terms of a shift towards deregulation, delicensing, decontrol of the industrial sector that took place during the above two sub-periods. This has facilitated to a considerable extent the private sector entry in the industrial arena, resulting in higher employment growth in the organised private sector. However, in the later period (1983 to 1987), there was negative growth in employment in the private sector suggesting a shift in factor mix in production in private sector. Given the present public sector's resource crunch and the accentuation in the decline in public expenditure, the brunt of future employment growth has to be borne mainly by the private sector, which has to change the negative employment elasticity seen in the most recent period, to a positive one.

SECTION IV

Against the analysis conducted above, the Eighth Plan paper's calculations to achieve full employment by 2000 AD seem to be ambitious as it assumes that in the manufacturing sector, output growth in the small industry sector (at 10.0 per cent per annum) would be much larger than that of the organised sector (at about 5.0 per cent), thus implying that employment elasticity and employment growth would be significantly higher than what has been the recent experience in this regard. On this basis, the Plan proposed that the overall employment growth in the manufacturing sector be doubled from the present 2 per cent to 4 per cent per annum. This is not going to be easy since in the first place, the difference in growth rates as between any two industries has never been so large. Secondly, all indications suggest that following structural reforms, the organised industry is likely to grow at a relatively fast rate than in the past, consume a higher amount

of capital and generate, if the recent experience is any guide, less of employment. The emphasis on non-household, tiny and micro-enterprise sectors for implementing promotional policies would therefore have to be the answer but it would take a while before the series of physical handicaps they are faced with are got over. However, if the Eighth Plan's targets fail to materialise, the scenario will be much more depressing as visualised in the following Table.

Table :Backlog and the Employment Need

(In million persons)

		Beginning of 1990-91	1990-91 to 1994-95	1990-91 to 1999-2000
1.	Estimated employment	300	—	—
2.	Growth in labour force (per cent per annum)	2.2	2.2	2.2
3.	Backlog of unemployment	28	—	—
4.	Increase in labour force	7	37	78
5.	Total number of persons requiring employment at the end of the period	35	65	106
6.	Implied growth rate of employment if the goal of full employment is to be attained by 2000 AD	—	3.0 per cent per annum	3.0 per cent per annum
7.	If the present employment growth rate of 1.55 per cent continues, the size of employment absorption during the period.	4.7	23.5	47.0
8.	Estimated backlog of employment, if the present trend exists	30.3	41.5	59.0

Source: Data compiled from 'Employment, Past Trends and Prospects for 1990s' Working Paper, Planning Commission, May 1990.

The Eighth Plan paper points out two disconcerting features regarding manufacturing employment. First there is a deceleration in the growth rate to around 2 per cent during 1983-88. And second, the relatively favourable figure of employment growth in the manufacturing sector has mainly been the result of a high growth in the unorganised sector. Furthermore, within the organised sector,

the employment elasticity with respect to output has been higher in respect of small scale sector. Therefore, for the manufacturing sector in particular, the future employment strategy would have to place emphasis on small and decentralised segments of the manufacturing sector as a major source of industrial and employment growth, particularly in the production of consumption goods and manufactured exports along with large scale programmes of construction both of infrastructure and residential accommodation. However, this has to be integrated with the overall development strategy which should emphasize in addition to the above (a) a rapid and geographically diversified growth of agriculture to enable the hitherto lagging regions to account for a major share in the agriculture growth during the 1990s, (b) diversification of agriculture into non-staple high value crops, particularly in areas of relatively developed agriculture,(c) development of an appropriate support and policy framework for the growth of non-agricultural, particularly manufacturing activities in rural areas including rural towns, and (d) expansion and strengthening of social infrastructure, education and health particularly in rural areas. It is only when these elements are addressed, will the goal of full or near full employment be approached in the next 8-9 years.

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Table 1: Rates of Growth in Employment, Output and Value Added

(per cent)

