MONETARY POLICY RESPONSES TO EXTERNAL SHOCKS

Some Policy Simulations for Sri Lanka and Malaysia

D.S. Wijesinghe

The South East Asian Central Banks (SEACEN)
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FOREWORD

Developing countries experienced the impact of a series of exogenous shocks during the early and late 1970s and the early 1980s. These included two oil crises, the recession in the industrial countries and the resultant declines in commodity prices. The impact of these shocks were, however, varied among different groups of countries.

Many research studies have been conducted to quantify the effects of these external shocks on the balance of payments and the contribution of the subsequent adjustment processes undergone by the countries in response to these shocks. However, these studies often have not adequately looked into the monetary implications of external shocks nor the responses of monetary authorities to them.

The research study on "Monetary Responses to External Shocks: Some Policy Simulations for Sri Lanka and Malaysia" was conducted to examine the monetary implications of the external shocks and also the effectiveness of alternative monetary policies that monetary authorities may implement in response to these shocks. The study made use of a simple model, and simulations were undertaken for Sri Lanka and Malaysia.

This in–house research project was carried out by Dr. D.S. Wijesinghe, Research Economist, seconded from the Central Bank of Sri Lanka. He was responsible for designing the methodology, analyzing the simulated results and preparing the draft of the report. He was assisted by Mrs. Kanaengnid T. Quah in the simulation work and Miss Seow Yun Yee, who did the initial data collection work. The manuscript was typed by Ms. Haslina bt. Muda and Miss Karen How.

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Dr. Vicente B. Valdepenas, Jr.
Director
The SEACEN Centre

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Table of contents

LIST OF APPENDICES

Chapter 1

INTRODUCTION

Since the early 1970s developing countries have experienced the effects of a number of external shocks, for example, the two oil crises (1973-1974 and 1978-1979), the recession in the industrial countries (1975 and 1980) and the subsequent decline in the commodity prices. The impact of these shocks, however, varied across groups of countries. While the oil crisis had taken a heavy toll on the balance of payments position of the oil importing countries, it left the oil exporting countries with huge balance of payments surpluses. The commodity boom in 1975 and the tea prices boom in 1976 and 1983 also led to tremendous improvements in the balance of payments of the commodity exporting countries.

Balance of payments implications and the adjustment process undergone by the developing countries in response to the external shocks have been the subject of several studies[1]. The main focus of these studies was to quantify the effects of each external shock on the balance of payments and the contributions of each policy measure, i.e., import substitution, export promotion and external finance in the process of adjustment to these external shocks. They did not specifically look into the monetary implications of these shocks, the responses of the monetary authorities to them and the implications of their responses on the major macroeconomic variables.

The objective of the present study is to examine the monetary implications of the external shocks and the effectiveness of the alternative monetary policy measures that monetary authorities may implement in response to these shocks. The study does not pay specific attention to the actual monetary policy measures implemented by the authorities and their implications. Instead, it looks into the alternative monetary policy responses that the monetary authorities could implement and quantitatively evaluate their effectiveness. For this purpose, a simple econometric model is presented and policy simulations are undertaken for Sri Lanka and Malaysia. The model is presented in Chapter 2 and the results are discussed in the rest of the report.

1. E.g., Balassa (1980, 1981, 1981a) and The SEACEN Centre (1984).

This introductory chapter aims to outline the ways in which external shocks have implications on the monetary aggregates and their implications on the level of achievement of the objectives of the monetary authorities while identifying the alternative policy responses that the authorities may implement to circumvent the effects of the shocks. Specifically, it addresses the question of whether the monetary authorities could insulate the monetary aggregates from the external shocks and implement an independent monetary policy. The chapter concludes by suggesting a methodology to evaluate the macroeconomic effectiveness of alternative monetary policy responses.

Monetary Implications of External Shocks

Effects of an external shock would immediately be reflected either in the balance of payments or in the exchange rates or both depending on the regime of exchange rates adopted by the country. For the present analysis, an external shock will be defined as a substantial change in either export or import prices or a drastic movement in the net foreign assets caused by the factors beyond the control of the domestic economy. For example, the two oil crisis resulted in substantially higher prices of imports while commodity booms led the export prices to rise tremendously. The recession in the industrial countries adversely affected the net foreign assets of the developing countries both by reducing the price and volume of the exports. Hence, external shocks could be classified into "favourable" or "unfavourable" depending on their impact on the balance of payments and exchange rate.

Usually a favourable shock (e.g., export price boom) would yield a balance of payments surplus thus exerting an upward pressure on the exchange rates while an unfavourable shock would result in a deficit in the balance of payments or a downward pressure on the exchange rate. Hence, under the regime of fixed exchange rates monetary authorities would have to resist the appreciations or depreciations of the exchange rate by their intervention in the foreign exchange market. For example, the monetary authorities will have to resist an appreciation of the exchange rate by buying whatever the foreign exchange offered with its domestic base money. Therefore, the external shocks and the corresponding surplus or deficit in the balance of payments have their impact on the domestic monetary policy and exchange rate. Under the fixed exchange rate system balance of payment surplus (deficit) will rep-

resent an increase (decrease) in the foreign exchange reserves thus increasing the domestic money supply. Under the free floating exchange rate system on the other hand, balance of payments surplus (deficit) would result in an appreciation (depreciation) in the exchange rate leaving the foreign exchange reserves and money supply unaffected. However, in practice not many countries seem to follow a free floating exchange rate system. Exchange market intervention appears to be a practice in even the advanced industrial countries. Most of the developing countries have pegged their exchange rates to either a single currency or a basket of currencies or follow a system of managed floating. Hence, under these systems balance of payments surplus or deficit would usually result in changing both the exchange rate and the level of foreign exchange reserves and hence the monetary base would be changed to the extent that the level of foreign exchange reserves is changed. Therefore, external shocks have their implications on the domestic monetary policy. This in fact has raised doubts on the ability of the monetary authorities to follow an independent monetary policy, i.e., the ability of the central bank to control the money supply or to maintain monetary targets independently of the external economic disturbances.

The objectives of the central bank involve maintaining the internal as well as external stability of domestic currency and promoting economic growth. These objectives are expected to be achieved by regulating the supply and cost of money. However, the level of achievement of these objectives may be hindered by the external shocks which could arbitrarily change the money supply. Hence, the central bank would like to divorce its exchange market intervention activities from money supply. This is usually done by undertaking offsetting operations in the domestic financial market. For example the effect of an official purchase of foreign exchange on money supply can be canceled out by a corresponding open market sale of securities. This offsetting operation in the domestic money market is said to sterilize the effects of balance of payments on money supply as it leaves the level of money supply unaffected. Hence, some economists believe that the money supply can be insulated from the external shocks by practicing a sterilization procedure. If the central bank follows such a sterilization policy systematically it would result in a negative relationship between foreign exchange reserve flows and the change in domestic credits. That is, if the central bank could be assumed to have a monetary policy reaction function of the following form:

(1) $DCE = \beta B + \dot{X}\psi + u$

where,

DCE	change in domestic credits
B	balance of payments
X	vector of all other variables that systematically affect the behaviour of the central bank
and u	the error term

the sterilization coefficient, ß , would be negative. If the central bank completely sterilizes the effect of balance of payments on money supply, ß would be negative unity while with partial sterilization, it would take values between negative unity and zero. The coefficient would be zero only if the bank does not engage in any sterilization activity and let the balance of payments to fully affect the money supply.

However, the identification of a reaction function similar to (1) above and the estimation of the sterilization coefficient is quite problematic as a negative correlation between foreign reserve flows and change in domestic credits could exist even with the absence of any sterilization attempts. As the monetary approach to balance of payments[1] suggests, such a correlation could exist due to capital and trade flows induced by any attempts of the monetary authorities to change the domestic component of the monetary base or interest rate.

According to the monetary approach to balance of payments, the world is a single integrated close economy. As the markets are highly integrated, prices of goods and securities are dictated by the international market making it difficult (or impossible) for a domestic economy to maintain a set of prices that is highly different from the international market prices. In this highly integrated world, under fixed exchange rate system, a domestic credit expansion aimed at affecting internal markets would reduce the domestic interest rate, inducing an outflow of foreign capital. Hence, there will be an incipient weakening of the exchange rate. Even if capital flows are restricted (particularly in developing countries) and will not be induced by interest rate changes, a similar weakening of the exchange rate could be expected as an attempt to expand the domestic credits would result in an excess of money over the level demanded which, in turn, would spill over

1. See for example, Mundell (1968) and Johnson (1972).

into the goods market inducing more imports and reducing exportable surplus. Hence, to maintain the official parity, the central bank must intervene in the foreign exchange market by buying high-powered money with foreign exchange reserves. Thus, an attempt to change the money supply by changing the domestic source component of the monetary base is impeded by offsetting movements in its foreign source components. If the offset to domestic credit expansion is complete, no independent monetary policy is possible and the central bank cannot change the money supply. Monetary policy can determine only the relative composition of money stock between foreign reserves and domestic assets. Moreover, this means that attempts to sterilize reserve flows through offsetting operations in the domestic money market cannot succeed even temporarily. Hence, the sterilization of the balance of payments effect on money supply is not possible, but there exists a negative relationship between foreign exchange reserve flows and change in domestic credits due to the automatic market reactions of the investors. This relationship can be expressed by the following reduced form equation,

(2) $B = \gamma DCE + Z\delta + v$ where Z is a vector of all the other variables which affects the net foreign exchange flows and V the error term.

The coefficient γ is the fraction of any domestic credit expansion reversed by the central bank's foreign exchange reserve losses and is known as the offsetting coefficient. The monetary approach to balance of payments claims this offset to be complete and hence is expected to be negative unity.

Under the system of free floating exchange rates, the central bank could implement its monetary policy independently of the external disturbances as the balance of payments movements are fully reflected in the exchange rate. However, not many countries follow a system of free floating exchange rates. Rather, they attempt to maintain independent exchange rate and money stock targets under a system of managed floating exchange rates. This is attempted through sterilized intervention in the foreign exchange market. Hence, still there exists a negative relationship between flows of foreign exchange reserve and domestic credit which could be explained by sterilization policies as well as by the market mechanism as suggested by the monetary approach to balance of payments.

Hence, there exist two theories to explain the negative relationship between foreign exchange reserve flows and domestic credit expansion, and therefore whether the central bank could sterilize the external effects on money supply has become an empirical question and has been the subject of a number of studies. As a detailed review of these studies is available in Wijesinghe (1986), we only highlight the major observations of these studies in the following section.

Empirical Evidence: Sterilization Practices and Offsetting Capital Flows

This section reviews the relevant empirical studies which have made attempts to resolve the simultaneity problem and provide unbiased estimates of sterilization and offsetting coefficients. However, the major objective of most of these studies was not the estimation of sterilization coefficient but the estimation of offsetting coefficient and thereby testing the validity of the monetary approach to the balance of payments theory. These studies typically assume that offsetting responses largely emerged in the capital account of the balance of payments and hence current account of the balance of payments and the income are considered exogenous variables. Thus, the offsetting coefficient is interpreted as a measure of capital account response to domestic credit expansion. The estimation of sterilization coefficient has largely been a by-product of these studies in their attempt to remove the estimation bias from their estimates of offsetting coefficient.

Fixed Exchange Rates: Reduced Form Models

Kouri and Porter (1974) derived a model of international capital flows from a portfolio equilibrium model of an open economy under fixed exchange rate and estimated offsetting coefficient for Germany, Australia, Italy and the Netherlands using quarterly data. For all the countries, estimated offsetting coefficients were significantly different from zero varying from -0.77 (Germany) to -0.43 (Italy). However, all of these coefficients were significantly different from negative one which suggest that sterilization is possible in these countries at least in the short run. Argy and Kouri (1974), Genberg (1976) and Murray (1978) integrated the Kouri and Porter (1974) type analysis with that of the sterilization be-

haviour of the central bank. Argy and Kouri have obtained results for Germany, Italy and the Netherlands which are quite similar to those found in Kouri and Porter (1974). Murray estimated capital flow equations for Australia simultaneously with the monetary policy reaction function. Absolute size of his estimated offsetting coefficient was quite low compared to Kouri and Porter. Also his estimated monetary policy reaction function suggest that 30-per cent of the non-domestic addition to base money is sterilized. However, Genberg (1976) argued that sterilization policy interpretation of the inverse relationship between net reserve flows and domestic credit expansion is highly implausible as it implies an extraordinary stability on the behaviour of the central bank with respect to policy formulation. His estimated results for Sweden support the claim of the monetary approach to the balance of payments yielding an offsetting coefficient which is not significantly different from negative one.

Fixed Exchange Rates: Structural Models

The above results were based on the estimation of reduced form equations. Hence, they do not provide estimates of the relationship which are crucial in the explanation of offsetting flows. Herring and Marston (1977) presented a structural model of German monetary sector which provides detailed estimates of the offsetting balance of payment flows with an empirical analysis of the sterilization policy of the monetary authority. The estimated reaction function suggests that the German monetary authority has weighted the pursuit of its domestic objectives more heavily by sterilizing approximately 90-per cent of the change in foreign exchange reserve. This contradicts the conventional wisdom that the German authorities were unable to offset the monetary impact of foreign exchange flows. The study also provides estimates of net offsetting coefficient as against the gross coefficient reported by the other researchers. For example an initial expansionary change in monetary policy of DM 0.25 billion in the first quarter of 1964 led to a total capital outflow DM 0.669 billion by the fourth quarter of 1967. However, as the impact of capital flows on bank reserve were largely sterilized the net offset to the monetary policy by the fourth quarter of 1967 was only DM - 0.056 billion or approximately 22-per cent of the initial injection of reserves. However, the authority succeeded in maintaining this control over bank reserves at the cost of a large change in the

foreign exchange reserves; the DM 0.25 billion exogenous increase in bank reserves led to a DM 0.669 billion decrease in foreign exchange reserves.

Darby and Stockman (1983) presented the pegged and floating exchange rate versions of Mark III international transmission model. The model was estimated for seven industrial countries and the results did not support the hypothesis of the monetary approach. According to the results, substantial or complete sterilization of the effects of contemporaneous reserve flows on money supply appears to be a universal practice.

Models with Flexible Exchange Rates

The model presented in Artus (1976) has been designed to analyse a period under the managed floating of exchange rates in Germany. Hence, the model incorporated reaction functions for both monetary policy and exchange market intervention policies. The estimated results suggest a sterilization coefficient of 0.80 indicating that the central bank has been successful in sterilizing four-fifths of the variation in the supply of base money caused by intervention policy in foreign exchange market. However, the study does not make an attempt to evaluate the efficacy of sterilized intervention in affecting the exchange rates. Obstfeld (1983) also examined the use of sterilization policy during the recent years of exchange rate flexibility in Germany. His research also suggests that the central bank has used domestic credit policy to attain domestic objectives while engaging in sterilized foreign exchange market intervention in order to influence exchange rate. The estimated sterilization coefficient is highly significant and not significantly different from negative one and hence consistent with the policy of complete sterilization. However, this does not necessarily mean that sterilized intervention had a significant effect on exchange rate. Hence, in order to assess efficacy of sterilized intervention, Obstfeld (1983) presented a structural model of assets market and prices as well. The simulation experiments with the model suggest that the bank's ability to influence the exchange rate without altering the monetary conditions is limited. However, it leaves open the possibility that sterilized intervention may have a significant but short-lived exchange rate effect that disappears within a month.

In general, it appears that available empirical evidence does not seem to support the monetary approach to balance of payments as

in most of the cases estimated offsetting coefficients were significantly different from negative one. Offsetting capital flows do exist but the offset is not complete particularly within the short run. Even a highly open economy like Germany has practiced the policy of sterilized intervention in the foreign exchange market not only under the system of fixed exchange rate but also under the regime of exchange rate flexibility. Hence, monetary authorities can sterilize the monetary implications of external shocks. However, it does not necessarily mean that sterilization is effective in correcting balance of payments or influencing the exchange rate. Hence, the main question to be addressed are the implications on the objectives of the monetary policy if monetary authorities practice a policy of sterilization.

Models for Developing Countries

The studies reviewed above are based on the experience of developed countries and hence the relevance of their conclusions to the hypothesis of offsetting capital flows is based on the assumption of a high degree of substitutability between the foreign and domestic bonds in the portfolios and the high sensitivity of capital flows to the interest rate differentials. Such an assumption is quite inappropriate for developing countries where capital markets are not quite developed and capital movements are restricted to a large extent. Even if capital flows are not restricted, it is very unlikely that those countries could expect a substantial inflow of foreign capital merely as a result of interest rate differentials. Hence, in modeling the balance of payments and monetary sector in developing countries, it would be more appropriate to consider foreign capital flows as exogenous, because, in these countries adjustments to any balance of payments disequilibrium have to be made mainly in the goods market (i.e., current account)[1]. In contrast to the capital flow analysis of developed countries in which current account of the balance of payments and income are considered exogenous, analysis of offsetting flows in developing countries has to be made by endogenizing the elements of current account while treating the capital account exogenous. As the adjustments are made in the goods market, an initial change in domestic credit may not be reflected fully in the balance of payments in the short run but there would be a close association between domestic credit expansion and re-

1. For a similar treatment see Aghevli and Khan (1980).

serve losses in the long run. The extent of this association needs to be empirically tested. The explanation of the monetary approach could still be valid, with the due emphasis on the trade flows rather than capital flows.

Connolly and Taylor (1979) has tested the monetary approach for developing countries as well as developed countries. Instead of deriving a capital flow equation from a portfolio model, they have derived, from a simple monetary model an equation to express the improvement in balance of payments as a proportion of money stock in terms of the rate of devaluation and change in the growth of domestic credit as a proportion of money stock.[1] The study finds significant offsetting flow coefficients for developed as well as developing countries. In its estimates using the data two years prior to and after devaluation, the offsetting coefficient is not significantly different from negative unity. Hence, the negative relationship between the change in the foreign exchange reserves and domestic credit expansion is valid for the developing countries as well. However, reduced form estimate of balance of payments equation is not sufficient to provide an understanding of the mechanism that leads a domestic credit expansion to a loss in foreign exchange reserves. Hence, it needs to spell out the structure of the model to understand the workings of the economy. As to the sterilization policies, Connelly and Taylor concluded that 'Neutralization of the monetary effect of the balance of payments appears to be the exception and not the rule in the developing country set'.

The insignificant sterilization coefficient does not necessarily suggests that developing countries are not following any sterilization policies at all. It only suggests that these countries are not sterilizing the effect of balance of payments on money supply systematically. An insignificant coefficient simply highlights the inappropriateness of the reaction function analysis which assumes an extraordinary stability in central bank behaviour with respect to policy formulation. Behaviour of the monetary authorities, particularly in developing countries, appears to be rather unpredictable as it varies according to the confluence of circumstances. Moreover, their reactions might not be consistent even under the same set of circumstances. Hence, it is hardly possible to expect a systematic behaviour from the monetary authorities with respect to the policy formulation. They may not consider sterilizing the balance of pay-

1. Note that the dependent variable is not the net private capital flows but the ratio of balance of payments to money stock.

ments deficits, but they may have to expand the domestic credit to finance the budget deficits. They want to sterilize the balance of payment surpluses considering the future foreign exchange reserve requirements of the country but they might also want to provide incentives for the industries by providing finance for more imports for further expansion as well as consumption. The relative importance attached to this type of various considerations is not fixed. It varies not only over time, but also depending on the persons holding the offices at high places and their ability to negotiate with the politicians as well as the international monetary organisations.

Methodology: Monetary Policy Responses to External Shocks

Despite the theoretical arguments that in open economies under fixed exchange rate regime, the monetary authorities are unable to practice an independent monetary policy, available empirical evidence suggests that they have managed to insulate money supply from external shocks at least in the short run. Both under fixed and flexible exchange rate systems, the authorities seem to have followed the practice of sterilized intervention in the foreign exchange market. As mentioned earlier, insignificant sterilization coefficients found for developing countries only suggest that the authorities have not been systematically following a sterilization policy. But, it does not rule out the possibility of discretionary practice of sterilization policies. As the behaviour of the monetary authorities particularly in developing countries are rather unpredictable, estimation of monetary policy reaction function to analyse the actual behaviour of the monetary authority would be meaningless. Hence, the focal point of the present study is not what the monetary authorities have done in the past but what they might have done and their implications on the objectives of monetary authorities. For this purpose, the present study identifies four alternative policy responses to external shocks as follows:

i) No policy action (fixed credit policy)
ii) Complete sterilization
iii) Partial sterilization
iv) Intensifying the effect on money supply

A simple macroeconomic model is constructed incorporating a priori reaction function for domestic credit. The coefficient of the reac-

tion function is assigned four different values to represent four different policy regimes. For each of the given external shocks, the model is simulated under each of the policy regimes to evaluate the implications on output, price and balance of payments. This approach of analysing alternative policy responses to external shocks is quite appealing, but it is subject to the following criticisms, which, however, do not appear too serious:

i) The estimated model parameters could be distorted due to simultaneous equations bias if policy instruments are not truly exogenous. This criticism is not very serious under the present circumstance as we have reasonable ground to assume that the behaviour of the policy makers is not systematic. If necessary, this assumption can be empirically tested.
ii) This approach is subject to the famous Lucas (1976) criticism that behavioural parameters may not be invariant to policy changes.

As Lipschitz (1984) points out, despite these criticisms the questions addressed are relevant and no other mechanism for examining them is available. In this respect, we would like to conclude the chapter with the following quotation from Nerlove (1982, p. 249):

"Although there have been a few notable successful attempts to model the behaviour of policy makers, not only are the information set available to policy makers, economic agents and econometricians different, but behaviour of government seems to be inherently more unstable and unpredictable than that of markets. To the extent that this is true, the more difficult it will be to incorporate the correct reaction function into a model. On the other hand, the more unpredictable the behaviour of government, the better the approximation of treating policy variables as exogenous and the less the need to take into account the reactions of economic agents to the current values of such policy variables".

Chapter 2

THE BASIC MODEL

The present chapter outlines the basic structure of a simple macroeconomic model that is constructed for the purpose of simulating the effects of external shocks and alternative monetary policy responses on the major macroeconomic variables. As the focus of the study is on the alternative monetary policy responses, the model assigns a central role to money and highlight the links between money supply, real expenditure, inflation and the balance of payments. It focuses on the transmission mechanism through which money stock disequilibrium affects the major economic variables. Hence, it emphasises the implications of excess money (i.e., excess supply of money over the level demanded) on the level of real expenditure, rate of inflation and the balance of payments as well as the monetary implications of the balance of payments. The basic model contains four behavioural equations to explain the movements of real expenditure, rate of inflation, imports and exports excluding primary commodities. Given these equations, output, the balance of payments and money supply are determined through identities. The model allows monetary disequilibrium to persist and affect the goods market directly.

Excess Money

The monetary disequilibrium (i.e., excess money) is defined as the logarithmic difference between the stock of real money and the level of real money demanded, i.e.,

$$\ln(M/P) - \ln(M/P)^d$$

where M is the nominal money (broadly defined) and P, the price level. The superscript stands for demand.

In the first version of the model, nominal money supply is the sum of an exogenously set domestic credit and the net external assets that result from the past external payments imbalances and are subject to changes through balance of payments over the ensuing period. Subsequently, for the purposes of policy simulations, domestic credit components of the money supply are endogenized by using a monetary policy reaction function which relates changes

in the domestic credit to balance of payments. Prices are also determined endogenously by excess demands and import prices and are fully discussed in a subsequent section.

In order to keep the model as simple as possible and also to reflect the conditions in developing countries like Sri Lanka and Malaysia, the demand for money is assumed to be simply a function of real income. On theoretical ground, it could be argued that the yield of other financial assets (opportunity cost of money) should also be an argument in the demand for money functions. However, in developing countries the range of alternative financial assets is limited and their effective rates of interest are not substantially different from those of the commercial bank deposits when discounted for other financial services available for the commercial banks' deposit holders and the risk associated with the other financial institutions. In Sri Lanka, the National Savings Bank usually provides higher rate of interests but the trend in the rates are not different from the commercial bank rates.

If equations are fitted for narrow money and time and savings deposits separately, interest rate would certainly become a significant explanatory variable. The equation for narrow money would exhibit a negative relationship with interest rates while the relationship between time and savings deposits and interest rates would be positive due to the shift of deposit between current accounts and time and savings accounts with changes in interest rates. Hence, as the sum of narrow money and time and savings deposits, broad money supply may not show a significant relationship with interest rates unless changes in interest rates could cause a substantial change in time and savings deposit that would more than offset the change in narrow money. This in fact was confirmed in our preliminary experiments. For example in the case of Sri Lanka, nominal interest rate variable[1] was included but the coeficient became negative and statistically insignificant. When real interest rate was used the variable became significant but at the expense of making the coefficient on the income variable insignificant. However, when both the real interest rate and income variables were lagged by one period, income variable became significant making the real interest rate insignificant. Perhaps the interest rate variables we experimented with were not appropriate and as Lipschitz (1984) suggested the appropriate rate could be the

1. Experimented with interbank, savings deposit and three months fixed deposit rates.

rate offered in the unofficial money market. Unfortunately, no observations are available on unofficial money market rates either in Sri Lanka or Malaysia.

As Aghevli and Khan (1980) suggested, the opportunity cost of money could well be represented by the implicit return on goods, i.e., expected rate of inflation. This is due to the fact that in developing countries the range of alternative financial assets is limited. Consequently, substitution that takes place is not between money and other financial assets but between money and goods. In their study of credit policy and the balance of payments in developing countries, Aghevli and Khan generated the expected rate of inflation by using an adaptive expectation process and estimated demand for money functions for eight countries. But the results did not seem to be encouraging, the expected negative signs were found for only five countries. In our preliminary investigation, we approximated the expected rate of inflation first by the actual rate of inflation (perfect foresight) and second by a one-period-lagged actual rate of inflation. However, the results did not prove satisfactory, as the inclusion of the expected rate of inflation distorted the coefficient on income variables[1].

Hence, the demand for money function is assumed to take the following form[2]:

$$\ln(M/P)^d = a_0 + a_1 \ln YQ \qquad (1)$$

where YQ is the real income and a_1 the income elasticities of demand for real money. Income elasticity is positive and could be greater than unity in developing countries due to the effect of monetization[3].

Even though the demand for money function is specified, it is not our major objective to estimate this function. It was specified mainly to introduce the concept of excess money whose effect of the other major variables is the main concern on the present study.

Friedman (1970) views the excess supply of money as one of the major factors determining changes in nominal spending which in

1 .Aghevli and Rodriguez (1979) also record the failure of expected rate of inflation to yield satisfactory results in the case of Japan. They attributed it to the fluctuating nature of actual inflation which may have caused the expected rate to become approximately constant.

2. Aghevli and Rodriguez (1979) employed a similar function for Japan.

3. In most of the SEACEN countries, income elasticity of demand for money appears to be higher than unity. See Chung Tin Fah (1981).

turn are divided between output and prices. As Aghevli and Rodriguez (1979) highlighted, Friedman's model assumes a closed economy and therefore does not allow for the possible inflationary effects of foreign price changes or for the excess demand for goods to be partially channelled abroad through balance of trade deficit. We hypothesized that the excess money would spill over into the goods market and result in increasing nominal spending. This may lead to a rise in domestic prices, real expenditure, output and trade deficit[1]. The extent to which excess money affects these major variables needs to be empirically determined, and for this purpose a simple macroeconomic model is specified. In the model, excess money plays a central role in the determination of prices, output and the balance of payments. Excess money appears as an argument in the equations for real expenditure and the rate of inflation. It also affects imports through changes in real expenditure and domestic prices.

Real Expenditure

Monetary policy measures are usually aimed at regulating overall demand and the rate of inflation. Hence, real expenditure and the rate of inflation equations play a central role in a model which aimed at analysing monetary policy responses. The present model simply assumes the real expenditure as a function of one-period-lagged real income and excess money, and hence it assumes a direct relationship between real expenditure and monetary policy. This is in contrast to the standard Keynesian view that monetary policy affects expenditure only indirectly through changing interest rates and thereby affecting investment. The relationship between real expenditure and interest rates in developing countries appears to be rather ambiguous. The high interest rate may discourage investment and thus reduce expenditure; but, on the other hand it will reduce demand for money and thus increase the excess money which would result in increasing expenditure. Also as McKinnon and others argued, in financially depressed economies a high interest rate may facilitate more investments and thus increase the

1. It could be argued that excess money may spill over into other financial asset markets or result in capital outflow. However, this possibility is limited due to the limited availability of other financial assets and foreign exchange restrictions commonly found in developing countries. In any case our objective is only to study the relationship between excess money and nominal spending and this relationship would be weakened if excess money substantially affects the other financial assets and capital outflows.

expenditure. These are competing views, and hence the relationship between expenditure and interest rate may need to be empirically determined. In our preliminary experiments, as the interest rate variable failed to become significant in the expenditure equation we specified real expenditure simply as a function of one-period-lagged real income and excess money[1].

$$\ln ABR = b_0 + b_1 \ln YQ(-1) + b_2[\ln(M/P) - \ln(M/P)^d](-1) \qquad (2)$$

and by substituting (1) in (2), a reduced form equation for real expenditure is derived as follows:

$$\ln ABR = (b_0 - b_2 a_0) + (b_1 - b_2 a_1)\ln YQ(-1) + b_2 \ln(M/P)(-1) \qquad (3)$$

As it is not intended to identify individual parameters, this equation is simply rewritten as:

$$\ln ABR = c_0 + c_1 \ln YQ(-1) + c_2 \ln(M/P)(-1) \qquad (4)$$

$$c_1,\ c_2 > 0$$

However, as the income elasticity of expenditure is expected to be one, given c_2 which is equivalent to b_2 the coefficient in lagged real money, income elasticity of demand for money a_1, can be indirectly estimated.

Rate of Inflation

Considering purely the monetary factors, the rate of inflation, $\Delta \ln P$, could simply be expressed as a function of excess money, i.e.,

$$\Delta \ln P = f[\ln(M/P) - \ln(M/P)^d](-1)$$

Hence, the reduced form equation would take the following form:

$$\Delta \ln P = d_0 + d_1 \ln(M/P)(-1) + d_2 \ln YQ(-1) \qquad (5)$$

$$d_1 > 0,\ d_2 < 0$$

1. Lags are important as the model is designed to study the quarterly movements of the variables. In the model specification, time subscripts are omitted for simplicity. Lags are indicated with a negative sign within parentheses, e.g., one period lag of YQ is written as YQ(-1).

However, the abovementioned equation is not sufficient to explain the movement of inflation as there are other factors which affect prices. In the foregoing specification, the coefficient on real income is expected to be negative as an increase in income would reduce excess money through increasing the demand for money. However, the estimated result of the abovementioned equation could yield a positive coefficient on the income variable as income increases could push the prices up through a different channel, i.e., through increasing the demand for goods and services. Hence, to capture the effect of this excess demand for goods and services, a variable named GAP is defined as follows and incorporated in the equation for the rate of inflation.

GAP = lnYQ - lnYQ*, where YQ* is the capacity or trend real income and lnYQ* is generated as:

$YQ^* = YQ(0)e^{gt}$, where g is the rate of growth of real income over the sample period and YQ(0) is the initial value of the real income.

Monetary factors alone may not be sufficient to explain the movements of inflation. Inflation may be imported through foreign price changes (i.e., cost of imports). The cost of goods and services available in the market may also change due to other factors. The present model identifies two such factors which affect the rate of inflation:

i) PM, price of imports, and

ii) R, interest rate as an indicator of cost of funds (working capital).

Considering all these factors, the inflation equation is finally specified as follows:

$$\Delta \ln P = d_0 + d_1 \ln(M/P)(-1) + d_2 \ln YQ(-1) + d_3 GAP(-1) + d_4 \ln PM + d_5 \ln R \qquad (6)$$

$$d_1, d_3, d_4, d_5 > 0$$
$$d_2 < 0$$

Volume of Imports

As a small country, imports of Sri Lanka represent only a small portion of the global trade, and hence imports are demand determined. Therefore, the volume of imports is expressed as a function of the real expenditure and the price of imports relative to the domestic prices.

$$\ln MQ = e_0 + e_1 \ln ABR + e_2 \ln(PM/P) \qquad (7)$$

$$e_1 > 0$$
$$e_2 < 0$$

The present model identifies two channels through which excess money may lead to increased trade deficit, i.e.,

i) by increasing real expenditure, it would induce a higher level of demand for import, and

ii) by increasing the rate of inflation, it would make imports cheaper relative to the domestic goods and thus cause a higher demand for imports.

The importance of each of these two channels in the demand management policies aimed at correcting the balance of payments imbalances depends on the size of the elasticities of import demand with respect to real expenditure and relative price as well as the significance of the relationship between real expenditure and real money supply.

Volume of Exports

In developing countries it is rather difficult to distinguish between the supply and demand function of exports. The observed volume of exports is in fact the result of a mix of demand and supply factors. Hence, the volume of exports is usually expressed as a function of both the supply and demand factors as follows:

$$\ln XQ = f_0 + f_1 \ln IWI + f_2 \ln(PXF/WF) + f_3(PX/P) \qquad (8)$$

$$f_1, f_3 > 0$$
$$f_2 < 0$$

where, IWI is an index of the level of real income in industrial countries and PXF/WF is the price of exports in foreign currency relative to the wholesale prices in industrial countries. These two variables represent the demand side of exports.

(PX/P) is the local currency price of exports relative to the level of domestic prices. This is a supply factor which indicates that the higher the export prices relative to domestic price, the more the exporters will export. This variable also highlights a channel through which excess money and exchange rate policy could affect the profitability of exports. As excess money causes a rise in the domestic prices, the profitability of exports would be reduced by means of increased cost of production. Exchange rate policy also affects the domestic currency price of exports, and hence may play a significant role in promoting exports.

