MACROECONOMIC POLICY AND ITS IMPACT ON THE PHILIPPINE ECONOMY

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Declaration

Except where otherwise indicated

this thesis is my own work.

T. C. Daquila

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ABSTRACT

The thesis aims to formulate a theoretical framework which enables us to analyze a country's macroeconomic policy and its impact on the domestic economy, and then relate this analytical framework to the case of the Philippines. This objective of the thesis (and hence its contribution) was based on the argument that while external shocks during the 1970s were indeed a necessary condition for the occurrence of the Philippine crisis during the 1980s, the domestic macroeconomic policy also contributed significantly to the economic debacle.

The thesis answers three central questions; the first question focuses on the conduct/determination of the Philippine macroeconomic policy -fiscal, monetary, and exchange rate policy; the second question deals with the impact of domestic fiscal and money expansion under fixed and flexible exchange rates on the real exchange rate, the current account, employment and output; and the third question analyzes the impact of macroeconomic policy on the country's debt, investment, savings and wealth.

In response to the first central question, we provide an historical and analytical review of the Philippine fiscal, monetary and exchange rate policy. Philippine macroeconomic policy during the 1966-1984 period was generally too expansionary, which was a departure from the conservative policy during the 1950s and the early 1960s. The Philippine government has relied heavily on foreign borrowings, particularly during the 1970s, in order to finance the government budget deficits and the current account deficits. The Philippines had fixed exchange rate during the 1966-1969 period, and then allowed the peso-US dollar rate to float during the post-1970 period. The Central Bank has, however, intervened in the foreign exchange market.

In response to the second central question, we develop a general theoretical framework in the context of the Salter-Swan tradeable and non-tradeable sectoral model. The basic medium-run model has three central assumptions; namely, (a) a small country assumption, (b) flexibility of the nominal wages to guarantee full employment, and (c) flexibility of non-tradeables prices to assure equilibrium in the non-tradeables market. We also analyze a Keynesian short-run model incorporating nominal wage rigidity. Then, we analyze the impact of pure money expansion and pure fiscal expansion under fixed and flexible exchange rates on the real exchange rate (the ratio of the domestic prices of tradeables to the domestic prices of non-tradeables), the current account, sectoral employment and output. We are able to come up with alternative estimates of the domestic prices of tradeables, domestic prices of non-tradeables, and the real exchange rates based on three alternative classifications of the tradeable sector and the non-tradeable sector. We are also able to come up with alternative estimates of sectoral employment and sectoral output.

Factual evidence, in the form of casual observations and some econometric work enabled us to confirm and conclude the relevance of the Salter-Swan theoretical framework in analyzing the effects of fiscal and monetary policy in the Philippines under fixed and flexible exchange rates. There also existed a significant relationship between the current account balance and the real exchange rate in the Philippines: the real exchange rate depreciated and the current account balance showed an improvement during the 1967-1973 period; and subsequently until 1984, the real exchange rate appreciated and the current account balance deteriorated. Such a significant relationship was attributed to the linkage between changes in the real exchange rates and the exogenous changes in fiscal and monetary policy, and to the linkage between changes in the real exchange rate and changes in the terms of trade. Employment and output trends showed consistency with the expected theoretical results: non-tradeable output increased while tradeable output decreased during the post-1973 period since the price of non-tradeables increased relative to tradeables; and non-tradeable employment increased while tradeable employment decreased during the same period presumably owing to the lower product wage of the non-tradeable sector relative to the product wage of the tradeable sector.

In answer to the third central question, we develop a framework of analysis to explain each of the observed phenomena; namely, rising gross external debt, widening investment-savings gap, and increasing real wealth of the Philippines. We are able to come up with estimations or measures of the economic variables under investigation.

We concluded that the financing of the current account deficits accounted for about two-thirds of the rise in the cumulative external debt of the Philippines during the 1971-1984 period, and the financing of private capital outflows accounted for about one-third. The public sector deficit accounted for a larger share in the widening of the national investment-savings gap, and the private sector deficit accounted for a smaller share. The growth of capital stock exceeded the growth of net external debt and hence real savings were positive. Real wealth appears to have been increasing, and that the Philippine debt problem is a liquidity problem which will be self-financing if the investments undertaken turn out to have been profitable.

CHAPTER 1

INTRODUCTION

1.1 Background of the Thesis Problem

During the last decade, the economic performance of most countries had been affected by the impact of both external and internal factors. External factors include increased world prices and increased world interest rates.

Following Sieper and Fane (1982), we can summarize the comparative effects of these external factors under fixed and flexible exchange rate systems.[1]

Under a fixed exchange rate system, increased world prices and devaluation have similar effects. The tradeable sector is directly stimulated generating an extra income which increases the demand for non-tradables; so too does the higher price of tradeables. Consequently, output and price of non-tradeables increase. Under flexible exchange rate regime, the domestic economy is completely insulated from increases in the general level of world prices.[2] The problem of imported inflation only exists in a system of fixed or managed exchange rates. Changes in the terms of trade affect the level of real income, and hence a country cannot insulate itself from changes in the relative prices in the world market for its imports and exports.

Under a fixed exchange rate system, an increase in the world interest rates has no

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[1] See E. Sieper and G. Fane, 1982, "Exchange controls and exchange rate systems", in Australian Financial System Inquiry, Part 2. Macroeconomic Policy: External Policy, particularly pages 237-256. Among the major issues, the report included an examination of the implications of the exchange rate system for monetary policy in particular and economic policy in general.

[2] If world prices increase by 1%, then domestic currency appreciates by 1%, leaving the domestic prices of foreign goods unchanged.

domestic effects in the absence of capital mobility. With some capital mobility, the demand for non-tradeables is depressed so that output, employment and prices in this sector decline. Under flexible exchange rate system, an increase in the world interest rates has no domestic effects in the complete absence of capital mobility. With perfect capital mobility, domestic interest rates rise and hence reduces the demand for money. A fall in the demand for money improves the trade balance, which in turn has an expansionary multiplier effect on the rest of the economy. The rise in interest rates results in the contraction of the non-tradeables sector and in the expansion of the tradeables sector.[3]

As a consequence of the oil price shocks, of the recession in the developed economies, and of the related fall in the terms of trade, oil importing developing countries, which have been heavily dependent on imported oil, extremely suffered the brunt of oil price increases via experiencing not only external payments difficulties (because of the marked increase in their import expenditures) but also domestic inflation and unemployment problems.