Code no.	Industry Group	Employment			Output				Value Added			
		1974-75 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1974-75 to 1987-88	1974-75 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1974-75 to 1987-88	1974-75 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1974-75 to 1987-88
20-21	Food Products	14.95	-1.18	-3.82	3.20	14.69	9.14	2.08	8.35	17.95	14.26	4.30	10.72
22	Beverages,Tobacco etc.	14.45	4.68	0.40	5.72	-0.63	7.25	9.74	3.88	1.01	13.67	21.06	9.36
23	Cotton Textiles	2.48	-0.23	-4.48	-0.96	7.51	3.01	2.37	3.60	-1.57	6.90	4.12	2.24
24	Wool,Silk Textiles	6.40	5.64	4.16	5.01	15.95	13.27	8.82	12.43	12.09	16.85	9.00	11.87
25	Jute Textiles	-0.27	-0.98	-3.54	-1.32	6.92	-2.17	-2.14	1.61	3.98	-0.90	2.40	3.26
26	Textile Products	10.22	2.53	5.80	5.11	13.85	5.45	9.70	10.52	12.84	8.40	13.15	11.93
27	Wood,Furniture etc.	0.57	0.64	-2.11	-0.39	2.31	1.22	5.34	2.91	1.81	4.55	5.79	2.70
28	Paper,Printing etc.	0.91	2.94	-0.78	1.14	5.39	5.51	7.95	6.17	2.83	5.09	8.70	5.14
29	Leather & Fur Products	7.60	4.13	4.21	5.52	10.81	3.12	10.00	8.39	15.22	8.14	10.89	10.39
30	Rubber,Petroleum etc.	7.93	5.05	1.33	4.89	25.06	9.12	5.70	12.89	18.38	3.46	18.56	14.66
31	Chemicals etc.	6.60	4.54	2.18	4.02	10.06	8.70	7.36	8.14	5.19	12.10	7.95	8.01
32	Non-metallic Products	1.69	5.59	0.88	2.99	6.08	6.19	9.58	6.97	7.70	10.66	8.56	8.36
33	Basic Metal Industries	2.70	3.63	0.64	2.38	7.71	6.08	3.11	6.55	4.73	6.95	2.57	6.01
34	Metal Products	2.71	0.54	0.97	1.21	4.26	3.31	6.58	4.80	1.89	5.33	8.92	5.20
35	Non-Electrical Machinery	4.37	3.72	0.43	2.29	10.70	6.06	5.06	7.08	9.43	6.62	4.74	6.48
36	Electrical Machinery	2.09	3.47	2.19	2.92	7.99	7.81	9.11	9.18	4.72	11.00	9.71	9.32
37	Transport Equipment	-2.17	5.93	-0.88	1.78	2.56	7.65	6.20	6.27	3.44	9.53	2.83	5.94
38	Other Mnfs. Industries	-0.25	2.50	2.26	1.00	8.64	10.58	13.66	11.13	6.05	11.47	14.06	11.15
40	Electricity	5.47	6.42	2.69	4.08	3.68	10.77	10.51	7.72	2.15	16.52	6.54	7.09
41	Gas & Steam	-6.49	-2.99	15.39	3.19	-15.82	-2.33	115.82	33.33	-11.71	9.00	97.69	37.06
42	Water Works & Supply	0.70	7.50	2.43	3.34	-6.28	12.30	9.91	4.16	2.97	4.65	10.51	6.71
74	Storage & Ware housing	9.21	14.10	0.48	10.23	18.95	19.69	8.65	15.36	19.30	24.40	10.89	19.46
97	Repair Services	11.72	-2.44	-0.20	1.87	11.98	0.81	-2.34	6.45	15.93	4.79	8.27	8.29
	Total	5.07	2.39	-0.51	2.15	11.67	7.42	4.82	7.98	8.29	9.89	5.16	7.62

Source: Annual Survey of Industries, Summary Results for Factory Sector, various issues.

Table 2: Employment Elasticity with respect to Output (1980-81 prices) in various Industry Groups

Code no.	Industry Group	1973-74 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1973-74 to 1987-88
20-21	Food Products	1.006	-0.264	0.066	0.142
22	Beverages, Tobacco etc.	0.453	0.261	0.202	0.604
23	Cotton Textiles	0.303	0.038	-2.029	-0.266
24	Wool, Silk Textiles	0.428	0.395	0.323	0.406
25	Jute Textiles	0.103	0.309	-0.106	0.041
26	Textile Products	0.626	0.021	0.256	0.412
27	Wood, Furniture etc.	-0.057	0.765	-0.278	-0.152
28	Paper,Printing etc.	0.283	0.518	-0.108	0.241
29	Leather & Fur Products	0.787	0.596	0.412	0.797
30	Rubber,Petroleum etc.	0.335	0.444	0.289	0.400
31	Chemicals etc.	0.605	0.443	0.268	0.477
32	Non-metallic Products	0.243	0.857	-0.015	0.479
33	Basic Metal Industries	0.431	0.442	-0.025	0.444
34	Metal Products	0.538	0.121	0.357	0.186
35	Non-Electrical Machinery	0.367	0.369	-0.027	0.354
36	Electrical Machinery	0.208	0.402	0.192	0.336
37	Transport Equipment	-0.453	0.696	-0.107	0.409
38	Other Mnfs. Industries	0.034	0.054	0.199	0.118
40	Electricity	0.618	0.498	0.036	0.564
41	Gas & Steam	0.298	0.192	0.241	0.207
42	Water Works & Supply	0.105	0.533	0.620	0.356
74	Storage & Ware housing	0.486	0.879	0.383	0.671
97	Repair Services	0.797	0.112	-0.094	0.272
	Total	0.439	0.237	-0.093	0.276

Source: Annual Survey of Industries, Summary Results for Factory Sector, various issues.