However, in case of Sri Lanka and Malaysia, it is not quite appropriate to estimate this function for the total volume of exports as there exists a substantial proportion of exports which are entirely determined by the supply factors, i.e., traditional commodity exports of tea, rubber and coconuts in Sri Lanka and rubber and palm oil in Malaysia. For these commodities, it is hardly possible to expect a negative relationship between the volume exported and the relative price variable in foreign currency. Hence, the above-mentioned function is specified only for exports of non-traditional goods and non-factor services (XQN). The volume of exports of traditional commodities (XQC) is treated as exogenous. Hence, the equation becomes:

$$\ln XQN = f_0 + f_1 \ln IWI + f_2 \ln(PXF/WF) + f_3(PXN/P)$$

Output, Balance of Payments and Money Supply

Given the four behavioural equations specified above, output (real gross domestic product), the balance of payments and money supply are expressed as identities. The model contains three definitional identities as well.

$$YQ = ABR + XQN + XQC - MQ$$
$$B = XQN.PXN + XQC.PXC - MQ.PM + TR$$
$$M = M(-1) + B + DCE$$

$$PXN = PXNF.R_x$$
$$PXC = PXCF.R_x$$
$$PM = PMF.R_m$$

The first identity defines real income (gross domestic product) as the sum of real expenditure and real exports net of imports. The second identity defines the balance of payments, B as the balance of exports and imports of goods and non-factor services (XQN.PXN + XQC.PXC - MQ.PM) plus all the other net flows (TR). The third identity defines the change in money supply [M - M(-1)] as the sum of domestic credit expansion, DCE, and the change in external assets which is equal to the balance of payments, B. The remaining identities define the domestic currency prices of exports and imports in terms of respective foreign prices (PXNF, PXCF and PMF) and the export and import weighted indices of exchange rates (R_x, P_m).

This concludes the specification of the model. The model as specified is capable of analysing the effects of external shocks. It incorporates all the key macroeconomic variable and outlines their interrelationships.

Chapter 3

THE ESTIMATED MODEL FOR SRI LANKA

Data Base

The model developed in the second chapter was estimated using quarterly data for the period 1974:1-1982:4. The estimation of a model of this type for Sri Lanka is rather difficult as there does not exist a consistent set of relevant time series data, particularly on a quarterly basis. For the present estimation, this problem was overcome by generating quarterly data from annual data series either on the basis of the movements of the major variables or in some cases by simply using a smoothing technique. Quarterly data on gross domestic expenditure, GDE (at current market prices) and gross domestic product (GDP) price deflator were generated by the Otani/Riechel smoothing technique[1]. GDE at constant market prices were derived by deflating the generated quarterly GDE at current prices by the generated quarterly GDP deflator. This variable is employed as the real income variable, YQ, in the model. The quarterly data for the rest of the variables were generated as follows:

PX Index of export prices. Quarterly indices on export value and volume were generated from the available annual indices by studying the quarterly movements of the major items exported. Then, the price index was derived simply by dividing export value index by the volume index.

PXN Index of non-traditional export prices. Quarterly indices on value and volume of non-traditional exports were generated from available annual indices by studying the quarterly movements of the major items. The price index was derived simply by dividing the value index by the volume index.

R_x Export-weighted index of exchange rates: constructed as the weighted average of quarterly average exchange

1. For a brief outline of this technique, see The SEACEN Centre (1981), Appendix 2.

rates. Weights employed are proportional to the value of Sri Lanka's exports in 1978 to U.K., U.S.A., Japan, West Germany, France and India.

PMF Index of import prices in foreign currency: constructed as the weighted average of export price indices of the major industrial countries (i.e., U.S.A., U.K., Japan, West Germany and France). Weights are proportional to the value of imports to Sri Lanka from each of these countries in 1978.

R_m Import-weighted index of exchange rates: constructed as the weighted average of quarterly average exchange rates. Weights are proportional to the value of Sri Lanka's imports in 1978 from U.S.A., U.K., Japan, West Germany, France and India.

PM Index of import prices in local currency: generated as $PMF.R_m$.

MQ Import volume: quarterly data (nominal) on imports of goods and non-factor services (Balance of Payments (BOP) data) deflated by PM.

XQ Export volume: quarterly data (nominal) on exports of goods and non-factor services (BOP data) deflated by PX.

XQN Volume of non-traditional exports: quarterly data (nominal) on export of non-traditional goods and non-factor services (i.e., total export excluding tea, rubber and coconut) deflated by PXN.

XQC Volume of traditional exports: defined as XQ - XQN.

PXC Index of traditional export prices: defined as XC/XQC where XC is the nominal value of traditional exports.

PXNF Price of non-traditional exports in foreign currency generated as PXN/R_x.

PXCF Price of traditional exports in foreign currency: generated as PXC/R_x.

ABR Real expenditure (absorption). This includes both private and public consumption and investment expenditure and generated as a residual, YQ - XQ + MQ.

P Expenditure deflator, generated as AB/ABR where AB is the nominal absorption. AB was also generated as a residual of the nominal income and imports minus exports. This is the price variable employed in the model; and, hence the inflation is defined as the first difference of the logarithmic of this variable.

WF Weighted average of the wholesale price indices of U.S.A., U.K., Japan and West Germany. Weights are proportional to the value of Sri Lankan exports to each of these countries in 1978.

IWI Weighted average of the real income indices of U.S.A., U.K., Japan and West Germany. Weights are proportional to the value of Sri Lankan exports to each of these countries in 1978.

Quarterly data series for the rest of the variables are available in the Central Bank's Bulletins. Balance of Payments, B, is equivalent to the change in net external assets. Hence, the data employed are the changes in net external assets taken from the monetary survey data. The differences between B and net exports of goods and non-factor services are defined as the other flows (net), TR, in the balance of payments and considered as exogenous. As the indices of prices and income in industrial countries are reported at 1980 base (i.e., 1980 = 100), all the index numbers used in the model are expressed with 1980 base. Hence, all the real variables are to be considered as valued at 1980 market prices.

Model Estimation

In the estimation of the model, certain modifications were introduced. For all the equations, dummy variables (DS1, DS2, DS3) were included to reflect the seasonal effects on the variables. For all equations, except the volume of non-traditional exports, another dummy variable, DL, was added to reflect the effects of the liberalisation of the economy in late 1977. This variable was not included in the export function as it failed to be significant and distorted

the coefficients of the other variables. Assuming a partial adjustment process, lagged dependent variables were included in all the equations except the rate of inflation. All the equations were estimated by the Ordinary Least Squares (OLS) method. Even though the model is a system of simultaneous equations, it is recursive and hence OLS is quite appropriate. The complete model with the estimated equations is reported in Table 1. For easy reference, all the symbols used are summarised in Table 2[1].

All the estimated equations are reasonably good in terms of the goodness of fit and statistical significance of the coefficients of the explanatory variables. The relatively low value of R^2 in the inflation equation is expected as the equation attempts to explain the rate of inflation which is highly fluctuating with no apparent trend in its movement. The basic hypothesis that the excess of real money over the level demanded spills over into the goods market, thus increasing both the real expenditure and prices, is confirmed by the estimated equations for real expenditure and inflation. This is reflected in the estimated coefficient of real money in each of the equations which have the correct signs. However, the most important observation to be noted is that while the coefficient of real money is positive and highly significant in the inflation equation, it is not significantly different from zero in the real expenditure equation. This implies that in Sri Lanka, changes in money supply are largely reflected in prices rather than in real expenditure. Hence monetary policy could be quite effective in regulating the prices but not very effective in regulating the real expenditure. Hence it appears that, in Sri Lanka, it is unlikely that the economy could be significantly induced from the demand side by increasing the money supply. It would basically accelerate the rate of inflation. Conversely, this also implies that inflation could be regulated without substantially reducing the real expenditure by implementing contractionary monetary policy measures.

As the policy implication of the result is rather strong, a number of alternative specifications of the expenditure function was estimated to examine the robustness of the results. However, no satisfactory alternative was found and the estimated coefficient of the reported equation proved to be insensitive to the changes in the sample period. Moreover, even though the coefficient of real money

1. All the results reported in this report were estimated using the Micro TSP (Version 4.1) computer package on an IBM personal computer.

Table 1

THE MODEL WITH THE ESTIMATED EQUATIONS[1]

Behavioural Equations

1. **Real Aggregate Expenditure**

$$\begin{aligned}\ln ABR = {} & 0.638264 + 0.497459 \ln YQ(-1) + 0.093423 \ln(M/P)(-1) \\ & (0.458206) \quad (2.157276) \quad (0.646497) \\ & +0.336275 \ln ABR(-1) + 0.169925 DL + 0.022239 DS1 \\ & (2.036860) \quad (3.158156) \quad (0.750769) \\ & +0.052004 DS2 - 0.029920 DS3 \\ & (1.782006) \quad (-1.003929)\end{aligned}$$

$R^2 = 0.9661$
$\bar{R}^2 = 0.9570$
$N = 34$
Durbin 'h' = -0.2563

2. **Inflation**

$$\begin{aligned}\Delta \ln P = {} & 9.382930 - 1.388949 \ln YQ(-1) + 0.419259 \ln(M/P)(-1) \\ & (3.237329) \quad (-4.048618) \quad (4.010509) \\ & +2.220235 GAP(-1) + 0.283377 \ln PM + 0.099325 \ln RIB \\ & (3.099213) \quad (1.902533) \quad (1.501198) \\ & -0.211925 DL + 0.019005 DS1 - 0.023529 DS2 + 0.027050 DS3 \\ & (-3.521706) \quad (0.718772) \quad (-0.894348) \quad (1.056596)\end{aligned}$$

$R^2 = 0.5782$
$\bar{R}^2 = 0.4201$
$N = 34$
DW = 1.7409

3. **Volume of Imports of Goods and Non-Factor Services**

$$\begin{aligned}\ln MQ = {} & -3.115410 + 1.001961 \ln ABR - 0.440094 \ln(PM/P) \\ & (-2.391334) \quad (5.289027) \quad (-2.493975) \\ & +0.204204 \ln MQ(-1) + 0.357637 DL + 0.065440 DS1 \\ & (2.144181) \quad (3.081055) \quad (1.643563) \\ & +0.016184 DS2 + 0.024818 DS3 \\ & (0.425952) \quad (0.680685)\end{aligned}$$

$R^2 = 0.9795$
$\bar{R}^2 = 0.9740$
$N = 34$
Durbin 'h' = 0.2123

1. Figures in parenthesis under the estimated coefficients are 't' statistics.

4. **Volume of Exports of Non-Traditional Goods and Non-Factor Services**

$$\ln XQN = 5.072503 + 2.845820\ln IWI - 0.756799\ln(PXNF/wF)$$
$$(4.403454)\quad (2.319182)\quad (-3.231044)$$

$$+0.254755\ln(PXN/p)(-2) + 0.342681\ln XQN(-1) + 0.193754DS1$$
$$(1.837211)\quad (2.230424)\quad (2.272989)$$

$$-0.033959DS2 + 0.118861DS3$$
$$(-0.355506)\quad (1.465847)$$

$\bar{R}^2 = 0.9377$
$\bar{R}^2 = 0.9203$
$N = 33$
Durbin 'h' = 0.5093

Identities

1. **Real Income**

$$YQ = ABR + XQ - MQ + DR$$

2. **Total Exports**

$$XQ = XQN + XQC$$

3. **Balance of Payments**

$$B = XQN.PXN + XQC.PXC - MQ.PM + TR$$

4. **Export and Import Prices**

$$PXN = PXNF.R_x$$
$$PXC = PXCF.R_x$$
$$PM = PMF.R_m$$

5. **Money Supply**

$$M = M(-1) + B + DCE$$

6. **Excess Demand**

$$GAP = \ln YQ - \ln YQ^*$$
$$YQ^* = YQ(0)e^{gt}$$

Table 2

LIST OF VARIABLES

ABR	Real expenditure
B	Balance of Payments
DCE	Domestic credit expansion
DL	Liberalisation dummy
DR	Dummy variable employed to account for the valuation differences of exports and imports in national accounts and balance of payments data. These differences were due to the national account practice of valuing all the pre 1978 external flows at FEEC (Foreign Exchange Entitlement Certificates) exchange rate.
DS1, DS2, DS3	Seasonal dummies
GAP	Excess demand for goods and services, defined as lnYQ-lnYQ*
IWI	Index of real income in selected industrial countries
M	Broad money supply
MQ	Volume of imports of goods and non-factor services
PM	Price of imports in local currency
PMF	Price of imports in foreign currency
PXC	Price of traditional exports in local currency
PXCF	Price of traditional exports in foreign currency
PXN	Price of non-traditional exports in local currency
PXNF	Price of non-traditional exports in foreign currency
RIB	Interbank interest rate
R_m	Import weighted index of exchange rate
R_x	Export weighted index of exchange rate
TR	All the net inflows in BOP other than the net exports of goods and non-factor services
WF	Index of wholesale prices in selected industrial countries
XQ	Volume of exports of goods and non-factor services
XQC	Volume of traditional exports

XQN	Volume of non-traditional exports of goods and non-factor services
YQ	Real income
YQ*	Trend or capacity income

is statistically not significant, the estimated coefficient of the equation provides realistic parameter values for demand for money and expenditure functions. For example, the directly estimated demand for money function [1] indicates that the income elasticity of demand for money is 1.5425 which is higher than unity and quite realistic for a developing country due to the monetization effect. Given this parameter, the coefficient of real income, real money and lagged dependent variable of the expenditure function suggest that the income elasticity of expenditure in Sri Lanka is 0.9666, which is quite realistic as the value of this parameter is usually expected to be closer to unity. This also follows that under a realistic assumption as to the value of income elasticity of expenditure, the present equation provides an indirect estimate of the income elasticity of demand for money which is very close to the directly estimated value of the same parameter. Hence, the estimated equation seems to be realistic and the insignificant coefficient of the real money variable may in fact be revealing the actual situation in the Sri Lankan economy. Sri Lanka has been a highly inflationary economy and during the recent years monetary policy has been quite successful in bringing the inflation down. Also the economic growth has not been substantially affected by the restrictive monetary pol-

1. The estimated equation is:

$$\ln(M/P) = \underset{(-1.040268)}{-1.746657} + \underset{(1.924884)}{0.487215}\ln YQ + \underset{(1.872654)}{0.118985}DL + \underset{(5.465611)}{0.684133}\ln(M/P)(-1) + \underset{(1.487314)}{0.053216}DS1 + \underset{(0.272501)}{0.009593}DS2 \underset{(-0.848548)}{-0.029079}DS3$$

$R^2 = 0.974$

$\bar{R}^2 = 0.968$

Durbin 'h' = 1.1852

icy measures as credit requirements of the priority sectors have been taken care of by the selective credit policy measures.

In addition to the excess real money, the estimated equation for inflation highlights the role of import prices and the excess demand created by the excess of real income over the capacity level in the determination of the rate of inflation in Sri Lanka. Further, the results suggest a significantly negative impact of trade liberalisation on inflation. As the liberalisation removed the import controls thereby increasing the availability of goods and services, the negative coefficient of the liberalisation dummy in the inflation equation is quite realistic. Increased availability of goods and services is empirically evident as the estimated coefficients of liberalisation dummy are positive and statistically significant in both the volume of imports and real expenditure equations. The coefficient of the interest rate variable has the expected sign, but not statistically significant. Perhaps the share of the cost of working capital in the total cost of production of goods and services in Sri Lanka is not substantial enough for the increase in interest rate to create a significant inflationary impact in the economy.

The importance of imports in the Sri Lankan economy is highlighted in the estimated equation for the volume of imports. The estimated results are strong enough to confirm the hypothesis that the expenditure elasticity of imports is not significantly different from one. This suggests the importance of expenditure reducing policies in regulating the volume of imports in Sri Lanka. As noted earlier, monetary policy is not very effective in regulating real expenditure and hence it may appear that monetary policy is not effective in regulating imports and hence the balance of payments. However, monetary policy could still affect the volume of imports through the inverse relationship between volume of imports and the relative prices (import price relative to domestic prices). Since monetary policy is effective in regulating the overall level of domestic prices, and in turn the relative price of imports, it will eventually affect the volume of imports as well.

According to the results, the estimated relative price elasticity of imports is significantly different from zero but its absolute value is less than one. Hence, some reduction in the volume of imports can be expected as a result of an increase in the price of imports but the expenditure on imports would be higher. However, the net effect on the import volume depends on the effect of the increased import prices on the overall level of prices as well as the real

money supply. Hence, the net effect needs to be evaluated by simulating the complete model.

The estimated equation for the volume of non-traditional exports specifically signifies the importance of demand factors in the determination of the volume of non-traditional exports. The coefficient of the industrial countries' real income is quite high and statistically significant. This highlights the adverse impact of the recession in the industrial countries on the export earnings of Sri Lanka. The coefficient of the foreign currency price of export relative to the wholesale prices of the industrial countries also is significant with the expected sign. Though the absolute size of the coefficient is less than one, it is not significantly different from unity and in fact the long run price elasticity of demand is 1.15. This could be taken as an indicator to suggest that the price elasticity of demand for non-traditional goods is high enough to offset the negative impact of reduced prices on the export earnings of these goods. Meanwhile, the coefficient of the domestic currency price of non-traditional exports relative to domestic price is significant only at the 7.8-per cent level of significance under the two-tail test. However, as this variable is employed as a supply factor and the sign is expected to be positive, the one-tail test is valid and the coefficient is statistically significant under a one-tail test. It should be noted that the size of the coefficient is rather small and the price incentive takes a two-quarter lag to produce even that small increment in the volume of exports of non-traditional goods. Under this condition, it is doubtful that the exchange rate policy measures aimed at providing price incentives to the export sector would be effective in promoting exports, considering the effects of exchange rate policy measures on the domestic price as well. On the other hand, even though monetary policy could not change the domestic price of exports, it could make exports more profitable by restraining the domestic inflation and in this respect monetary policy would be more effective than the exchange rate policy.

Historical Simulation

The estimated model was simulated over the period from the fourth quarter of 1974 to the fourth quarter of 1982. The simulated values of the endogenous variables and their percentage errors compared with the actual values are reported in Appendix 1. The summary statistics, i.e., Root Mean Squared Percentage Er-

rors (RMSPE) and the simple correlation between the simulated values and the actual values are reported in Table 3.

Table 3

DYNAMIC SIMULATION: SUMMARY STATISTICS

		RMSPE	CORRELATION
Real Expenditure	ABR	7.04	0.97
Price Level	P	7.32	0.97
Volume of Imports	MQ	10.94	0.97
Volume of Exports	XQ	7.20	0.93
Real Gross Domestic Product	YQ	5.57	0.93
Money Supply	M	6.12	0.99
Balance of Payments	B	483.56	0.75

For all the variables, except the balance of payments, simulated values seem to have tracked the historical values rather well. This is evident in the reasonably small square root of the mean squared percentage errors and the high correlation between the simulated and actual values. Relatively high percentage errors in the balance of payments should be expected considering the absolute size of the variable which is relatively very small compared with its two major components (i.e., exports and imports). For example, in 1976.4 the model over-estimated the volume of imports by 10-per cent and under-estimated the volume of exports by 3-per cent. This resulted in a 146-per cent error in the estimation of the balance of payments. Hence high percentage errors in the balance of payments do not necessarily invalidate the model. The model may not serve well for the purpose of forecasting the balance of payments, but it would provide a reasonably good forecast for the other variables. Most importantly, the model could be employed as a convenient tool for analysing the effects of external shocks and alternative monetary policy responses.

Chapter 4

POLICY SIMULATIONS FOR SRI LANKA

The estimated model discussed in the previous chapter does not include a monetary policy reaction function. Hence the domestic credit component of the money supply is considered as an exogenous variable. The present chapter augments the model with a priori monetary policy reaction function. This reaction function is not estimated but imposed to represent certain policy responses. In the specification of the reaction function, it is assumed that the monetary authorities may respond to a deviation of the balance of payments from its expected value. The underlying assumption is that the monetary authority sets targets on balance of payments, domestic credit and hence money supply. A deviation of balance of payments from this target value (due to an external shock) would change the money supply which may have adverse implications on other variables as well. Hence, we assume that the monetary authority may consider reacting to such an unanticipated deviation in the balance of payments by changing the domestic credit component of the money supply. Accordingly the reaction function takes the following form[1];

$$DCE = ß\ (B-B^*) + DCE^*$$

where DCE and B are the change in domestic credit and the level of balance of payments respectively. B* and DCE* are the expected level of balance of payments and change in domestic credit given the expected level of economic activity. In other words, these are the levels of balance of payments and domestic credit expansion that would have been realized if there were no external shocks. If the balance of payments does not deviate from the anticipated level, change in domestic credit would be equal to its target level. If B deviates from B*, then DCE will be adjusted ac-

1. As Karunasena (1988) discussed, in developing countries where government revenue is highly sensitive to external trade, external shocks may affect the net credit to government in the opposite direction of the initial impact on the money supply. However, in the present study, it is not necessary to provide for such endogenous changes in the domestic credit as the study does not aim at estimating the required level of sterilization but simply examines the implications of sterilizing monetary impact of external shocks as an alternative monetary policy response.

cording to the policy rule indicated by the value of the sterilization coefficient ß. The present paper examines the implications of the following four policy responses.

(i) Set ß = 0, this represents a fixed domestic credit policy, i.e., no policy action is implemented in response to an external shock;

(ii) Complete sterilization of the effect of the external shock on money supply. This policy is introduced by setting ß = –1;

(iii) Partial sterilization, set ß = –0.5; and,

(iv) Intensification of the effect of the external shock on money supply. This is introduced by setting ß = 1.

In the simulation experiments, three external shocks are introduced and the implications of each of the foregoing four policy responses are examined. The three shocks are the 25-per cent increase in the price of imports and price of commodity exports and 10-per cent reduction in the index of real income in industrial countries. The shocks are introduced only one at a time in the first quarter of 1975. For the purpose of policy simulations, actual historical values of the changes in domestic credit, are considered as target values, DCE*. Simulated values of the balance of payments in the dynamic historical simulation are treated as the anticipated values of the balance of payments, B*. Further, the simulated values of the endogenous variables in the dynamic historical simulation reported in Appendix 1 are treated as the control solution.

Import Price Shock

In this simulation experiment, the import price index for the first quarter of 1975 was increased by 25-per cent while keeping all the other values of this index and all the historical values of the other exogenous variables unchanged. Then the model is simulated under each of the four policy responses and simulated values of the endogenous variables are compared with the control solution reported in Appendix 1. Deviations of the simulated values from the control solution under each of the policy responses are reported in

Appendix 2, Tables 2.1 through 2.4. These tables report in detail the effects of each of the policies over the sample period.

The volume of imports and inflation are directly influenced by the price of imports. Hence the immediate and direct impacts of the 25-per cent increase in the price of imports under the fixed domestic credit policy are the 6.80-per cent decrease in the volume of imports and 6.53-per cent increase in the level of prices in the same quarter in which the external shock is introduced. Accordingly, the balance of payments is worsened by Rs. 205.18 million and the money supply is declined by 4.29-per cent. As the real expenditure is not immediately affected by the change in import prices, the reduction in the volume of imports implies a substitution of domestic goods for imports and hence an expansion in the domestic economic activity. Accordingly, the real gross domestic product is increased by 2.08-per cent.

By next quarter, dynamic effects of these changes come into effect. The decline in the money supply coupled with the increase in the level of prices make a substantial reduction in the real money which pushes both the real expenditure and inflation down. However, this downward pressure seems to have been more than offset by the upward pressure caused by the increased level of real income. Hence the real expenditure and the level of prices record 0.02-per cent and 3.61-per cent increases in the second quarter. The 3.61-per cent increase in the level of prices reflect the lagged effect of the price increase in the previous quarter as well. This increase in the level of prices causes a decline in the relative price of imports thus increasing the volume of imports marginally. Accordingly, real income records a marginal decline of 0.02-per cent. The balance of payments further deteriorates and money supply is reduced by 3.96- per cent.

By the third quarter, the contractionary effect of the reduced money supply becomes clearly visible. Both the real expenditure and volume of imports decline while the level of prices records only a marginal increase. Also the balance of payments records an improvement of Rs. 0.99 million. However, this improvement in the balance of payments is not substantial enough to offset the initial decline in the money supply. In fact, the money supply records decreases, throughout the sample period, though at diminishing rates. The impact of this declining supply of money is the downward pressure on the level of prices which has the effect of reducing the demand for imports and inducing exports due to rela-

tive price effect. The downward pressure on prices is intensified by the reduction in real income during the period 1975:2-1975:4. In fact, during 1976:1 to 1976:4, decreases in the level of prices more than offset the reductions in money supply, thus increasing the real money. But prices continue to decline due to the lagged effect. The first quarter of 1976 records the highest decline in the level of prices, thus reducing the volume of imports by 2.31-per cent. Hence the real income is increased by 0.08-per cent. This marks the beginning of the expansionary process. The real income continues to grow thereafter. This growing income makes a positive impact on real expenditure. Hence the real expenditure records increases since the third quarter of 1976.

In brief, the basic result of the import price shock under the fixed credit policy is that it initially worsens the balance of payments, despite the decline in the volume of imports. Most importantly, it has the immediate effect of making a substantial increase in the level of prices and decrease in the money supply which lead to a substantial reduction in the real money. Estimated parameters of the model suggest that in Sri Lanka, changes in money result more in changing prices than real expenditure. Hence, the reduction in the real money reduces prices substantially while its effect on real expenditure is negligible. These reduced prices have the effect of making domestic goods more attractive relative to the imports and making exports more profitable. Hence, the volume of imports further declines; and, accordingly the domestic economy is expanded and the balance of payments improved. Hence over the long run, this external shock seems to be making a positive contribution to the domestic economy. This can be seen in Table 4 which reports the total accumulated effects of the external shock over the sample period under each of the four monetary policy responses.

Under the fixed domestic credit policy, the increase in the price of import would make a 6.03-per cent reduction in the level of prices which is largely responsible for making a 15.00-per cent reduction in the volume of imports and 1.67-per cent increase in the volume of exports in the long run. This reduction in the volume of imports and increased exports coupled with a 0.48-per cent increase in the real expenditure have the effect of increasing real income by 5.60-per cent. Compared with the initial deterioration in the balance of payments by Rs. 205.18 million, the total accumulated effect of the shock on the balance of payments at the end of

Table 4

IMPORT PRICE SHOCK: TOTAL ACCUMULATED EFFECTS OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

		Fixed Domestic Credit = 0	Complete Sterilization = −1	Partial Sterilization = −0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	0.48	−2.19	−0.26	1.00
Price Level	(%)	−6.03	15.18	0.61	−11.92
Volume of Imports	(%)	−15.00	−6.67	−12.27	−19.59
Volume of Exports	(%)	1.67	−1.15	0.94	2.04
Real Gross Domestic Product	(%)	5.60	−0.13	4.05	6.65
Money Supply	(%)	−32.22	0.00	−22.78	−39.57
Balance of Payments (Rs. mn.)		−18.62	−217.69	−56.92	−3.71

the sample period is only a Rs. 18.62 million loss of external reserves. Hence, it seems that the fixed domestic credit policy, i.e., policy of not making any policy responses, has the effect of self adjustment to the external shock. In this self adjustment process, it reduces the level of prices while expanding the domestic economy in real terms.

However, policy decisions are not guided by the long-run considerations alone. Usually, the authorities would look into the short run consequences of the shock and may attempt to circumvent the undesirable effects of the shock in the short run. Hence, Table 5 looks into the short-run consequences of the import price shock. It reports the accumulated effects of the shock within the first four quarters under the different policy responses. Our aim here is to

Table 5

IMPORT PRICE SHOCK: ACCUMULATED EFFECT WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

		Fixed Domestic Credit = 0	Complete Sterilization = –1	Partial Sterilization = –0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	–1.59	–0.66	–1.14	–2.37
Price Level	(%)	8.56	16.53	12.44	1.47
Volume of Imports	(%)	–9.03	–4.02	–6.59	–13.52
Volume of Exports	(%)	–0.47	–0.56	–0.51	–0.39
Real Gross Domestic Product	(%)	1.15	0.66	0.91	1.64
Money Supply	(%)	–15.75	0.00	–8.41	–27.41
Balance of Payments (Rs. mn.)		–187.08	–250.51	–217.98	–130.30

attempt to implement policies to circumvent them. In many cases, import price shocks result in a contraction of domestic economic activity as the accompanying reduction in the money supply causes a reduction in the real expenditure. However, in Sri Lanka, this reduction in real expenditure is only 1.59-per cent and despite that, the real income is increased by 1.15-per cent. In any case, it is worth looking into the implications of any monetary policy measures attempted to avoid this reduction in real expenditure. The usual policy measure in this respect is the sterilization of the implications of the shock on money supply by increasing the domestic credit. The implications of such a sterilization attempt are reported in the second column of Tables 4 and 5.

As expected, sterilization policy has succeeded in restraining the reduction in real expenditure within the short run. Compared with the 1.59-per cent reduction under the fixed credit, sterilization results in only a 0.66-per cent decrease in the real expenditure. However, sterilization has worsened the performance of all the other variables. The level of prices increases by 16.53-per cent compared to the rate of 8.56-per cent under fixed credit. Moreover, the loss of external reserves climbed up from Rs. 187.08 million to Rs. 250.51 million. In the long run, sterilization is not effective even in restraining the reduction in real expenditure. It records a 2.19-per cent decline in real expenditure compared to 0.48-per cent increase under fixed credit. The main reason for this is that the external shock causes initially a substantial increase in the level of prices and sterilization takes away the automatic means of bringing the prices down. Hence, due to the lagged adjustment, prices continue to increase until 1976:1, after which changes in prices are negligible. Therefore, even though the monetary authority could manage to avoid the decline in nominal money supply, it cannot avoid the decline in money in real terms. Hence, real expenditure records a decline in the long run. On the other hand, the high rate of price increases makes domestic goods less attractive and hence the volume of imports is reduced only by 6.67-per cent compared to 15.00 percent under fixed credit. Also, the volume of exports declines by 1.15-per cent compared to 1.67-per cent increase under the fixed credit policy. Accordingly, real income records a decline of 0.13-per cent and there is a loss of Rs. 217.69 million in external reserves compared to only a Rs. 18.62 million loss under the fixed credit policy.

Hence, in the case of Sri Lanka, sterilization policy seems to worsen the effect of the import price shock, particularly in the long run. Partial sterilization provides intermediate results between the policy of fixed credit and complete sterilization. However, the results do not provide any strong justification for even a partial sterilization except for the smaller reduction in the rate of decrease in the real expenditure in the short run. It still records a decline in real expenditure in the long run.

As pointed out earlier, the main adverse effects of the external shock under the fixed credit policy are the reduction in the real expenditure and high level of prices in the short run. Sterilization policy is effective in reducing the rate of reduction in real expenditure in the short run, but worsens the situation in the long run.

Moreover, it creates a high rate of inflation both in the short run and long run. As such, the short run inflationary effect of the external shock under fixed credit may prompt the monetary authority to undertake policy measures to restrain the inflation. In this respect, it is worth considering the implications of intensifying the contractionary effect of the external shock on money supply, which in fact, is the complete opposite of the sterilization policy. The level of monetary contraction desired can be controlled by changing the parameter of the reaction function. As an example, we examine the results of setting ß value at one. That is, the domestic credit is reduced exactly by an equal amount by which the balance of payments deteriorates. The long run and short run implications of this policy response are recorded respectively in the last column of Tables 4 and 5.

Contractionary monetary policy seems to be successful not only in restraining the inflation but also in reducing the loss of external reserves and improving the growth of real income in the short run. It records only 1.47-per cent increase in the level of prices compared to 8.56-per cent under the fixed credit policy. As a result, the volume of imports is reduced by 13.52-per cent and exports are declined only marginally. Hence, the balance of payments records only Rs. 130.3 million loss of external reserves compared to Rs. 187.08 million loss under the fixed credit policy. Also, real income shows an improvement of 1.64-per cent compared to 1.15-per cent under fixed credit. However, it increases the rate of reduction in real expenditure. It records 2.37-per cent reduction in the real expenditure compared to 1.59-per cent decline under the fixed credit policy. Hence, there is a trade-off in the choice of policies considering their short-run effects on the real expenditure and inflation. The policy measures aimed at restraining the reduction in the real expenditure would create high inflation while the disinflationary policy would further reduce the real expenditure in the short run. However, in the long run, the policy choice seems to be quite definite as the contractionary monetary policy performs well in all of the key variables.

Export Price Shock

This simulation experiment is aimed at examining the implications of a commodity price boom. The price index of traditional exports (tea, rubber and coconuts) for the first quarter of 1975 is increased by 25-per cent while keeping all the other values of this index and

all the historical values of the other exogenous variables unchanged. Then the model is simulated under the four policy responses and the simulated values of the endogenous variables are compared with the control solution. Deviations of the simulated values from the control solution under different policy responses are reported in detail in Appendix 3, Tables 3.1 through 3.3.

One of the particular features of the present model is the treatment of traditional exports as an exogenous variable. [1] As such, the export price shock does not have an impact on the volume of traditional exports. The immediate effect of the export price shock under fixed credit policy is a Rs. 171.2 million improvement in the balance of payments, thus increasing the money supply by 3.58-per cent. In the next quarter, this increase in the money supply causes a 1.49-per cent increase in the level of prices. Hence, the demand for imports increases (due to the decline in the relative price) and the balance of payments deteriorates. However, this deterioration in the balance of payments is relatively small compared to the initial improvement. Hence, money supply records an increase of 3.06 per cent. In fact, the money supply continues to grow throughout the sample period though at diminishing rates. As noted earlier, the predominant effect of the changes in the money supply in Sri Lanka is the change in the level of prices rather than on real expenditure. Hence, up to the fourth quarter of 1975, the level of prices records substantial increases while the increases in real expenditure are negligible. The inflation makes the domestic product relatively unattractive and exports less profitable. Hence the demand for imports is increased while reducing the volume exported. The level of gross domestic product records negative changes since the third quarter of 1975. The effect of this reduced real income is the downward pressure on real expenditure and inflation. Hence, starting from 1976:1, real expenditure records decreases throughout the sample period. However, the level of prices continues to grow due to the lagged effect and the effect of increasing money supply. Therefore, the volume of imports records in-

1.The tentative attempts to estimate a supply function for traditional exports failed to obtain reasonably good results. Particularly, we were unable to obtain a significant positive relationship between the volume exported and the price. This should be expected as the supply of traditional commodities depends largely on exogenous factors like weather conditions. Besides, the expansion of production capacity involves long time lags. Hence, it is reasonable to assume that supply of commodity exports is not responsive to price changes. However, there could be a limited price responsiveness due to stock changes and intensive cropping which are not captured in the present model.

creases, while the volume of exports declines, thus a contraction in the real gross domestic product is recorded. Hence, the final effects of the commodity price boom are the high inflation and lower level of real expenditure and domestic economic activity. This can be seen in Table 6 which records the total accumulated effect of the shock over the sample period under different policy responses.