While, on the one hand, most oil-importing countries had been adversely affected by the oil price increases (the quadrupling of prices in 1973-1974 and the doubling of prices in 1978-1979); on the other hand, the major oil-exporting countries had benefited tremendously via enormous foreign exchange earnings. These surplus funds were then deposited in the banking sector (mostly large commercial banks) which in turn recycled the funds via lending them to oil-importing developing countries. The latter were induced to borrow at reasonably lower and even negative interest rates particularly between 1974 and 1978 (when nominal interest rates were low and inflation rates were high) so that borrowing by these countries would presumably be justified. Continuous dependence on foreign financing created a serious problem during the early 1980s when real interest rates

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[3]Sieper and Fane (1982, page 256) reported, among others, that the greatest shocks to the Australian economy appear to have come from changes in world prices with The Great Depression, the Korean War and the commodities boom of the early 1970s as obvious examples; and indicated further that fluctuations in export prices will continue to be a major source of disturbance to the Australian economy.

rose (nominal rates were adjusted upwards and inflation rates declined). Consequently, external debt of most countries rose enormously.

1.2 Statement of the Thesis Problem

In his address before the Philippine Economic Society during its 21st annual meeting, G. P. Sicat (1984) claimed that since the advent of the economic crisis in the Philippines, there had been a surfeit of explanations about what went wrong with the Philippine economy. Among the studies which attempt to explain why the Philippine crisis has occurred, Sicat commended the Task Force report of some professors at the University of the Philippines School of Economics (UPSE) and cited that it has become a major document due to the thoroughness of its coverage and the depth of the effort at quantifying its claims which has opened some interesting proportions that would in the future be debated.[4]

In their analysis of the Philippine economic crisis, the participants of the University of the Philippines School of Economics workshop (June 1984) concluded that

> Different and often competing explanations have been put forward for the occurrence of the country's economic debacle [over the period 1966 to 1984], among which [were], that (1) it was entirely or primarily due to external circumstances [which were] affecting all developing countries, and over which the present leadership had no control; (2) it was entirely or primarily due to mismanagement of the [Marcos] regime [which was generally too expansionary in its fiscal and monetary policy, and hence was a complete departure from the conservative macroeconomic policy during the 1950s and the 1960s], and (3) it was entirely or primarily due to an unforeseen random event which was the [1983] assassination of Aquino [which affected the economy through the following channels: capital flight from the Philipppines and waning investors' confidence on political and economic stability of the Philippines]. While there is some truth to each of these [factors], none of them is a sufficient explanation by itself.[5]

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[4]See G. P. Sicat, 1984, "A historical and current perspective of Philippine economic crisis", Discussion Paper 8409, University of the Philippines School of Economics, page 3.

[5]See D. B. Canlas, E. S. De Dios, R.V. Fabella, F.M. Medalla, S.C. Monsod, M.F. Montes, V.B. Paqueo, E.M. Remolona, E.A. Tan and R.L.P. Tidalgo, 1984, "Analysis of the Philippine economic crisis: a workshop report", page 3. This report embodies the results of a series of workshops on the economic crisis besetting the Philippine economy until 1983. These workshops were held between November 1983 and May 1984 in which interested faculty members of the University of the Philippines School of Economics participated.

The UPSE workshop report (1984) further claimed that the Aquino assassination simply bore through the already weakened fabric of the Philippine economy.[6] Sicat (1984) also argued that his assassination did an enormous damage of setting back a large part of the timetable of development in the nation, undermined the credibility before the world of the [previous] government, and took away the confidence that was already shaky at that point and made it a large event of consequential dimensions, thus aggravating a crisis that was already showing its head.[7]

Moreover, the World Bank (1984) concluded that the adverse exogenous external developments, combined with expansionary demand policies, led to an increase in the country's current account deficit and a rapid accumulation of external debt.[8]

On the external front, some studies had investigated the effects of external shocks on the economic activity of some countries including the Philippines.[9] Balassa (1981) decomposed and estimated the impact of external shocks on the current account balance of payments effects into their two components: (a) the terms of trade effects (changes in the prices of exports and imports), and (b) the volume effect (changes in volume); and indicated the relative importance of the former over the latter in the case of the Philippines: i.e. 78% of the balance of payments effects was due to terms of trade effects

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[6] See Canlas, and others, 1984, page 3.

[7] See Sicat, 1984, page 5.

[8] See World Bank, 1984, The Philippines: A review of external debt, page i. The Philippine government invited a World Bank mission to examine the growth and structure of the Philippine debt analyze the policy implications of the country's debt burden and assess the institutional framework for debt management.

[9] See, for instance, B. Balassa, 1981, "The policy experience of twelve less developed countries 1973-78". World Bank Staff Working Paper Number 449; S. Naya, 1984, "Effects of external shocks on the balance of payments, policy responses and debt problems of Asian developing countries", The Philippine Economic Journal. Volume 13, Number 1, University of the Philippines School of Economics, pp. 23-49; W. E. James, 1983, "External shocks, energy policy and macroeconomic performance of asian developing countries:a policy analysis", Economics Staff Paper, Number 17, Asian Development Bank; and J Lee and L. Labios, 1985, "The effects of terms of trade changes on the balance of payments and real national income of asian developing countries", Report Number 28, Asian Development Bank

while 22% was due to the volume effects.[10] Following Balassa's methodology, Naya (1983) estimated that 75% of the balance of payments effects was due to the terms of trade effect and 25% was due to the volume effect.[11] James (1983) reported that external debt of the non-oil developing Asian countries had mounted over the period of the two oil shocks, but did not constitute a serious problem until very recently as relatively high debt countries (measured as the ratio of debt service to export receipts) have also tended to have strong average rates of growth in exports and GNP: this is true for the case of the Republic of Korea and Thailand but less so for the Philippines.[12]

The role of external shocks in the economic performance of the Philippines, therefore, cannot be denied. Thus, the Philippine economy, like other economies, had been affected by the occurrence of external shocks particularly the deterioration in the terms of trade. If the terms of trade deteriorated a country could adjust by reducing absorption, and run a current account deficit and build up foreign debt.[13]

In the second case, absorption need not increase; it fails to be reduced. If there is actually a rise in absorption then there is more than a failure of adjustment to the external shock; there is an internally-generated shock.