Table 3: Employment Elasticity with respect to Value Added (1980-81prices) in various Industry Groups

Code no.	Industry Group	1973-74 to 1977-78	1977-78 to 1983-84	1983-84 to 1987-88	1973-74 to 1987-88
20-21	Food Products	0.839	-0.232	0.568	0.064
22	Beverages, Tobacco etc.	0.042	0.123	0.496	0.354
23	Cotton Textiles	-0.476	0.091	0.184	-0.180
24	Wool, Silk Textiles	0.549	0.340	0.403	0.391
25	Jute Textiles	0.107	0.295	-0.286	0.129
26	Textile Products	0.681	0.069	0.289	0.368
27	Wood, Furniture etc.	-0.036	0.091	-0.011	-0.095
28	Paper, Printing etc.	0.418	0.489	-0.032	0.302
29	Leather & Fur Products	0.764	0.220	0.191	0.636
30	Rubber, Petroleum etc.	0.401	0.501	0.100	0.344
31	Chemicals etc.	0.863	0.329	0.409	0.463
32	Non-metallic Products	0.204	0.518	-0.003	0.402
33	Basic Metal Industries	0.212	0.333	-0.347	0.482
34	Metal Products	0.620	0.049	0.377	0.158
35	Non-Electrical Machinery	0.394	0.382	0.159	0.346
36	Electrical Machinery	0.320	0.303	0.248	0.316
37	Transport Equipment	-0.312	0.587	0.324	0.425
38	Other Mnfs. Industries	0.019	0.043	0.098	0.100
40	Electricity	0.390	0.371	-0.015	0.529
41	Gas & Steam	0.132	-0.242	0.176	0.157
42	Water Works & Supply	0.044	0.364	0.551	0.128
74	Storage & Ware housing	0.510	0.686	0.331	0.562
97	Repair Services	0.706	0.486	-0.148	0.183
	Total	0.614	0.193	-0.067	0.264

Source: Annual Survey of Industries, Summary Results for Factory Sector, various issues.

Table 4: Rates of Growth of Employment in Public Sector, Private Sector and Total Industry

(per cent)

Industry Group	Public Sector				Private Sector *				Total Industry			
	1973-1977	1977-1983	1983-1987	1973-1987	1973-1977	1977-1983	1983-1987	1973-1987	1973-1977	1977-1983	1983-1987	1973-1987
1 Agriculture,hunting etc.	5.03	4.51	4.02	4.52	0.98	0.19	0.06	0.38	2.12	1.59	1.54	1.73
2 Mining & Quarrying	15.60	2.64	1.66	6.06	-12.26	-1.27	-6.41	-5.88	6.63	2.10	0.77	3.01
3 Manufacturing	6.34	4.94	3.32	4.88	0.38	1.89	-1.33	0.54	1.58	2.62	-0.07	1.56
4 Electricity,gas & water	3.46	4.22	2.29	3.45	-6.02	0.95	1.99	-0.74	2.75	4.04	2.27	3.17
5 Construction	-0.15	1.77	1.43	1.12	-15.99	-3.17	-3.56	-6.95	-2.15	1.42	1.15	0.32
6 Wholesale & retail trade	-9.72	7.80	3.25	1.49	-2.97	0.01	0.18	-0.79	-12.55	1.92	1.13	-2.44
7 Transport,storage & Telecommunications	1.74	2.29	1.25	1.84	-2.58	-2.48	-3.09	-2.68	1.60	2.16	1.17	1.72
8 Financing,insurance, real estate, etc.	-	8.53	4.92	5.06	-	1.94	2.56	1.56	-	7.00	4.47	4.28
9 Community,social & Personal services	2.89	2.41	2.24	2.50	0.32	2.98	1.45	1.78	2.50	2.47	2.13	2.38
Total	3.56	3.09	2.30	2.97	0.07	1.60	-0.62	0.53	2.33	2.56	1.41	2.16

* Relates to non-agricultural establishments in the Private Sector employing 10 or more persons.

Source: Economic Survey, Various Issues, Government of India.