As shown in the first column of Table 6, one of the effects of the export price shock over the long run under fixed credit policy is a 25.37-per cent increase in the money supply. This causes a 16.34 per cent increase in the level of prices which in turn increases the

Table 6

EXPORT PRICE SHOCK: TOTAL ACCUMULATED EFFECTS OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

	Fixed Domestic Credit = 0	Complete Sterili-zation = –1	Partial Sterili-zation = 0.5	Expansionary Monetary Policy = 1
Real Expenditure(%)	–2.07	–	–1.48	–2.50
Level of Prices (%)	16.34	–	11.14	21.15
Volume of Imports (%)	6.39	–	4.28	8.48
Volume of Exports (%)	–2.20	–	–1.61	–2.54
Real Gross Domestic Product (%)	–4.45	–	–3.22	–5.34
Money Supply (%)	25.37	–	17.66	32.11
Balance of Payments (Rs.mn.)	16.23	171.20	46.63	3.81

volume of imports by 6.39-per cent and reduces the volume of exports by 2.20-per cent. This increase in the volume of imports and the reduction in exports, coupled with the 2.07-per cent reduction in the real expenditure, results in a 4.45-per cent reduction in the real gross domestic product. Moreover, by the end of the sample period, the increases in the volume of imports and the reduction in exports have resulted in reducing the external reserves up to 10 per cent of the initial improvement in the external reserves. Compared to the initial improvement in the balance of payments by Rs. 171.2 million, the total accumulated effect is only a Rs. 16.23 million increase in the external reserves. Hence, even under this shock, fixed domestic credit policy seems to contain a self-adjustment mechanism. The monetary expansion caused by the external shock creates high inflation and thus reduces the relative price of imports and exports. Hence, the resulting high level of demand for imports coupled with the lower level of exports would gradually use up the initial increase in the level of external reserves. As revealed in Table 7 which reports the short run implications of the shock under each policy response, even the short run effect of the shock seems to be in the same direction except for real expenditure which records a marginal increase.

Hence, fixed credit policy appears to be effective, if the monetary authority requires a quick adjustment to the balance of payments imbalance. In fact, if desired, this adjustment can be accelerated by implementing an expansionary monetary policy. This can be seen in the last column of Tables 6 and 7 which show the effects of the shock when the value of the parameter ß is set at one. In the long run, it results in a higher rate of monetary expansion and hence a higher rate of increase in the level of prices and accordingly a higher rate of increase in the volume of imports and decrease in the volume of exports. It also records a higher rate of reduction in the real expenditure and gross domestic product. [1] However, the balance of payments imbalance is reduced to only Rs. 3.81 million. Even within the short run, this policy results in a reduction of the balance of payments surplus up to Rs. 82.07 million compared to Rs. 123.18 million under the fixed credit policy.

In summary, both the fixed credit and expansionary monetary policy are effective in correcting the external imbalance caused by the export price shock. However, this is achieved at the cost of cre-

1. Maxwell Fry reported a similar experience in Turkey in an unpublished preliminary paper on 'Monetary Policy Responses to Exogenous Shocks in Turkey.'

Table 7

EXPORT PRICE SHOCK: ACCUMULATED EFFECTS WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

	Fixed Domestic Credit = 0	Complete Sterilization = −1	Partial Sterilization = 0.5	Expansionary Monetary Policy = 1
Real Expenditure(%)	0.68	-	0.36	1.21
Level of Prices(%)	5.97	-	3.09	11.14
Volume of Imports (%)	3.79	-	1.97	7.05
Volume of Exports (%)	-0.07	-	-0.03	-0.13
Real Gross Domestic Product (%)	-0.39	-	-0.20	-0.78
Money Supply(%)	11.71	-	6.26	20.40
Balance of Payments Rs.mn.)	123.18	171.20	146.28	82.07

ating an internal imbalance as reflected in the high rate of inflation and a contraction in the level of domestic economic activity.

Although, it is quite true that an adjustment in the balance of payments may be needed in both the surplus and deficit situations, the need to adjust in a surplus situation in the developing countries may be less pressing. In fact, considering the fact that those countries have always been faced with a chronic problem of balance of payments deficits, and it is only once in a while that the external shock benefits them, it would be better for them to make use of the opportunity to accumulate the foreign exchange reserves. However, such a policy objective could not be achieved by

the fixed credit and expansionary money policy. We have shown that the two policy options not only result in rapid depletion of foreign exchange reserves but also cause internal imbalances. As such, the only alternative left seems to be for the monetary authority to sterilize the effect of export price shock in money supply.

If the expansionary effect of the external shock on money supply is sterilized, then there will be no changes either in the level of prices or real expenditure. Hence, the real domestic product and the volume of imports will not be changed. Therefore, the only effect of the external shock will be a Rs. 171.2 million increase in the external reserves, both in the short run and long run. However, usually the monetary authorities may find it rather difficult to restrict domestic credit expansion, particularly at a time of export price boom. In such a case, keeping in mind the undesirable implications of the export price boom, at least partial sterilization should be attempted. By experimenting with different values of ß parameter between 0 and -1, an appropriate level of sterilization can be decided. However, in this case, appropriateness of the value has to be defined according to the value judgments of the monetary authority. For example, the monetary authority may consider a certain rate of inflation as tolerable. In that case, the value of sterilization coefficient may be set in accordance with this acceptable rate of inflation.

Recession in Industrial Countries

A number of studies have found the growth in industrial countries as the most important factor influencing the current account position in developing countries.[1] Industrial countries are the major importers of developing countries export and hence the slowdown in industrial country economies means a slowdown in demand for exports of developing countries. As Schadler (1986) points out the commodity prices and trade volume in developing countries have been severely affected by the drop in industrial country growth in 1985 to less than half the rate of growth that was achieved in 1984.

Goreux (1980) provides an evidence on the close association of commodity prices and economic development in industrial countries. Chu and Morrison (1984) also study the association between

1 For example see Cline(1984), Morgan Guaranty Trust Company (1983), Leven and Roberts (1983).

commodity prices and recession in industrial countries and have found a significant negative relationship between commodity prices and the current and one-period-lagged real income of industrial countries. In her study on the effects of a slowdown in industrial country growth on selected Asian countries, Schadler (1986) employs a similar relationship for commodity prices. In the case of manufacturing exports, she specifies a demand function in which the real income of industrial countries is one of the arguments. Hence, industrial country real income becomes an argument in the reduced form equations for the volume and price of manufacturing exports. Even though she did not estimate and test the goodness of fit of the model for Asian countries, she employs the model for simulation purpose borrowing the values of the parameters from various studies of Asian economies. Schadler (1986) examines the effects of slowdown in the growth of industrial countries under a given stance of macroeconomic policies which was indicated by the rate at which domestic demands are postulated to grow in proportion to real income, i.e.,

$$\ln ABR = k + g \ln YQ$$

where g is determined by macroeconomic policy stance. However, she did not specifically look into the alternative monetary policy measures; and, in fact, in her model monetary variables have been completely ignored and hence the monetary implications of the industrial country growth shock has not been taken into account.

In the present simulation experiment, we introduce the slowdown in the growth of industrial countries as an external shock by reducing the index of real income by 10-per cent in the first quarter of 1975. This induces changes in the prices of commodities and non-commodity exports. In her study, Schadler (1986) assumed the elasticity of commodity prices with respect to current and one-period-lagged industrial country income to be 0.90 and 0.60, respectively, and the price of manufacturing exports with respect to current foreign income as 1.50. We simply used these elasticities to estimate the reduction in the prices of primary commodities and non-commodity exports. Accordingly in the first and second quarters of 1975, the commodity price index was reduced by 9 and 6 per cent, respectively, and the price of non-commodity exports by 15 per cent in the first quarter of 1975. With these modifications, the model is simulated under each of the four policy responses and the simulated values of the endogenous variables are compared with

the control solution. Deviations of the simulated values from the control solution under each of the policy responses are reported in Appendix 4, Tables 4.1 through 4.4.

The reduction in the real income of industrial countries has a direct and immediate impact on the balance of payments as it reduces the prices of commodity and non-commodity exports as well as the volume of non-commodity exports. Under the fixed credit policy, non-commodity exports are reduced by 16.2-per cent and the balance of payments deteriorates by Rs. 150.1 million in the same quarter in which the shock is introduced. The reduction in the volume of exports is also reflected in a 1.28-per cent reduction in the real GDP and the money supply is reduced by 3.14-per cent as a result of the deterioration in the balance of payments. Contractionary effects of the reduced money supply and real income could be observed in the subsequent quarters. Due to the reduction in both the money supply and real income, the level of price is reduced by 2.38-per cent in the next quarter while real expenditure is reduced by 0.93-per cent largely due to the decline in the real income. The reduction in real expenditure and prices lead to a reduction in the volume of import demand by 1.98-per cent, while non-commodity exports decline further by 5.88-per cent due to the lagged adjustment process of the non-commodity export volume. Hence, the balance of payments further worsens by Rs. 44.66 million. This contractionary process continues during the next two quarters as well, even though the balance of payments records improvements due to the substantial reduction in the volume of imports. Despite the marginal reduction in the real expenditure and volume of exports in the fourth quarter, real GDP records a marginal improvement due to the high rate of reduction in the volume of imports, initiating a turnaround in the contractionary process. The two-quarter-lagged effects of the reduced domestic prices also begin to appear since the fifth quarters in the volume of non-commodity exports. However, the prime mover of the adjustment process is the disinflationary effects of the external shocks. Reduction in the domestic prices makes imports relatively more expensive hence initiating substitution of imports by domestic goods. It also makes exports more profitable relative to domestic goods and hence exports also will be induced with the time lag of two quarters. Hence, over time the economy will adjust itself to the adverse impact of the external shocks and could even end up with a better position due to the process of adjustment in the economy. This could be observed in Table 8 which reports the total accumulated effects of the shock over the sample period.

Table 8

SLOWDOWN IN INDUSTRIAL ECONOMIES: TOTAL ACCUMULATED EFFECTS OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

		Fixed Domestic Credit = 0	Complete Sterilization = –1	Partial Sterilization = –0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	1.55	–0.91	0.84	2.06
Level of Prices	(%)	–22.79	–3.82	–16.80	–28.17
Volume of Imports	(%)	–10.71	–3.25	–8.25	–13.09
Volume of Exports	(%)	–3.00	–5.62	–3.71	–2.57
Real Gross Domestic Product	(%)	3.34	–1.92	1.87	4.38
Money Supply	(%)	–29.38	0.00	–20.60	–36.61
Balance of Payments (Rs.mn.)		–19.20	–203.33	–55.46	–4.54

Over the sample period, the initial deterioration in the balance of payments has been substantially adjusted. Compared to the Rs. 150.13 million and Rs. 44.66 million loss of external reserve in the first two quarters, the total accumulated effect of the shock amounts to only Rs. 19.20 million loss in external reserves. This has been achieved by substantially reducing the volume of imports. Even by the end of the sample period, non-commodity exports have not fully recovered as indicated by the total accumulated effects of a 3-per cent decline in export volume (22.42-per cent decline in non-commodity export). This is mainly due to the substantially high coefficient of foreign income variable and relatively small coefficient of lagged domestic relative price variable in the non-com-

modity export function. Monetary policy could adjust the adverse changes in domestic relative price of exports by reducing the domestic price level, but it is not substantial enough to offset the adverse impact caused by the decline in the level of industrial country real income. The reduction in the level of domestic prices induces a substitution of domestic goods (non-traded and import substitution) for imports. Hence, over the sample period real income and domestic product are improved.

Hence, if the monetary authority is to take no action in response to the external shock caused by the slowdown in the growth of industrial countries, the economy would adjust itself to the new situation and over the long run overall the economic condition of the economy would be improved. However, within the short-run adjustment to the shock seems to be rather painful. This could be observed in Table 9 where accumulated effects of the shock within the first four quarters are recorded under each of the policy responses.

Within the first four quarters, the balance of payments substantially deteriorates creating contractionary impact on money supply. Reduction in the volume of exports caused a reduction in the real income which, in turn, and together with the reduced money supply bring real expenditure as well as prices down.

Hence, within the short run, the economy has to bear the pain of reduced real income and expenditure as well as loss in external reserves. Given this short-run outcome, the monetary authority might be tempted to seek monetary policy measures to circumvent the situation. One of the policy alternative is to sterilize the contractionary effect of the shock on money supply. The results of this policy are reported in the second column of Table 8 and 9.

As it appears, complete sterilization is not successful in Sri Lanka mainly due to the basic fact that real expenditure is not very sensitive to the change in money supply while the prices are highly sensitive. Hence, even if the contraction in the money supply is prevented, real expenditure will be reduced by 1.24-per cent within the short run due to a drop in real income. The real income is reduced not only due to the drop in export volume, but also due to the fact that sterilization prevents the prices from falling to a substantial level which would induce substitution of domestic goods for imports that is significant enough to create a positive impact on the income despite a drop in export volume. And also this policy results in worsening the balance of payments position.

Table 9

SLOWDOWN IN INDUSTRIAL ECONOMIES: ACCUMULATED EFFECTS WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the control solution)

		Fixed Domestic Credit = 0	Complete Sterilization = –1	Partial Sterilization = –0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	–2.06	–1.24	–1.66	–2.76
Level of Prices	(%)	–9.48	–3.07	–6.36	–15.25
Volume of Imports	(%)	–7.18	–3.04	–5.16	–10.92
Volume of Exports	(%)	–5.57	–5.63	–5.60	–5.51
Real Gross Domestic Product	(%)	–1.90	–2.26	–2.08	–1.54
Money Supply	(%)	–13.32	0.00	–7.09	–23.38
Balance of Payments(Rs.mn.)		–155.35	–207.78	–180.93	–108.05

Hence in the short run, the only benefit of this policy is the reduction in the rate of decline in real expenditure. However, over the long run, the results are far worse than those recorded under the fixed domestic credit policy. Real expenditure is reduced by 0.91 per cent compared to 1.55-per cent improvement under the fixed credit policy while real income declines by 1.92-per cent as against the 3.34-per cent increase under the fixed credit policy. The worst outcome is that this policy does not induce any adjustment to correct the balance of payments imbalance. Hence, it would record a Rs. 203.33 million loss of external reserves compared to only Rs. 19.20 million under fixed credit policy.

Partial sterilization policy yields intermediate results between fixed credit and complete sterilization policy. Rate of reduction in real income is reduced to 1.66-per cent in the short run which is better than the outcome under the fixed credit policy but not as good as the outcome under complete sterilization. For the real income and balance of payments, even though the results are worse compared to the fixed credit policy, they are much better than the outcome under complete sterilization. Hence, by implementing sterilization policies, it is possible to reduce the rate of reduction in real expenditure but there will be a corresponding worsening in the balance of payments and the rate of reduction in real income. Furthermore, the cost of restraining the decline in real expenditure in the short run is felt in the long run as well. In the long run, partial sterilization policy results in only 0.84-per cent and 1.87-per cent increase in the real expenditure and gross domestic product, respectively. This should be compared with the respective growth rates of 1.55 and 3.34-per cent under the fixed credit policy. The balance of payments records Rs. 55.46 million loss in external reserves compared to Rs. 19.20 million under the fixed credit policy.

All the three policy measures considered thus far result in a substantial deterioration in the balance of payments. Over the long run, the balance of payments position was substantially improved under the fixed credit and partial sterilization policy. Still, the balance of payments position does not seem to have fully adjusted; and in particular, a short-run deterioration in the balance of payments could be too much for a small country like Sri Lanka. Hence, the monetary authority might want to intensify the adjustment process by implementing contractionary monetary policy measures. The results of such a policy response are given in the last column of the Tables 8 and 9.

Contractionary monetary policy gives a rapid adjustment in the balance of payments imbalance. Within the short run, the balance of payments deterioration is reduced to Rs. 108.05 million and over the long run the reduction in the net external reserves is only Rs. 4.54 million. The outcome in the real gross domestic product is also better both in the short and long run compared to the outcome under other policy alternatives. Real expenditure also improves by 2.06-per cent in the long run, but declines by 2.76-per cent in the short run which is higher than the rate of reduction recorded under the other policy alternatives.

Chapter 5

THE ESTIMATED MODEL FOR MALAYSIA

The basic model developed in Chapter 2 was estimated for Malaysia as well, and the estimated results are discussed in the present chapter. This estimation of the model was largely facilitated by the wealth of data generated by Merris and Yeoh (1986). Specifically, they are the quarterly data on gross domestic expenditure and its components, i.e., consumption, investment, exports and imports, both at constant and current market prices which were generated by their annual data and the quarterly data of closely related series. The rest of the data were obtained from the International Financial Statistics and the official publications of Bank Negara Malaysia. The definitions of the variables are the same as those defined in Table 2. In the estimation of the model, seasonal dummies were included in all the equations, while lagged dependent variables were also included whenever they appeared to provide realistic results. The estimated model is presented in Table 10.

All equations, except for the one for inflation, are reasonably good in terms of the goodness of fit as reflected in the high R^2 values. Even the comparatively low R^2 of the inflation equation is good enough, considering the nature of the variable which has been fluctuating substantially without an apparent trend. The Durbin-Watson statistics for the expenditure and inflation equations fall within the inconclusive range, and hence do not necessarily indicate the presence of autocorrelation. However, these two equations were re-estimated using the Cochrane-Orcutt technique and it was found that the serial correlation coefficient of each of the equations was not significantly different from zero. Hence, the two equations estimated by the Ordinary Least Squares (OLS) method were retained. In the OLS estimation of the import volume equation which has a lagged dependent variable, serial correlation was detected by using the Durbin 'h' statistic. Hence, the equation was re-estimated by the two-stage procedure suggested by Hatanaka (1974). The equation for the volume of non-traditional exports was first estimated with the lagged dependent variable and the presence of autocorrelation was detected by the Durbin 'h' statistic. However, when the equation was estimated by the Hatanaka two-step procedure, the 't' statistic of the lagged dependent variable was found to be too small.

Table 10

THE MODEL WITH THE ESTIMATED EQUATIONS

Behavioural Equations

1. **Real Aggregate Expenditure**

$$\ln ABR = 1.155641 + 0.332138\ \ln YQ(-1) + 0.516618\ \ln(M/P)(-1)$$
$$(2.048492)\quad (1.805064)\qquad\qquad (4.344497)$$

$$-0.173522D1 - 0.103565D2 - 0.084815D3$$
$$(-5.807366)\quad (-3.206614)\quad (-3.336059)$$

$$R^2 = 0.9709$$
$$\overline{R}^2 = 0.9684$$
$$D\text{–}W = 1.5041$$
$$N = 63$$

2. **Inflation**

$$\ln P = 1.574891 - 0.501816\ \ln YQ(-1) + 0.314789\ \ln(M/P)(-1)$$
$$(3.465212)(-3.262649)\qquad\qquad (3.176702)$$

$$+ 0.645802\ GAP(-1) - 0.121840D1 - 0.014046D2 - 0.020718D3$$
$$(3.560171)\qquad (-8.020742)\qquad (-0.870755)\quad (-1.626185)$$

$$R^2 = 0.7056$$
$$\overline{R}^2 = 0.6741$$
$$D\text{–}W = 1.6452$$
$$N = 63$$

3. **Volume of Imports of Goods and Non-factor Services**

$$\ln MQ = -1.264297 + 0.533766\ \ln ABR - 0.151131\ \ln(PM/P)$$
$$(-4.457139)\ (6.528027)\qquad\qquad (-1.635933)$$

$$+ 0.566788\ \ln MQ(-1) + 0.072079D1 + 0.059167D2$$
$$(8.690268)\qquad\qquad (3.753570)\qquad (4.047952)$$

$$+ 0.045013D3$$
$$(3.592030)$$

$$R^2 = 0.9945$$
$$\overline{R}^2 = 0.9937$$
$$h = 0.96$$
$$RHO = 0.427395$$
$$(3.346004)$$
$$N = 62$$

4. **Volume of Exports of Goods and Non-factor Services excluding Primary Commodities**

$$\ln XQN = 7.403998 + 3.803497\ \ln IWI - 0.754440\ \ln(PXWF/WF)$$
$$(212.73739)\quad (16.137882)\quad (-6.653457)$$

$$-0.031626D1 - 0.007871D2 - 0.015668D3$$
$$(-1.290418)\quad (-0.376382)\quad (-0.922837)$$

$R^2 = 0.9873$
$\overline{R}^2 = 0.9851$
D-W = 1.7586
RHO = 0.629181
(4.760948)
N = 42

Identities

1. **Real Income**
   $YQ = ABR + XQ - MQ$

2. **Total Exports**
   $XQ = XQN + XQC$

3. **Balance of Payments**
   $B = XQN.PXN + XQC.PXC - MQ.PM + TR$

4. **Export and Import Prices**
   $PXN = PXNF.R_x$
   $PXC = PXCF.R_x$
   $PM = PMF.R_m$

5. **Money Supply**
   $M = M(-1) + B + DCE$

6. **Excess Demand**
   $GAP = \ln YQ - \ln YQ^*$
   $YQ^* = YQ(0)e^{gt}$

Hence, the equation was estimated without the lagged dependent variable and the autocorrelation was corrected by the Cochrane-Orcutt technique.

The importance of money in the determination of real expenditure and the rate of inflation is highlighted in the estimated equations of real expenditure and inflation. In both equations, the real money variable is statistically significant with the correct sign. In the expenditure equation, the coefficient of the income variable is significant at the 5-per cent level for one-tail test, which of course is the appropriate test in the present case. The estimated coefficient of the income and real money variables in the real expenditure equation suggest, under the assumption of unitary income elasticity of

expenditure, that the income elasticity of demand for money in Malaysia is 1.2976 which appears to be quite realistic. As a whole, the estimated coefficients of these two equations indicate the importance and the viability of monetary policy in the regulation of real expenditure as well as the inflation.

In the estimated equation for inflation, all the included variables except the two seasonal dummies are statistically significant with the correct sign. However, we have not been able to obtain statistically significant relationship between the rate of inflation and foreign prices (i.e., price of imports) or cost of working capital (i.e., interest rate). In particular, the insignificance of the foreign prices seems to be rather surprising. However, this could well be due to some reasons specific to the Malaysian economy. Perhaps, the exchange rate changes might have cushioned off the inflationary impact of the high foreign prices. On the other hand, high foreign prices might have only resulted in reduced profit without changing the domestic prices significantly. In Malaysia, prices have been rather stable and this stability may be due to one of these reasons in addition to the prudent demand management policies.

All the variables, except the relative price of imports, are significant with the correct signs in the volume of imports equation. Though not significant at the 5-per cent level, the relative price variable is significant at the 6-per cent for a two-tail test. In any case, the relative price elasticity of imports in Malaysia seems to be rather small (long-run elasticity is only -0.35 in Malaysia as against -0.55 in Sri Lanka). However, the expenditure elasticity is quite high at 1.23 which indicates the importance of expenditure reducing policies in the regulation of imports, as well as a high degree of spill-over into abroad of the monetary expansion aimed at stimulating the domestic economy.

According to the estimated equation, non-commodity exports of Malaysia seem to be demand-determined. The price of exports relative to the level of domestic prices was included as a supply factor and experimented with a number of lags. However, the relative price variable was found to be insignificant[1]. Hence, it appears that the supply of non-commodity exports is not quite sensitive to the price changes and the exports are largely demand-determined. This also implies that the exchange rate policy may not be an effective tool to induce the supply of non-commodity exports. The two demand factors are statistically significant with the correct signs

1. See page 32.

which highlighted the dependents of non-commodity exports on the external environment, and thus the vulnerability to the external shocks.

As a whole, the results highlight the basic difference in the transmission of monetary policy in Sri Lanka and Malaysia. In Sri Lanka, monetary policy is effective in changing the balance of payments position mainly by changing the domestic rate of inflation. However, in Malaysia where prices have largely been stable, the monetary policy appears to work through the real expenditure channel.

Dynamic Historical Simulation

The estimated model was simulated over the period from 1975: 4 to 1985:4, and the results in detail are given in the Appendix 5. The summary statistics, i.e., the Root of Mean Squared Percentage Errors (RMSPE) and the simple correlation between the actual historical values and the simulated values are reported in Table 11.

Table 11

DYNAMIC SIMULATION: SUMMARY STATISTICS

	RMSPE	CORRELATION
Real Expenditure	6.05	0.97
Level of Prices	9.79	0.94
Volume of Imports	7.02	0.97
Volume of Exports	2.59	0.99
Real Gross Domestic Product	4.93	0.97
Money Supply	8.43	0.99
Balance of Payments	785.95	0.76

As in the case of Sri Lanka, the summary statistics are reasonably good for all the variables except the balance of payments. The large percentage errors in the balance of payments can be explained by the same factors as those mentioned in the case of Sri Lanka. More importantly, the model seems to have captured most of the turning points, and this is true in the case of the balance of payments as well. One unsatisfactory feature of the results is that it underestimated the level of prices from 1975:4 to 1980:3 and then overestimated them for the rest of the period. This might be due to the structural shift or an omitted variable. However, this unsatis-

factory feature is not too disturbing as the errors are not explosive. The predicted values of the prices indicated tendency to move towards the actual ones.

Chapter 6

POLICY SIMULATIONS FOR MALAYSIA

As in the case of Sri Lanka, the implications of three external shocks and four alternative monetary policy responses are examined in the Malaysian model. The three external shocks are a substantial increase in the export prices, import prices and slow growth in the industrial countries. The alternative monetary policy responses are the fixed credit policy (no responses to the external shock), complete sterilization, partial sterilization and the intensification of the monetary impact of the external shock. The simulation procedure is exactly the same as employed in the Sri Lankan case and discussed in Chapter 4[1]. The present chapter highlights the main features of the simulation results for Malaysia.

Import Price Shock

This shock was introduced by increasing the import price index for the first quarter of 1976 by 25- per cent while keeping all the other exogenous variable unchanged. Then the model was simulated under each of the four monetary policy responses and the results were compared with the control solution reported in Appendix 5. Deviations of the simulated values from the control solution under each of the policy responses are reported in Appendix 6, Tables 6.1 through 6.4.

According to the estimated model for Malaysia, only the volume of imports and the balance of payments are directly influenced by the price of imports. Hence, the immediate and the direct impact of the 25-per cent increase in the price of imports under the fixed credit policy is a 3.32-per cent decline in the volume of imports and a deterioration in the balance of payments by M$ 607.25 million. As real expenditure does not change despite a drop in the volume of imports, real gross domestic product increases by 1.40-per cent due to the substitution of domestic goods for imports. The deterioration in the balance of payments results in a 5.85-per cent decline in the money supply which, of course, is the prime force behind the adjustment process.

1. See pages 33-34.

By the next quarter, mainly due to the drop in money supply in the previous quarter, real expenditure and domestic prices decline by 2.62-per cent and 1.68-per cent, respectively. As a result, the volume of imports declines by 3.52-per cent[1]. This results in a M$ 107.28 million improvement in the balance of payments, but the money supply continues to decline due to lagged effects. Despite the drop in the volume of imports, real income also declines marginally due to the substantial decline in the real expenditure. The same process continues in the third quarter as well. However, in the fourth quarter and thereafter, the price declines at a higher rate than that of the money supply giving rise to a net increase in the real money stock. This generates an expansionary impact on real expenditure and the level of domestic prices. However, the level of prices continues to decline due to the lagged adjustment process. The real expenditure continues to decline marginally in the fourth quarter due to the marginal decrease in the real income, but it records positive changes thereafter. However, the higher real expenditure is not sufficient to pull the volume of imports up, mainly due to the lagged adjustment process and the decline in the domestic prices which makes domestic goods relatively cheaper than imports. Hence, the domestic economic activities are expanded resulting in positive changes in the real incomes. The balance of payments also continues to improve though at reducing amounts. The total impact of the shock over the sample period is summarised in Table 12.

In Malaysia, under the fixed credit policy, the import price shock causes a deterioration in the balance of payments without directly affecting the domestic prices. Hence, the corresponding decline in money supply causes reductions in real expenditure and domestic prices in the following quarter, creating a contractionary impact on the economy. Hence, the volume of imports is reduced and the balance of payments is improved. Subsequently, the level of prices declines each quarter, at a higher rate than the rate at which money supply declines. Thus, the real money supply records positive changes generating expansionary impact on the economy. However, due to the dynamic effects of the model, domestic prices and imports continue to decline. Consequently, domestic goods are

1. It should be noted that in Malaysia nearly 40-per cent of this 3.52-per cent decline in the volume of imports is due to the drop in real expenditure, while the contribution of the reduced level of prices is only 7-per cent. In the case of Sri Lanka, the corresponding decline in real expenditure is rather small and hence, it is the movement of domestic prices that plays a major role in the adjustment process.

Table 12

IMPORT PRICE SHOCK: TOTAL ACCUMULATED EFFECTS OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

		Fixed Domestic Credit = 0	Complete Sterilization = −1.0	Partial Sterilization = −0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	0.69	0.30	0.46	1.11
Price Level	(%)	−22.36	1.42	−22.93	−39.99
Volume of Imports	(%)	−18.14	−6.85	−15.09	−20.47
Real Gross Domestic Product	(%)	8.44	3.12	6.99	9.62
Money Supply	(%)	−36.33	0.00	−26.47	−43.82
Balance of Payments (M$ mn.)		−52.59	−490.87	−135.70	−15.48

substituted for imports and both real expenditure and income improve. Hence, over the long run under the fixed credit policy, the import price shock results in a marginal increase in the real expenditure and a 18.14-per cent decline in the volume of imports. Accordingly, real income improves by 8.44-per cent due to the substitution of domestic goods for imports. The balance of payments is also adjusted purely on account of the reduction in the imports. For the balance of payments, the total accumulated effect of this shock over the sample period is the loss in external reserves by M$ 52.59 million, compared with the initial loss of M$ 607.25 million. Hence, quite similar to the case of Sri Lanka, if the authorities choose not to take any policy action, over the long run the economy would undergo a self-adjustment process and subsequently the initial loss in the external reserves is gradually recovered and the domestic economic activities are expanded. However, as the policy

responses are not always guided by long-run considerations alone, it is worth looking into the short-run consequences of the shock as well. Table 13 reports the accumulated effects of the shock within the first four quarters of the sample period.

As shown in Table 13, under the fixed credit policy, the only adverse impacts of the shock in the short run are the 4.97-per cent decline in real expenditure and M$ 298.01 million loss in net external reserves. Unlike in Sri Lanka, this external shock does not cause an increase in the rate of inflation in the short run as the import prices are not directly related to inflation. Also, the contractionary impact of the shock is quite apparent in Malaysia. The short-run decline in real expenditure in Sri Lanka is only 1.59 per cent compared with 4.97-per cent in Malaysia. This reflects

Table 13

IMPORT PRICE SHOCK: ACCUMULATED EFFECTS WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

		Fixed Domestic Credit = 0	Complete Sterilization = −1.0	Partial Sterilization = −0.5	Contractionary Monetary Policy = 1
Real Expenditure	(%)	−4.97	0.75	−2.32	−8.95
Price Level	(%)	−7.46	0.77	−3.50	−14.47
Volume of Imports	(%)	−12.89	−6.04	−9.62	−18.54
Real Gross Domestic Product	(%)	0.65	3.19	1.78	−0.75
Money Supply	(%)	−16.43	0.00	−9.11	−26.28
Balance of Payments (M$ mn.)		−298.01	− 521.24	−404.48	−116.05

the rather strong link between real expenditure and real money in Malaysia compared with a relatively weaker link in Sri Lanka. In Malaysia, as the decline in real expenditure is quite substantial, the authorities may want to implement policy measures to prevent it. Under the circumstances, the best policy would be to sterilize the monetary impact of the shock. The short run and long run effects of the sterilization policy are summarised in the second column of Tables 13 and 12, respectively.

Within the short run, complete sterilization results in achieving the desired result of preventing the decline in real expenditure. Compared with the 4.97-per cent decline under the fixed credit policy option, the sterilization results in a 0.75-per cent increase in the real expenditure. The volume of imports also declines only by 6.04-per cent compared to 12.89-per cent under the fixed credit policy. However, as this decline in imports is accompanied by an increase in real expenditure, the gross domestic product increases by 3.19-per cent compared to 0.65-per cent under the fixed credit policy. The marginal increase in real expenditure and the level of domestic prices could be explained by the improvement in the real income. However, it should be noted that even though the sterilization results in improving the real income and expenditure in the short run, it worsens the balance of payments position both in the short run and long run. In the short run, it results in a loss of M$ 521.24 million in external reserves, as compared to a M$ 298.01 million loss under the fixed credit policy. In the long run, the loss is M$ 490.87 million as against the loss of M$ 52.59 million under the fixed credit policy. This is due to the reason that sterilization removes the essential element in the self-adjustment process prevailed under the fixed credit policy. As the money supply is maintained, both real expenditure and prices are not reduced to make a substantial decline in the volume of imports. In fact, in the first four quarters, the increases in real expenditure and domestic prices had the effect of increasing the demand for imports. Under the estimated model for Malaysia, the balance of payments adjustments take place only throug reducing imports. As sterilization takes away the basic mechanism by which real expenditure and prices are reduced, the volume of imports is not sufficiently adjusted to correct the balance of payments position.

There is a notable difference between the results of complete sterilization in Sri Lanka and Malaysia. In Malaysia, despite the loss of external reserves, the performance of the other variables in

the long run may not be considered entirely bad in view of the short run benefits achieved through sterilization. Real expenditure still records a positive change and the 1.42-per cent increase in the level of prices may be quite acceptable. The real income records a 3.12-per cent growth - a positive result though it is substantially lower than the 8.44-per cent increase recorded under the fixed credit policy. In Sri Lanka, the sterilization policy worsens the situation in every aspect in the long run. Real expenditure declines substantially and the rate of inflation accelerates in the long run. As pointed out earlier, such a result is due to the fact that even though the monetary authorities could initially avoid the drop in money supply, over the longer turn, real money still declines. This is because of a strong linkage between import prices and domestic prices. For Malaysia, in contrast, the inflation is not directly influenced by the import prices. Therefore, the increase in the domestic prices and the consequent decline in real money are rather minimal. Hence, even in the long run, complete sterilization results in positive changes in real expenditure and income. Hence, in Malaysia, if the authorities have sufficient foreign exchange reserves and are not concerned very much about the loss in external reserves, they could effectively avoid the drop in real expenditure both in the short and long run.