Despite the existence of external current account deficits and internal inflationary

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[10]See Balassa, 1981, page 31a. Figures in per cent were obtained as annual averages for the period 1974 to 1978. A further investigation of external shocks experienced by the LDCs and the adjustment policies followed by these countries in the years 1974 1976 and 1979-1981 is analyzed in Balassa, 1984, "External shocks and adjustment policies in twelve LDCs, World Bank Report number DRD80.

[11]See Naya, 1983, page 30. The figures in per cent were obtained as annual averages for the period 1974 to 1982. In his paper, Naya attempted to assess the magnitude of the external shocks in terms of their advere impact on the balance of payments of twelve Asian developing countries and to examine the policy responses to these shocks.

[12]James, 1983, page 5. In his paper, James presents an analysis of the macroeconomic performance of selected Asian developing countries in a period of global economic disturbances (1970 to 1983) particularly the impact of the two oil price shocks and two deep recessions in the industrialized countries and of the oil glut on the growth, inflation and trade performance of the countries examined.

[13]For analysis of economic policies pursued by some countries in response to external shocks, see B. Balassa, 1981, "The policy experience of twelve less developed countries:1973-78". World Bank Staff Working Paper. No. 449; B. Balassa, 1984a, "External shocks and adjustment policies in twelve LDCs: 1974-76 and 1979-81, World Bank Report, Number DRD80. B. Balassa, 1984b, The problem of debt in developing countries, World Bank Discussion Paper, Number DRD88.

problems during the post-1973 period, the Philippine government continued to adopt absorption-increasing policies via increased government expenditures on non-tradeables and tradeables and faster growth of domestic credit creation. With unmatched revenues, the increased government spending resulted in higher government budget deficits. In order to finance the rising government expenditures and the external deficits, the Philippines had relied heavily on foreign borrowings made available by the oil-exporting countries through foreign commercial banks.

From 1966 onwards the Philippine government embarked on expansionary demand policies via persistent rise in government spending on non-tradeables and tradeables and financed in large part by the growth of the narrow money supply. The Philippine macroeconomic policy differed from that of several more conservative oil-importing developing countries such as Thailand and Republic of Korea. These countries also experienced external deficits and domestic inflationary pressures following OPEC I (when oil prices rose during 1973-1974) and OPEC II (when oil prices rose during 1978-1979). They followed, however, the orthodox stabilization policy of restrictive fiscal and/or monetary policy and a switching policy via devaluation of the exchange rate.

We have known that the economic performance of the Philippines during the 1966-1984 period had been affected by both external and internal factors. While it is true that external shocks during the 1970s had affected the Philippine economy adversely, the thesis argues that the domestic macroeconomic policy has also contributed significantly to the occurrence of the Philippine crisis during the 1980s. This argument supports the claim of the UPSE workshop report that while external difficulties were certainly a necessary condition for the crisis, the major explanation for its occurrence must lie with the character of economic policies, and of policy making by the leadership.

Rather than focusing on the different external factors and their impact on the domestic economy, the thesis problem would, therefore, concentrate on the role of domestic macroeconomic policy and its impact on Philippine economy, given the external shocks.

The major concern, and hence the contribution of the thesis is the formulation of a general theoretical framework which will enable us to analyze macroeconomic policy -monetary and fiscal policy- under fixed and flexible exchange rates, and its impact on the domestic economy. Then we will relate the formulated framework to the case of the Philippines; ie. to analyze fiscal and monetary policy and its effects on the Philippine economy.

1.3 Objectives of the Thesis

The research has two specific purposes: analytical and policy, and three central questions.

The analytical purpose poses the first central question: "How are monetary, fiscal and exchange rate policies determined in the Philippines?" It is indeed important to understand the mechanism of monetary, fiscal and exchange rate policies in the Philippines and the institutional environment in which those policy actions and changes have been followed, in order to have an appropriate diagnosis of the scope of such policy actions.

The policy purpose focuses on the second and third central questions. The second central question is, "What are the effects of macroeconomic policy on the real exchange rates, the current account, employment, and output?"

In the thesis, changes in macroeconomic policy refer to a pure fiscal expansion and a pure money expansion. Pure fiscal expansion refers to the case where the government increases its expenditures on non-tradeables via the sale of bonds (the budget deficit is equal to change in bonds, money supply remaining constant). The measure of pure fiscal expansion that we will use is the amount of any bond-financed rise in government's domestic budget deficit. An increase in the domestic budget deficit results from an increase in government expenditures on non-tradeables unmatched by revenues. Pure monetary policy refers to domestic credit creation via open market operations. A budget

deficit financed by domestic credit creation, therefore, involves both, fiscal and monetary expansion.

The policy purpose also seeks to determine the long-run aspect of macroeconomic policy as full internal and external balance are restored. Thus, the third central question is " What are the long-run effects on the country's debt, investment, savings, and wealth?"

1.4 Approach to the Study

In order to accomplish the desired objectives, the following activities are undertaken. The approach to answering the first central question is via an historical and analytical investigation of macroeconomic policy (and the corresponding economic reforms) in the Philippines using relevant economic indicators.

The approach to answering the second central question is to develop a general theoretical framework of analyzing monetary and fiscal policy under fixed and flexible exchange rates. In analyzing the relative effectiveness of fiscal and monetary policy, macroeconomic theorizing has developed from the traditional closed economy assumption toward considering the openness of the economy. In open economy macroeconomic models, we need at least two goods, distinguishing between a domestic good and a foreign good, or alternatively between a traded good (tradeable) and a non-traded good (non-tradeable).

The traditional approach to open economy macroeconomics in the context of the domestic and foreign good model was developed by Meade (1951), Mundell (1968) and

Fleming (1962).[14] According to Mundell, for example, both monetary and fiscal policy work more effectively under flexible than under fixed exchange rates without capital mobility. In the presence of perfect capital mobility, monetary policy is ineffective under fixed exchange rates and fiscal policy ineffective under flexible exchange rates. Fleming has suggested that the use of fiscal policy under flexible exchange rates may lead to a smaller increase in employment and income than under fixed exchange rates.