Table 5: Employment-GDP elasticities in Public Sector, Private Sector and Total Industry

Industry Group	1973-77	1977-83	1983-88	1973-88
Public Sector	0.48	0.46	0.25	0.40
Private Sector*	0.03	0.36	-0.04	0.18
Total Industry	0.47	0.56	0.28	0.49

* Relates to non-agricultural establishments in the Private Sector employing 10 or more persons.

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BOOK REVIEWS

Economic Liberalization : No Panacea, Edited by Tariq Banuri, Clarendon Press, Oxford, 1991, pp. xvi + 238, Price Rs.360

The papers in this volume were presented at a Conference on Global Macro-Economics held at the World Institute of Development Economic Research (WIDER), Helsinki, in August 1986. The volume is a collection of six articles by eminent economists focussing their attention on the dubiousness of certain assumptions of neoclassical liberalism like the assumed positive relationship between openness and economic performance, export success and exchange rate policy. Maintaining that economic liberalism is no panacea for economic performance, they argue that there is need for pragmatic judgement in particular country situations and that no single universal policy frame - whether that of openness or dirigism - can provide blanket solutions to the problems of all countries at all times. To substantiate their arguments, they cite responses of numerous countries in their economic behaviour to specific policies/policy changes based on inter-temporal as well as cross-sectional analyses.

In the introductory Chapter, Tariq Banuri takes a critical view of the arguments that flow from the neoclassical orthodoxy in favour of economic liberalization. He claims that the various articles indicated in the book take as their point of departure the fairly obvious shortcomings of the strategy of economic liberalization - its theoretical weakness, the dubious empirical support for its assertions and the inappropriateness of transferring economic policies from one historical context and institutional context to another.

The neoclassical argument for liberalization rests upon a willingness to believe in the efficacy and optimality of free markets, the touch-stone of economic liberalization and efficiency of economic system. The authors of articles included in this volume, however, believe that the current attempts at seeking a universal approach to the problems of Third World economies based on neoclassical presumptions of liberalization and openness are seriously misguided in theory as they ignore the important role of institutions and history - as opportunities as well as constraints. Recognition of these factors would lead one to examine more closely the special circumstances of each country or region in order to discover its particular strengths and weaknesses and to chart out a desirable direction for social change. By implication, the authors seek to convey that each country should be able to choose an optimal degree of openness to international economy which would allow utilisation of benefits from trade without exposing the economy to

excessive dependence upon external events beyond its control.

In Chapter 2 entitled "Policy, Governance and Conflict Management", Edward J. Amadeo and Tariq Banuri underlined the nature of governance (preferring neither a soft nor a 'hard' authoritarian State) that is needed. The authors prefer to follow the Keynesian perspective of governance and feel that it would be more appropriate to look at the State as a mediator of social conflict and as an agency which can create the basis for co-operative actions even by groups whose immediate interests are opposed to each other. This perspective helps to distinguish between a (more problematic) situation where the State is characterised by intense differentiation and tension and one where the conflicts are relatively muted. Thus, the authors advocate a more responsible State rather than the 'native' solution of 'return to the market'. Illustrating this point, the authors point to the Latin American countries which are generally characterised by resistance to lowering of wages as well as trade openness; South Asian countries by wage resistance but not financial openness; and East-Asian countries by neither. They thus conclude that policy effectiveness should, on this reckoning be the highest in East Asia and the lowest in Latin America and any objectives of economic, rather adjustment, policy will therefore be more difficult to pursue in Latin America. This distinction, they maintain, is the essence of making the choice between hard and soft options.

Examining recent macro-economic developments in nineteen countries, Alan Hughes and Ajit Singh in their thought provoking article on "The World Economic Slowdown and the Asian and Latin American Economies: A Comparative Analysis of Economic Structure, Policy, and Performance" question the validity of many empirical assertions which include the argument for liberalization. They set aside the contention that Asian countries were hit hard by external shocks as a misinterpretation of evidence, since such an argument ignores `positive' shocks to these countries (remittances, Middle East trade), as well as the singular adverse effect of capital market shocks - interest rate escalation, capital flight, and debt strangulation - in countries with open financial regimes, such as in Latin America. The authors maintain that the positive shocks in terms of workers' remittances and expansion of exports were significant for Asian countries in the `seventies and early' eighties. For India, workers' remittances as a proportion of exports increased from a little over 5 per cent in 1974 to nearly 15 per cent in 1978 and about 25 per cent in 1980. Similarly, India's share of exports to oil exporting countries increased from 2 per cent in 1965 to 7 per cent in 1983. The authors also question the argument for liberalization emerging from the neo-liberal orthodoxy that there is a positive relationship between exchange rate policy and export performance. It is Jeffrey Sachs (1985) who singled out exchange rate as one of the most important determinants of