As expected, the partial sterilization generates intermediate results between the fixed credit and complete sterilization policies. It reduces real expenditure in the short run but the rate of reduction is not as high as that under the fixed credit policy. It also results in a loss of foreign exchange reserves by M$ 404.48 million which is somewhat less than that under complete sterilization. In the long run, it reduces the loss in foreign exchange reserves to M$ 135.70 million, which is still quite high compared to M$ 52.59 million loss of foreign exchange reserve recorded under the fixed credit policy.

On the other hand, the authorities may be rather worried about the balance of payments impact of the shock and hence, may like to see a rapid adjustment in the balance of payments. In such a case, the authorities could consider the option of furthering the reduction in the money supply by tightening the monetary policy. The effects of such a policy measure are summarised in the final column of Tables 12 and 13.

As revealed in Table 12, such a contractionary monetary policy measure would result in reducing the loss in external reserves to

M$ 15.48 million in the long run, compared with the M$ 52.59 million under the fixed credit policy. It also records a 20.47-per cent decline in the volume of imports and 1.11-per cent increase in real expenditure. Accordingly, the real income is increased by 9.62-per cent. Even in the short run, it reduces the loss in foreign exchange reserves to M$ 116.05 million, which is much lower than the amount recorded under any other policy response. However, within the short run, this policy causes a 8.95-per cent reduction in real expenditure and 0.75-per cent reduction in real income. Hence, the policy aimed at improving the balance of payments position would worsen the real expenditure position in the short run, while the policy aimed at maintaining the real expenditure position would further worsen the balance of payments position. However, such a conflict is not seen in the long-run implication of the policy. Under this policy option, both real expenditure and real income improve while the balance of payments is best adjusted.

Export Price Shock

This simulation aims at examining the effects of a boom in primary commodity exports. The price index of the primary commodity exports is increased by 25-per cent in the first quarter of 1976 while keeping all the other exogenous variables unchanged. Then the model is simulated under each of the four monetary policy responses and the simulated values of the endogenous variables are compared with the control solution. The results are reported in detail in Appendix 7, Tables 7.1 through 7.4.

As noted in Chapter 4, the present model treats primary commodity exports as an exogenous variable and hence export price boom has no impact on the volume of commodity exports[1]. In the case of Sri Lanka, as the exports other than the primary commodities were functionally related to the price of exports relative to the domestic prices, there was some indirect impact of the commodity boom on the volume of other exports. However, in Malaysia such a functional relationship was not found and consequently, the volume of exports is unaffected by the commodity price boom. Hence, the direct and immediate impact of the commodity price boom are the M$ 504.75 million improvement in the balance of payments and a 4.86-percent increase in the money supply.

1. Please also see the footnote on page 41.

In Malaysia, as real expenditure and the level of prices are significantly related to the money supply, they record substantial increases in the next quarter, by 2.48-per cent and 1.50-per cent, respectively. As a result, the volume of imports is increased by 1.55-per cent. As the increased expenditure is not fully absorbed by the increased volume of imports, the real income moved up by 1.67-per cent. This really is the short-run expansionary impact of the export price boom. On the external side, an increased volume of imports results in a deterioration in the balance of payments by M$ 47.13 million. The expansionary impact continues into the third quarter as well. However, its rate of increase is substantially lower than that in the previous quarter, mainly due to the domestic inflation which caused a slowdown in the rate of increase in real money. The level of prices increases at a higher rate due to the increased real money and the lagged effect. Correspondingly, the volume of imports also increases at a higher rate. As the increased real expenditure is largely absorbed by the increased volume of imports, real income is increased only marginally by 0.84 per cent.

The fourth quarter of 1976 records a turnaround in the effect of the export price boom. As the level of prices now increases at a higher rate than that of the money supply, real money begins to decline. Such a decline continues throughout the rest of the sample period. In the fourth quarter of 1976, the real expenditure is increased only by 0.66-per cent while the volume of imports is increased by 2.11-per cent, thus reducing the real income by 0.20- per cent. Throughout the remaining period, nominal money supply, prices and imports move up, the balance of payments deteriorates while real expenditure and income decline. Hence, although an export price boom could have a short-lived expansionary effect on the economy, the result is reversed in the long run. The high rate of increase in the domestic prices and import volume induced by such a boom will eventually show up in the deterioration of the balance of payments and the contraction of domestic economic activities. This scenario is summarised in Tables 14 and 15, which report the total accumulated effects of the shock within the first four quarters and over the sample period respectively.

As shown in Table 14, within the short run and under the fixed credit policy, money supply is increased by 15.09-per cent and correspondingly real expenditure and the level of prices are increased by 5.09 and 7.08-per cent, respectively. The volume of imports rec-

Table 14

EXPORT PRICE SHOCK: TOTAL ACCUMULATED EFFECTS WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

		Fixed Domestic Credit = 0	Complete Sterilization = –1.0	Partial Sterilization =–0.5	Expansionary Monetary Policy = 1.0
Real Expenditure	(%)	5.09	–	2.74	8.75
Price Level	(%)	7.08	–	3.70	12.95
Volume of Import	(%)	5.97	–	3.14	10.78
Real Gross Domestic Product	(%)	2.31	–	1.28	3.76
Money Supply	(%)	15.09	–	8.30	24.76
Balance of Payments (M$ mn.)		309.60	504.75	401.89	153.91

ords an increase of 5.97-per cent which is not sufficient to absorb the total increase in real expenditure. Hence, the domestic economic activities are expanded as reflected in a growth rate of real income of 2.31-per cent. However, as observed in the long run results in Table 15, the level of prices is increased by 33.60-per cent thus encouraging more import. Hence, the volume of imports is increased by 11.29-per cent. Real income and real expenditure, on the other hand, decline by 5.22- per cent and 0.25-per cent, respectively. Moreover, due to the increased volume of imports, the initial increase of M$ 504.75 million in external reserves is reduced to M$ 56.28 million by the end of the sample period. Hence, the fixed credit policy generates a self-adjustment in the balance of payments by correcting over time the initial imbalance caused by the external shock.

Table 15

EXPORT PRICE SHOCK: TOTAL ACCUMULATED EFFECTS OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

		Fixed Domestic Credit = 0	Complete Sterilization = −1.0	Partial Sterilization =−0.5	Expansionary Monetary Policy = 1.0
Real Expenditure	(%)	−0.25	–	−0.12	−0.24
Price Level	(%)	33.60	–	24.22	40.74
Volume of Import	(%)	11.29	–	8.22	13.65
Real Gross Domestic Product	(%)	−5.22	–	−3.84	−6.05
Money Supply	(%)	36.51	–	26.47	44.23
Balance of Payments (M$ mn.)		56.28	504.75	143.09	16.53

As pointed out, earlier, if the monetary authority is not making any policy response, the export price boom is inflationary both in the short and long run. In the long run, it could even contract the domestic economic activities. Also due to the rapid adjustment in the balance of payments, it is not possible to build up the country's foreign exchange reserves. In most of the developing countries, it is quite essential that the external reserves are built up a a time of an export boom to cushion off the unfavourable balance of payments positions in the other years. Hence, the monetary authority may attempt to insulate the economy from these adverse effects of the shock by sterilizing the monetary impact of the shock. Under complete sterilization, the external shock results in increasing the external reserves by M$ 504.75 million both in the short and long run, while all the other variables remain unchanged. Such a ster-

ilization attempt seems to be the best policy option particularly at a time of a transitory increase in the price of exports. On the other hand, if complete sterilization is not possible due to growing demand for credit, the authorities may at least attempt to implement a partial sterilization policy which would generate intermediate results between the fixed credit and complete sterilization policies as shown in the third column of Tables 14 and 15.

Considering the short run benefit of the boom and the foreign exchange reserves available, the monetary authorities may wish to adopt an expansionary monetary policy by increasing domestic credit. As shown in the final column of Tables 14 and 15, such a policy would in fact expand the economy in the short run. Compared to a 5.09-per cent increase under the fixed credit policy, expansionary monetary policy generates a 8.75-per cent increase in real expenditure. Similarly, it generates a 3.76-per cent increase in real income compared to 2.31-per cent under the fixed credit policy. However, this policy is inflationary and it leads to a high rate of increase in the volume of imports. Hence, even within the short run, the external reserves are reduced to M$ 153.91 million, compared to M$ 309.60 million under the fixed credit policy. Moreover, despite the short run benefits, the long run impact is not that encouraging. Real income declines by 6.05-per cent while domestic prices are up by 40.74-per cent. Correspondingly, the volume of imports is increased by 13.65-per cent and hence, the initial increase in the external reserves is eventually depleted to M$ 16.53 million.

Hence, at a cost of high rate of inflation, the fixed credit or expansionary monetary policy could expand domestic economic activities within the short run. However, in the long run, the high rate of inflation makes imports relatively cheaper and hence, domestic economic activities are contracted and the initial increase in the external reserves eventually depleted.

Recession in Industrial Countries

The importance of growth in industrial countries to the balance of payments of developing countries and the close association of the primary as well as non-primary export prices and the growth in industrial countries was pointed out in Chapter 4. The present section will examine the impact of slow growth in industrial countries and alternative monetary policy responses in the Malaysian economy. The parameter values linking the primary and non-primary

export prices and the income of industrial countries are the same as those used in the case of Sri Lanka in that they were borrowed from Schadler (1986). Accordingly, in the present simulation experiment, the recession in the industrial countries is introduced as an external shock by reducing the index of income of industrial countries for the first quarter of 1976 by 10-per cent. Thus, considering the assumed elasticity parameters [1] in the first and second quarters of 1976, the commodity price index was reduced by 9 and 6-per cent, respectively, and the price of non-commodity exports was reduced by 15-per cent in the first quarter of 1976. With these modifications, the model was simulated under each of the four alternative monetary policy responses and the simulated values of the endogenous variables are compared with the control solution. Deviations of the simulated values from the control solution under each of the policy responses are reported in Appendix 8, Tables 8.1 through 8.4.

The volume of non-commodity exports is endogenous and inversely related to the slow growth in industrial countries. Hence, the 10-per cent decline in the income of the industrial economies will result in a reduction in the volume exports by 9.36-per cent in the same quarter in which the shock is introduced. Accordingly, real income declines by 4.77-per cent. Due to the drop in the volume of exports and the decline in the price of exports, the balance of payments deteriorates by M$ 533.89 million. Correspondingly, money supply declines by 5.14-per cent.

The contractionary effects of the reduced real income and money supply are felt throughout the next three quarters. In the second quarter, real expenditure and level of prices decline by 4.26 and 2.34-per cent, respectively. This leads to a fall in the volume of imports by 2.64-per cent. In the second and third quarters, real income also continues to decline though at reducing rates. For the external sector, the balance of payments deteriorates in the second quarter due to a further decline in the commodity prices, but this deterioration is moderated by the decrease in the volume of imports. In fact, due to the contractionary effect of the shock, the volume of imports continues to decline throughout the sample period, though at reducing rates. Hence, the balance of payments also records improvements throughout the period since the third quarter.

1. The assumed elasticity of commodity prices with respect to current and one-period-lagged income of the industrial countries are 0.90 and 0.60, respectively, while the price of non-commodity exports with respect to current income of the industrial economies is 1.50.

A turnaround in the contractionary movement of real income and expenditure is indicated in the fourth quarter of 1976 and thereafter. This is due to the fact that prices decline at higher rates than those of the money supply, thus resulting in an increased supply of real money. Hence, in the fourth quarter of 1976, the real expenditure records only a marginal decline and the real income a marginal increase, but thereafter both real expenditure and income keep going up.

To sum up, we have shown that a slowdown in the industrial country economies has a contractionary impact on the Malaysian economy in the short run. However, over the long run, the adjustment in the volume of imports leads to an improvement in the balance of payments position as domestic goods are substituted for imports. Hence, domestic economic activities are expanded. This can be observed in Tables 16 and 17, where the long and short run effects of the shock are summarised under each of the monetary policy responses.

As seen in Table 16, under the fixed credit policy, the initial loss of external reserves by M$ 591.46 million within the first two quarters is reduced to only M$ 71.88 million by the end of the sample period. Despite the 9.36-per cent decline in the volume of exports, this adjustment in balance of payments is achieved by reducing the volume of imports by 15.37-per cent. Such a drop in the volume of imports is made possible by the reduced domestic prices and the initial decline in real expenditure. Due to the reduced domestic prices, imports become relatively more expensive and hence, domestic goods are substituted for imports. Hence, over the long run, real gross domestic product is increased by 2.05-per cent. However, as seen in Table 17, the short run effects of the shock are quite painful. Real income and expenditure decline by 8.07 and 7.46-per cent. Hence, the monetary authority may consider sterilizing the monetary impact of the shock to alleviate the adverse effects of the shock within the short run. The second column in Tables 16 and 17 record the effects of the shock under the complete sterilization.

In the short run, complete sterilization is effective in reducing the rate of decline in real expenditure from 7.46-per cent to 1.19 per cent and real income from 8.07-per cent to 5.14-per cent. However, the sterilization policy alone is not capable of removing the contractionary impact of the shock entirely, as the initial drop in the real income due to reduced exports also has a contractionary effect on the economy. Even though the sterilization is successful

Table 16

SLOWDOWN IN INDUSTRIAL COUNTRY GROWTH: TOTAL ACCUMULATED EFFECT OVER THE SAMPLE PERIOD UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

	Fixed Domestic Credit = 0	Complete Sterilization = −1.0	Partial Sterilization =−0.5	Contractionary Monetary Policy = 1.0
Real Expenditure (%)	0.08	−0.44	−0.24	0.63
Price Level (%)	−43.90	−2.18	−32.20	−53.26
Volume of Imports (%)	−15.37	−1.32	−11.55	−18.29
Volume of Exports (%)	−9.36	−9.36	−9.36	−9.36
Real Gross Domestic Product (%)	2.05	−4.66	0.19	3.61
Money Supply (%)	−45.09	0.00	−32.76	−54.50
Balance of Payments (M$ mn.)	−71.88	−633.80	−180.87	−21.67

in alleviating the rate of reduction in real expenditure and income in short run, it deteriorates the situation in the long run. Compared to a 0.08-per cent increase under the fixed credit policy, the sterilization policy causes a 0.44-per cent decline in the real expenditure. In addition, real income is reduced by 4.66-per cent compared to a 2.05-per cent increase under the fixed credit policy. Moreover, the balance of payments position further deteriorates both in the short and long run. Compared to M$ 397.78 million loss under the fixed credit policy, the sterilization policy causes a M$

Table 17

SLOWDOWN IN INDUSTRIAL COUNTRY GROWTH: ACCUMULATED EFFECT WITHIN THE FIRST FOUR QUARTERS UNDER DIFFERENT POLICY RESPONSES

(Deviations from the Control Solution)

	Fixed Domestic Credit = 0	Complete Sterilization = −1.0	Partial Sterilization =−0.5	Contractionary Monetary Policy = 1.0
Real Expenditure (%)	−7.46	−1.19	−4.53	−12.11
Price Level (%)	−10.11	−1.74	−6.07	−17.33
Volume of Imports (%)	−8.98	−1.82	−5.54	−15.01
Volume of Exports (%)	−9.36	−9.36	−9.36	−9.36
Real Gross Domestic Product (%)	−8.07	−5.14	−6.73	−9.93
Money Supply (%)	−18.05	0.00	−9.93	−29.45
Balance of Payments (M$ mn.)	−397.78	−614.57	−492.35	−183.92

614.57 million loss in external reserves in short run, while in the long run the accumulated loss is M$ 633.80 million compared to only M$ 71.88 million under the fixed credit policy. This is due to the fact that the sterilization removes the prime force, i.e., the reduction in money supply, in the balance of payments adjustment process. However, considering the heavy short run burden of the adjustment process under the fixed credit policy, the authorities may consider at least partially sterilizing the monetary impact of the shock. As shown in the third column of Tables 16 and 17, such a partial sterilization policy provides an intermediate result be-

tween the fixed credit and complete sterilization policies. The adjustment process could further be slowed down by adjusting the sterilization parameter, ß towards -1.0. As observed in the results reported in Tables 16 and 17, the partial sterilization policy alleviates the short run burden of the shock while allowing for some adjustment in the balance of payments.

On the other hand, the lack of external reserves or non-availability of external credit, may necessitate a move for rapid adjustment in the balance of payments. In such a situation, the authorities could accelerate the adjustment process by intensifying the monetary impact of the shock by adopting a contractionary monetary policy measure. The effects of such a policy are reported in the final column of the Tables 16 and 17. As expected, the contractionary monetary policy has reduced the loss in external reserves to M$ 183.92 million in the short run and M$ 21.67 million in the long run, compared to M$ 397.78 million and M$ 71.88 million, respectively, under the fixed credit policy. In the long run, it also increases the real income and expenditure at higher rates than those under the fixed credit policy. However, in the short run, it generates bigger reductions in the real income and expenditure.

Chapter 7

CONCLUDING REMARKS

The study developed a simple econometric model for Sri Lanka and undertook some simulation experiments to investigate the implications of three external shocks and four alternative monetary policy responses. With some modifications, the same model was estimated for Malaysia as well, and the same set of policy experiments were undertaken mainly for comparative purposes to examine any differences in the transmission mechanism of monetary policy into the major macroeconomic variables, namely real expenditure, prices, output and the balance of payments. This concluding chapter highlights the major observations of the study, and points out the limitations and further research requirements.

The model presented in the study placed a central role to the money (real excess money) and its implications on real expenditure, inflation, output and the balance of payments. Basically, it hypothesised that excess money would result in increasing nominal spending, thus increasing both prices and real expenditure. This hypothesis was confirmed in the estimated results for Malaysia and hence, it suggested that monetary policy could effectively be employed in Malaysia in regulating both the real expenditure (aggregate demand) and inflation. However, though the same hypothesis was confirmed in Sri Lanka, the relationship between the real expenditure and money in this country was found to be rather weak. The results suggested that in Sri Lanka monetary policy measures could effectively be employed in regulating inflation but not the real expenditure. This basic difference in the effects of monetary policy may, to some extent, reflect the differences in the level of development and structure of the two countries. Sri Lanka has been a highly inflationary economy whereas prices have been rather stable in Malaysia. Compared with Sri Lanka, the Malaysian economy is better developed and hence, has the capacity to respond to the changes in money supply by changing the real expenditure and the level of economic activities. Hence, money is significantly related to real expenditure as well as prices. In Sri Lanka, most of the real expenditure are essential, and hence the scope for reducing expenditure is rather limited. Hence, real expenditure does not respond significantly to any reduction in real

money supply and thus only the rate of inflation is reduced. In fact, over the past years monetary policy has been quite successful in bringing down inflation in Sri Lanka without adversely affecting the level of economic activities. On the other hand, any increase in money supply increases the rate of inflation without expanding the economy even within the short run, as the Sri Lankan economy does not have the capacity to boost its output quickly. This difference between the two countries is highlighted in all the simulation results.

The estimated results also highlighted the role of excess real money, and the excess demand created by the excess of real income over the capacity level in the determination of inflation in Sri Lanka as well as in Malaysia. The price of imports also plays a significant role in the determination of inflation in Sri Lanka, but not in Malaysia. The explanation could be that in Malaysia exchange rate changes might have cushioned off the inflationary impact of foreign price changes, or foreign price changes have only resulted in changing the profit margin without changing domestic prices significantly. The price stability in Malaysia may be due to these reasons, in addition to the prudent demand-management policies.

The results also suggested that the trade liberalization policy package introduced in Sri Lanka in late 1977 was successful in bringing down inflation as it increased the availability of goods and services. The increased availability of goods and services was evident in both the equations for the volume of imports and real expenditure.

The expenditure elasticity of imports was found to be quite high in both Sri Lanka and Malaysia. This suggests the importance of expenditure reducing policies in regulating the imports and ultimately the balance of payments. In Malaysia, this also suggests the high level of the spill-over effect abroad of any monetary expansion aimed at stimulating the domestic economy. In Sri Lanka, as the monetary policy is not very effective in changing the real expenditure, the spill-over effect abroad is mainly realised through increasing the domestic prices, which makes imports relatively cheaper. Similarly, imports could be regulated and the balance of payments could be accordingly adjusted by adopting contractionary monetary policy measures as they result in increasing the relative price of imports. Hence, monetary policy in Sri Lanka is effective in making adjustments in the balance of payments mainly by changing the relative price. For Malaysia, since the relative price elastic-

ity of imports is rather small, it is changes in real expenditure that induce adjustments in the balance of payments.

The difference in the size of relative price elasticity of imports also suggests that exchange rate policy could be more effective in Sri Lanka than in Malaysia in regulating imports.

Non-commodity exports of Sri Lanka and Malaysia were found to be basically demand-determined. The estimated results highlighted the adverse impact of a recession in industrial countries on the volume of non-commodity exports of Sri Lanka and Malaysia. The results also suggest that the relative price elasticity of demand for non-commodity exports in both countries is high enough to offset the negative impact of any price reduction on the earnings of these exports. In Malaysia, the results indicate that the supply of these exports are not sensitive to the relative price changes, whereas in Sri Lanka the supply is sensitive to a certain extent. However, even in Sri Lanka the size of the coefficient of the relative price variable is rather small, in addition to the fact that price incentives take two quarters' time delay to produce even that small increment in the volume of exports. Hence, for both Sri Lanka and Malaysia, it is doubtful that exchange rate policies aimed at providing price incentives to the export sector would be effective.

Usually, the monetary contraction caused by an import price shock results in a contraction in the real expenditure and hence, in the level of domestic economic activity in the short run. The usual means of avoiding such a contraction is the sterilization of the monetary implications of the external shock. However, in the case of Sri Lanka, as the real expenditure is not very sensitive to the changes in money supply, the short run decline in the real expenditure is quite low. In fact, what the monetary authority needs to worry about is the high rate of inflation in the short run. Hence, sterilization is not an appropriate policy response to an import price shock. It would lower the rate of reduction in real expenditure in the short run, but in the long run it would cause a substantial reduction in the real expenditure. Moreover, it would create high inflation both in the short and long run. Hence, the appropriate policy response is either the fixed credit or contractionary monetary policy. Fixed credit policy is disinflationary and it would provide a self-adjustment mechanism to the external shock, thereby improving the level of domestic economic activity in the long run. However, fixed credit policy is not strong enough to restrain the short-run increase in the level of prices caused by the

external shock. Hence, as a means of restraining the short run inflation and speeding up the adjustment process, contractionary monetary policy is quite appropriate. It would substantially lower the short run inflation and improve the performance of all the variables in the long run. However, in the short run, it would increase the rate of reduction in the real expenditure.

In the case of Malaysia, the implications of an import price shock were somewhat different from those of Sri Lanka. These differences are mainly due to the absence of imported inflation and to the quite strong relationship between real expenditure and real money in Malaysia. Hence, an import price shock is disinflationary both in the short run and long run, and the short run contraction in the real expenditure is quite substantial in Malaysia. The sterilization policy is quite effective in Malaysia in avoiding the short-run contraction in the real expenditure; and, in contrast to Sri Lanka it also results in improving the level of economic activities over the level recorded under the fixed credit policy. Furthermore, the long run implications of the sterilization policy were not that bad as compared to those in the case of Sri Lanka. Even in the long run, it resulted in an improvement in the real expenditure and the level of economic activities, although the extent of this was lower than those under the fixed credit policy. Hence, in Malaysia, the authorities could effectively avoid the short run contraction in real expenditure without worsening the situation in the long run by sterilizing the monetary impact of the shock. However, the complete sterilization does not induce any adjustment in the balance of payments whereas the fixed credit policy induce a self-adjustment in the balance of payments to the shock. A partial adjustment in the balance of payments could be achieved by adopting a partial sterilization policy. Hence, the policy choice depends on the authorities' value judgement and the availability of external reserves. If a rapid adjustment in the balance of payments is needed, a contractionary monetary policy should be adopted. It improves the level of economic activities and real expenditure over the long run, but it also induces a substantial reduction in real expenditure in the short run.

In the case of Sri Lanka, both long run and short run considerations suggest that sterilization is the best policy response to a shock caused by the export price increase. Under this circumstance, the fixed credit policy may not serve the purpose well. Although it is true that the fixed credit response yields a self-adjust-

ment mechanism which helps to restore the balance of payments, the result is achieved at the high cost of internal imbalance. This is because the fixed credit policy would result in a monetary expansion which is the potent source of inflation in Sri Lanka. The inflationary impact will then lead to an increased level of imports and eventually to a contraction in the domestic economic activity. On the other hand, the resultant balance of payments surplus caused by an export price boom may not be a cause for concern in the developing countries. Instead, the monetary authority may like to take advantage of this opportunity to build up the external reserves base. Hence, the appropriate monetary policy response to an export price boom is the sterilization of the effect of the external shock on the money supply.

The long run implications of an export price boom for Malaysia are quite similar to those for Sri Lanka, and hence suggest the need for sterilization. However, the short run effects of the shock are rather different from Sri Lanka and hence, the Malaysian authorities might find it quite difficult to follow a sterilization policy. In Sri Lanka, in addition to high inflation, the shock caused a marginal decline in the real expenditure and only a marginal increase in the level of domestic economic activities in the short run. However, in Malaysia the short run expansionary effects of the shock are quite substantial. Despite the high inflation, significant improvements in real expenditure and the level of domestic economic activity will take place. Under such a scenario, one may be tempted to adopt an expansionary monetary policy to accelerate the expansion. However, in the long run, such a policy option would result in depleting the external reserves and due to the high rate of inflation, reducing the level of domestic economic activities.

The simulation results suggested that a recession in industrial countries could severely affect the economies of Sri Lanka and Malaysia in the short run, while the long run implications of the shock depend on the monetary policy responses of the respective authorities. A recession in the industrial countries causes a substantial deterioration in the balance of payments of both countries due to declines in export prices and the volume of non-commodity exports, and hence create a contractionary impact on the economy by reducing real expenditure and the level of economic activities in the short run. This contractionary impact of the shock is more severe in Malaysia compared to Sri Lanka. This finding is not quite surprising considering the relatively large export sector and the

strong relationship of money and real expenditure in Malaysia. The fixed credit policy is capable of adjusting the balance of payments to the shock over the long run while improving the level of domestic economic activities. This adjustment is achieved mainly by reducing the volume of imports. In Sri Lanka, the initial drop in the export volume is recovered to a certain extent over the long run due to reduced domestic prices which make the exports more profitable, but in Malaysia the exports sector is not adjusted at all as it is completely demand-determined.

The short run contraction in the economies of Sri Lanka and Malaysia due to slow growth in industrial countries could be alleviated to a certain extent by sterilizing the monetary impact of the shock. However, sterilization is not capable of preventing the contraction completely as the initial reduction in the volume of exports itself creates a contractionary impact on the economy. In Malaysia, sterilization is capable of reducing the short run rate of reduction in both real expenditure and income, but in Sri Lanka only the rate of reduction in real expenditure is marginally reduced while the rate of decline in real income is increased. This difference is attributed to the weak relationship between real money and expenditure in Sri Lanka. In both countries, sterilization results in worsening the situation in the long run; real expenditure and income are reduced and the balance of payments is not adjusted at all. The balance of payments adjustment could be accelerated by adopting a contractionary monetary policy which would also result in improving the domestic economy over the long run; but, it would impose a heavy burden on the economy in terms of the reduced real expenditure and income in the short run, which are quite substantial in Malaysia.

These are the major findings of the study. In evaluating the results, the limitations of the study should also be noted and their probable implications on the conclusions be examined. Perhaps, the main limitation of the study is its assumption that the economy is free of supply-side constraints and hence, with the right price incentives, the economy could easily substitute its expenditure from imports to domestic goods. Developing countries are known for the low substitutability between exports, imports and non-traded goods. Hence, it is rather difficult for developing countries to bring about a balance of payments improvement through demand-management policies as it takes time to reabsorb the resources released in export and import substitution. However, the fact that the sup-

ply constraint has not been taken into consideration does not necessarily invalidate the results of the study.

On the one hand, the present study also highlights, particularly in the case of Malaysia, the possibility of a short run contractionary impact of contractionary monetary policy, though it substantially improves the economy over the long run. A reduction in demand typically results in loss of output before the unemployed resources can be absorbed for other uses. As Crockett (1981) pointed out, this loss could be minimised through measures that enable the reduction in demand for factors and production in declining activities to be more closely matched by an increasing demand elsewhere. One way of achieving this is through policies affecting relative prices. As was noted, monetary policy is also capable of changing the relative prices, and it is the main contributory factor in the balance of payments adjustment in Sri Lanka. In addition, supplementary exchange rate policy could also be adopted. Further, it may also be needed to eliminate specific bottlenecks to increase capacity to meet changes in the structure and demand and to design demand-management measures in such a way that they promote an efficient allocation of resources. Also, as Crockett noted "A cursory survey of country experience in the 1970s has suggested that achieving the goals of stabilization policy balance of payments equilibrium and a moderation of domestic inflationary policy does not seem to require a sacrifice of growth except in a short-term sense"[1]. This also confirms the conclusions of the present study. Moreover, the past experience of some of the developing countries also indicates the validity of the conclusion. For example, following the 1973-74 oil price increase, the Republic of Korea, the Republic of China, Thailand and Singapore adopted measures to restrain domestic demand and maintained satisfactory growth rates in the period 1974-76; while Argentina, Jamaica, Zaire, Chile and Ghana allowed an acceleration in monetary demand and experienced continuing weakness in the external account, accelerating inflation and low or negative real growth rates during the same period.[2]

Hence, despite the fact that the study has not taken into consideration the supply-side constraints, the overall conclusion of the study are still valid. The supply-side constraints only emphasise

1. Crockett (1981 p. 78).

2. Black (1981) also noted the lower sensitivity of developing countries growth to short-term changes in import volumes.

the need for supplementing monetary policy with other policy measures to remove bottlenecks and ensure a smooth transition to a sustainable economic structure. In any case, it would be useful to study the economy from the supply-side as well. In particular, it is worth studying the relationship between output and domestic credit from the supply side. Such a study would certainly supplement the present work.

Usually in developing countries a large portion of investment and intermediate goods are imported, and hence it has been suggested that a reduction in the volume of imports could adversely affect the overall level of economic activities. However, in the present model a reduction in imports leads to an expansion in the economy, particularly over the long run. This also reflects the basic assumption of substitutability. With the right price incentives and supporting policies, substitution should always be possible in the long run [1]. The present model has only an aggregate import function, and hence a reduction in the volume of imports does not necessarily suggest a reduction in the investment and intermediate goods. In any case, it would have been better if the imports were disaggregated as there could be certain types of imports which are highly price inelastic and external shocks may come from the changes in the prices of such imports. Further research would be quite useful in this respect.

The present study treats commodity exports as exogenous and hence they are insensitive to the price changes. Though attempted, we have not been successful in estimating an aggregate function for commodity exports. Perhaps, some attempt at estimating the supply function for each commodity could be rewarding as it might indicate some supply response to the price changes.

In the case of Malaysia, further exploration is needed on the possible impact of import prices on the domestic inflation as well as on the impact of relative price changes on the supply of non-commodity exports. The present study does not find any evidence on any influence of import prices on inflation or supply response of non-commodity exports to price changes.

The study examined only the implications of alternative monetary policy responses to external shocks, and hence did not look into the effectiveness of exchange rate changes as a policy response to external shock. It would certainly be useful to undertake a sup-

1. Crockett (1981).

plementary study to examine the efficacy of exchange rate policy responses as well.

The present study experimented with a small macroeconomic model and hence certain limitations are unavoidable. Despite the limitations, as pointed out in this chapter, there are sufficient grounds to believe that the conclusions of the study are valid and shed some light into the impact of external shocks and alternative monetary policy responses.