The approach to open economy macroeconomics can also be done in the context of the Salter (1959) and Swan (1960) two sector model: tradeables and non-tradeables. This thesis is developed in the context of this framework.[15] Salter illustrates by means of variations on one simple diagram certain features of the relationship between internal and external balance. Its object is merely to indicate the intimate relationships between price and expenditure effects in reconciling full employment policy with balance of payments policy. Swan explores, in a simplified economic system, conditions under which the objectives of internal balance, external balance, and internal price stability, may be realized, together severally.[16] Other important contributions which have been developed

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[14]See J. E. Meade, 1951, The Theory of Economic Policy, Volume I: The Balance of Payments, London; R. A. Mundell, 1968, International Economics, New York, and J. Marcus Fleming, 1962, "Domestic financial policies under fixed and under floating exchange rates", IMF Staff Papers, pages 369-79. Other relevant studies are as follows: A. O. Krueger 1965, "The impact of alternative government policies under varying exchange rate systems", in Quarterly Journal of Economics, Volume 79, pages 195-206; K. Brunner and A. H. Meltzer, 1976, "Monetary and fiscal policy in open, interdependent economies with fixed exchange rates", in Recent Issues in International Monetary Economics. E. Claassen and P. Salin (editors), North Holland Publishing Co., Netherlands; V. Galbis, 1975, "Monetary and exchange rate policies in a small open economy", in IMF Staff Papers, Volume XXII, Number 2, pages 313-343; V. Argy and J. Salop, 1979, "Price and output effects of monetary and fiscal policy under flexible exchange rates", in IMF Staff Papers, Volume 26, Number 2, pages 224-256; W. H. Branson and W.H. Buiter, 1982, "Monetary and fiscal policy with flexible exchange rates" NBER Working Paper number 901; and P. De Grauwe, 1983, Macroeconomic Theory for the Open Economy, England.

[15]See W. Salter, 1959, "Internal and external balance: the role of price and expenditure effects", in The Economic Record, Volume 35, pages 226-238; and T. Swan, 1960, "Economic control in a dependent-economy model" in The Economic Record, Volume 36, pages 51-66.

[16]Internal balance refers to the maintenance of a balance between effective aggregate supply of and demand for goods and services produced by domestic resources, corresponding with some definition of "full employment without inflationary pressures". External balance refers to the maintenance of a balance between effective aggregate supply of exports and demand for imports, corresponding (after allowing for the terms of trade and for financial transfers) with some definition of balance of payments equilibrium. Internal price stability refers to the maintenance of a specified general price level of goods and services bought domestically corresponding with some definition of price stability in terms of an index number.

in the context of the tradeable/non-tradeable framework are Corden (1960, 1981), Dornbusch (1973, 1980), Turnovsky (1980), Sieper and Fane (1982), Fane (1982, 1985), and Pitchford (1985).[17]

The approach to developing the structure of the basic model is as follows. Firstly, a basic model is formulated via integrating various elements of the existing macroeconomic theory. A simple mathematical treatment of the model is aimed to facilitate our analysis. It has to be stated that the mathematical formulation of the basic model facilitates the analysis of the theoretical framework, and also provides a more convenient manner of evaluating Philippine macroeconomic policy and its impact on a number of economic variables under investigation. Moreover, it was agreed during the mid-term review[18] of my thesis progress that I would not undertake an empirical estimation of a complete macroeconometric model for such an approach was believed to be far too ambitious for this academic exercise, given the time constraint and the difficulty of formulating an appropriate econometric model for an economy like the Philippines which is highly regulated.

After specifying the structure of the basic model, we introduce changes in the macroeconomic policy via a pure money expansion, and a pure fiscal expansion and analyze their effects on the current account, the real exchange rates, output and employment under fixed and flexible exchange rates.

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[17]See, for instance, W. M. Corden, 1960, " The geometric representation of policies to attain internal and external balance", in Review of Economic Studies, Volume 28, pages 1-22; W. M. Corden, 1981 (2nd edition), Inflation, Exchange Rates and the World Economy, chapters 1-3, pages 1-52; R Dornbusch, 1973, "Devaluation, money and non-traded goods", in American Economic Review, Volume 63, pages 871-880; R. Dornbusch, 1980, Open Economy Macroeconomics, chapter 6, Home goods and traded goods:the dependent economy model, pages 93-116; S. Turnovsky, 1980, "Monetary and fiscal policy in a long-run macroeconomic model", in The Economic Record, Volume 56, pages 158-170; E. Sieper, and G. Fane, 1982, "Exchange controls and exchange rate system", Technical Paper No. 6, Australian financial system inquiry, particularly pages 237-279; G. Fane, 1982, "A geometric analysis of exchange rate adjustments under static and rational expectations", The Economic Record, Volume 58, pages 367-374; and J. Pitchford, 1985, "Fiscal deficits, exchange rates and the current account", Australian National University.

[18]Members of the mid-term review committee during 25 November 1985 were Professor W. Max Corden, Drs. George Fane, Peter Warr and Hal Hill. A simulation exercise was not carried out due to the unavailability of some published studies which could have provided some reasonable parameters and also due to time constraint.

We distinguish three "runs" of the model: the very short-run in which money wage is assumed sticky and full employment is not guaranteed; the medium run in which the money wage adjusts to give full employment but the current account may not balance and the country is saving or dissaving; and the very long run in which the current account surplus (or deficit) is corrected via wealth effects e.g. with current account deficit, wealth is falling so that spending gradually falls. The current account tends towards balance in the long-run.

From the theoretical framework, we can distinguish the effects of a pure money expansion and the effects of a pure fiscal expansion under fixed exchange rates and flexible exchange rates. Under fixed exchange rates and given some (but not perfect) capital mobility, the effects of a pure money expansion in the Keynesian short-run (when money wages are fixed) are an appreciation of the real exchange rate (domestic prices of tradeables remain constant and domestic prices of non-tradeables rise) so that the demand for tradeables increases resulting in a current account deficit, and an increase in the employment and output in the non-tradeable sector (while employment and output in the tradeable sector remain unchanged). The product wage in the non-tradeable sector increases so that employment and output in that sector gradually fall back to their original levels. In the long-run, a pure monetary expansion has zero effects in both sectors.

Under flexible exchange rates and given high capital mobility, the effects of a pure money expansion in the short-run are to stimulate employment and output in both sectors and to produce current account surplus as the exchange rate depreciates and capital account deficit. Over time, the wage rates and the prices of non-traded goods will gradually rise. Under plausible assumptions, the exchange rate may initially overshoot: in which case the medium-run adjustment will involve some reduction in the peso price of traded goods.