economic performance of the Asian and Latin American countries. Drawing heavily on the export performance history of the UK, West Germany and the USA over long periods as well as for sub-periods during 1956-76 and quoting empirical evidence (based on a study of developing country data) provided by Brailovsky (1981), the authors present contrary evidence to viewing export success as a function of exchange rate policy. Another assumption, which the authors question, is the expected positive impact of aid on development. Their comparison of large countries - China, India, Brazil, Mexico - revealed that cautious attitudes towards foreign borrowing and reduction of exposure to world financial markets are the contributing factors to superior macro economic performance. In short, they felt that the Latin American countries did not use foreign borrowing to develop a resource base in tradable goods, especially in export industries, adequate for future debt servicing. Hughes and Singh also set aside the supposedly positive relationship between trade openness and vulnerability to external shocks by illustrating the experience of Latin America which witnessed a much higher rate of economic growth than Asian countries, despite being subjected to relatively larger exogenous shocks.

In Chapter 4, which discusses "Economic Openness Problems to the Century's End", Lance Taylor introduces an important distinction between trade openness and financial openness to evaluate the relationship between openness and economic performance. Using a cross-sectional frame-work and covering fifty developing countries, he shows that while financial openness is related to greater vulnerability to external shocks, the emergence of financial crises and painful adjustment episodes, the relationship is reverse of what is suggested by the proponents of liberalization. He also found that neither trade openness nor absence of distortions explain superior growth of adjustment performance after controlling for other explanatory factors (e.g. size of the country). He finally refutes the neoclassical contention by referring to the structuralist models in which higher trade and financial flows can often lead to slower growth and more costly adjustment.

In his brilliant article "Some Reflections on comparative Latin American Economic Performance and Policy," Albert Fishlow feels that the increasingly divergent East Asian and Latin American economic performances in the 1970's and 1980's provide a rich experience not only to academics but also to policy makers. He advocates reconstructing of a development state which seeks to manage rather than to suppress or ignore social conflict, and encourages the construction of institutions which facilitate this task. Fishlow, therefore, argues for a stable and credible compromise between capital and labour, strengthening of labour movement and to incorporate it into national economic decision making so that a large number of social decisions can be reached in a co-operative rather

than conflictual manner. Similarly,when it comes to asset markets, it is preferable for the State to take a co-ordinating role by maintaining some form of regulation over the financial sector, some form of control or restrictions over international capital movements and maintaining a policy regime which can keep up with the development of informal financial institutions. He concludes that the faulty exchange rate or trade policies were neither the key to lagging performance nor the central element of Latin American industrial strategies in the 1970's.

In the final Chapter, "Worlds Within the Third World : Labour Market Institutions in Asia and Latin America", Tariq Banuri and Edward Amadeo try to pursue Fishlow's idea of reconstructing development State in Latin America, by focussing on the differences in the structure and evolution of labour market institutions in prominent Latin American, South Asian, and East Asian countries. The analysis indicates `hysteresis' in the labour market, whereby the nature of current economic relationships as well as the feasible range of institutional change are limited and constrained by the history of conflict and accommodation. As a result, prescriptions for liberalization which are increasingly seen as requiring de-unionization as a necessary accompaniment, are found to be not only undesirable in societies with a long history of social and political mobilization but also not feasible.

To sum up, this volume is an excellent attempt at sketching the experiences of economic liberalization and pointing out the limitations of universalized approach. The overriding tone of the articles, is that 'economic liberalism' is not enough unless vetted with 'pragmatism'. Fishlow opines that a State modelled on the Keynesian perspective of governance provides the best solution. Apart from examining the theoretical underpinnings of the neoclassical orthodoxy, the volume provides a rich reference material to both students of international economics and policy makers. It includes technical appendices, one of the best among them being on wage setting institutions. The latter is included to facilitate the reader in relating the country specific experiences to the prevailing institutional and historical setting. Besides, the book presents massive statistics on various macro-economic variables relating to a number of countries.

Undoubtedly, the empirical results presented in the articles throw useful signals for skillful management of the structural adjustment process. Viewed in this perspective, the policy stance of the Indian economy which incorporates the major institutional and historical perspective in its development strategy augurs well for the success of structural adjustment programme in India. Thus 'hysteresis' is imperative if we lay credence to Lance Taylor's argument that "some important economic variables - such as real wages or the real exchange rate -

represent underlying social and institutional arrangements, and often cannot be determined by policy alone". Yet there is a need for continuous monitoring of the pace and sequencing of policy reforms to see if there are structural shifts and to bring about policy corrections, if necessary in the mid-course of the reform process.