APPENDICES

Table 1.1

Sri Lanka: Dynamic Simulation
Real Expenditure

obs	ACTUAL	SIMUL:	ERROR
1974.4	10982.52	10560.08	-3.846471
1975.1	12006.64	10490.11	-12.63076
1975.2	11831.26	10559.87	-10.74602
1975.3	9817.602	10417.93	6.114814
1975.4	10596.37	10839.15	2.291165
1976.1	9815.662	11306.00	15.18326
1976.2	10585.55	12106.25	14.36581
1976.3	10892.03	11523.18	5.794599
1976.4	11718.08	11617.21	-0.860807
1977.1	11336.98	11547.95	1.860899
1977.2	13685.15	12247.91	-10.50219
1977.3	12430.84	10970.68	-11.74627
1977.4	11131.38	11117.25	-0.126937
1978.1	14927.73	14497.77	-2.880283
1978.2	16231.80	16717.51	2.992336
1978.3	15688.30	17108.84	9.054773
1978.4	16388.17	17823.05	8.755590
1979.1	17443.63	18360.46	5.255959
1979.2	18033.80	19436.25	7.776781
1979.3	17361.86	18255.15	5.145134
1979.4	17970.09	18659.51	3.836486
1980.1	20225.24	19782.56	-2.188749
1980.2	20419.43	20905.77	2.381750
1980.3	19712.50	19163.61	-2.784480
1980.4	21076.11	18916.30	-10.24766
1981.1	20881.51	19992.35	-4.258122
1981.2	21512.73	21025.40	-2.265310
1981.3	20086.87	19302.33	-3.905731
1981.4	19091.70	19718.30	3.282063
1982.1	19609.06	20717.44	5.652381
1982.2	22301.71	22350.66	0.219486
1982.3	22626.82	21047.27	-6.980878
1982.4	22469.71	21427.50	-4.638293

Sri Lanka : Dynamic Simulation
Real Expenditure

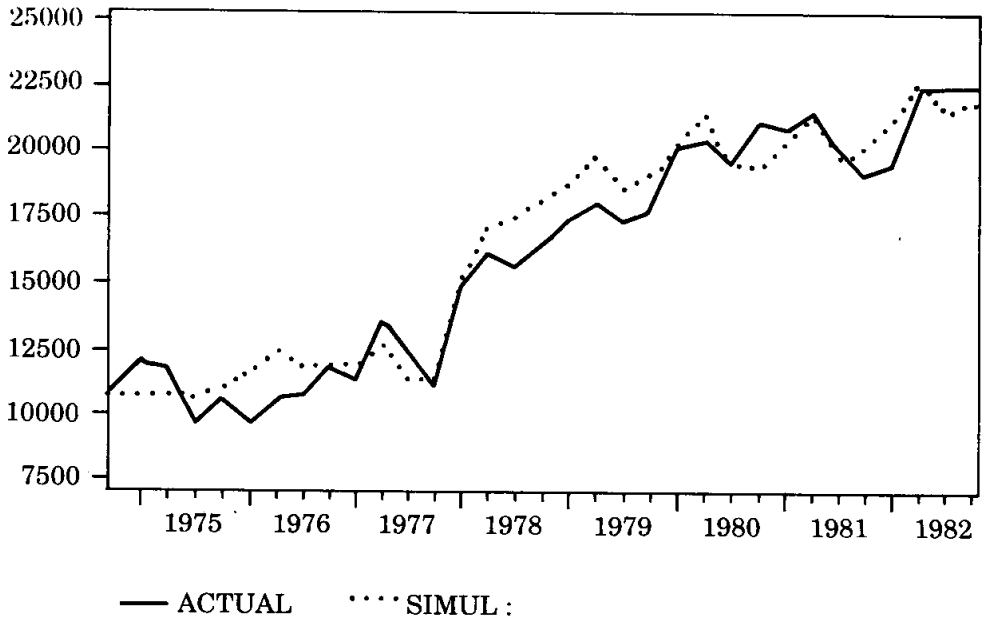

Table 1.2

Sri Lanka: Dynamic Simulation
Level of Prices

obs	ACTUAL	SIMUL:	ERROR
1974.4	0.630404	0.642663	1.944569
1975.1	0.583902	0.639217	9.473220
1975.2	0.620028	0.592782	-4.394223
1975.3	0.701749	0.657718	-6.274449
1975.4	0.691404	0.685819	-0.807701
1976.1	0.750070	0.727968	-2.946636
1976.2	0.726680	0.755838	4.012537
1976.3	0.725156	0.813869	12.23372
1976.4	0.678800	0.813823	19.89139
1977.1	0.742312	0.756284	1.882282
1977.2	0.643968	0.696932	8.224673
1977.3	0.708249	0.645718	-8.828936
1977.4	0.811257	0.682590	-15.86019
1978.1	0.679856	0.660240	-2.885405
1978.2	0.693608	0.651734	-6.037104
1978.3	0.724049	0.740929	2.331347
1978.4	0.728324	0.776016	6.548312
1979.1	0.781789	0.785564	0.482875
1979.2	0.805383	0.797223	-1.013138
1979.3	0.841470	0.841872	0.047749
1979.4	0.886204	0.860472	-2.903565
1980.1	0.935782	0.951418	1.670911
1980.2	0.963676	1.033639	7.260017
1980.3	1.023198	1.106017	8.094132
1980.4	1.080592	1.133211	4.869459
1981.1	1.111629	1.216202	9.407188
1981.2	1.154222	1.266976	9.768830
1981.3	1.246931	1.277693	2.467023
1981.4	1.339934	1.293331	-3.478005
1982.1	1.360184	1.296408	-4.688770
1982.2	1.352574	1.283815	-5.083564
1982.3	1.380596	1.278973	-7.360810
1982.4	1.371729	1.237920	-9.754767

Sri Lanka : Dynamic Simulation
Level of Prices

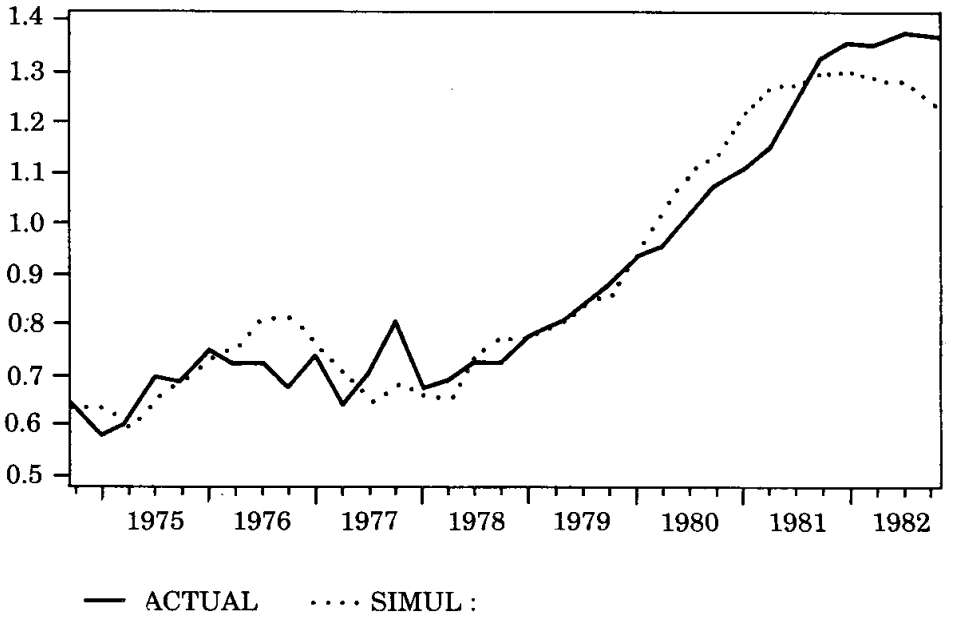

Table 1.3

Sri Lanka: Dynamic Simulation
Volume of Imports of Goods andNon-Factor Services

obs	ACTUAL	SIMUL:	ERROR
1974.4	3310.586	3275.369	-1.063771
1975.1	3938.077	3361.136	-14.65032
1975.2	4255.261	3112.838	-26.84731
1975.3	3136.276	3143.512	0.230722
1975.4	3404.461	3216.631	-5.517168
1976.1	2869.169	3564.651	24.23984
1976.2	2969.534	3638.121	22.51488
1976.3	3186.819	3573.743	12.14138
1976.4	3152.368	3478.140	10.33420
1977.1	3804.009	3634.116	-4.466158
1977.2	3728.565	3744.097	0.416567
1977.3	3123.383	3173.622	1.608481
1977.4	2748.380	2613.961	-4.890843
1978.1	4858.920	4875.769	0.346767
1978.2	6243.721	5943.084	-4.815033
1978.3	5722.909	6621.136	15.69529
1978.4	5916.024	6916.851	16.91723
1979.1	6964.492	7647.834	9.811796
1979.2	7048.728	7841.302	11.24421
1979.3	7188.987	7469.661	3.904226
1979.4	7352.937	7408.337	0.753439
1980.1	9348.375	8558.767	-8.446478
1980.2	8617.887	9031.690	4.801684
1980.3	8945.124	8450.854	-5.525586
1980.4	9475.804	7835.240	-17.31318
1981.1	9026.136	8982.487	-0.483578
1981.2	8720.009	9470.547	8.607081
1981.3	9302.971	8839.862	-4.978070
1981.4	8056.136	8394.834	4.204221
1982.1	8756.641	9374.881	7.060245
1982.2	9859.732	9882.159	0.227458
1982.3	11112.88	9555.828	-14.01124
1982.4	9576.837	9310.898	-2.776893

Sri Lanka : Dynamic Simulation
Volume of Imports of Goods
and Non-Factor Services

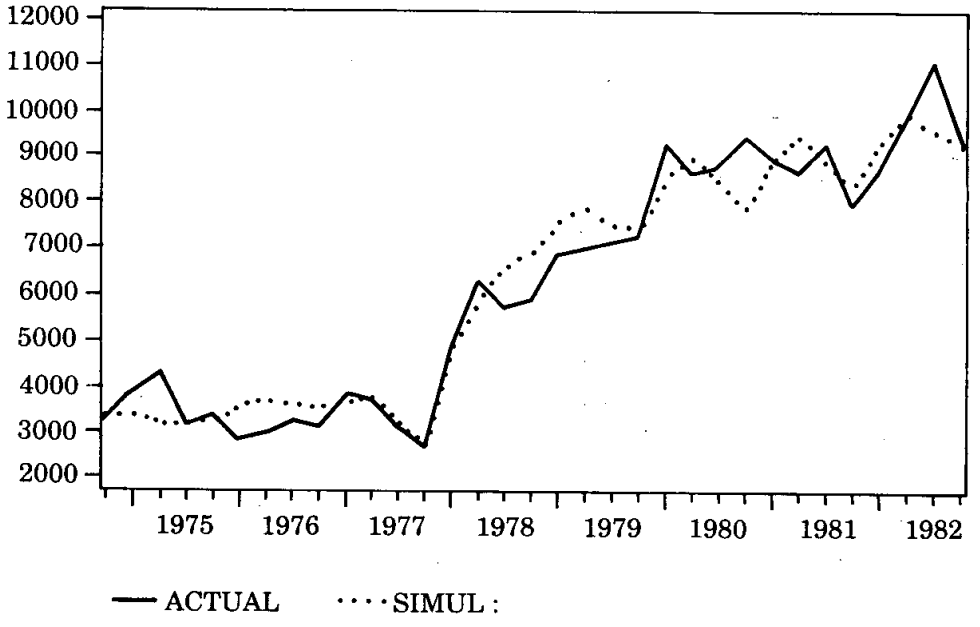

Table 1.4

Sri Lanka: Dynamic Simulation
Volume of Exports of Goods and Non-Factor Services

obs	ACTUAL	SIMUL:	ERROR
1974.4	3885.822	3888.025	0.056690
1975.1	4010.921	3797.146	-5.329821
1975.2	4511.223	4538.369	0.601744
1975.3	4688.555	4508.341	-3.843708
1975.4	4559.824	4591.358	0.691555
1976.1	4725.574	4754.613	0.614498
1976.2	4487.013	4553.240	1.475972
1976.3	4655.776	5032.868	8.099451
1976.4	4255.709	4157.534	-2.306897
1977.1	5014.117	4689.885	-6.466391
1977.2	3544.029	3448.596	-2.692786
1977.3	3732.020	3848.388	3.118095
1977.4	4181.401	4229.673	1.154445
1978.1	4051.515	4220.640	4.174371
1978.2	4432.181	4567.007	3.041971
1978.3	4754.286	5340.531	12.33087
1978.4	4546.426	4871.982	7.160705
1979.1	4643.772	5155.554	11.02083
1979.2	4366.755	4406.884	0.918964
1979.3	5408.315	5643.880	4.355607
1979.4	5193.769	5825.773	12.16850
1980.1	5298.068	5888.495	11.14420
1980.2	4671.481	4700.466	0.620464
1980.3	5998.536	5410.754	-9.798761
1980.4	5453.982	5696.730	4.450841
1981.1	5383.859	5708.822	6.035873
1981.2	4703.414	4747.949	0.946869
1981.3	6968.127	6335.617	-9.077185
1981.4	6971.544	6234.733	-10.56884
1982.1	7546.987	6973.298	-7.601563
1982.2	6282.661	5690.549	-9.424546
1982.3	7531.671	6712.137	-10.88117
1982.4	6469.761	5389.450	-16.69785

Sri Lanka : Dynamic Simulation
Volume of Exports of Goods
and Non-Factor Services

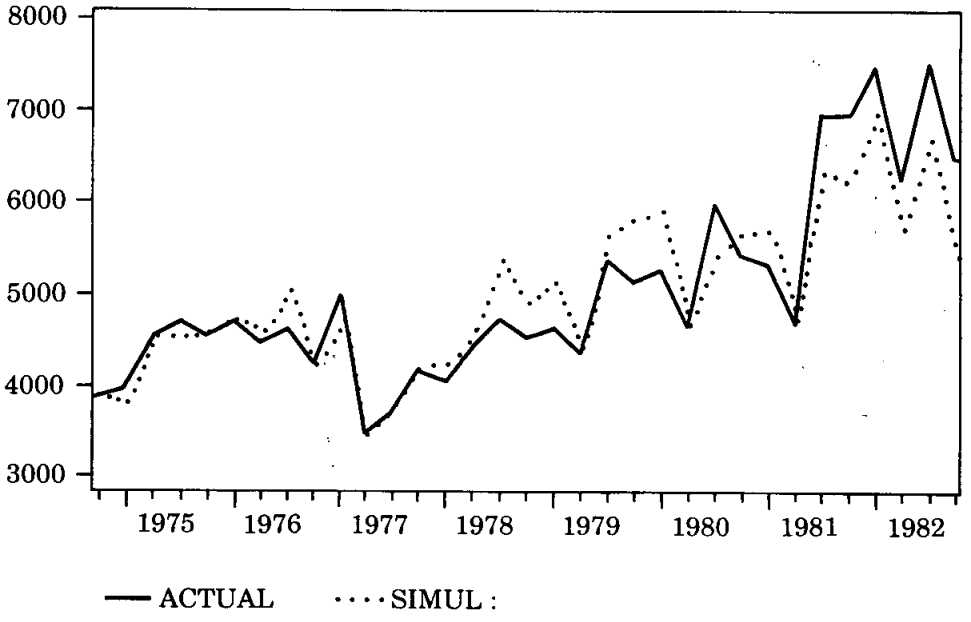

Table 1.5

Sri Lanka: Dynamic Simulation
Real Gross Domestic Product

obs	ACTUAL	SIMUL:	ERROR
1974.4	11931.66	11546.64	-3.226881
1975.1	12126.83	10973.47	-9.510815
1975.2	12253.60	12151.78	-0.830934
1975.3	12378.86	12791.74	3.335363
1975.4	12502.72	12964.87	3.696399
1976.1	12878.73	13702.62	6.397289
1976.2	13089.39	14007.73	7.015918
1976.3	13315.81	13937.12	4.665961
1976.4	13538.59	13013.77	-3.876477
1977.1	13333.66	13390.29	0.424714
1977.2	13380.66	11832.46	-11.57043
1977.3	13435.09	12041.06	-10.37604
1977.4	13495.86	13664.43	1.249045
1978.1	14120.32	13842.64	-1.966532
1978.2	14420.26	15341.43	6.388026
1978.3	14719.68	15828.24	7.531146
1978.4	15018.57	15778.19	5.057872
1979.1	15122.91	15868.19	4.928154
1979.2	15351.83	16001.83	4.234023
1979.3	15581.19	16429.37	5.443606
1979.4	15810.92	17076.95	8.007310
1980.1	16174.93	17112.29	5.795137
1980.2	16473.02	16574.55	0.616349
1980.3	16765.91	16123.51	-3.831587
1980.4	17054.29	16777.79	-1.621293
1981.1	17239.23	16718.68	-3.019571
1981.2	17496.14	16302.80	-6.820595
1981.3	17752.03	16798.08	-5.373747
1981.4	18007.11	17558.20	-2.492961
1982.1	18399.41	18315.86	-0.454095
1982.2	18724.64	18159.05	-3.020565
1982.3	19045.61	18203.57	-4.421172
1982.4	19362.63	17506.05	-9.580471

Sri Lanka : Dynamic Simulation
Real Gross Domestic Product

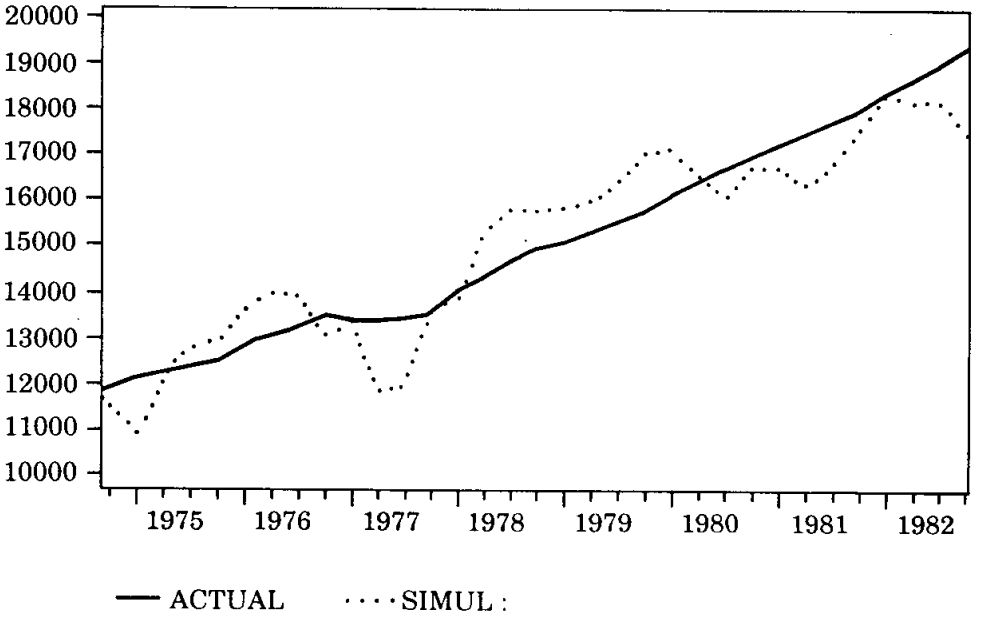

Table 1.6

Sri Lanka: Dynamic Simulation
Money Supply

obs	ACTUAL	SIMUL:	ERROR
1974.4	4568.200	4582.106	0.304404
1975.1	4627.400	4778.642	3.268405
1975.2	4633.400	5227.090	12.81327
1975.3	4650.900	5140.899	10.53557
1975.4	4777.100	5355.574	12.10932
1976.1	5213.200	5499.921	5.497978
1976.2	5627.700	5626.140	-0.027721
1976.3	5908.800	5886.693	-0.374136
1976.4	6320.900	6088.100	-3.683017
1977.1	7049.600	6779.894	-3.825835
1977.2	7528.100	7221.739	-4.069571
1977.3	7871.700	7583.098	-3.666324
1977.4	8716.800	8543.539	-1.987665
1978.1	9975.000	9910.007	-0.651560
1978.2	10180.30	10433.17	2.483916
1978.3	10389.30	10392.85	0.034168
1978.4	10892.10	10349.96	-4.977366
1979.1	12913.50	12217.55	-5.389323
1979.2	13179.10	11868.14	-9.947265
1979.3	13879.10	12526.55	-9.745227
1979.4	15057.60	14190.04	-5.761606
1980.1	16051.80	16512.96	2.872956
1980.2	16414.10	16507.43	0.568597
1980.3	17699.70	17677.66	-0.124517
1980.4	19860.20	21882.56	10.18299
1981.1	21984.10	24451.64	11.22421
1981.2	21681.40	23383.98	7.852722
1981.3	23460.20	24949.24	6.347095
1981.4	24446.80	24720.84	1.120961
1982.1	28240.20	27133.52	-3.918810
1982.2	28739.30	27043.08	-5.902094
1982.3	29781.30	29028.41	-2.528065
1982.4	30509.90	29028.14	-4.856652

Sri Lanka : Dynamic Simulation
Money Supply

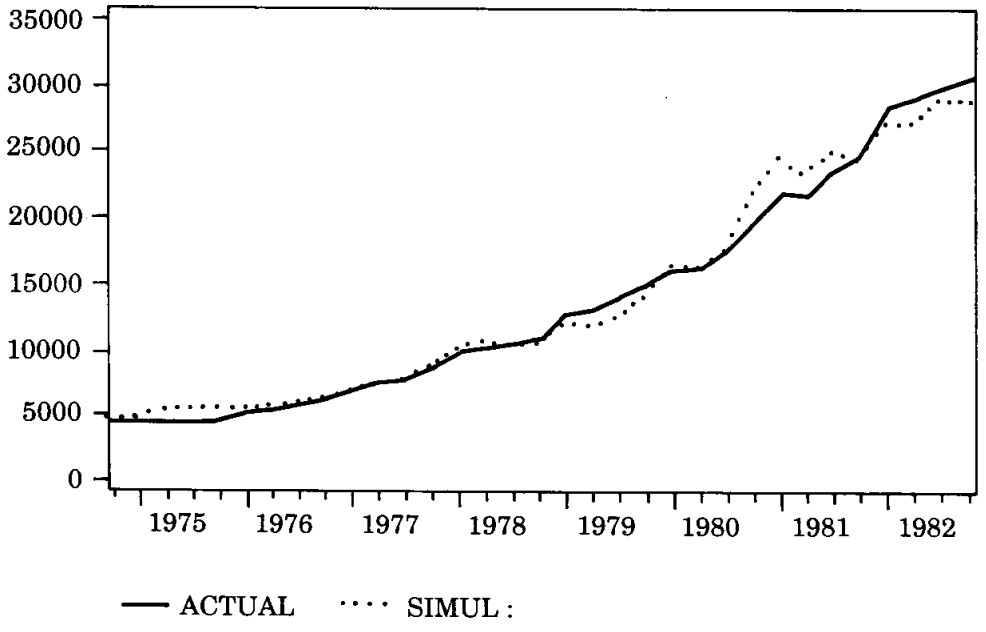

Table 1.7

Sri Lanka: Dynamic Simulation
Balance of Payments

obs	ACTUAL	SIMUL:	ERROR
1974.4	-226.6000	-212.6948	6.136457
1975.1	-115.8000	21.53633	118.5979
1975.2	30.39999	472.8476	1455.420
1975.3	-80.89999	-184.5905	-128.1712
1975.4	-48.20001	40.27452	183.5571
1976.1	213.8000	-78.05374	-136.5078
1976.2	31.90000	-256.2807	-903.3878
1976.3	71.70000	51.15308	-28.65679
1976.4	152.7000	-57.99318	-137.9785
1977.1	70.00000	33.09303	-52.72424
1977.2	227.8000	191.1446	-16.09104
1977.3	888.6000	906.3594	1 998582
1977.4	2410.900	2526.241	4.784150
1978.1	866.9998	975.2671	12.48758
1978.2	-107.3999	210.4673	295.9660
1978.3	593.3003	343.9836	-42.02201
1978.4	531.1997	-14.48987	-102.7278
1979.1	-82.69971	-236.5076	-185.9836
1979.2	269.0996	-345.9089	-228.5431
1979.3	1007.500	965.9143	-4.127612
1979.4	23.80029	508.7941	2037.764
1980.1	-1023.800	304.9177	129.7829
1980.2	-1015.400	-1383.231	-36.22522
1980.3	-118.1997	-233.5637	-97.60093
1980.4	-1019.500	1024.904	200.5301
1981.1	-265.2000	179.9824	167.8667
1981.2	-1632.700	-2397.661	-46.85251
1981.3	889.0000	675.4622	-24.02000
1981.4	318.5000	-896.9045	-381.4771
1982.1	610.3999	-770.3192	-226.1991
1982.2	-1655.000	-2245.042	-35.61112
1982.3	902.7000	1846.034	104.5014
1982.4	-426.0999	-1154.973	-171.0569

Sri Lanka : Dynamic Simulation
Balance of Payments

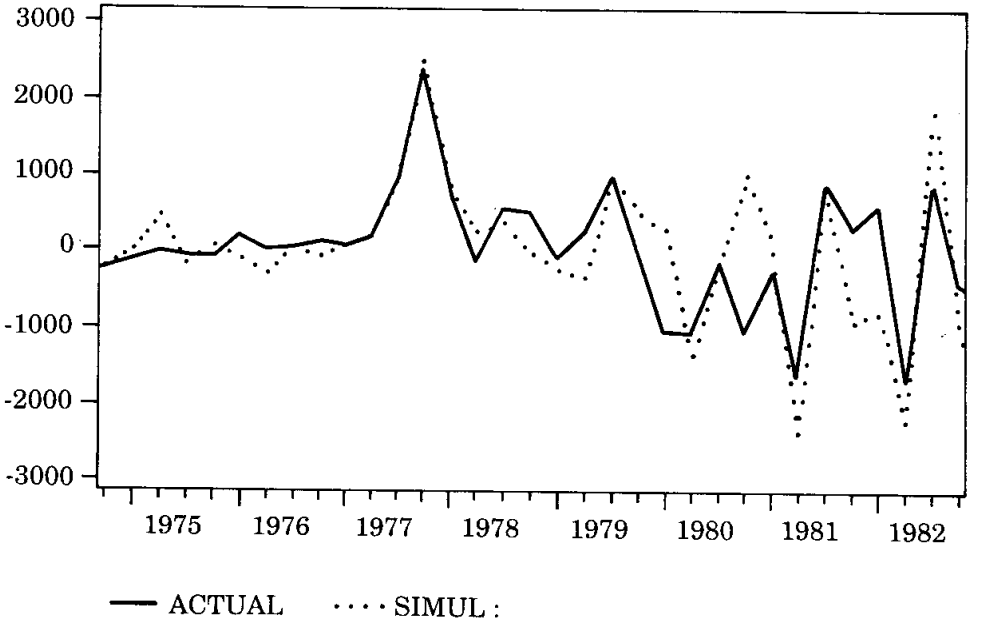

Table 2.1

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	6.527647	-6.795617	0.000000	2.081476	-4.293794	-205.1849
1975.2	0.024054	3.608380	0.147167	0.000000	-0.016868	-3.958280	-1.118292
1975.3	-0.706283	0.352044	-0.524091	-0.214468	-0.521981	-4.005448	0.986496
1975.4	-0.909211	-1.925963	-1.860835	-0.259095	-0.390290	-3.493166	18.83684
1976.1	-0.650011	-2.902203	-2.306057	-0.183477	0.000000	-2.806001	32.15225
1976.2	-0.209893	-2.861959	-1.945678	0.081190	0.350302	-2.124404	34.80470
1976.3	0.174173	-2.269705	-1.229576	0.210171	0.535258	-1.588071	26.03737
1976.4	0.389769	-1.548616	-0.548164	0.276501	0.582849	-1.284869	15.26107
1977.1	0.445882	-0.960724	-0.091325	0.317672	0.520601	-1.051816	6.912872
1977.2	0.400148	-0.570610	0.129696	0.325986	0.468116	-0.966672	1.501291
1977.3	0.329794	-0.350760	0.202005	0.222952	0.318498	-0.919654	0.071899
1977.4	0.215705	-0.326494	0.113199	0.140862	0.197450	-0.804747	0.984131
1978.1	0.125679	-0.364088	-0.011647	0.089485	0.162979	-0.662761	3.074585
1978.2	0.095171	-0.354610	-0.063320	0.057371	0.145363	-0.584674	4.673294
1978.3	0.082708	-0.330849	-0.075973	0.064247	0.142842	-0.525931	6.338898
1978.4	0.080566	-0.294484	-0.064656	0.076009	0.142726	-0.467921	6.224327
1979.1	0.081910	-0.248991	-0.040989	0.075957	0.139141	-0.351217	5.517304
1979.2	0.087104	-0.176446	0.001152	0.065361	0.123234	-0.341834	2.340698
1979.3	0.075097	-0.143611	0.012100	0.053968	0.096424	-0.309343	1.814392
1979.4	0.057716	-0.133088	0.001635	0.042125	0.076721	-0.259198	1.966614
1980.1	0.045791	-0.122308	-0.007633	0.034694	0.068664	-0.206455	2.687897
1980.2	0.041714	-0.100510	-0.004109	0.031340	0.063704	-0.195662	1.791016
1980.3	0.036691	-0.037616	-0.002669	0.028075	0.054456	-0.172313	1.834305
1980.4	0.031553	-0.077919	-0.003141	0.025225	0.045657	-0.131704	1.632935
1981.1	0.028214	-0.062496	0.000196	0.021793	0.041098	-0.111732	1.500838
1981.2	0.025258	-0.049171	0.003722	0.017493	0.035516	-0.114144	0.625971
1981.3	0.020106	-0.046883	0.000287	0.013271	0.027975	-0.103210	0.937500
1981.4	0.015313	-0.047248	-0.005340	0.011904	0.023983	-0.098704	1.352234
1982.1	0.012312	-0.048910	-0.010302	0.010195	0.023044	-0.082736	1.949707
1982.2	0.012391	-0.043930	-0.009062	0.010949	0.023619	-0.076917	1.645996
1982.3	0.012973	-0.038234	-0.006723	0.010112	0.021748	-0.067041	1.337891
1982.4	0.012551	-0.031913	-0.002675	0.011633	0.021384	-0.064007	0.884033

Table 2.2

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Complete Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	6.527647	-6.795617	0.000000	2.081476	0.000000	-205.1849
1975.2	0.434946	5.532437	1.376976	0.000000	0.025258	0.000000	-16.07819
1975.3	-0.343927	3.198361	1.328327	-0.214468	-0.682157	0.000000	-21.63190
1975.4	-0.747570	1.267323	0.071839	-0.341749	-0.763911	0.000000	-7.613991
1976.1	-0.748540	0.093947	-0.694400	-0.453866	-0.594485	0.000000	3.617523
1976.2	-0.556571	-0.440183	-0.891701	-0.225736	-0.322827	0.000000	11.15050
1976.3	-0.306854	-0.523529	-0.719133	-0.075015	-0.096289	0.000000	10.80669
1976.4	-0.102177	-0.384358	-0.418441	0.002044	0.021289	0.000000	7.221710
1977.1	0.012211	-0.206622	-0.163920	0.045991	0.071093	0.000000	3.568489
1977.2	0.058787	-0.060389	-0.001226	0.065449	0.080288	0.000000	0.731796
1977.3	0.065355	0.031698	0.079182	0.046127	0.053406	0.000000	-0.527771
1977.4	0.045511	0.062758	0.089373	0.022534	0.026936	0.000000	-1.105957
1978.1	0.022768	0.058680	0.066856	0.004142	0.001594	0.000000	-2.143982
1978.2	0.002932	0.035338	0.032239	-0.004875	-0.010688	0.000000	-1.551498
1978.3	-0.007534	0.011705	0.004196	-0.008594	-0.012927	0.000000	-0.548401
1978.4	-0.009994	0.003840	-0.010871	-0.008519	-0.009191	0.000000	0.285040
1979.1	-0.007521	-0.009841	-0.014110	-0.004773	-0.003533	0.000000	0.674103
1979.2	-0.003346	-0.008456	-0.010007	-0.001019	0.000561	0.000000	0.605316
1979.3	0.000000	-0.004467	-0.004020	0.000978	0.002140	0.000000	0.305603
1979.4	0.001497	-0.000755	0.000382	0.001425	0.011990	0.000000	0.046600
1980.1	0.001619	0.001222	0.002282	0.001136	0.001119	0.000000	-0.111481
1980.2	0.000962	0.001649	0.002184	0.000519	0.000118	0.000000	-0.166016
1980.3	0.000163	0.001089	0.001144	0.000000	-0.000369	0.000000	-0.098801
1980.4	-0.000217	0.000063	0.001187	-0.000231	-0.000349	0.000000	-0.028076
1981.1	-0.000303	-8.82D-06	-0.000283	-0.000205	-0.000234	0.000000	0.012299
1981.2	-0.000195	-0.000320	-0.000382	-0.000113	-5.99D-05	0.000000	0.033936
1981.3	-0.000101	-0.000233	-0.000287	0.000000	5.81D-06	0.000000	0.028076
1981.4	0.000000	-0.000157	-9.31D-06	4.700806	6.67D-06	0.000000	0.012939
1982.1	0.000000	-8.28D-06	0.000000	5.60D-06	0.000000	0.000000	0.003906
1982.2	0.000000	7.43D-05	0.000000	5.15D-05	0.000000	0.000000	0.002930
1982.3	0.000000	0.000000	0.000000	4.36D-06	5.36D-06	0.000000	0.003908
1982.4	9.12D-05	7.70D-06	9.44D-05	0.000000	5.58D-06	0.000000	-0.011963

Table 2.3

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Partial Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	6.527647	-6.795617	0.000000	2.081476	-2.146912	-205.1849
1975.2	0.231539	4.576542	0.766922	0.000000	0.004685	-2.048383	-8.954095
1975.3	-0.529848	1.750218	0.388037	-0.214468	-0.602501	-2.181447	-10.15070
1975.4	-0.843793	-0.418507	-0.949973	-0.300911	-0.576407	-2.035062	6.314529
1976.1	-0.722713	-1.573542	-1.606664	-0.318052	-0.288708	-1.801328	19.83847
1976.2	-0.408549	-1.905139	-1.574883	-0.067056	0.034189	-1.532068	25.74760
1976.3	-0.085129	-1.720917	-1.166535	0.078973	0.257301	-1.277287	22.01246
1976.4	0.141341	-1.324618	-0.682576	0.160477	0.359933	-1.110950	15.10888
1977.1	0.246713	-0.939539	-0.307941	0.210902	0.373033	-0.931681	8.940350
1977.2	0.269187	-0.629082	-0.071310	0.254427	0.375407	-0.847728	3.893189
1977.3	0.256508	-0.411092	0.060873	0.195978	0.280291	-0.795747	1.757141
1977.4	0.189432	-0.340972	0.051687	0.130426	0.187059	-0.694455	2.022949
1978.1	0.123403	-0.334667	-0.013459	0.095675	0.163120	-0.581946	3.320923
1978.2	0.099423	-0.303440	-0.036914	0.060567	0.140665	-0.535214	3.647293
1978.3	0.081658	-0.284239	-0.051010	0.062209	0.130589	-0.513142	5.004791
1978.4	0.070912	-0.272371	-0.059510	0.006061	0.127135	-0.487925	5.660753
1979.1	0.066879	-0.257504	-0.068630	0.066259	0.127109	-0.387882	5.212097
1979.2	0.073467	-0.206681	-0.029454	0.059167	0.119988	-0.382112	4.075501
1979.3	0.067928	-0.180394	-0.017741	0.053060	0.101773	-0.347262	3.695313
1979.4	0.057884	-0.166268	-0.018870	0.045796	0.087083	-0.294289	3.473785
1980.1	0.050747	-0.147758	-0.018028	0.041112	0.081881	-0.241146	3.891615
1980.2	0.049030	-0.118997	-0.006974	0.038363	0.076501	-0.234080	2.360962
1980.3	0.043784	-0.103708	-0.003247	0.034103	0.065183	-0.212243	2.227707
1980.4	0.037005	-0.095129	-0.005440	0.030162	0.054539	-0.166666	2.097900
1981.1	0.032913	-0.079757	-0.003240	0.025907	0.049942	-0.144777	2.127701
1981.2	0.029772	-0.065665	0.000289	0.021165	0.044411	-0.148823	1.192871
1981.3	0.024295	-0.063631	-0.003624	0.016601	0.036137	-0.136355	1.561707
1981.4	0.019266	-0.064180	-0.009725	0.015413	0.031725	-0.133491	2.038391
1982.1	0.015734	-0.066878	-0.015636	0.013598	0.030956	-0.116424	2.813110
1982.2	0.016018	-0.061851	-0.014398	0.014611	0.032213	-0.112227	2.476074
1982.3	0.016583	-0.056372	-0.011160	0.013807	0.030160	-0.100763	2.194946
1982.4	0.016471	-0.049767	-0.007730	0.016217	0.029298	-0.097905	1.661011