Under fixed exchange rates and given some but not perfect capital mobility, a pure fiscal expansion (an increase in government spending on non-tradeables financed by

bonds) does have Keynesian short-run effects: to increase the domestic prices of non-tradeables relative to the domestic prices of tradeables which results in a rise of the demand for tradeables and hence to a current account deficit and to increase employment and output in the non-tradeable sector (while those of the tradeable sector remain unchanged). In the medium-run, we expect the same qualitative effects as in the short-run to hold except that this time when the money wage adjusts, the relative wage in terms of tradeables increases so that employment and output in the tradeable sector declines. In the long-run, the fall in wealth due to a current account deficit reduces spending by the private sector so that the real exchange rate depreciates and the current account tends to balance.

Under flexible exchange rates and given high capital mobility, the increased government spending on non-tradeables surely increases the prices of non-tradeables and hence its price relative to tradeables also increases in the short-run, ie. the real exchange rate appreciates and this results in an increased demand for tradeables giving rise to a current account deficit. Employment and output of the non-tradeable sector certainly increase while those of the tradeable sector decrease. As money wages adjust in the medium-run, the relative wage in terms of tradeables increases so that employment and output in the tradeable sector decrease. The relative wage in terms of non-tradeables declines so that employment and output in the non-tradeable sector increase. In the long-run, we expect the same qualitative effects as in the medium-run except that the current account balances, so that in transition from medium-run to long-run, the tradeable sector expands a bit and the non-tradeable sector contracts.

Then we analyze macroeconomic policy in the Philippines in the context of the formulated theoretical framework. Appropriate econometric (or simple statistical) techniques/tools are employed in cases where they are essential in order to facilitate the analyses.

The approach to answering the third central question is to develop a theoretical framework and then relate it to the case of the Philippines.

When the government increases its expenditure on non-tradeables, the real exchange rate appreciates in the short-run so that the production of non-tradeables increases and the consumption of non-tradeables falls. The appreciation of the real exchange rate switches the excess demand from non-tradeables to tradeables thereby producing a current account deficit. Equivalently, national investment exceeds national savings; ie. the country builds up foreign debt. Real wealth falls which in turn reduces private spending. As spending falls, (1) there is a real depreciation to preserve equilibrium in the non-tradeables market, and (2) the current account deficit disappears. Thus, there exists natural long-run equilibrating forces which remove current account imbalances in the absence of destabilizing government policies.

Instead of allowing the long-run equilibrating processes to take place, some countries, the Philippines for one, allowed persistent budget deficits. The availability of loans from abroad during the 1970s encouraged these countries to finance their persistent budget deficits and even to allow their real exchange rates to continue to appreciate thereby preventing or at least inhibiting the depreciation of the real exchange rate required for the long-run current account balance. As the real exchange rate appreciates, the current account deficit grows. Although there is no one-to-one causal link from the relative price of tradeables to non-tradeables (P_T/P_N) to the current account, keeping up government spending on non-tradeables (G_N) and financing the current account deficit and G_N by external borrowing, a country can prevent/postpone the fall in private spending (due to the reduction in wealth which occurs if the government spending is concentrated on consumption goods and if the private sector cuts back its own spending by less than the rise in government spending) and the associated fall in P_N/P_T which would otherwise occur.[19]

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[19]In his study "The role of international reserves and foreign debt in the external adjustment process", in Adjustment, Conditionality, and International Financing, The International Monetary Fund, S. Edwards (1983, page 143) noted that during the 1970s, the developing countries underwent serious current account deficits in their balance of payments, which led, inter alia, to major increases in their foreign debt. In his study, "External debt, budget deficits and disequilibrium exchange rates", NBER Working Paper, Dornbusch (1984, page 1) pointed out that oil, interest rates and world recession are often isolated as the chief causes of the world debt crisis. But these factors only have made much more apparent and unsustainable an underlying disequilibrium in which exchange rate overvaluation and/or budget deficits were perpetuated by continuing and excessive recourse to the world capital market.

The period of investigation is from 1966 until 1984 but highlighting on some particularly significant episodes. The year 1966 was the year when Mr. Marcos assumed presidency for the first time.[20] The year 1984 represents the terminal year of analysis due to the unavailability or inaccessability of relevant data and information for the subsequent years.

1.5 Organization of the Thesis

The thesis is organized as follows.

The second chapter presents the historical and analytical review of the Philippine fiscal policy and experience. The main aspect of fiscal policy which we analyze is that associated with the government budget deficit (as the indicator of fiscal policy). We also analyze the changing patterns of government spending by sectoral classification and by economic classification. In this chapter, we also look into the Philippine monetary policy and experience. In particular, we analyze the growth and development of the financial sector, the determination of monetary policy, and changes in the narrow money supply.

The third chapter analyzes the Philippine exchange rate policy and experience. In this chapter, we are concerned with the determination of exchange rate policy in the Philippines, an analysis of the factors for the choice of the exchange rate system, an analysis of exchange controls and the black market for foreign exchange.

The fourth and fifth chapters provide the theoretical framework of analysis. The

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[20]Mr. Marcos assumed presidency for the first time in 1966 via a landslide victory over his predecessor He was re-elected in 1969 for another 4-year term. Before his term would have expired, the President declared martial law in September 1972 which empowered him to dissolve the then existing bicameral legislature (which was patterned after the United States) and instead created a unicameral legislature known as Batasang Pambansa (National Assembly) whose members were elected at-large but the majority of which belonged to the President's party known as Kilusan ng Bagong Lipunan (New Society Party) with Mr. Virata as the Prime Minister. The 1935 Constitution of the Philippines was in effect until 1972 but it was then radically changed resulting in the 1973 Philippine Constitution which in turn essentially assured the President of his strong hold to power via granting him enormous power to issue numerous Presidential Decrees, Executive Orders, and the like. Mr. Marcos was the Philippine President for 20 years until he was forced to give up his presidency in February 1986 via the interplay of different factors; namely, people power, military's cooperation and support, the Church, and the domestic and foreign media.

structure of the basic model is analyzed in the fourth chapter. The basic model is formulated via integrating the existing elements of macroeconomic theory such as (a) small country assumption, (b) labor market condition, (c) output market condition, (d) internal balance condition, (e) private spending function, (f) money market condition, and (g) balance of payments equation. Then, we provide a summary of the basic model in the medium-run, under fixed exchange rates and under flexible exchange rates. The fifth chapter enables us to analyze the effects of pure money expansion and pure fiscal expansion under fixed and flexible exchange rates on the real exchange rates, the current account balance, sectoral employment and sectoral output.