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Theoretical Issues in Development Economics, Edited by Bhaskar Dutta, Shubhashis Gangopadhyay, Dilip Mookherjee and Debraj Ray, Oxford University Press, Bombay, 1993, pp. xx+292, Price Rs. 375

The book under review is a collection of fourteen different papers running to nearly three hundred pages. Together, these papers throw some very useful light on application of theoretical methods to economic development. This collection of essays is an outcome of the Indian Statistical Institute (ISI) Conference (first three meetings : 1986-88) on Economic Theory and Related Mathematical Methods. In keeping with the principle that research has to be recognised without regard to already established reputation, ISI decided that there would be no invited papers at these conferences. Submissions were requested every year, and all contributions were subjected to a process of refereeing. ISI received submissions from all over the country and from abroad. The result so far has been a series of lively conferences with wide spread participation. The articles selected for publication have a bearing on broad issues in economic development.

There are four broad sub-categories under which the articles are placed : Macro Economics, Industrial Organisation, Planning and Public Policy, and Intertemporal Economics. Macro Economics section comprises of four articles highlighting issues regarding agricultural shocks, price control, industrial employment and technical progress.

In the article, "Price Income Fluctuations and Agricultural Shocks in a Semi-Industrialised Economy", A. Bose examines how vulnerable (i.e. sensitive) or robust (i.e. insensitive) in the short run are the given variables P (price of food in units of the industrial product) and Y (non-food output) to harvest shocks. Following the work of Kalecki, the author has developed an abstract model signifying the income expenditure structure of an economy having wage goods and industrial goods sectors. Two cases are analysed - a situation of *laissez-faire* and the one where the government plays an active interventionist role. In the market model, a harvest shock is a supply shock for the industrial sector. Harvest failures reduce industrial activity and raise food prices as long as rich farmers have a positive marginal propensity to save. The smaller the saving propensity, the smaller is the impact on industrial activity and larger is the impact on prices. In the mixed model, with a constant cost of selling to the government, a harvest shock is a demand shock for the industrial sector. At any given open market price, the open market supply curve is independent of the agricultural service.

Hence changes in the service lead to equivalent changes in procurement by the government and thereby in the net addition to Government stocks. Any change that takes place in the level of industrial output operates through the demand side, as a result of the change in the budget deficit brought about by the change in the value of government procurement.

It is sometimes observed that bumper harvest does not significantly affect food consumption. The mixed model provides a theoretical explanation of this phenomenon. However, it may be pointed out that the paper is explicit only about the short period effects of an agricultural shock. It does not address to problems of growth or structural change and confines to only a closed economy.

D. Dasgupta, in his article, "The Macro Economics of Price Controls", highlights the economic implications of a government's policy of conserving vital resources including foreign exchange, through administered price increases with and without accompanying quantity restrictions. The study proceeds in the footsteps of Kaldor and Kalecki and relies heavily on saving - investment adjustments via price and quantity multipliers.

In the model the private sector produces non-wage goods and the workers' consumption goods. The public sector ,i.e. the sector under government manage ment too is subdivided into two broad departments. The first of these produces the final good (or service) in the nature of a public (consumption) good, made available free of charge to the populace at large. The remaining government sector is the sole supplier of an intermediate input indispensable for production of the non-wage goods. It is argued that the administered price policy happened to have expansionary effects and these worked either through a rise in the output, and hence input use, or through a re-distribution of income in favour of profits.

A. Sarkar in his study, "A Long-run Model of Economic Development;" advocates that an increase in transfer payments by the government leads to contraction of industrial employment. In the Kaleckian tradition, his analysis has been confined to stationary states and a comparison of stationary states. Thus the focus is on the long run equilibrium. It is shown that unproductive expenditures by the government aimed at increasing the purchasing power of the non-capitalist class will reduce industrial employment. This sharply contrasts with the result obtained in short run demand constraint models of economic development that an increase in the purchasing power of the non-capitalist class has a tendency to increase industrial employment.

P. Sarkar's essay, "Technical Progress, `Elasticity Pessimism' and Terms of Trade of a Labour Surplus Peripheral Economy : A Macro Static Approach", concludes the first section. The paper examines the impact of technical progress on the size of the 'reserve army of labour' and its consequent effects on the barter and factoral items of trade of a peripheral economy.