Table 2.4

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Contractionary Monetary Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	6.527647	-6.795617	0.000000	2.081476	-8.587588	-205.1849
1975.2	-0.403984	1.633556	-1.123278	0.000000	-0.063367	-7.348978	13.11621
1975.3	-1.026879	-2.285267	-2.256391	-0.214468	-0.357424	-6.610922	22.13800
1975.4	-0.943709	-4.407656	-3.342788	-0.172209	-0.020669	-4.867884	39.57895
1976.1	-0.373428	-4.617182	-3.100410	0.080614	0.526537	-2.952271	49.16686
1976.2	0.297448	-3.502365	-1.896308	0.343334	0.661236	-1.508653	38.74510
1976.3	0.720118	-1.975156	-0.548468	0.403684	0.881814	-0.812047	18.53795
1976.4	0.791323	-0.767610	0.338947	0.393934	0.741680	-0.702077	2.529938
1977.1	0.640891	-0.128496	0.654711	0.342295	0.494907	-0.789336	-5.385059
1977.2	0.399247	0.003515	0.535485	0.245783	0.315489	-0.900919	-5.772705
1977.3	0.206009	-0.115486	0.264802	0.098903	0.149488	-0.924200	-2.510803
1977.4	0.067551	-0.331655	-0.024555	0.033109	0.069895	-0.793671	1.136963
1978.1	0.014004	-0.467826	-0.197224	0.024827	0.091747	-0.534222	7.432739
1978.2	0.044022	-0.419854	-0.181137	0.039302	0.129914	-0.332492	9.123001
1978.3	0.087674	-0.275704	-0.070730	0.068619	0.147580	-0.213413	6.254883
1978.4	0.108675	-0.127264	0.038339	0.086993	0.132773	-0.194398	1.031880
1979.1	0.096399	-0.045153	0.084442	0.071818	0.094086	-0.202737	-2.323898
1979.2	0.064464	-0.032912	0.067364	0.040874	0.056555	-0.256061	-2.812988
1979.3	0.028866	-0.079643	0.007629	0.019224	0.035248	-0.235656	0.432495
1979.4	0.012707	-0.115777	-0.036699	0.011022	0.033500	-0.166875	2.917297
1980.1	0.016123	-0.109384	-0.039479	0.014843	0.043486	-0.095025	3.996796
1980.2	0.026364	-0.067237	-0.009245	0.021794	0.046935	-0.073298	1.797974
1980.3	0.032308	-0.030740	0.016915	0.023030	0.037273	-0.070147	-0.150497
1980.4	0.025740	-0.016411	0.022129	0.018428	0.024982	-0.065076	-0.923035
1981.1	0.016461	-0.016036	0.014025	0.010948	0.015911	-0.063390	-0.629410
1981.2	0.009039	-0.022657	0.002011	0.006681	0.012148	-0.065257	0.119873
1981.3	0.005130	-0.030444	-0.007821	0.003784	0.011488	-0.052826	1.040894
1981.4	0.006319	-0.030315	-0.009539	0.004514	0.012136	-0.042956	1.280945
1982.1	0.006571	-0.025609	-0.006583	0.005553	0.012946	-0.030513	1.170837
1982.2	0.008232	-0.016825	-0.000573	0.006641	0.012490	-0.027474	0.426025
1982.3	0.007988	-0.010943	0.002953	0.005572	0.009667	-0.025150	0.063965
1982.4	0.006162	-0.008725	0.002947	0.005155	0.007598	-0.025527	-0.061025

Table 3.1

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	0.000000	0.000000	3.582622	171.2015
1975.2	0.329363	1.486752	0.983766	0.000000	0.034147	3.055512	-11.48679
1975.3	0.271167	2.170665	1.426464	0.000000	-0.129692	2.767938	-17.41740
1975.4	0.080996	2.310341	1.385082	-0.067297	-0.299811	2.300064	-19.11431
1976.1	-0.122947	2.051055	1.056715	-0.210764	-0.449404	1.882865	-19.62698
1976.2	-0.280516	1.599324	0.633510	-0.223517	-0.479597	1.575219	-14.93051
1976.3	-0.335236	1.184030	0.310991	-0.194978	-0.427275	1.339803	-9.753689
1976.4	-0.311180	0.889467	0.140968	-0.179996	-0.372907	1.193150	-6.230240
1977.1	-0.262298	0.703543	0.074214	-0.178742	-0.308956	1.008273	-4.278999
1977.2	-0.213748	0.572183	0.051820	0.183838	-0.291232	0.907565	-2.817505
1977.3	-0.185856	0.468766	0.030117	-0.143589	-0.223146	0.833049	-2.371582
1977.4	-0.139783	0.434650	0.056852	-0.113664	-0.159830	0.699359	-3.420858
1978.1	-0.102009	0.411971	0.090340	-0.093453	-0.167162	0.543770	-5.862366
1978.2	-0.105160	0.327612	0.057043	-0.068789	-0.157152	0.470611	-4.792099
1978.3	-0.100186	0.256421	0.023938	-0.073994	-0.143292	0.432896	-4.110718
1978.4	-0.088544	0.210855	0.008775	-0.076169	-0.127457	0.403770	-3.200911
1979.1	-0.075166	0.185476	0.007923	-0.064961	-0.111988	0.317087	-3.067495
1979.2	-0.068734	0.147490	-0.002472	-0.050126	-0.096052	0.312187	-1.692506
1979.3	-0.055603	0.136411	0.003719	-0.040576	-0.077415	0.278292	-2.190796
1979.4	-0.043941	0.131488	0.014500	-0.033609	-0.065810	0.227410	-2.589996
1980.1	-0.038623	0.116914	0.015735	-0.030623	-0.063049	0.176767	-3.079285
1980.2	-0.038790	0.089496	0.003709	-0.029626	-0.059367	0.166651	-1.681030
1980.3	-0.035376	0.072419	-0.002866	-0.026667	-0.049490	0.148437	-1.276489
1980.4	-0.029396	0.063002	-0.002287	-0.023048	-0.039871	0.115157	-1.044067
1981.1	-0.024912	0.051802	-0.002577	-0.018757	-0.034755	0.098760	-1.052200
1981.2	-0.021263	0.042463	-0.003145	-0.014470	-0.029807	0.101089	-0.511231
1981.3	-0.016524	0.042265	0.001436	-0.010975	0.023870	0.090982	-0.939392
1981.4	-0.012887	0.042832	0.006293	-0.010056	-0.021068	0.086450	-1.325256
1982.1	-0.010757	0.043577	0.009636	-0.008935	-0.020527	0.072198	-1.777466
1982.2	-0.011142	0.038554	0.007728	-0.009816	-0.021038	0.067153	-1.429932
1982.3	-0.011544	0.032921	0.004476	-0.009079	-0.019012	0.058698	-1.126099
1982.4	-0.010874	0.028023	0.002286	-0.010301	-0.017717	0.056014	-0.771954

Table 3.2

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports under Partial Sterilization

(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	0.000000	0.000000	1.791326	171.2015
1975.2	0.166008	0.747162	0.495052	0.000000	0.017359	1.582352	-5.780182
1975.3	0.141583	1.111251	0.731635	0.000000	-0.064495	1.522012	-3.933594
1975.4	0.053418	1.228996	0.742699	-0.033978	-0.151642	1.365692	-10.20800
1976.1	-0.044846	1.158666	0.615123	-0.108232	-0.234480	1.228058	-11.19847
1976.2	-0.125387	0.990438	0.434177	-0.118359	-0.259573	1.115199	-9.596710
1976.3	-0.159766	0.824529	0.290148	-0.108176	-0.245459	1.002551	-7.452438
1976.4	-0.159415	0.693132	0.203531	-0.107063	-0.230908	0.922073	-5.759121
1977.1	-0.147297	0.595665	0.155280	-0.116711	-0.210077	0.793952	-4.614419
1977.2	-0.135698	0.502934	0.116427	-0.133008	-0.216103	0.722638	-3.283508
1977.3	-0.132803	0.414295	0.072689	-0.113862	-0.176561	0.671138	-2.588745
1977.4	-0.108661	0.374381	0.070395	-0.095747	-0.131507	0.516493	-3.281006
1978.1	-0.083115	0.349093	0.084412	-0.080982	-0.141516	0.470316	-5.288269
1978.2	-0.087156	0.281784	0.053790	-0.059402	-0.133491	0.426041	-4.333206
1978.3	-0.082240	0.230888	0.029948	-0.063150	-0.122759	0.408550	-3.986115
1978.4	-0.072271	0.202959	0.022886	-0.065315	-0.111866	0.392948	-3.578140
1979.1	-0.062209	0.189422	0.025564	-0.057310	-0.103040	0.317167	-3.834808
1979.2	-0.060253	0.157149	0.013942	-0.046558	-0.092867	0.315410	-2.613709
1979.3	-0.051708	0.146110	0.015244	-0.039935	-0.078092	0.287312	-2.904236
1979.4	-0.043083	0.140236	0.021559	-0.034707	-0.068280	0.242709	-3.100189
1980.1	-0.038880	0.126180	0.020995	-0.032306	-0.066553	0.197655	-3.593689
1980.2	-0.039556	0.100717	0.008953	-0.031465	-0.063715	0.191013	-2.218018
1980.3	-0.036629	0.085536	0.002762	-0.028643	-0.054577	0.173098	-1.874695
1980.4	-0.031295	0.075772	0.003047	-0.025397	-0.045296	0.136131	-1.634033
1981.1	-0.027559	0.064055	0.001142	-0.021562	-0.040911	0.118514	-1.617203
1981.2	-0.024589	0.052728	-0.001237	-0.017257	-0.036007	0.122087	-0.868164
1981.3	-0.019741	0.051810	0.002773	-0.013356	-0.029172	0.111946	-1.243530
1981.4	-0.015571	0.052732	0.008213	-0.012397	-0.025796	0.109583	-1.678406
1982.1	-0.012793	0.055071	0.013073	-0.010979	-0.025326	0.095563	-2.321716
1982.2	-0.013064	0.050866	0.011928	-0.012056	-0.026330	0.092113	-2.040039
1982.3	-0.013725	0.046128	0.008963	-0.011327	-0.024720	0.082779	-1.777100
1982.4	-0.013445	0.041110	0.006387	-0.013327	-0.023998	0.080404	-1.371948

Table 3.3

Sri Lanka: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports under Expansionary Monetary Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	0.000000	0.000000	7.165275	171.2015
1975.2	0.648590	2.943881	1.943243	0.000000	0.065834	5.682340	-22.69058
1975.3	0.496646	4.140291	2.710949	0.000000	-0.261735	4.489854	-33.10111
1975.4	0.067716	4.059859	2.393589	-0.132073	-0.584121	3.064783	-33.34057
1976.1	-0.357776	3.138135	1.494903	-0.400033	-0.822835	1.916646	-29.36216
1976.2	-0.640746	1.921763	0.497895	-0.398443	-0.812623	1.311895	-15.80161
1976.3	-0.675769	0.978449	-0.149310	-0.314175	-0.633846	1.103439	-4.426140
1976.4	-0.531362	0.498181	-0.345096	-0.245753	-0.460585	1.090418	0.715271
1977.1	-0.353308	0.360299	-0.266584	-0.189935	-0.298817	1.018673	1.340019
1977.2	-0.206564	0.385792	-0.092170	-0.144434	-0.226750	0.953082	-0.117706
1977.3	-0.129705	0.433550	0.041587	-0.090896	-0.158207	0.859462	-1.827759
1977.4	-0.082932	0.419534	0.135961	-0.074679	-0.116578	0.669320	-3.994873
1978.1	-0.068350	0.461561	0.161964	-0.075846	-0.151776	0.420326	-7.764282
1978.2	-0.102403	0.317470	0.070016	-0.068073	-0.158979	0.297223	-5.325394
1978.3	-0.115323	0.176458	-0.023746	-0.079278	-0.141522	0.261335	-1.925323
1978.4	-0.101333	0.094121	-0.065030	-0.076991	-0.109774	0.277298	0.771810
1979.1	-0.071570	0.079525	-0.050055	-0.053615	0.076195	0.250296	0.940903
1979.2	-0.046044	0.087715	-0.017828	-0.030359	-0.055554	0.258085	0.022400
1979.3	-0.027176	0.112855	0.018689	-0.020305	-0.045650	0.209719	-2.181213
1979.4	-0.022777	0.115493	0.031762	-0.018674	-0.045085	0.143270	-2.972595
1980.1	-0.027447	0.089650	0.018404	-0.022099	-0.048553	0.089501	-2.776093
1980.2	-0.033390	0.049050	-0.008109	-0.024308	-0.044590	0.084514	-0.415039
1980.3	-0.030158	0.026849	-0.020026	-0.020990	-0.032373	0.084963	0.529907
1980.4	-0.020784	0.024174	-0.014209	-0.014923	-0.021874	0.072564	0.427002
1981.1	-0.013355	0.026141	-0.004773	-0.009143	0.016507	0.063590	-0.164307
1981.2	-0.009280	0.028020	0.002104	-0.006181	-0.014963	0.061582	-0.574219
1981.3	-0.007457	0.029660	0.006010	-0.005179	-0.013639	0.049984	-0.965698
1981.4	-0.007459	0.026748	0.005630	-0.005850	-0.013148	0.042593	-0.971680
1982.1	-0.007627	0.022446	0.003333	-0.005875	-0.012604	0.032658	-0.832764
1982.2	-0.007917	0.016278	-8.89D-05	-0.006255	-0.011627	0.030355	-0.328125
1982.3	-0.007173	0.012201	-0.001819	-0.005027	-0.009120	0.027250	-0.150024
1982.4	-0.005551	0.010901	-0.001154	-0.004847	-0.007654	0.026348	-0.127930

Table 4.1

Sri Lanka: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	-3.690612	-1.277077	-3.141818	-150.1362
1975.2	-0.933248	-2.378073	-1.978866	-0.799713	-0.602792	-3.726623	-44.65750
1975.3	-0.743235	-3.432169	-2.656676	-0.809004	-0.237580	-3.555253	12.02161
1975.4	-0.380195	-3.674343	-2.546056	-0.270070	0.218130	-2.900645	27.42575
1976.1	0.055108	-3.175578	-1.873814	0.115913	0.573247	-2.265175	30.76521
1976.2	0.391036	-2.331964	-1.028282	0.299666	0.702465	-1.804061	23.08160
1976.3	0.531283	-1.539687	-0.362391	0.294975	0.638722	-1.505406	12.88020
1976.4	0.499343	-1.002748	-0.018601	0.270664	0.537284	-1.356201	6.052231
1977.1	0.401451	-0.709706	0.084231	0.250737	0.411190	-1.176654	2.791950
1977.2	0.295235	-0.567129	0.062286	0.231285	0.353264	-1.083419	1.533997
1977.3	0.226153	-0.492618	0.021740	0.161315	0.251889	-1.007296	1.857544
1977.4	0.152828	-0.500805	-0.063502	0.119586	0.173516	-0.851178	3.663086
1978.1	0.104643	-0.504659	-0.130769	0.098579	0.185730	-0.659273	7.387207
1978.2	0.113057	-0.416013	-0.096850	0.076968	0.183620	-0.561189	6.781403
1978.3	0.115734	-0.324953	-0.047094	0.086083	0.174499	-0.507269	5.826477
1978.4	0.108620	-0.257017	-0.014210	0.094540	0.158063	-0.469280	4.151960
1979.1	0.095250	-0.215128	-0.002381	0.081791	0.137885	-0.369793	3.384796
1979.2	0.086129	-0.165777	0.012797	0.062048	0.115484	-0.368297	1.471497
1979.3	0.067436	-0.155052	0.001804	0.048466	0.090753	-0.331218	2.214111
1979.4	0.051342	-0.153626	-0.015924	0.038797	0.076195	-0.271668	2.938294
1980.1	0.044073	-0.139919	-0.020698	0.035101	0.073401	-0.210807	3.739502
1980.2	0.044676	-0.108733	-0.007450	0.034446	0.070102	-0.197425	2.221924
1980.3	0.041593	-0.087703	0.001525	0.031657	0.059229	-0.174854	1.675706
1980.4	0.035312	-0.075099	0.002667	0.027754	0.047985	-0.135453	1.255991
1981.1	0.030011	-0.060516	0.004001	0.022708	0.041577	-0.116357	1.185089
1981.2	0.025536	-0.049491	0.004671	0.017390	0.035330	-0.119439	0.521973
1981.3	0.019630	-0.049468	-0.001138	0.012986	0.028103	-0.107703	1.056458
1981.4	0.015155	-0.050722	-0.007340	0.011841	0.024717	-0.102425	1.551941
1982.1	0.012501	-0.051917	-0.011813	0.010496	0.024185	-0.085428	2.143921
1982.2	0.013064	-0.045880	-0.009536	0.011618	0.024889	-0.079279	1.738037
1982.3	0.013641	-0.039249	-0.015529	0.010723	0.022682	-0.069174	1.359985
1982.4	0.013016	-0.032963	-0.002580	0.012186	0.021075	-0.066073	0.903078

Table 4.2

Sri Lanka: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Complete Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	-3.690612	-1.277077	0.000000	-150.1362
1975.2	-0.637418	-1.062730	-1.104776	-0.799713	-0.569634	0.000000	-54.86389
1975.3	-0.398539	-1.089166	-1.102811	-0.809004	-0.338659	0.000000	-6.951294
1975.4	-0.200481	-0.913791	-0.828071	-0.330210	-0.079218	0.000000	4.174690
1976.1	-0.021050	-0.597113	-0.453475	-0.111764	0.061811	0.000000	5.255249
1976.2	0.079625	-0.295989	-0.143426	0.030702	0.116077	0.000000	3.016998
1976.3	0.112299	-0.075668	0.049891	0.046928	0.097004	0.000000	0.182640
1976.4	0.093048	0.036576	0.119581	0.037594	0.063169	0.000000	-1.254791
1977.1	0.059230	0.073918	0.116316	0.022759	0.027480	-1.44D-05	-1.598410
1977.2	0.026695	0.065751	0.079487	0.006237	0.004308	-1.35D-05	-1.185715
1977.3	0.004923	0.041723	0.039572	-0.006363	-0.007972	-1.29D-05	-0.660156
1977.4	-0.006114	0.017578	0.009601	-0.009662	-0.009877	-1.14D-05	-0.375977
1978.1	-0.008689	0.001968	-0.005929	-0.008179	-0.009531	-9.85D-06	-0.043884
1978.2	-0.007839	-0.006795	-0.012028	-0.004052	-0.005080	0.000000	0.379105
1978.3	-0.004441	-0.008109	-0.010575	-0.001829	-0.001074	0.000000	0.458679
1978.4	-0.001293	-0.005592	-0.006015	0.000170	0.001139	0.000000	0.331360
1979.1	0.000702	-0.002299	-0.001622	0.001222	0.001951	0.000000	0.147797
1979.2	0.001337	0.000374	0.001152	0.001163	0.001373	0.000000	-0.030609
1979.3	0.001145	0.001366	0.001902	0.000692	0.000618	0.000000	-0.090027
1979.4	0.000586	0.001358	0.001529	0.000134	0.000000	0.000000	-0.091095
1980.1	9.87D-05	0.000846	0.000764	-0.000108	-0.000285	0.000000	-0.066284
1980.2	-0.000187	0.000300	8.65D-05	-0.000229	-0.000365	0.000000	-0.019043
1980.3	-0.000306	-8.62D-05	-0.000381	-0.000144	-0.000182	0.000000	0.023911
1980.4	-0.000217	-0.000358	-0.000386	-5.14D-05	-5.82D-05	0.000000	0.029907
1981.1	-9.77D-05	-0.000167	-0.000185	0.000000	0.000000	0.000000	0.018387
1981.2	0.000000	-7.53D-05	-9.28D-05	6.17D-05	5.99D-05	0.000000	0.012939
1981.3	0.000000	7.46D-05	0.000000	4.62D-05	5.81D-05	0.000000	0.003296
1981.4	0.000000	0.000000	0.000000	4.70D-05	0.000000	0.000000	0.003540
1982.1	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982.2	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982.3	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1982.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000

Table 4.3

Sri Lanka: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Partial Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	-3.690612	-1.277077	-1.570904	-150.1362
1975.2	-0.784293	-1.717335	-1.539264	-0.799713	-0.585924	-1.912400	-49.79050
1975.3	-0.574009	-2.277591	-1.889386	-0.809004	-0.288310	-1.918648	2.652695
1975.4	-0.302515	-2.361861	-1.729795	-0.300411	0.069803	-1.689163	16.34435
1976.1	-0.002919	-2.023536	-1.251033	0.002526	0.323950	-1.468789	19.36751
1976.2	0.212861	-1.526923	-0.718587	0.169254	0.425616	-1.298973	15.39680
1976.3	0.304863	-1.082730	-0.320869	0.180270	0.399506	-1.159967	9.596970
1976.4	0.293787	-0.786902	-0.119314	0.171857	0.349097	-1.074883	5.687351
1977.1	0.245148	-0.620136	-0.052831	0.168050	0.284612	-0.337688	3.733490
1977.2	0.193990	-0.518611	-0.045482	0.168214	0.264187	-0.862670	2.547699
1977.3	0.164172	-0.444904	-0.041087	0.129303	0.201727	-0.806140	2.338501
1977.4	0.121521	-0.429804	-0.076279	0.103136	0.145343	-0.694798	3.541016
1978.1	0.088153	-0.420801	-0.112863	0.087334	0.158718	-0.566495	6.442688
1978.2	0.094937	-0.350604	-0.082464	0.066833	0.155268	-0.510195	5.817795
1978.3	0 .094158	-0.289002	-0.049963	0.074469	0.147772	-0.486005	5.434784
1978.4	0.086626	-0.249274	-0.033285	0.079767	0.137019	-0.465506	4.657772
1979.1	0.077006	-0.226434	-0.029458	0.071184	0.126352	-0.375445	4.621903
1979.2	0.074804	-0.183997	-0.012199	0.057549	0.112676	-0.374188	2.908814
1979.3	0.063328	-0.170423	-0.014126	0.048466	0.093440	-0.341517	3.240906
1979.4	0.051718	-0.164668	-0.023648	0.041228	0.080815	-0.288935	3.557282
1980.1	0.045899	-0.149767	-0.024794	0.038019	0.078548	-0.235457	4.237915
1980.2	0.046451	-0.120439	-0.011537	0.037023	0.075346	-0.227348	2.694946
1980.3	0.043101	-0.102706	-0.004391	0.033985	0.064941	-0.205746	2.320313
1980.4	0.037212	-0.092131	-0.004101	0.030385	0.054189	-0.161641	1.993896
1981.1	0.032913	-0.076219	-0.001435	0.025856	0.048984	-0.140687	1.944595
1981.2	0.029392	-0.062824	0.001526	0.020743	0.043063	-0.144889	1.039795
1981.3	0.023627	-0.061438	-0.003049	0.015984	0.034823	-0.132871	1.461060
1981.4	0.018562	-0.062474	-0.009446	0.014786	0.030646	-0.130133	1.967590
1982.1	0.015159	-0.065572	-0.015636	0.013094	0.030146	-0.113436	2.774231
1982.2	0.015659	-0.060607	-0.014210	0.014364	0.031493	-0.109309	2.429932
1982.3	0.016397	-0.054964	-0.010679	0.013494	0.029549	-0.098180	2.120972
1982.4	0.016197	-0.048390	-0.007258	0.015846	0.028562	-0.095462	1.592041

Table 4.4

Sri Lanka: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Contractionary Monetary Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B Rs.mn.
1974.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1975.1	0.000000	0.000000	0.000000	-3.690612	-1.277077	-6.283626	-150.1362
1975.2	-1.237993	-3.718423	-2.873645	-0.799713	-0.638345	-7.053464	-34.20938
1975.3	-1.061149	-5.634606	-4.128916	-0.809004	-0.134700	-6.004686	29.99780
1975.4	-0.461291	-5.895375	-3.919570	-0.207761	0.513158	-4.035169	46.29436
1976.1	0.282414	-4.715304	-2.624519	0.339165	1.033526	-2.261615	45.86090
1976.2	0.847412	-2.867613	-0.973222	0.534078	1.158784	-1.271713	26.41840
1976.3	1.014218	-1.260489	0.253545	0.468599	0.942879	-1.009278	6.067810
1976.4	0.833329	-0.381150	0.717743	0.372794	0.671217	-1.120959	-4.415989
1977.1	0.543733	-0.138158	0.630446	0.270269	0.392447	-1.189091	-6.186499
1977.2	0.278739	-0.255786	0.294944	0.167895	0.244156	-1.194581	-2.825409
1977.3	0.126616	-0.448846	-0.010970	0.073381	0.141686	-1.107373	1.148132
1977.4	0.051001	-0.608551	-0.219627	0.054073	0.100190	-0.864928	5.039063
1978.1	0.042841	-0.633422	-0.281336	0.070744	0.165504	-0.510355	11.66003
1978.2	0.108267	-0.445096	-0.145242	0.079491	0.197961	-0.313229	8.946899
1978.3	0.147288	-0.225988	0.018208	0.103800	0.186561	-0.253536	3.165588
1978.4	0.139643	-0.082915	0.107054	0.105173	0.143233	-0.294112	-2.044970
1979.1	0.098409	-0.052634	0.097231	0.071127	0.090055	-0.300469	-3.135407
1979.2	0.054636	-0.081771	0.038545	0.034492	0.056994	-0.329533	-1.199097
1979.3	0.023549	-0.138421	-0.029468	0.018125	0.045781	-0.267908	2.771973
1979.4	0.018600	-0.154686	-0.055476	0.017132	0.050244	-0.173998	4.432404
1980.1	0.029471	-0.121099	-0.035097	0.025084	0.060252	-0.097863	4.267914
1980.2	0.042097	-0.061332	0.008001	0.030998	0.057494	-0.089046	0.727905
1980.3	0.040074	-0.025221	0.030611	0.027813	0.040871	-0.095040	-1.054596
1980.4	0.027279	-0.020650	0.024516	0.019225	0.025878	-0.086693	-1.087036
1981.1	0.015807	-0.026808	0.009056	0.010409	0.017652	-0.079014	-0.174911
1981.2	0.009131	-0.034173	-0.004001	0.006078	0.015886	-0.076082	0.764893
1981.3	0.007043	-0.038505	-0.010683	0.005241	0.015720	-0.059879	1.426392
1981.4	0.008162	-0.034491	-0.009155	0.008751	0.015951	-0.049190	1.390442
1982.1	0.009267	-0.027467	-0.004677	0.007359	0.015675	-0.036740	1.096619
1982.2	0.010023	-0.018228	0.001047	0.007980	0.014262	-0.034573	0.310059
1982.3	0.001844	-0.013366	0.003240	0.008242	0,010880	-0.031657	0.078979
1982.4	0.006672	-0.011883	0.002087	0.005653	0.008792	-0.031213	0.067117

Table 5.1

Malaysia: Dynamic Simulation
Real Expenditure

obs	ACTUAL	SIMUL:	ERROR
1975.4	7666.670	8010.063	4.479038
1976.1	6463.970	6962.675	7.715144
1976.2	7231.560	7618.134	5.345648
1976.3	7466.350	7904.649	5.870323
1976.4	8184.260	8857.406	8.224892
1977.1	7678.290	7592.191	-1.121332
1977.2	8016.330	8231.419	2.683134
1977.3	8291.140	8512.644	2.671574
1977.4	8810.070	9464.435	7.427458
1978.1	8130.720	8050.790	-0.983064
1978.2	8754.390	8672.911	-0.930716
1978.3	9062.750	8995.458	-0.742512
1978.4	9830.130	10094.33	2.687657
1979.1	8563.540	9057.049	5.762906
1979.2	9309.970	10001.00	7.422476
1979.3	9771.660	10603.33	8.511040
1979.4	11696.82	11567.54	-1.105260
1980.1	10006.56	10124.69	1.180534
1980.2	10659.05	11321.35	6.213498
1980.3	11353.04	11852.60	4.400228
1980.4	13978.34	12664.89	-9.396325
1981.1	11122.14	10881.94	-2.159649
1981.2	11993.28	11677.58	-2.632309
1981.3	12757.35	12091.87	-5.216440
1981.4	14737.24	13226.14	-10.25362
1982.1	10724.24	11545.95	7.662174
1982.2	13759.16	12494.53	-9.191185
1982.3	13716.45	12942.67	-5.641257
1982.4	16154.14	14190.75	-12.15410
1983.1	12581.48	12617.96	0.289946
1983.2	13851.03	13580.09	-1.956103
1983.3	14834.59	13857.84	-6.584274
1983.4	15787.90	15125.87	-4.193276
1984.1	12960.84	13150.91	1.466497
1984.2	14801.96	14215.24	-3.963798
1984.3	14759.57	14876.39	0.791482
1984.4	16670.10	16216.10	-2.723439
1985.1	12850.38	14154.77	10.15059
1985.2	14469.38	15276.78	5.580062
1985.3	14813.90	15919.36	7.462316
1985.4	15212.34	17105.03	12.44180

Malaysia : Dynamic Simulation
Real Expenditure

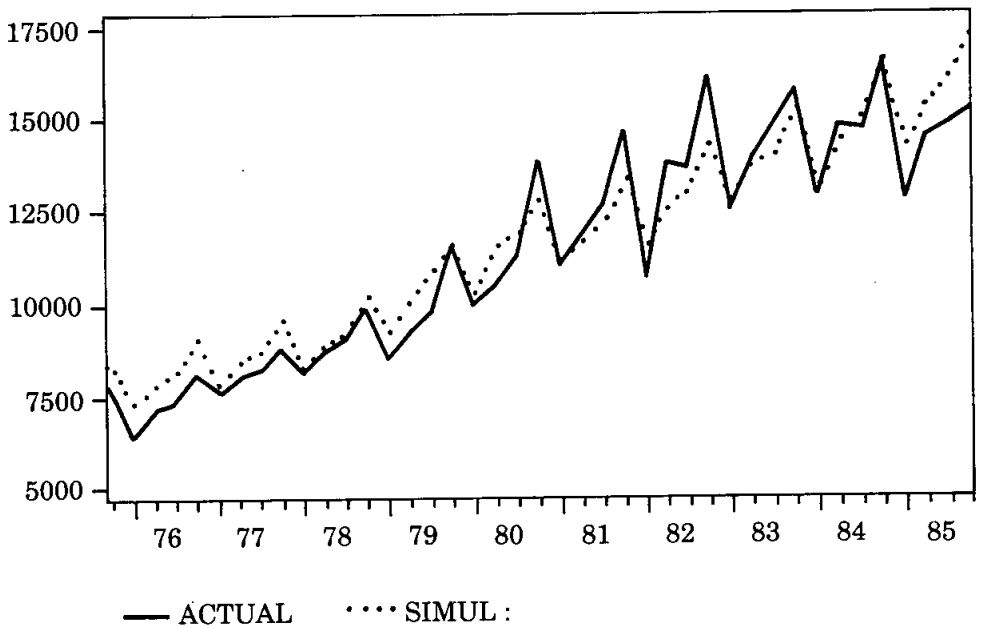

Table 5.2

Malaysia: Dynamic Simulation
Level of Prices

obs	ACTUAL	SIMUL:	ERROR
1975.4	0.841644	0.816404	-2.998885
1976.1	0.765746	0.763777	-0.257194
1976.2	0.836087	0.801533	-4.132838
1976.3	0.867529	0.831493	-4.153822
1976.4	0.914718	0.883097	-3.456859
1977.1	0.861087	0.825526	-4.129761
1977.2	0.890730	0.862495	-3.169879
1977.3	0.935438	0.889439	-4.917419
1977.4	0.954036	0.934720	-2.024700
1978.1	0.935862	0.862150	-7.876356
1978.2	0.979908	0.885337	-9.650988
1978.3	1.010881	0.899501	-11.01813
1978.4	1.061877	0.936616	-11.79614
1979.1	1.077081	0.881201	-18.18618
1979.2	1.107267	0.933918	-15.65556
1979.3	1.116154	0.990728	-11.23975
1979.4	1.171938	1.058619	-9.669362
1980.1	1.145036	1.010610	-11.73989
1980.2	1.172844	1.097577	-6.417484
1980.3	1.204965	1.184299	-1.715071
1980.4	1.252238	1.273363	1.686976
1981.1	1.161404	1.210912	4.262769
1981.2	1.189046	1.278520	7.524853
1981.3	1.220158	1.333254	9.268964
1981.4	1.255953	1.404869	11.85681
1982.1	1.171360	1.319202	12.62139
1982.2	1.229215	1.379689	12.24147
1982.3	1.242795	1.428345	14.93005
1982.4	1.301088	1.495691	14.95694
1983.1	1.251456	1.408440	12.54411
1983.2	1.297956	1.475523	13.68051
1983.3	1.298073	1.511385	16.43297
1983.4	1.351706	1.564438	15.73803
1984.1	1.349588	1.436394	6.432033
1984.2	1.368043	1.470355	7.478719
1984.3	1.384180	1.495715	8.057845
1984.4	1.410060	1.533432	8.749412
1985.1	1.293336	1.398229	8.110264
1985.2	1.306242	1.420601	8.754811
1985.3	1.317683	1.428573	8.415532
1985.4	1.339199	1.436447	7.261660