The sixth chapter provides an analysis of the real exchange rates, the current account, sectoral employment and sectoral output in the Philippines within the context of the theoretical framework developed in the fourth and fifth chapters. Estimation procedures for relevant data input requirements and other economic variables are also discussed. An important part of this chapter is the grouping of the 12 sectors of the economy into two sectors: the tradeable sector and the non-tradeable sector, which then enables us to come up with alternative estimates for domestic price of tradeables, domestic price of non-tradeables, the real exchange rates, sectoral employment and sectoral output.

The seventh chapter provides a theoretical framework which enable us to analyze the long-run effect of macroeconomic policy on each of the following economic variables: the country's gross and net external debt, national and sectoral (public and private) investment and savings, and real wealth, and then we relate each of these framework to the case of the Philippines. Estimation procedures for relevant data input requirements and other economic variables are also discussed.

The final chapter provides the summary and conclusion.

CHAPTER 2

FISCAL AND MONETARY POLICY & EXPERIENCE

2.1 Introduction

In this chapter, we present an historical and analytical review of the Philippine fiscal and monetary policy and experience during the 1966-1984 period. The main aspect of fiscal policy which we will analyze is that associated with the government budget deficit (as the indicator of fiscal policy). We will also analyze the changing patterns of government spending by sectoral classification and by economic classification. In this chapter, we will also look into the Philippine monetary policy and experience. In particular, we will analyze the growth and development of the financial sector, the determination of monetary policy, and changes in the narrow money supply.

2.2 Fiscal Policy and Experience

The main aspect of fiscal policy which we are interested in is that associated with the government budget deficit which we will use as the indicator of fiscal policy. Fine details of the stance of fiscal policy would require calculation of the full employment budget deficit. However, the broad patterns with which we are concerned here (ie, the persistent budget deficits of the late sixties, the surpluses of the early seventies, and the deficits of the period since the mid-seventies) are so clear-cut that they would not be changed by using a more sophisticated indicator of the stance of fiscal policy.

Changes in fiscal policy can be brought about by changes in government expenditures and by changes in taxes. Persistent budget deficits can come from either the expenditure side via an increase

in government spending or from the revenue side via a decrease in taxes. In the Philippine case, the persistent deficits have stemmed from persistently high levels of government spending, since there have hardly been any tax cuts in the Philippines in 1967-84 period. Moreover, Mansur (1986) concluded that the national government's budgetary position appears to have remained expansionary during the post-1970 period.[1]

Let us analyze the trends of the government budget deficit during the 1967-1984 period. It will be helpful to consider the two sub-periods, ie. the pre- and post-1973.

Figure 2-1[2] shows that during the pre-1973 period, the Philippine government generally adopted a fiscal restraint. While the the government budget deficit remained constant at 0.82% of GNP during the 1967-1968 period, it increased significantly, however, to 2.84% of GNP in 1969, being a presidential election year. Then, we observed that the government budget deficit improved markedly and even registered surpluses in 1970 and 1973.

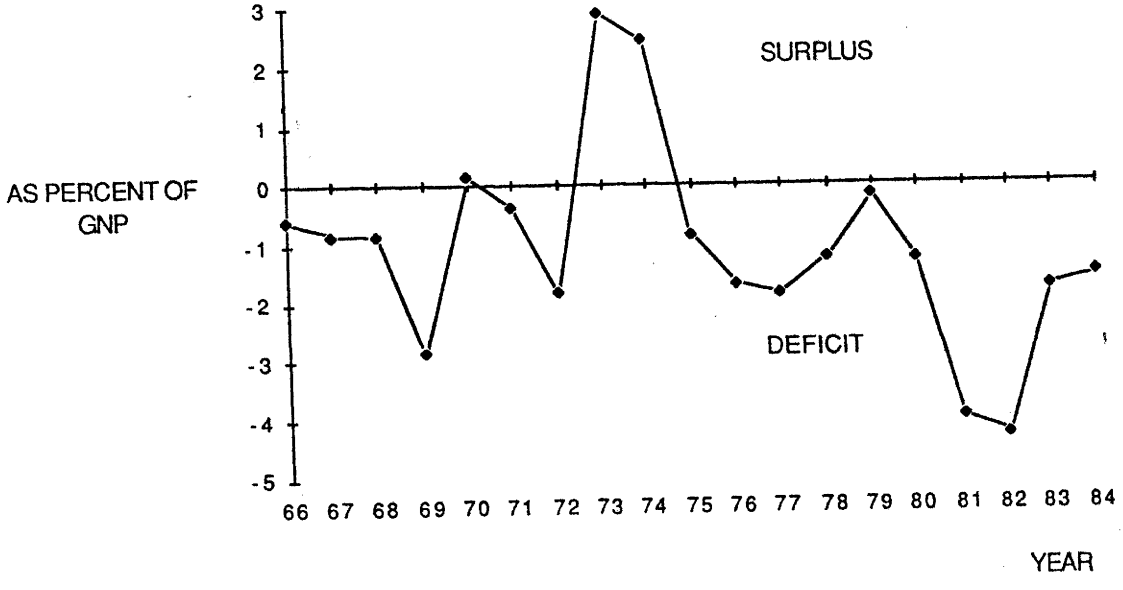
Figure 2-1 also shows that the Philippine government generally adopted a fiscal stimulus during the post-1973 period. From a surplus in 1974, the government budget deficits as a proportion of GNP generally deteriorated. Fiscal authorities continued their expansionary stance during the second half of the 1970s via maintaining high levels of budget deficit (except in 1979), and increasing further during the 1980-1982 period. Hill and Jayasuriya (1985) claimed that a major expansion of government expenditures from 1974 onwards was justified as being countercyclical; that is, increased government expenditures helped to maintain growth momentum.[3] Deficits, however, were cut down during 1983 and 1984 but were still at high proportions of GNP (even higher than the 1967-1968 ratios).