The author presents a number of very simple macro-static models of a labour surplus economy in a Keynesian framework. The study concludes that in a labour surplus economy, saddled with 'elasticity pessimism', an improvement in labour productivity leads to deterioration not only in the net barter terms of trade but also in the factoral terms of trade, given other things (i.e. the import price and foreign factor productivity); given the inelasticity of export demand, income terms of trade also deteriorate. Furthermore, a raw material saving technological change may lead to a fall in both the barter terms and the factoral terms of trade for any finite elasticity of export demand.

The second part of the book deals with issues on industrial economics like technical change, profitability, product differentiation and market structure.

In the essay, "Technical Change and Market Expansion : Modelling some Aspects of the Indian Experience", C.P. Chandrasekhar and A. Sanyal provide an analytical framework for understanding the actual process of technical change in a situation of atomistic decision making. Much of the early literature relating to technology and development focussed on the question of the appropriate choice of technique in a labour surplus economy. Little has been said to explain the actual process of technical change. The authors provide a positive analysis of the process of diffusion of new techniques under certain circumstances typical of developing countries in general and India in particular.

'Verdoorn's Law' emerging from the study of P.J. Verdoorn of the statistics of industrial production in a number of countries states that there is a positive relationship between productivity growth (p) and output growth (q) and which can be expressed in the form $p = a + bq$ where a and b are constants, and $b>o$. The authors' contention is that one of the ways in which productivity increases occur is through the displacement of labour which can be absorbed with additional machines if output is growing rapidly. One can visualise a situation where employment remained constant or even falls, but output and productivity increase rapidly.

The article by B. Dutta, S. Gangopadhyay, D. Ray and K. Sengupta, "Profitability and Concentration : Entry Deterrence in a Model of Location",

deals with the question of why middle men activities, such as wholesale trade are often monopolised by a single entity, despite the existence of high profit margins. They have developed a model to examine the conditions under which location choices that may be feasibly used to deter entry are also optimal choices.

L. Leruth in his article, "Product Differentiation and Congested Goods", focusses on some issues in the study of congested facilities - through a model of 'vertical differentiation'. It is shown that unlike in the case where the quality of the goods is exogenous, a monopolist will always differentiate prices and thus levels of congestion (or qualities). This result implies that a planner would also increase the total welfare of the society by providing such a pricing scheme.

In the paper, "Learning-by-Doing and Industrial Market Structure : An Overview", D. Mookherjee and D. Ray attempt to review some of the literature on 'learning by doing", particularly in connection with theories of oligopolistic market structure. The central theoretical point is that analytical predictions regarding the effects of learning by doing in an oligopolistic context cannot be made without first making explicit one's assumptions about strategic behaviour. Having done this, however, one needs to go further. It is relevant to ask the question, " what is the correct specification of strategic behaviour in these contexts ? ". The speed of learning may well be endogenous and affected by the degree of concentration. The two-way interaction between learning and concentration would be a natural topic for future research.

The papers in Part III of the book are devoted to analyse some recent developments in the theory of planning and public policy. The new literature seeks to make explicit implementation constraints on desirable policies, resulting from asymmetries of information between planners and economic agents.

In the paper, "Cost Sharing Local Games in Dynamic Processes for Public Goods", P. Chander deals with the problem of designing a dynamic, decentralised planning procedure to decide on the allocation of resources between private and public goods. The planner's problem is to decide on the allocation of resources to production of the public good, and on a way of financing such expenditures, without knowing exactly what the willingness to pay for the public good is for different consumers in the economy. It is postulated that the reallocation at each step in a non-tatonnement process which involves reference whether the allocations would be acceptable to the agents at each step, should be justifiable as the outcome of some kind of a bargaining discussion or social

interaction among the agents at that step.

Processes having such a property may be considered in some sense as more decentralised or socially more acceptable. It is shown that if a particular cost share rule, viz. the proportional cost sharing rule is adopted, then these games are convex and that the imputation induced by the process at each point of its trajectory, is the shapely value of the corresponding local game.

The theory of implementation is primarily concerned with the design of schemes or mechanisms which will induce individual agents to correctly reveal privately held information for public use. In view of the primacy given to individual self interested behaviour in much of neo-classical economics, it is natural to argue that individuals will voluntarily reveal their private information only if it is in their interest to do so. However, the objective or goal of the 'planner' (alternatively, mechanism-designer) need not coincide with those of the individual agents, although it will typically depend on the agents' private information. The need to induce agents to reveal the necessary information may, therefore, act as a constraint both on the choice of the procedures which can be used as a decentralised decision procedures as well as on the type of objective function which can be achieved or implemented.