Malaysia : Dynamic Simulation
Level of Prices

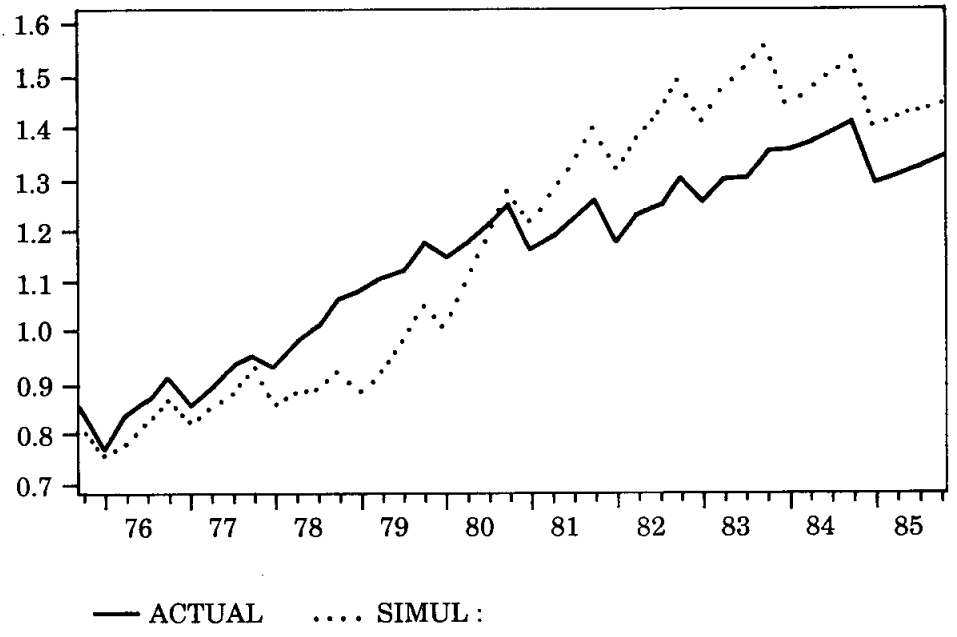

Table 5.3

Malaysia: Dynamic Simulation
Volume of Imports of Goods and
Non-Factor Services

obs	ACTUAL	SIMUL:	ERROR
1975.4	3145.130	3175.835	0.976274
1976.1	3041.390	3214.252	5.683653
1976.2	3115.570	3378.164	8.428441
1976.3	3229.410	3505.035	8.534841
1976.4	3417.860	3643.537	6.602874
1977.1	3551.890	3660.792	3.066033
1977.2	3595.460	3810.526	5.981597
1977.3	3693.070	3927.404	6.345235
1977.4	3759.380	4060.789	8.017524
1978.1	3773.610	4029.622	6.784272
1978.2	3984.060	4123.656	3.503856
1978.3	4326.910	4182.993	-3.326092
1978.4	4392.420	4313.751	-1.791016
1979.1	4312.780	4416.099	2.395655
1979.2	4832.560	4655.585	-3.662140
1979.3	5092.290	4898.728	-3.801080
1979.4	5606.360	5065.691	-9.643850
1980.1	5711.510	5102.399	-10.66462
1980.2	5855.420	5434.009	-7.196941
1980.3	6053.230	5753.492	-4.951700
1980.4	6293.840	5929.564	-5.787816
1981.1	5934.090	5881.664	-0.883468
1981.2	6344.370	6040.520	-4.789287
1981.3	6394.150	6206.750	-2.930802
1981.4	6578.400	6357.709	-3.354781
1982.1	6584.450	6432.044	-2.314639
1982.2	7475.940	6675.199	-10.71090
1982.3	7220.630	6910.692	-4.292396
1982.4	7442.980	7124.875	-4.273893
1983.1	7470.800	7262.982	-2.781735
1983.2	7646.720	7607.048	-0.518815
1983.3	8028.060	7784.044	-3.039540
1983.4	8164.420	7962.567	-2.472350
1984.1	7890.700	7966.593	0.961798
1984.2	8278.970	8219.738	-0.715445
1984.3	8487.420	8476.529	-0.128315
1984.4	8653.920	8668.041	0.163176
1985.1	8076.870	8628.625	6.831296
1985.2	7854.620	8874.715	12.98719
1985.3	7824.220	9111.202	16.44869
1985.4	7519.290	9227.530	22.71811

Malaysia : Dynamic Simulation
Volume of Imports of Goods
and Non-Factor Services

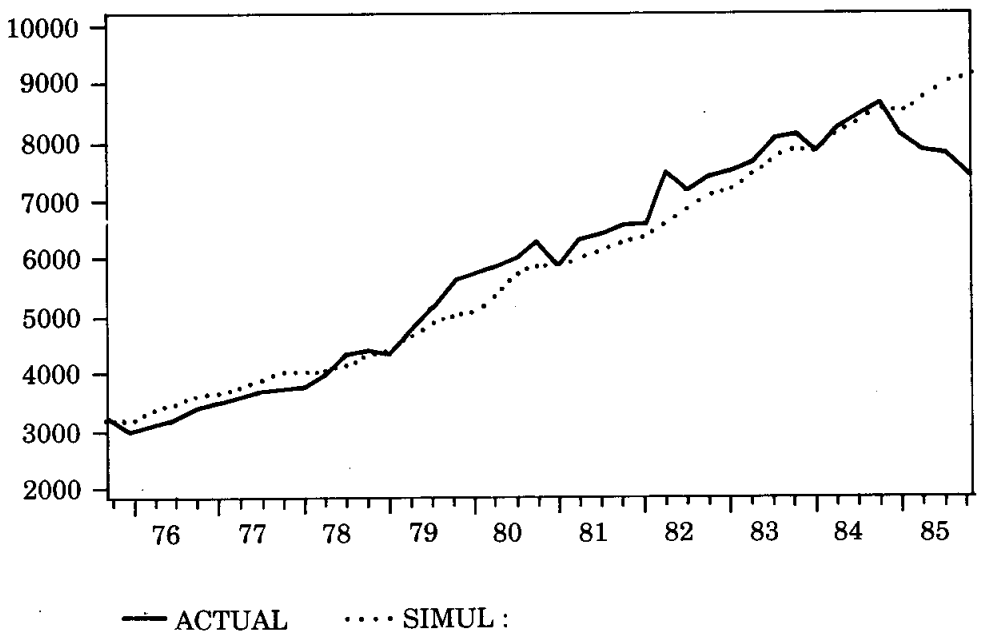

Table 5.4

Malaysia: Dynamic Simulation
Volume of Exports of Goods
and Non-Factor Services

obs	ACTUAL	SIMUL:	ERROR
1975.4	3754.760	3703.960	-1.352951
1976.1	3939.470	3885.738	-1.363938
1976.2	4012.080	3965.863	-1.151947
1976.3	4215.510	4257.975	1.007359
1976.4	4328.050	4341.870	0.319320
1977.1	4272.420	4339.002	1.558415
1977.2	4249.440	4388.040	3.261609
1977.3	4518.680	4686.090	3.704835
1977.4	4232.720	4517.963	6.738992
1978.1	4391.200	4560.552	3.856612
1978.2	4471.970	4497.850	0.578713
1978.3	4758.200	4706.056	-1.095877
1978.4	4963.630	5025.502	1.246508
1979.1	5243.110	5252.659	0.182131
1979.2	5472.500	5405.692	-1.220797
1979.3	5651.610	5633.466	-0.321042
1979.4	5556.790	5551.042	-0.103442
1980.1	5723.880	5602.779	-2.115717
1980.2	5818.660	5611.132	-3.566600
1980.3	5745.460	5643.610	-1.772706
1980.4	5331.000	5500.336	3.176439
1981.1	5598.530	5652.553	0.964958
1981.2	5585.360	5735.766	2.692866
1981.3	5632.320	5790.106	2.801441
1981.4	5614.790	5744.383	2.308061
1982.1	6214.960	6246.419	0.506182
1982.2	5915.380	5898.763	-0.280907
1982.3	6072.400	6090.964	0.305710
1982.4	6623.260	6520.710	-1.548328
1983.1	6393.900	6425.288	0.490908
1983.2	6970.750	6864.508	-1.524114
1983.3	6782.730	6800.230	0.258008
1983.4	7743.630	7274.058	-6.063975
1984.1	7627.920	7445.712	-2.388699
1984.2	7734.360	7561.241	-2.238306
1984.3	7943.060	7638.828	-3.830160
1984.4	8518.660	8122.835	-4.646566
1985.1	8185.040	8099.606	-1.043783
1985.2	8169.670	8582.329	5.051112
1985.3	8224.550	8480.148	3.107740
1985.4	8645.740	8657.113	0.131545

Malaysia : Dynamic Simulation
Volume of Exports of Goods
and Non-Factor Services

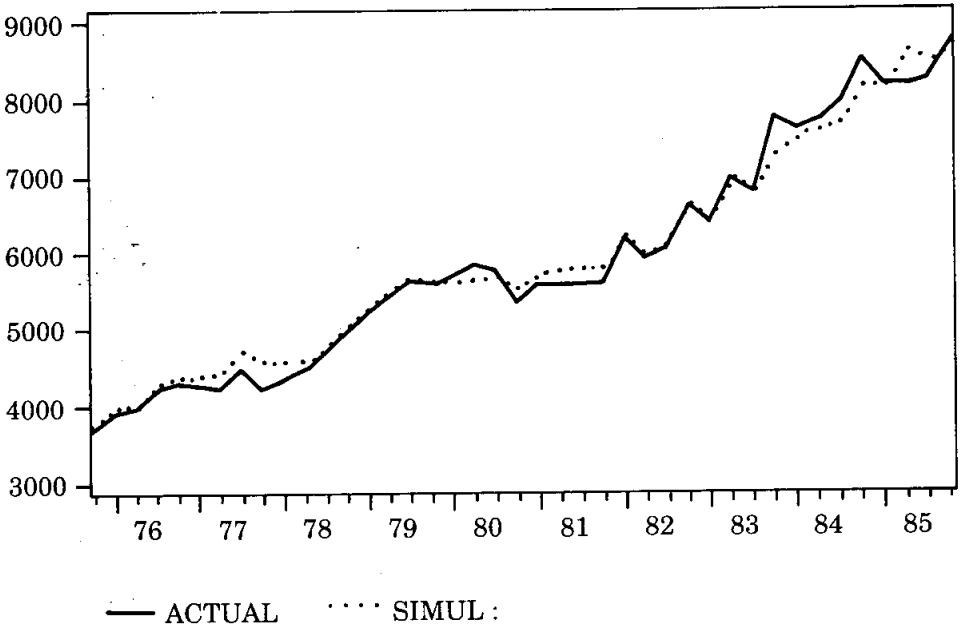

Table 5.5

Malaysia: Dynamic Simulation
Real Gross Domestic Product

obs	ACTUAL	SIMUL:	ERROR
1975.4	8276.300	8538.189	3.164321
1976.1	7362.100	7634.161	3.695427
1976.2	8128.100	8205.833	0.956348
1976.3	8452.400	8657.590	2.427588
1976.4	9094.500	9555.738	5.071618
1977.1	8398.800	8270.400	-1.528783
1977.2	8670.300	8808.934	1.598950
1977.3	9116.800	9271.330	1.695006
1977.4	9283.400	9921.608	6.874723
1978.1	8748.300	8581.720	-1.904142
1978.2	9242.300	9047.106	-2.111957
1978.3	9494.000	9518.522	0.258284
1978.4	10401.30	10806.08	3.891632
1979.1	9493.900	9893.608	4.210156
1979.2	9949.900	10751.11	8.052442
1979.3	10331.00	11338.07	9.748043
1979.4	11647.20	12052.89	3.483150
1980.1	10018.90	10625.07	6.050264
1980.2	10622.30	11498.48	8.248503
1980.3	11045.30	11742.72	6.314179
1980.4	13015.50	12235.66	-5.991624
1981.1	10786.60	10652.83	-1.240146
1981.2	11234.30	11372.83	1.233101
1981.3	11995.50	11675.23	-2.669914
1981.4	13773.60	12612.81	-8.427645
1982.1	10354.80	11360.32	9.710671
1982.2	12198.60	11718.10	-3.938977
1982.3	12568.20	12122.94	-3.542749
1982.4	15334.40	13586.59	-11.39797
1983.1	11504.60	11780.27	2.396171
1983.2	13175.10	12837.55	-2.562028
1983.3	13589.30	12874.03	-5.263476
1983.4	15367.10	14437.36	-6.050193
1984.1	12698.10	12630.03	-0.536059
1984.2	14257.30	13556.74	-4.913691
1984.3	14215.20	14038.69	-1.241697
1984.4	16535.40	15670.89	-5.228242
1985.1	12958.50	13625.75	5.149130
1985.2	14784.40	14984.40	1.352777
1985.3	15214.20	15288.30	0.487042
1985.4	16338.80	16534.61	1.198433

Malaysia : Dynamic Simulation
Real Gross Domestic Product

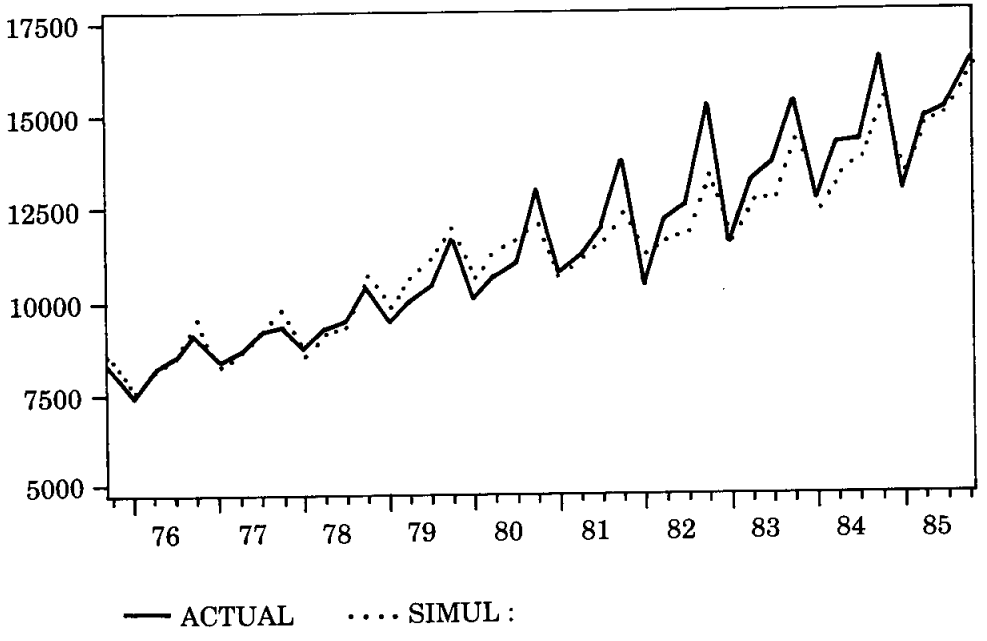

Table 5.6

Malaysia: Dynamic Simulation
Money Supply

obs	ACTUAL	SIMUL:	ERROR
1975.4	10001.40	9933.724	-0.676673
1976.1	10640.80	10381.09	-2.440700
1976.2	11304.30	10772.35	-4.705133
1976.3	12168.40	11419.66	-6.153153
1976.4	12771.20	11817.95	-7.464060
1977.1	13380.90	12380.73	-7.474608
1977.2	13866.80	12783.11	-7.814993
1977.3	14443.90	13289.57	-7.991817
1977.4	14861.00	13678.18	-7.959224
1978.1	15269.40	13970.17	-8.508719
1978.2	15764.20	14352.12	-8.957512
1978.3	16293.30	14969.77	-8.123157
1978.4	17466.50	16295.63	-6.703519
1979.1	18436.20	17169.24	-6.872127
1979.2	19769.40	18628.48	-5.771141
1979.3	20120.40	19179.92	-4.674263
1979.4	21616.10	21302.84	-1.449197
1980.1	23591.80	23910.43	1.350592
1980.2	25376.00	26011.73	2.505243
1980.3	25813.50	26714.66	3.491042
1980.4	27652.00	29179.87	5.525348
1981.1	28724.20	30369.24	5.727021
1981.2	29524.70	31718.55	7.430563
1981.3	30226.60	32829.49	8.611252
1981.4	32370.00	35406.18	9.379610
1982.1	32928.10	36184.36	9.888993
1982.2	33999.10	38299.60	12.64886
1982.3	34621.20	39341.75	13.63486
1982.4	37648.10	42673.86	13.34930
1983.1	39023.20	44345.60	13.63907
1983.2	38834.50	44087.99	13.52789
1983.3	39726.70	45317.13	14.07222
1983.4	41193.00	46504.61	12.89445
1984.1	42218.80	47246.32	11.90825
1984.2	43771.50	48663.08	11.17526
1984.3	44027.90	48535.80	10.23874
1984.4	45888.30	49859.82	8.654754
1985.1	47184.60	50353.09	6.715090
1985.2	47906.10	50263.65	4.921183
1985.3	47596.90	48659.68	2.232879
1985.4	48405.50	47388.29	-2.101437

Malaysia : Dynamic Simulation
Money Supply

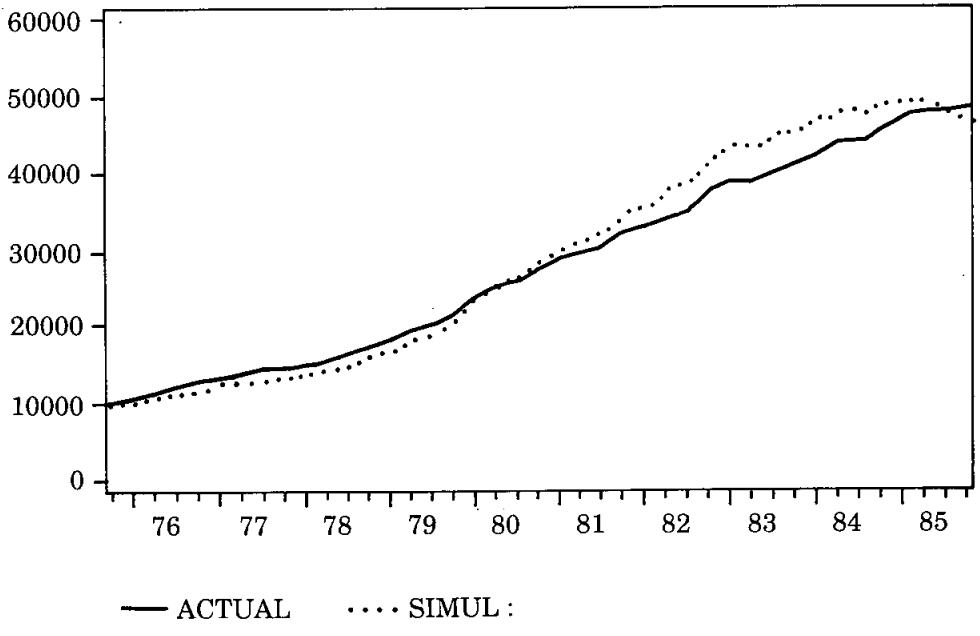

Table 5.7

Malaysia: Dynamic Simulation
Balance of Payments

obs	ACTUAL	SIMUL:	ERROR
1975.4	222.1001	154.4240	-30.47099
1976.1	241.7000	49.67078	-79.44941
1976.2	570.4002	298.1596	-47.72800
1976.3	846.0000	629.2153	-25.62467
1976.4	594.8999	390.3862	-34.37783
1977.1	64.20020	17.28073	-73.08306
1977.2	309.0000	225.4748	-27.03081
1977.3	125.0996	54.46112	-56.46579
1977.4	-205.3999	-233.8924	-13.87172
1978.1	-51.89990	-168.3116	-224.3004
1978.2	59.00000	-53.84812	-191.2680
1978.3	73.00000	161.5535	121.3062
1978.4	307.7998	460.4560	49.59594
1979.1	795.5000	699.4148	-12.07859
1979.2	846.7998	972.8444	14.88482
1979.3	275.2002	475.6356	72.83258
1979.4	518.7002	1145.917	120.9209
1980.1	464.2998	1096.187	136.0947
1980.2	444.0000	761.0969	71.41823
1980.3	-79.79981	185.6330	332.6234
1980.4	-587.5996	39.10828	106.6556
1981.1	-2.500000	114.6681	4686.724
1981.2	-161.9004	386.9159	338.9839
1981.3	-850.4004	-441.3638	48.09930
1981.4	-137.6992	295.5932	314.6659
1982.1	-1238.601	-1018.520	17.76851
1982.2	-530.0996	514.1434	196.9900
1982.3	-344.9004	75.14288	121.7868
1982.4	2208.400	2513.606	13.82024
1983.1	-669.7002	-373.0603	44.29443
1983.2	1400.000	1331.088	-4.922285
1983.3	-1047.300	-710.3588	32.17237
1983.4	-54.20020	-333.0151	-514.4168
1984.1	-1014.200	-1298.295	-28.01174
1984.2	23.60010	-112.3432	-576.0285
1984.3	-1862.800	-2246.475	-20.59669
1984.4	1047.600	511.2142	-51.20139
1985.1	57.09961	-745.9264	-1406.360
1985.2	1034.000	223.0614	-78.42733
1985.3	1440.101	145.3338	-89.90808
1985.4	459.6992	-1620.294	-452.4683

Malaysia : Dynamic Simulation
Balance of Payments

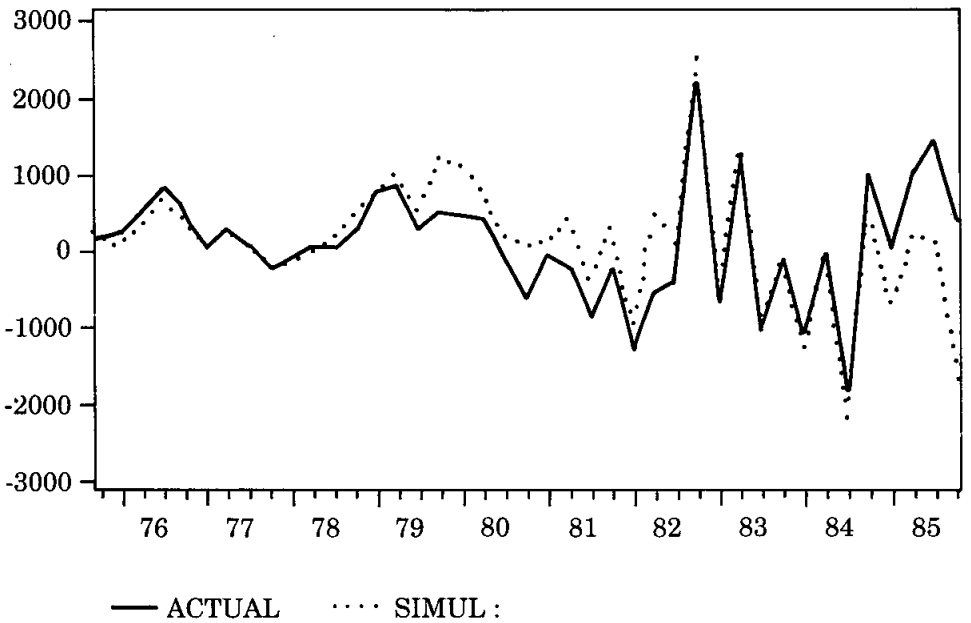

Table 6.1

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	-3.316163	0.000000	1.396222	-5.849541	-607.2511
1976.2	-2.618591	-1.683459	-3.520911	0.000000	-0.981581	-4.641141	107.2839
1976.3	-1.887586	-2.762460	-3.412544	0.000000	-0.341858	-3.418404	109.5883
1976.4	-0.462316	-3.017263	-2.642736	0.000000	0.579137	-2.521588	92.37189
1977.1	0.456234	-2.780758	-1.686873	0.000000	1.165489	-1.938339	58.01839
1977.2	0.834016	-2.353612	-0.877042	0.000000	1.158714	-1.632625	31.28320
1977.3	0.765578	-1.964737	-0.391380	0.000000	0.868711	-1.461452	14.47761
1977.4	0.553326	-1.684193	-0.184278	0.000000	0.603254	-1.367505	7.179199
1978.1	0.366600	-1.499321	-0.137434	0.000000	0.408458	-1.300840	5.318405
1978.2	0.239656	-1.379003	-0.159901	0.000000	0.302615	-1.221074	6.476311
1978.3	0.183274	-1.286373	-0.188461	0.000000	0.256018	-1.116645	8.084396
1978.4	0.173761	-1.196603	-0.195980	0.000000	0.240515	-0.972653	8.666016
1979.1	0.196929	-1.091964	-0.171989	0.000000	0.257041	-0.878081	7.733276
1979.2	0.197080	-0.988094	-0.142470	0.000000	0.244997	-0.770756	7.180481
1979.3	0.194754	-0.884816	-0.111128	0.000000	0.230194	-0.716845	6.092011
1979.4	0.163907	-0.799159	-0.096843	0.000000	0.197964	-0.618462	5.743042
1980.1	0.159901	-0.714116	-0.077887	0.000000	0.189741	-0.530814	4.832031
1980.2	0.158198	-0.629391	-0.055208	0.000000	0.181758	-0.473900	3.655090
1980.3	0.141072	-0.554586	-0.040134	0.000000	0.161977	-0.450873	2.820908
1980.4	0.107465	-0.498832	-0.041001	0.000000	0.131172	-0.402360	3.039600
1981.1	0.093726	-0.449661	-0.041384	0.000000	0.118559	-0.376004	3.223900
1981.2	0.077673	-0.409454	-0.044055	0.000000	0.103136	-0.348758	3.564392
1981.3	0.065748	-0.375549	-0.046800	0.000000	0.092928	-0.325189	3.859894
1981.4	0.057238	-0.346223	-0.048331	0.000000	0.084364	-0.289840	4.140411
1982.1	0.056897	-0.316548	-0.044903	0.000000	0.083358	-0.273405	3.691040
1982.2	0.049858	-0.291152	-0.042909	0.000000	0.077579	-0.248391	3.796631
1982.3	0.047981	-0.266529	-0.038995	0.000000	0.073410	-0.232955	3.485130
1982.4	0.041503	-0.245633	-0.037096	0.000000	0.062785	-0.206755	3.423096
1983.1	0.041050	-0.224362	-0.033070	0.000000	0.064346	-0.192020	3.078491
1983.2	0.037906	-0.205080	-0.029552	0.000000	0.057570	-0.186692	2.842041
1983.3	0.028436	-0.191081	-0.030612	0.000000	0.049036	-0.174836	3.081848
1983.4	0.025057	-0.178718	-0.031084	0.000000	0.043426	-0.163593	3.145020
1984.1	0.022203	-0.167777	-0.031075	0.000000	0.042751	-0.154509	3.081055
1984.2	0.021386	-0.157245	-0.030034	0.000000	0.040642	-0.143637	3.095802
1984.3	0.020704	-0.147024	-0.028226	0.000000	0.038962	-0.137841	2.993164
1984.4	0.017639	-0.138580	-0.027557	0.000000	0.033502	-0.128203	2.986176
1985.1	0.016889	-0.130307	-0.026302	0.000000	0.034201	-0.121207	2.891174
1985.2	0.016039	-0.122557	-0.024891	0.000000	0.031028	-0.115842	2.803604
1985.3	0.013441	-0.116199	-0.024502	0.000000	0.028585	-0.113889	2.802094
1985.4	0.010585	-0.111454	-0.025082	0.000000	0.024924	-0.110977	2.835938

Table 6.2

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Complete Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	-3.316163	0.000000	1.396222	0.000000	-607.2511
1976.2	0.461596	0.199859	-1.622155	0.000000	1.096340	0.000000	49.42798
1976.3	0.259353	0.294241	-0.741560	0.000000	0.537022	0.000000	23.81476
1976.4	0.026141	0.278781	-0.365145	0.000000	0.163463	0.000000	12.76340
1977.1	-0.089512	0.214505	-0.222520	0.000000	0.016330	0.000000	7.653620
1977.2	-0.105232	0.149279	-0.159791	0.000000	-0.029212	0.000000	5.700104
1977.3	-0.086751	0.098048	-0.122095	0.000000	-0.027934	0.000000	4.516209
1977.4	-0.059877	0.063174	-0.091607	0.000000	-0.019627	0.000000	3.569000
1978.1	-0.039089	0.040472	-0.066730	0.000000	-0.005337	0.000000	2.582703
1978.2	-0.022700	0.026984	-0.045872	0.000000	-0.000874	0.000000	1.857910
1978.3	-0.014211	0.018342	-0.030887	0.000000	0.000144	0.000000	1.325409
1978.4	-0.009413	0.012619	-0.020612	0.000000	-0.000560	0.000000	0.910919
1979.1	-0.006685	0.008536	-0.013932	0.000000	8.88D-05	0.000000	0.625916
1979.2	-0.004404	0.005846	-0.009366	0.000000	0.000000	0.000000	0.471008
1979.3	-0.003021	0.003917	-0.006309	0.000000	-9.47D-05	0.000000	0.344818
1979.4	-0.002161	0.002646	-0.004299	0.000000	-0.000243	0.000000	0.254028
1980.1	-0.001389	0.001781	-0.002861	0.000000	0.000000	0.000000	0.177979
1980.2	-0.000966	0.001097	-0.002004	0.000000	-9.34D-05	0.000000	0.132690
1980.3	-0.000585	0.000846	-0.001341	0.000000	9.15D-05	0.000000	0.094208
1980.4	-0.000632	0.000468	-0.001046	0.000000	-7.98D-05	0.000000	0.077549
1981.1	0.000000	0.000492	-0.000473	0.000000	0.000284	0.000000	0.037498
1981.2	8.36D-05	0.000550	-0.000186	0.000000	0.000172	0.000000	0.015106
1981.3	8.08D-05	0.000528	9.44D-05	0.000000	0.000000	0.000000	-0.007813
1981.4	0.000000	0.000501	9.22D-05	0.000000	-7.74D-05	0.000000	-0.008606
1982.1	-0.000609	0.000235	-0.000182	0.000000	-0.000447	0.000000	0.015015
1982.2	-0.000641	-0.000216	-0.000571	0.000000	-0.000425	0.000000	0.050598
1982.3	-0.000151	_0.000275	-0.000374	0.000000	8.06D-05	0.000000	0.034096
1982.4	0.000000	-0.000263	-0.000199	0.000000	7.19D-05	0.000000	0.018066
1983.1	0.000635	6.77D-05	0.000289	0.000000	0.000431	0.000000	-0.027008
1983.2	0.000151	0.000137	0.000289	0.000000	-7.61D-05	0.000000	-0.027954
1983.3	0.000000	0.000197	8.78D-05	0.000000	-8.34D-05	0.000000	-0.010193
1983.4	0.000000	0.000130	0.000000	0.000000	0.000000	0.000000	0.000000
1984.1	0.000000	0.000141	0.000000	0.000000	0.000000	-2.48D-05	0.000000
1984.2	0.000000	0.000130	0.000000	0.000000	0.000000	-1.61D-05	0.000000
1984.3	0.000000	0.000135	0.000000	0.000000	0.000000	-2.41D-05	0.000000
1984.4	0.000000	0.000194	0.000000	0.000000	0.000000	-2.35D-05	0.000000
1985.1	0.000000	6.82D-05	0.000000	0.000000	0.000000	-2.33D-05	0.000000
1985.2	0.000000	0.000143	8.80D-05	0.000000	-7.17D-05	-1.55D-05	-0.009903
1985.3	0.000000	6.68D-05	0.000000	0.000000	0.000000	-1.61D-05	0.000000
1985.4	0.000000	0.000141	0.000000	0.000000	0.000000	-1.65D-05	0.000000

Table 6.3

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Partial Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	-3.316163	0.000000	1.396222	-2.924742	-607.2511
1976.2	-1.067329	-0.732107	-2.561834	0.000000	0.063765	-2.456194	78.06101
1976.3	-0.879964	-1.268991	-2.113102	0.000000	0.052045	-2.019851	67.85895
1976.4	-0.376274	-1.498538	-1.626556	0.000000	0.271424	-1.711297	56.85321
1977.1	-0.021654	-1.527144	-1.166826	0.000000	0.496606	-1.471407	40.13203
1977.2	0.193879	-1.439379	-0.777919	0.000000	0.517674	-1.316587	27.74780
1977.3	0.236126	-1.327402	-0.517367	0.000000	0.435956	-1.194399	19.13776
1977.4	0.214330	-1.223683	-0.365076	0.000000	0.353878	-1.108482	14.22299
1978.1	0.177735	-1.137165	-0.284944	0.000000	0.300523	-1.045874	11.02699
1978.2	0.147550	-1.065730	-0.244611	0.000000	0.252919	-0.983549	9.907253
1978.3	0.126919	-1.003869	-0.223386	0.000000	0.218099	-0.910963	9.582596
1978.4	0.120959	-0.943520	-0.205296	0.000000	0.194886	-0.808990	9.078400
1979.1	0.134844	-0.873452	-0.176943	0.000000	0.202417	-0.744643	7.956116
1979.2	0.134391	-0.804044	-0.150682	0.000000	0.190206	-0.665920	7.593262
1979.3	0.135147	-0.733393	-0.124484	0.000000	0.180187	-0.628994	6.823120
1979.4	0.114114	-0.674749	-0.111986	0.000000	0.156561	-0.550726	6.640991
1980.1	0.116545	-0.613392	-0.094290	0.000000	0.156322	-0.478454	5.848999
1980.2	0.121719	-0.548748	-0.071697	0.000000	0.153672	-0.430695	4.746155
1980.3	0.112045	-0.489823	-0.055121	0.000000	0.140088	-0.412095	3.872910
1980.4	0.086700	-0.445358	-0.052430	0.000000	0.115154	-0.370627	3.888351
1981.1	0.077097	-0.405400	-0.049952	0.000000	0.106357	-0.349700	3.891998
1981.2	0.064309	-0.372541	-0.050424	0.000000	0.092763	-0.328389	4.081116
1981.3	0.054086	-0.345167	-0.051961	0.000000	0.083594	-0.310750	4.284790
1981.4	0.045749	-0.322167	-0.053761	0.000000	0.075165	-0.281620	4.605499
1982.1	0.046071	-0.298511	-0.050991	0.000000	0.075699	-0.269756	4.192993
1982.2	0.039619	-0.278900	-0.049968	0.000000	0.070662	-0.249095	4.420532
1982.3	0.039017	-0.259460	-0.046725	0.000000	0.068294	-0.237204	4.175209
1982.4	0.034037	-0.242692	-0.044998	0.000000	0.059176	-0.213831	4.153076
1983.1	0.034634	-0.225073	-0.041083	0.000000	0.062397	-0.201463	3.823608
1983.2	0.032619	-0.209007	-0.037460	0.000000	0.056771	-0.198555	3.603027
1983.3	0.024101	-0.197627	-0.038421	0.000000	0.049086	-0.188912	3.868897
1983.4	0.020957	-0.187801	-0.038995	0.000000	0.043493	-0.179829	3.946014
1984.1	0.018631	-0.178989	-0.039288	0.000000	0.044181	-0.172905	3.894043
1984.2	0.018287	-0.170436	-0.038327	0.000000	0.042486	-0.163818	3.950600
1984.3	0.017750	-0.162135	-0.036809	0.000000	0.041028	-0.160215	3.903076
1984.4	0.014682	-0.155597	-0.036525	0.000000	0.035421	-0.152004	3.957977
1985.1	0.013854	-0.149328	-0.035945	0.000000	0.037132	-0.146582	3.949402
1985.2	0.013942	-0.142965	-0.034618	0.000000	0.034698	-0.142965	3.899200
1985.3	0.011496	-0.138037	-0.034320	0.000000	0.032507	-0.143632	3.924896
1985.4	0.007719	-0.135197	-0.035750	0.000000	0.027948	-0.143240	4.043945