[1] See A.H. Mansur, 1986, "Effects of the budget deficit on the current account balance:the case of the Philippines". In this study, Mansur examines the relationship between fiscal deficit and the current account balance, and concludes that the Philippines' current account balance is significantly influenced by movements in the overall budget deficit.

[2] See Appendix C, Table 5 for the data on national government budget deficit as a proportion of GNP.

[3] See H. Hill and S. Jayasuriya, 1985, "The Philippine economy: performance problems and prospects", Working Paper Number 85/3, The Australian National University, pages 15-16.

Figure 2-1: GOVERNMENT BUDGET BALANCE AS A PROPORTION OF GNP



2.2.1 Government Spending by Sectoral Classification

Let us analyze the changing patterns of government spending by sectoral classification. The dominant shift has been away from spending on social services towards spending on so-called "economic services" and debt servicing.[4] Table 2-1[5] shows that the share of spending on social services dropped from 44.2% of the total government spending in 1965 to 26.8% in 1984 thereby reflecting a sharply reduced priority for social services since 1970. Expenditures on education and manpower services (which comprised the bulk of social services in 1965) declined considerably to 16.4% of GNP in 1984 from 36.5% in 1965. The declining shares of spending on social services was accounted for by the marked increase in the shares of the spending on "economic services" from 16.7% of GNP in 1965 to 45.0% in 1975. (Government spending on utilities and infrastructure registered the big growth area; ie. its share to total spending rose slightly from 3.2% in 1965 to 5.9% in 1970 and markedly to 32.4% in 1975). On the surface, this looks like a shift from government "consumption" to government "investment", which should improve growth and the balance of payments in the long-run, but which did not happen. This could be attributed mainly to the large "uneconomic" investments in hotel and related facilities during the second half of the 1970s. In 1984, however, the share of government spending on economic services declined to 26.8 percent.

The shift in expenditure allocation from socially-oriented toward economic-oriented services implied the changing priorities of the Philippine government. During the post-1970 regime, fiscal authorities shifted toward investing heavily on supposedly income-generating projects and services particularly on utilities and infrastructure. The utilities and infrastructure sector (which was managed mostly by a select group of presidential appointees) was, therefore, the most favored sector during the post-1970

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[4]Social services include education and manpower training; housing, population, public health; social welfare and other community services. Expenditures on "economic services" include spending on government programs and projects (in agriculture, fishery and forestry; industry, trade, labor and tourism; and utilities and infrastructure) which were designed to help augment people's incomes, particularly those of the poor who were the targeted beneficiaries. In reality, however, such objective was not achieved since more and more Filipinos become poorer and poorer.

[5]See Appendix C, Table 6 for the basic data on national government spending by sectoral classification.

regime. A cut in government spending in this sector would have been politically undesirable.

The share of expenditure on national defense increased from 16.7% of GNP in 1965 to 20.9% in 1975 and subsequently declined to 9.2% in 1984. On the other hand, the share of spending on general public service (including debt service payments) declined from 22.3% in 1965 to 14.6% in 1975. The significant increase in the share of the general public services to total spending, from 24.0% in 1980 to 37.2% in 1984 can be attributed to the rising levels of debt service payments effected by higher real interest rates during the 1980s.

Table 2-1: NATIONAL GOVERNMENT SPENDING BY SECTORAL CLASSIFICATION

	1965	1970	1975	1980	1984
Total Government Spending					
(In million pesos)	1894	4053	19049	36935	60403
(As percent of GNP)	8.1	9.7	16.7	13.7	11.2
	Shares to total spending, in percent				
1. Economic Services	16.7	31.6	45.5	42.5	26.8
Agriculture, fishery & forestry	7.1	6.4	5.4	6.7	6.6
Industry, trade, labor & tourism	6.4	19.3	7.8	3.9	2.0
Utilities & infra-structure	3.2	5.9	32.4	32.0	18.1
2. Social Services	44.2	34.9	19.0	20.5	26.8
Education & Manpower	36.5	28.0	11.6	11.4	16.4
Housing, Population and Public Health	6.2	5.6	4.1	7.2	6.9
Social Welfare & Other Community Services	1.5	1.3	3.2	1.9	3.5
3. National Defense	16.7	15.2	20.9	12.9	9.2
4. General Public Services	22.3	18.3	14.6	24.0	37.2
Debt Service Payments	5.0	6.0	5.0	10.8	20.0

Source of Basic Data: See Appendix C, Table 6.

2.2.2 Government Spending by Economic Classification

Let us now analyze national government spending by economic classification from Table 2-2.[6] We observe again a shift in spending allocations away from current expenditures towards spending on capital outlays thereby reflecting the changing priorities of the government; that is, there existed a growing increased importance of capital expenditures relative to current expenditures. Current expenditures declined sharply in 1975 and rose slightly during the next decade. Capital outlays, on the other hand, rose markedly in 1975 (which was mainly due to the large government's investments in hotels and other related facilities). During the post-1975 period, capital outlays remained in high levels.

During the 1965-1970 period, the expenditure share on personal services accounted for half of the total government spending only to be reduced drastically to about one-fourth in the succeeding years. The combined shares of maintenance and operating costs, and transfer payments rose slightly from 24.7% in 1965 to 28.0% in 1983. Debt service payments as a proportion of total spending, on the other hand, increased four times, from 5% in 1965 to 20% in 1983. The rising debt service payments reflected the increasing repayments on public borrowings which financed public sector deficits.

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[6]See Appendix C, Table 7 for the data on national government spending by economic classification.

Table 2-2: NATIONAL GOVERNMENT SPENDING BY ECONOMIC CLASSIFICATION

	1965	1970	1975	1980	1983
	Shares to total spending in percent				
CURRENT EXPENDITURES	85.3	80.1	61.3	65.8	72.3
a.Personal Services	55.6	46.0	23.6	26.2	25.4
b.Maintenance and other Operating Costs	16.8	16.8	22.1	18.8	18.0
c.Debt Service Payments	5.0	6.0	5.0	10.8	20.0
d.Transfer Payments	7.9	11.3	10.6	10.0	8.9
CAPITAL OUTLAYS	14.7	19.9	38.7	34.1	27.6

Expenditures on personal services include salaries and wages of government employees, life and retirement benefits provided by the Government Service Insurance System, contractual services, overtime pay and other benefits. Maintenance and other operating costs include expenditures on travelling, communications, repairs and maintenance of government facilities, transportation services, supplies and materials. Debt service payments include interest payments and loan repayments. Transfer payments include grants, subsidies and contributions awards and indemnities, benefits provided by the Social Security System and other claims. Capital outlays include land and land improvement, building and structure outlay, furniture and equipment outlay, investment outlay and loans outlay.
Source of basic data: See Appendix C, Table 7.