B. Dutta and A. Sen in their paper, "Implementation with Perfect Information : A Survey" discuss some of the main results in the literature on implementation when agents are fully informed about the state of nature. They advocate that the future research on implementation must and will pay as much attention to the nature of the mechanisms used as to the objective implemented. Clearly, this will make the results richer, from a theoretical as well as practical point of view.

S. Gangopadhyay and I. Gang in their paper, "Government Policy for Foreign Direct Investment", address directly the issue of control. Much of the literature on Joint Venture fails to distinguish clearly between foreign direct investment (FDI) and foreign indirect investment (FII). The essence of FDI is that the owner controls the foreign resources whereas under FII the owner merely provides funds/or carries some of the risks. Theories of FII typically explain investment flows by international differences in the cost of capital. They cannot readily be used to explain FDI because they do not address the issue of control. In particular, they do not explain why the foreign investor prefers to hold a controlling interest in a few foreign operations rather than spread his risks more widely by holding minority stakes in a much larger number of operations. It is shown that vying for domestic control of a joint venture with a foreign firm is not optimal for the host economy. The overall distortion in input use that results from local investor's control is sufficient to reduce the surplus accruing

to the host economy. Even though the private tax discourages the total amount of investment made by the multinational enterprise, the government should ensure that this amount is sufficient for the multinational enterprise to become a majority quantity holder. This, the government can do by increasing the debt-equity ratio. Effective control by the multinational enterprise can be achieved in various ways. In addition to larger debt holding, the government can encourage the issue of non-voting stock, participation by nationalised banks that refrain from intervening in daily operations of the plant, or participation by many local investors, numerous enough to prevent any block voting.

In the paper, "Some Results on the Transfer Problem in an Exchange Economy", M. Majumdar and T. Mitra review some results on the transfer problem in the context of a general equilibrium exchange model with `m' agents and `n' commodities. The positive effect and welfare effect are generally discussed. However, their primary interest is in the 'welfare effect', i.e. how will the post-transfer equilibrium welfare of the agents compare to the pre-transfer levels? The main result asserts that the statement 'for every feasible transfer, the donor is no better off in the post-transfer equilibrium' is equivalent to the statement 'for every distribution of endowment, there is a unique equilibrium'. It is also indicated that the donor is worse-off after the transfer if (a) all goods are 'net substitutes' for the donor, (b) all goods are 'gross substitutes' for all other agents and (c) all goods are 'normal' for all agents.

The final part of this collection deals with aspects of Intertemporal Economics. One of the richest devices for the study of intertemporal economic issues is the usual growth model coupled with a sequence of generations, instead of a single planner. This model permits the analysis of the nature of bequest behaviour, of the time consistency of various plans, of monetary and fiscal policies of the development of wealth inequalities and many other issues. This part consists of two articles which deal with the efficiency of market outcomes and the nature of bequest behaviour in the context of a model with overlapping generations of economic agents.

The bounded core is the set of allocations which cannot be blocked by any coalition formed by agents of a finite number of generations. The core provides an intuitive way of characterising a set of allocations which is a subset of the set of Pareto-optimal allocations and contains all the competitive equilibrium. The distinction between the core and bounded core is analogous to the distinction between Pareto-optimality and weak Pareto-optimality, focusing on the long and the short run. In the article, "Core, Bounded Core and Efficiency in Overlapping Generations Economies", J. Esteban has examined the notion of Bounded Core for overlapping generations economies. The main results are that a set of

Walrasian allocations is a subset of the set of bounded core allocations, but that this set contains inefficient and wasteful allocations as well.

P. A. Streufert's Work, "Consistent Preferences and Intergenerational Equilibria in Markov Strategies", highlights at a very basic level the specification of intergenerational preferences. It is demonstrated that the equivalence of two alternative specifications of intertemporal preferences : one, preference ordering over infinite consumption streams beginning with the generation's own consumption level, and another, where each generation's utility function representing a preference ordering over consumption streams from its own consumption (scalar) and next generation's utility , is obtained under a condition called summability. It is shown that the Markov Perfect Equilibria of the intergenerational game (under the above equivalence) yield the same set of allocations as that obtained by maximising the utility function of the first generation.

On the whole, the papers in the collection are generally abstract. Economists who are not intimately involved with mathematical economics, would find this volume difficult to chew and digest. The book is, therefore, highly recommended to specialist readers, ranging from learners who could use it to comprehend the problem and complexities in development economics, to policy makers who need a theoretician's imagination to provide the necessary theoretical underpinning to the various policy options that they encounter.

While one would expect that the papers in this collection will stimulate readers to take the work further, it would have been more useful if some of the essays had taken note of the present mood on development dilemmas, and dealt with issues such as stabilisation and growth, external shocks and adjustment process, growth and environment.

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