Table 6.4

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Imports
under Contractionary Monetary Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	-3.316163	0.000000	1.396222	-11.69913	-607.2511
1976.2	-5.792768	-3.648784	-5.501216	0.000000	-3.113163	-8.162065	167.6258
1976.3	-3.467247	-5.524117	-5.775975	0.000000	-0.827309	-4.450838	185.4857
1976.4	0.308137	-5.300909	-3.950810	0.000000	1.792045	-1.963876	138.0929
1977.1	2.407657	-4.017715	-1.621317	0.000000	2.927869	-0.973776	55.76361
1977.2	2.604742	-2.666170	0.037584	0.000000	2.417712	-0.964163	-1.340500
1977.3	1.703406	-1.796325	0.650967	0.000000	1.288235	-1.289810	-24.08098
1977.4	0.693334	-1.455701	0.516299	0.000000	0.450061	-1.547279	-20.11540
1978.1	0.101146	-1.420826	0.129588	0.000000	0.034036	-1.586738	-5.014999
1978.2	-0.075689	-1.468268	-0.190356	0.000000	0.014194	-1.437070	7.710281
1978.3	0.021072	-1.456446	-0.318031	0.000000	0.159660	-1.195476	13.64211
1978.4	0.189811	-1.351702	-0.284643	0.000000	0.290942	-0.943750	12.58652
1979.1	0.310133	-1.182155	-0.175793	0.000000	0.362381	-0.803649	7.904419
1979.2	0.318171	-1.011587	-0.083810	0.000000	0.332242	-0.695340	4.223450
1979.3	0.275387	-0.864830	-0.031946	0.000000	0.271296	-0.657090	1.750702
1979.4	0.198224	-0.760804	-0.027751	0.000000	0.201950	-0.576168	1.645020
1980.1	0.163257	-0.673846	-0.030805	0.000000	0.170348	-0.497356	1.911011
1980.2	0.148045	-0.594126	-0.028610	0.000000	0.159235	-0.442611	1.894165
1980.3	0.131539	-0.523764	-0.025469	0.000000	0.145195	-0.417564	1.789108
1980.4	0.102885	-0.469783	-0.030691	0.000000	0.121443	-0.366691	2.276341
1981.1	0.094193	-0.419763	-0.030791	0.000000	0.113205	-0.336529	2.399399
1981.2	0.081010	-0.377231	-0.031356	0.000000	0.099796	-0.306197	2.538117
1981.3	0.070376	-0.340294	-0.031759	0.000000	0.089758	-0.279897	2.618286
1981.4	0.061321	-0.308284	-0.031942	0.000000	0.080399	-0.244054	2.735901
1982.1	0.059672	-0.276679	-0.028126	0.000000	0.076670	-0.226034	2.312012
1982.2	0.051218	-0.249981	-0.026516	0.000000	0.069721	-0.201312	2.345642
1982.3	0.047981	-0.224874	-0.023352	0.000000	0.064500	-0.185375	2.087914
1982.4	0.041579	-0.203383	-0.021738	0.000000	0.054835	-0.161499	2.007080
1983.1	0.039943	-0.182330	-0.018589	0.000000	0.054166	-0.147615	1.730408
1983.2	0.035495	-0.163942	-0.016394	0.000000	0.047286	-0.141328	1.577026
1983.3	0.027638	-0.149924	-0.017263	0.000000	0.040158	-0.129814	1.737610
1983.4	0.023669	-0.137875	-0.018023	0.000000	0.034700	-0.118654	1.823517
1984.1	0.021364	-0.126911	-0.017922	0.000000	0.033565	-0.109276	1.778076
1984.2	0.020397	-0.116440	-0.016871	0.000000	0.031645	-0.098942	1.738899
1984.3	0.019831	-0.106305	-0.015069	0.000000	0.030127	-0.092610	1.598145
1984.4	0.017272	-0.097494	-0.014015	0.000000	0.025656	-0.084079	1.518707
1985.1	0.015827	-0.089469	-0.013061	0.000000	0.024733	-0.077554	1.434998
1985.2	0.014402	-0.082077	-0.012115	0.000000	0.021820	-0.072260	1.364594
1985.3	0.012373	-0.075811	-0.011726	0.000000	0.019885	-0.069135	1.341003
1985.4	0.010174	-0.070798	-0.011811	0.000000	0.017116	-0.065351	1.336914

Table 7.1

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports
under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	0.000000	0.000000	4.862207	504.7495
1976.2	2.482999	1.505731	1.546785	0.000000	1.668378	4.248099	-47.13121
1976.3	1.945490	2.605300	2.313476	0.000000	0.839671	3.356756	-74.29254
1976.4	0.656947	2.965103	2.109351	0.000000	-0.195338	2.619740	-73.72781
1977.1	-0.238230	2.827314	1.488122	0.000000	-0.877388	2.087275	-51.18226
1977.2	-0.663640	2.463645	0.853247	0.000000	-0.989230	1.783443	-30.43459
1977.3	-0.672070	2.102772	0.437083	0.000000	-0.802225	1.593803	-16.16773
1977.4	-0.524280	1.824162	0.240149	0.000000	-0.598412	1.480096	-9.355698
1978.1	-0.373514	1.627864	0.180414	0.000000	-0.435120	1.399194	-6.981506
1978.2	-0.260870	1.492094	0.186803	0.000000	-0.335235	1.309285	-7.565929
1978.3	-0.204454	1.385457	0.204686	0.000000	-0.283175	1.196617	-8.779999
1978.4	-0.190208	1.284659	0.207356	0.000000	-0.260505	1.042979	-9.169006
1979.1	-0.209781	1.170507	0.181443	0.000000	-0.273032	0.942444	-8.128876
1979.2	-0.207186	1.058841	0.151259	0.000000	-0.258304	0.827708	-7.624023
1979.3	-0.203991	0.948420	0.119381	0.000000	-0.242373	0.769767	-6.544495
1979.4	-0.172036	0.856870	0.104766	0.000000	-0.209072	0.663901	-6.213013
1980.1	-0.168302	0.765676	0.084730	0.000000	-0.201129	0.569500	-5.255981
1980.2	-0.167471	0.674672	0.060087	0.000000	-0.193334	0.508192	-3.978699
1980.3	-0.149921	0.594024	0.043503	0.000000	-0.172614	0.483407	-3.056397
1980.4	-0.114251	0.534173	0.044171	0.000000	-0.139593	0.431329	-3.275299
1981.1	-0.099066	0.481705	0.044730	0.000000	-0.125884	0.402970	-3.485298
1981.2	-0.082038	0.438872	0.047692	0.000000	-0.109645	0.373660	-3.859894
1981.3	-0.069471	0.402704	0.050655	0.000000	-0.098934	0.348284	-4.177094
1981.4	-0.060789	0.371357	0.052286	0.000000	-0.089985	0.310283	-4.477905
1982.1	-0.061405	0.339148	0.048091	0.000000	-0.089616	0.292696	-3.953003
1982.2	-0.054024	0.311301	0.045301	0.000000	-0.083455	0.266056	-4.008759
1982.3	-0.050916	0.285015	0.041588	0.000000	-0.078122	0.249556	-3.716202
1982.4	-0.044538	0.262354	0.039399	0.000000	-0.067198	0.221539	-3.634033
1983.1	-0.042877	0.240054	0.035692	0.000000	-0.067993	0.205700	-3.320099
1983.2	-0.040723	0.219243	0.031683	0.000000	-0.061769	0.199991	-3.045044
1983.3	-0.030309	0.204316	0.032531	0.000000	-0.052279	0.187352	-3.275757
1983.4	-0.026115	0.191382	0.033396	0.000000	-0.045786	0.175319	-3.377808
1984.1	-0.023421	0.179761	0.033581	0.000000	-0.045611	0.165514	-3.328003
1984.2	-0.022444	0.168734	0.032529	0.000000	-0.043228	0.153816	-3.352997
1984.3	-0.022116	0.157783	0.030426	0.000000	-0.041814	0.147580	-3.226807
1984.4	-0.018994	0.148686	0.029563	0.000000	-0.035988	0.137227	-3.203491
1985.1	-0.017517	0.139959	0.028521	0.000000	-0.036258	0.129662	-3.133728
1985.2	-0.017151	0.131637	0.026893	0.000000	-0.033440	0.123870	-3.029099
1985.3	-0.015269	0.124252	0.025852	0.000000	-0.031268	0.121885	-2.956497
1985.4	-0.011453	0.119114	0.026606	0.000000	-0.026672	0.118807	-3.008057

Table 7.2

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports under Partial Sterilization
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	0.000000	0.000000	2.431150	504.7495
1976.2	1.248563	0.758974	0.779622	0.000000	0.838188	2.232568	-23.75491
1976.3	1.032694	1.342223	1.197225	0.000000	0.458187	1.937713	-38.44605
1976.4	0.455657	1.596216	1.163233	0.000000	-0.021175	1.700381	-40.65839
1977.1	0.045984	1.625902	0.928107	0.000000	-0.368608	1.494171	-31.92147
1977.2	-0.189501	1.530386	0.653982	0.000000	-0.459971	1.355846	-23.32649
1977.3	-0.241656	1.408114	0.452692	0.000000	-0.413626	1.241193	-16.74514
1977.4	-0.222533	1.295084	0.332153	0.000000	-0.348218	1.158637	-12.94020
1978.1	-0.185310	1.201253	0.269773	0.000000	-0.300523	1.097050	-10.44009
1978.2	-0.153045	1.124578	0.240324	0.000000	-0.256265	1.033921	-9.733650
1978.3	-0.131425	1.058682	0.225219	0.000000	-0.223187	0.959003	-9.661301
1978.4	-0.125119	0.994851	0.210514	0.000000	-0.200905	0.852372	-9.308106
1979.1	-0.139621	0.920712	0.183278	0.000000	-0.209623	0.785004	-8.240906
1979.2	-0.139019	0.847558	0.157185	0.000000	-0.197381	0.702260	-7.922607
1979.3	-0.139955	0.773118	0.130724	0.000000	-0.187422	0.663352	-7.167389
1979.4	-0.118605	0.711302	0.117952	0.000000	-0.163359	0.580817	-6.994019
1980.1	-0.121194	0.646538	0.099601	0.000000	-0.163299	0.504552	-6.178955
1980.2	-0.127542	0.577823	0.075381	0.000000	-0.161333	0.454175	-4.990051
1980.3	-0.117013	0.515581	0.057913	0.000000	-0.146559	0.434628	-4.069092
1980.4	-0.090563	0.468678	0.055148	0.000000	-0.120470	0.390888	-4.088631
1981.1	-0.079682	0.426950	0.053048	0.000000	-0.110675	0.368762	-4.131996
1981.2	-0.066709	0.392569	0.053617	0.000000	-0.097074	0.346265	-4.338684
1981.3	-0.055992	0.363997	0.055423	0.000000	-0.087458	0.327580	-4.570892
1981.4	-0.047705	0.340037	0.057240	0.000000	-0.078804	0.296812	-4.902893
1982.1	-0.048507	0.315048	0.054195	0.000000	-0.079928	0.284265	-4.454956
1982.2	-0.042503	0.293692	0.052265	0.000000	-0.075179	0.262527	-4.624878
1982.3	-0.040948	0.273047	0.049042	0.000000	-0.071605	0.249993	-4.381020
1982.4	-0.035654	0.255405	0.047314	0.000000	-0.062116	0.225365	-4.364014
1983.1	-0.036136	0.236998	0.043315	0.000000	-0.065448	0.212306	-4.030212
1983.2	-0.034683	0.219655	0.039212	0.000000	-0.059898	0.209267	-3.770020
1983.3	-0.025038	0.207889	0.040146	0.000000	-0.051271	0.199135	-4.043884
1983.4	-0.021157	0.197966	0.041307	0.000000	-0.044954	0.189573	-4.178803
1984.1	-0.019084	0.188873	0.041776	0.000000	-0.046238	0.182190	-4.141968
1984.2	-0.018432	0.180360	0.041119	0.000000	-0.044186	0.172535	-4.238396
1984.3	-0.018820	0.171492	0.039102	0.000000	-0.043525	0.168722	-4.147949
1984.4	-0.016031	0.164273	0.038440	0.000000	-0.037839	0.160066	-4.165497
1985.1	-0.014550	0.157556	0.037779	0.000000	-0.039046	0.154371	-4.150879
1985.2	-0.014466	0.150988	0.036434	0.000000	-0.036372	0.150565	-4.103699
1985.3	-0.012631	0.145389	0.035863	0.000000	-0.034468	0.151314	-4.101395
1985.4	-0.008301	0.142293	0.037401	0.000000	-0.029448	0.150906	-4.228027

Table 7.3

Malaysia: Policy Simulation
Effects of 25 per cent Increase in Prices of Commodity Exports under Expansionary Monetary Policy
(Deviations from the Control Solution)

obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	0.000000	0.000000	9.724413	504.7495
1976.2	4.911012	2.964345	3.045915	0.000000	3.305349	7.648108	-92.81081
1976.3	3.436003	4.906403	4.318390	0.000000	1.388876	4.785872	-138.6772
1976.4	0.399527	5.076920	3.414510	0.000000	-0.931602	2.604761	-119.3472
1977.1	-1.528953	4.151924	1.709795	0.000000	-2.160384	1.536418	-58.80721
1977.2	-2.018775	2.996931	0.319146	0.000000	-2.024478	1.309925	-11.38319
1977.3	-1.520865	2.161577	-0.313745	0.000000	-1.263514	1.434660	11.60577
1977.4	-0.788138	1.745766	-0.338261	0.000000	-0.613373	1.586547	13.17880
1978.1	-0.284740	1.605595	-0.103512	0.000000	-0.218522	1.610721	4.006104
1978.2	-0.070070	1.575219	0.140197	0.000000	-0.131085	1.488769	-5.677807
1978.3	-0.087512	1.528767	0.262316	0.000000	-0.197990	1.277046	-11.25259
1978.4	-0.193971	1.420495	0.258315	0.000000	-0.284282	1.032911	-11.42178
1979.1	-0.291964	1.256796	0.179066	0.000000	-0.347219	0.886590	-8.051514
1979.2	-0.304305	1.089463	0.102479	0.000000	-0.327501	0.761739	-5.165039
1979.3	-0.276327	0.938433	0.051502	0.000000	-0.280736	0.710378	-2.823883
1979.4	-0.210069	0.825791	0.041303	0.000000	-0.218949	0.616583	-2.449951
1980.1	-0.179963	0.727976	0.036910	0.000000	-0.189181	0.530185	-2.290039
1980.2	-0.164555	0.638135	0.029078	0.000000	-0.175771	0.472518	-1.925598
1980.3	-0.143511	0.560414	0.024230	0.000000	-0.156779	0.447356	-1.702103
1980.4	-0.110542	0.501903	0.030427	0.000000	-0.129129	0.394107	-2.256191
1981.1	-0.098061	0.449415	0.032626	0.000000	-0.118183	0.361945	-2.541100
1981.2	-0.084179	0.404764	0.034629	0.000000	-0.104896	0.328897	-2.802185
1981.3	-0.073518	0.365947	0.035590	0.000000	-0.095078	0.299892	-2.934204
1981.4	-0.065699	0.331348	0.035106	0.000000	-0.086578	0.261088	-3.006989
1982.1	-0.064958	0.296694	0.030054	0.000000	-0.083014	0.241817	-2.471008
1982.2	-0.055946	0.267305	0.027460	0.000000	-0.075354	0.215764	-2.430176
1982.3	-0.051919	0.239997	0.024136	0.000000	-0.069132	0.199077	-2.156105
1982.4	-0.044112	0.217028	0.022890	0.000000	-0.058141	0.173619	-2.110840
1983.1	-0.041445	0.195110	0.020323	0.000000	-0.056959	0.158547	-1.890594
1983.2	-0.037998	0.175123	0.017658	0.000000	-0.050709	0.151792	-1.697021
1983.3	-0.028646	0.160651	0.018888	0.000000	-0.042335	0.139288	-1.901855
1983.4	-0.024928	0.147911	0.019746	0.000000	-0.036993	0.127146	-1.997284
1984.1	-0.023042	0.135899	0.019356	0.000000	-0.036263	0.117023	-1.918945
1984.2	-0.021386	0.125002	0.018415	0.000000	-0.033561	0.105814	-1.898102
1984.3	-0.020974	0.114195	0.016406	0.000000	-0.032131	0.098912	-1.739990
1984.4	-0.018374	0.104864	0.015356	0.000000	-0.027500	0.089611	-1.664001
1985.1	-0.016882	0.096119	0.014215	0.000000	-0.026497	0.082534	-1.561890
1985.2	-0.015975	0.087917	0.012776	0.000000	-0.023892	0.076954	-1.438904
1985.3	-0.013631	0.080993	0.012112	0.000000	-0.021386	0.073799	-1.385101
1985.4	-0.010813	0.075669	0.012583	0.000000	-0.018203	0.069769	-1.423096

Table 8.1

Malaysia: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Fixed Domestic Credit Policy
(Deviations from the Control Solution)

0bs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$ mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000C00	0.000000	-9.363600	-4.766015	-5.142830	-533.8864
1976.2	-4.256458	-2.337447	-2.643688	0.000000	-2.863281	-5.490538	-57.57840
1976.3	-2.625198	-3.744644	-3.454259	0.000000	-0.998435	-4.207921	110.9280
1976.4	-0.580718	-4.029438	-2.882559	0.000000	0.560823	-3.213589	100.7539
1977.1	0.625077	-3.695832	-1.876535	0.000000	1.404446	-2.546217	64.54233
1977.2	1.082125	-3.141130	-0.976710	0.000000	1.433681	-2.193599	34.83872
1977.3	0.980481	-2.644491	-0.439632	0.000000	1.086473	-1.987652	16.26225
1977.4	0.703790	2.286278	-0.221957	0.000000	0.766979	-1.868010	8.647598
1978.1	0.475582	-2.047098	-0.185128	0.000000	0.533087	-1.777714	7.164398
1978.2	0.319039	-1.887281	-0.222634	0.000000	0.407297	-1.667559	9.017143
1978.3	0.250940	-1.760777	-0.260775	0.000000	0.351740	-1.524002	11.18651
1978.4	0.241221	-1.636579	-0.268491	0.000000	0.332495	-1.327163	11.87180
1979.1	0.272837	-1.492313	-0.233852	0.000000	0.354159	-1.198364	10.51501
1979.2	0.271770	-1.349659	-0.193033	0.000000	0.336430	-1.052257	9.728760
1979.3	0.267466	-1.208400	-0.150569	0.000000	0.315129	-0.978990	8.253601
1979.4	0.224505	-1.091524	-0.131428	0.000000	0.270723	-0.844866	7.792969
1980.1	0.218766	-0.975452	-0.105984	0.000000	0.259302	-0.725249	6.574951
1980.2	0.216586	-0.859887	-0.075120	0.000000	0.248640	-0.647559	4.973389
1980.3	0.193292	-0.757583	-0.054442	0.000000	0.221755	-0.616176	3.825806
1980.4	0.146944	-0.681584	-0.055856	0.000000	0.170148	-0.549930	4.142361
1981.1	0.128375	-0.614332	-0.056344	0.000000	0.162213	-0.513941	4.389404
1981.2	0.106098	-0.559552	-0.060157	0.000000	0.140858	-0.476727	4.868012
1981 3	0.090138	-0.513101	-0.063769	0.000000	0.127273	-0.444567	5.259186
1981.4	0.077956	-0.473207	-0.066249	0.000000	0.115125	-0.396172	5.675201
1982.1	0.078034	-0.432531	-0.061392	0.000000	0.114081	-0.373694	5.048035
1982.2	0.068350	-0.397765	-0.058636	0.000000	0.106164	-0.339511	5.188110
1982.3	0.065214	-0.364402	-0.053585	0.000000	0.100218	-0.318364	4.788254
1982.4	0.057077	-0.335561	-0.050720	0.000000	0.086116	-0.282539	4.681152
1983.1	0.056506	-0.306293	-0.044895	0.000000	0.088204	-0.262463	4.178894
1983.2	0.051992	-0.279837	-0.040040	0.000000	0.078756	-0.255260	3.849979
1983.3	0.039111	-0.260687	-0.041376	0.000000	0.067109	-0.239131	4.166443
1983.4	0.033650	-0.244173	-0.042423	0.000000	0.058665	-0.223785	4.292908
1984.1	0.029881	-0.229465	-0.042800	0.000000	0.058114	-0.211301	4.244019
1984.2	0.029121	-0.215190	-0.041285	0.000000	0.055539	-0.196408	4.255501
1984.3	0.028234	-0.201180	-0.038814	0.000000	0.053347	-0.188840	4.116211
1984.4	0.024546	-0.189383	-0.037573	0.000000	0.046202	-0.175273	4.071503
1985.1	0.022609	-0.178444	-0.035228	0.000000	0.046457	-0.165651	3.980469
1985.2	0.022124	-0.167613	-0.034134	0.000000	0.042772	-0.158283	3.844696
1985.3	0.018778	-0.158690	-0.033366	0.000000	0.039444	-0.155649	3.815796
1985.4	0.014673	-0 152044	-0.034046	0.000000	0.034173	-0.151706	3.849976

Table 8.2

Malaysia: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Complete Sterilization
(Deviations from the Control Solution)

Obs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$ mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	-9.363600	-4.766015	0.000000	-533.8864
1976.2	-1.608909	-0.700666	-0.967358	0.000000	-1.095454	0.000000	-118.6564
1976.3	-0.002570	-0.638352	-0.647039	0.000000	0.259606	0.000000	20.77936
1976.4	0.417917	-0.400664	-0.205764	0.000000	0.465842	0.000000	7.192810
1977.1	0.362478	-0.207934	0.044936	0.000000	0.312863	0.000000	-1.545309
1977.2	0.211556	-0.097697	0.123585	0.000000	0.144230	0.000000	-4.407898
1977.3	0.098372	-0.046213	0.115543	0.000000	0.041374	0.000000	-4.274521
1977.4	0.037579	-0.025698	0.081681	0.000000	0.002421	0.000000	-3.181809
1978.1	0.014107	-0.017277	0.051220	0.000000	-0.010811	0.000000	-1.982193
1978.2	0.005337	-0.013431	0.029863	0.000000	-0.008506	0.000000	-1.209032
1978.3	0.004190	-0.010430	0.017545	0.000000	-0.003755	0.000000	-0.752594
1978.4	0.004160	-0.007656	0.010968	0.000000	-0.000461	0.000000	-0.484985
1979.1	0.003720	-0.005377	0.007452	0.000000	8.88D-05	0.000000	-0.334595
1979.2	0.002802	-0.003683	0.005139	0.000000	0.000372	0.000000	-0.259644
1979.3	0.001980	-0.002503	0.003608	0.000000	0.000253	0.000000	-0.198883
1979.4	0.001300	-0.001700	0.002564	0.000000	0.000170	0.000000	-0.152954
1980.1	0.000984	-0.001191	0.001809	0.000000	9.19D-05	0.000000	-1.112061
1980.2	0.000621	-0.000815	0.001141	0.000000	0.000000	0.000000	-0.075500
1980.3	0.000593	-0.000503	0.000866	0.000000	0.000175	0.000000	-0.060196
1980.4	0.000000	-0.000552	0.000387	0.000000	-0.000247	0.000000	-0.028702
1981.1	0.000547	-0.000246	0.000473	0.000000	0.000284	0.000000	-0.036896
1981.2	0.000167	-0.000233	0.000299	0.000000	0.000000	0.000000	-0.023499
1981.3	0.000581	8.05D-05	0.000480	0.000000	0.000335	0.000000	-0.039612
1981.4	8.12D-05	0.000144	0.000376	0.000000	-7.74D-05	0.000000	-0.032898
1982.1	-8.46D-05	0.000154	0.000205	0.000000	-0.000181	0.000000	-0.015991
1982.2	-0.000563	-0.000216	-0.000285	0.000000	-0.000508	0.000000	0.025330
1982.3	-0.000151	-0.000275	-0.000184	0.000000	0.000000	0.000000	0.017059
1982.4	0.000000	-0.000327	-9.59D-05	0.000000	0.000000	0.000000	0.009033
1983.1	0,000635	0.000000	0.000289	0.000000	0.000431	0.000000	-0.027008
1983.2	0.000151	6.46D-05	0.000289	0.000000	-7.61D-05	0.000000	-0.027954
1983.3	0.000000	0.000134	8.78D-05	0.000000	-8.34D-05	0.000000	-0.010193
1983.4	0.000000	6.86D-05	0.000000	0.000000	0.000000	0.000000	0.000000
1984.1	0.000000	7.47D-05	0.000000	0.000000	0.000000	-2.48D-05	0.000000
1984.2	0.000000	6.49D-05	0.000000	0.000000	0.000000	-1.61D-05	0.000000
1984.3	0.000000	6.38D-06	0.000000	0.000000	0.000000	-2.41D-05	0.000000
1984.4	0.000000	6.22D-05	0.000000	0.000000	0.000000	-2.35D-05	0.000000
1985.1	0.000000	0.000000	0.000000	0.000000	0.000000	-2.33D-05	0.000000
1985.2	0.000000	6.71D-05	8.80D-05	0.000000	-7.17D-05	-1.55D-05	-0.009903
1985.3	0.000000	0.000000	0.000000	0.000000	0.000000	-1.61D-05	0.000000
1985.4	0.000000	6.64D-05	0.000000	0.000000	0.000000	-1.65D-05	0.000000

Table 8.3

Malaysia: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Partial Sterilization
(Deviations from the Control Solution)

0bs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$ mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	-9.363600	-4.766015	-2.571401	-533.8864
1976.2	-2.924220	-1.511665	-1.797989	0.000000	-1.974598	-2.864829	-83.34660
1976.3	-1.367662	-2.220831	-2.080886	0.000000	-0.406277	-2.409795	66.82440
1976.4	-0.234796	-2.337602	-1.660890	0.000000	0.415653	-2.083017	58.05319
1977.1	0.272741	-2.199106	-1.133554	0.000000	0.752141	-1.830915	38.98744
1977.2	0.443969	-1.977655	-0.709115	0.0000000	0.721591	-1.674397	25.29311
1977.3	0.399245	-1.780643	-0.461171	0.000000	0.561933	-1.546406	17.05948
1977.4	0.309660	-1.627663	-0.344346	0.000000	0.436331	-1.453480	13.41580
1978.1	0.236311	-1.511116	-0.299212	0.000000	0.362177	-1.381655	11.57899
1978.2	0.188052	-1.419081	-0.285131	0.000000	0.310214	-1.304617	11.54839
1978.3	0.163016	-1.339145	-0.278273	0.000000	0.276332	-1.210904	11.93710
1978.4	0.158901	-1.259605	-0.264382	0.000000	0.254025	-1.076544	11.69110
1979.1	0.180119	-1.165989	-0.231000	0.000000	0.267998	-0.991485	10.38672
1979.2	0.180285	-1.072952	-0.197889	0.000000	0.253362	-0.887030	9.973572
1979.3	0.181169	-0.978423	-0.164085	0.000000	0.240341	-0.838116	8.995117
1979.4	0.153016	-0.900044	-0.147997	0.000000	0.208999	-0.734029	8.775024
1980.1	0.156052	-0.818013	-0.124759	0.000000	0.208657	-0.637797	7.739014
1980.2	0.162882	-0.731704	-0.094844	0.000000	0.205063	-0.574208	6.279297
1980.3	0.149847	-0.652959	-0.072850	0.000000	0.186926	-0.549514	5.118698
1980.4	0.115677	-0.593705	-0.069583	0.000000	0.153488	-0.494241	5.160240
1981.1	0.102736	-0.540419	-0.066547	0.000000	0.141743	-0.466363	5.184204
1981.2	0.085893	-0.496671	-0.067117	0.000000	0.123805	-0.437946	5.430603
1981 3	0.071620	-0.460527	-0.069583	0.000000	0.111171	-0.414381	5.738586
1981.4	0.060641	-0.430144	-0.072163	0.000000	0.099981	-0.375497	6.181091
1982.1	0.061575	-0.398490	-0.068254	0.000000	0.101315	-0.359660	5.612000
1982.2	0.053219	-0.372112	-0.066638	0.000000	0.094730	-0.332096	5.896240
1982.3	0.052153	-0.345991	-0.062248	0.000000	0.091148	-0.316229	5.563568
1982.4	0.045309	-0.323860	-0.060068	0.000000	0.078756	-0.285047	5.541992
1983.1	0.046359	-0.300334	-0.054717	0.000000	0.083362	-0.268576	5.092316
1983.2	0.043744	-0.278617	-0.049861	0.000000	0.075797	-0.264696	4.793945
1983.3	0.032473	-0.263266	-0.050910	0.000000	0.065713	-0.251871	5.126404
1983.4	0.028033	-0.250125	-0.051768	0.000000	0.057901	-0.239803	5.238403
1984.1	0.024409	-0.238652	-0.052428	0.000000	0.058509	-0.230540	5.197998
1984.2	0.024058	-0.227432	-0.051277	0.000000	0.056353	-0.218394	5.286598
1984.3	0.023396	-0.216554	-0.049390	0.000000	0.054558	-0.213558	5.238037
1984.4	0.019735	-0.207838	-0.048918	0.000000	0.047542	-0.202591	5.300873
1985.1	0.018442	-0.199468	-0.048055	0.000000	0.049539	-0.195363	5.279968
1985.2	0.018525	-0.191049	-0.046249	0.000000	0.046246	-0.190511	5.209305
1985.3	0.015324	-0.184450	-0.045949	0.000000	0.043356	-0.191388	5.254791
1985.4	0.010756	-0.180443	-0.047582	0.000000	0.037681	-0.190868	5.380981

Table 8.4

Malaysia: Policy Simulation
Effects of 10 per cent Decline in Real Income
of Industrial Countries under Contractionary Monetary Policy
(Deviations from the Control Solution)

0bs	ABR%	P%	MQ%	XQ%	YQ%	M%	B M$ mn.
1975.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
1976.1	0.000000	0.000000	0.000000	-9.363600	-4.766015	-10.28570	-533.8864
1976.2	-6.974275	-4.036173	-4.382559	0.000000	-4.670577	-9.997384	-4.593292
1976.3	-4.783676	-6.599569	-6.000792	0.000000	-1.938227	-6.055697	192.7054
1976.4	-0.349482	-6.692021	-4.630530	0.000000	1.441655	-3.112552	161.8514
1977.1	2.449757	-5.384946	-2.207254	0.000000	3.225877	-1.744733	75.91667
1977.2	3.050550	-3.815140	-0.248701	0.000000	2.958112	-1.551035	8.870804
1977.3	2.193899	-2.700562	0.605309	0.000000	1.757950	-1.828884	-22.39108
1977.4	1.044928	-2.181852	0.565112	0.000000	0.765483	-2.098889	-22.01691
1978.1	0.297513	-2.048245	0.165298	0.000000	0.201487	-2.146643	-6.397400
1978.2	0.014976	-2.050892	-0.211314	0.000000	0.110651	-1.970235	8.558182
1978.3	0.079369	-2.009884	-0.383704	0.000000	0.243614	-1.669028	16.45920
1978.4	0.260540	-1.868318	-0.363346	0.000000	0.388390	-1.336062	16.06711
1979.1	0.409007	-1.646228	-0.238994	0.000000	0.481105	-1.142862	10.74622
1979.2	0.424059	-1.419953	-0.125804	0.000000	0.448972	-0.985219	6.340454
1979.3	0.376770	-1.219650	-0.056077	0.000000	0.376600	-0.924877	3.072998
1979.4	0.279144	-1.073382	-0.046055	0.000000	0.287235	-0.807074	2.729981
1980.1	0.234469	-0.948829	-0.045092	0.000000	0.245173	-0.695679	2.797974
1980.2	0.213317	-0.834287	-0.038423	0.000000	0.228113	-0.619950	2.543884
1980.3	0.187475	-0.734190	-0.033183	0.000000	0.205488	-0.586157	2.331802
1980.4	0.145125	-0.658338	-0.041182	0.000000	0.170161	-0.515693	3.054260
1981.1	0.131041	-0.588972	-0.042713	0.000000	0.157419	-0.473605	3.327400
1981.2	0.112177	-0.530144	-0.044718	0.000000	0.138926	-0.430631	3.618012
1981 3	0.097916	-0.478901	-0.045660	0.000000	0.125650	-0.393118	3.765900
1981.4	0.086122	-0.433988	-0.045658	0.000000	0.113383	-0.342399	3.911499
1982.1	0.085139	-0.388866	-0.039270	0.000000	0.108889	-0.317180	3.229004
1982.2	0.072829	-0.351021	-0.036633	0.000000	0.098397	-0.282752	3.240051
1982.3	0.067840	-0.315536	-0.032311	0.000000	0.090818	-0.260587	2.888489
1982.4	0.058556	-0.285285	-0.030229	0.000000	0.076987	-0.227186	2.790039
1983.1	0.056111	-0.255670	-0.025829	0.000000	0.075976	-0.207778	2.404114
1983.2	0.050000	-0.229681	-0.022690	0.000000	0.066372	-0.199078	2.182007
1983.3	0.038103	-0.210397	-0.024508	0.000000	0.055769	-0.182800	2.467224
1983.4	0.032991	-0.193615	-0.025645	0.000000	0.043688	-0.166953	2.595306
1984.1	0.030112	-0.178225	-0.025368	0.000000	0.047343	-0.153707	2.515015
1984.2	0.028627	-0.163496	-0.023833	0.000000	0.044475	-0.139134	2.456497
1984.3	0.027630	-0.149231	-0.021360	0.000000	0.042169	-0.130155	2.265137
1984.4	0.023932	-0.137211	-0.020122	0.000000	0.035926	-0.117971	2.180389
1985.1	0.022326	-0.125806	-0.018584	0.000000	0.035004	-0.108693	2.043091
1985.2	0.020424	-0.115374	-0.017067	0.000000	0.030898	-0.101224	1.922302
1985.3	0.017526	-0.106544	-0.016495	0.000000	0.028125	-0.096814	1.886398
1985.4	0.014444	-0.099346	-0.016594	0.000000	0.024251	-0.091498	1.876953

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