It has to be emphasized that one of the most significant developments during the post-1970 period was the rapid growth of the government corporate sector. Hill and Jayasuriya (1985) reported that the government's role has expanded during the martial law period and beyond.[7] Leviste (1985) concluded that the growth of the public sector had accelerated from being a relatively small public sector (which consisted of the national government playing the major role, local governments and a small number of public corporations providing basic services like electricity, water supply and sewerage, gas and public transport) into a large public sector (both in expenditures and in number). Public investment in the Philippines grew from 1.5% of GNP in 1970 to an average of 8.4% of GNP during the 1978-82 period.[8]

The growth of public expenditures during the post-1970 period was accompanied by a seemingly uncontrolled growth in the number and size of public corporations. From a total of 65 government corporations (47 parents and 18 subsidiaries) in 1970, there were more than 259 (93 parents and 166 subsidiaries) in 1984. As to the legal basis for creating public enterprises, Briones (1985) pointed out that about 30 per cent (of 259) were created via Presidential Orders (ie. Presidential Decrees, Executive Orders, Letters of Instruction, and Letters of Implementation); 13 per cent were created via legislative enactment; and 58 per cent were created via registration with the Securities and Exchange Commission.[9]

During the period of rapid economic growth (which ended in the 1980s), the government adopted a countercyclical policy to respond to adverse external circumstances, and carried out a massive public investment program aimed at reducing imported energy requirements and expanding basic infrastructure. During the 1978-83

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[7]Hill and Jayasuriya, 1985, page 51.

[8]See J.P Leviste, Jr., 1985, "The management of public enterprises and the monitoring of government corporations", Philippine Budget Management, page 50.

[9]See L. Briones, 1985, "The relationship of public enterprise with the national government in the Philippines", Lecture delivered at the international seminar on "The role and performance of public enterprises", held on June 17- 28, 1985, page 27.

period, over 70 % of the public investment was for infrastructure, primarily in the energy and transport areas. This shift in policy was partly responsible for the growth of the public corporate sector.

2.3 Monetary Policy and Experience

2.3.1 Growth and Development of the Financial Sector

A joint Philippine-United States Finance Commission was created in 1946 to study the financial and budgeting problems of the Philippine government. Following its recommendations, Republic Act (R.A.) 265 also known as the Central Bank Act,[10] was passed in June 1948 which established a managed monetary system under the authority of the Bank.

The institutional and legal foundations for the establishment of the banking sector (or simply banks) were laid down during the 1950s via the approval and adoption of the different banking acts or charters which provided the operating guidelines, rules and regulations for these banks, e.g. the General Banking Act (1948) for the commercial banks, the Rural Bank Act (1951) for the rural banks, the DBP charter (1954) for Development Bank of the Philippines, and the amended PNB charter (1955) for the Philippine National Bank, and a law establishing the private development banks (1958).

Since 1948 until 1972, the Bank had supervisory authority over the banks alone. The banks consist of (a) deposit money banks, denoted as (DMBs), such as commercial banks and rural banks which accept demand deposits, and (b) non-deposit money banks (non-DMBs) such as thrift banks (savings banks, private development banks, and savings and loan associations), and some government banks. The basic distinction between DMBs and non-DMBs is that the former are authorized to accept demand deposits while the latter are not.[11]

The rural banks service the needs of farmers and small producers in the rural areas. These banks were responsible for encouraging the flow of surplus funds from the rural

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[10]By convention, we refer to the Central Bank as Bank throughout the thesis.

[11]Since 1972, deposit money banks include commercial banks, rural banks which accept demand deposits, and unibanks or expanded commercial banks. See pages 37-38 for the discussion of unibanks.

areas into the banking sector. The Development Bank of the Philippines and the Philippine National Bank are government financial institutions which direct credit allocation for the government basically to priority industrial activities. Rural banks and private development banks are private institutions but subsidized by the Bank for capitalization and funded for operation.

Between 1960 and 1970, the size (number and financial assets) of private banks increased considerably which was attributed to the favorable circumstances then prevailing which enabled them to generate substantial profits. These presumably were the "inconsistencies" referred to by Tan (1980).[12] Firstly, private commercial and rural banks were given discounting incentives by the Bank for expanding their loanable funds, but were restricted from offering deposit rates high enough in order to induce savers. Consequently, banks relied on borrowing from the Bank rather than borrowing from the public via deposits. Secondly, both loan and deposit rates were fixed at low levels which resulted in excess demand for loans at the ceiling rates. Loan rates were limited by the Usury Law to only 12% per annum and 14% per annum for secured and unsecured loans, respectively. The interest rate was 6.5% per annum for savings deposits, and 6.5%-8.0% for time deposits. Private banks, therefore, charged effective rates higher than the ceiling rates. The lower rates for savers' deposits and higher effective rates for loans resulted in unusually comfortable profit margin for the banks.

On the other hand, government banks and government-supported banks giving longer term loans followed strictly the interest rate regulations and hence resulted in perverse interest rate structure, i.e. longer term loans granted by government banks were charged the legal ceiling while shorter-term loans granted by private banks were charged higher effective rates.

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[12]See E. A. Tan, 1980, "Philippine monetary policy and aspects of the financial market: a review of the literature", in Survey of Philippine Development Research I, Philippine Institute for Development Studies, pages 185-186. In her study, Tan provides a comprehensive and critical review of the Philippine monetary policy.

Also between 1960 and 1970, non-bank financial intermediaries denoted as NBFIs [13] increased more rapidly relative to private banks since the former were not regulated, i.e. these institutions were able to offer higher interest rates to financial savers (as opposed to the banks which offered low static deposit rates). In 1964, Private Development Corporation of the Philippines (the first investment house) was established with the support of the World Bank, the International Finance Corporation, the US Agency for International Development and a consortium of American banks. In 1965, BANCOM Development Corporation (the second investment house) was established and was organized by foreign banks led by Bankers Trust and American Express. Other investment houses were subsequently set up.

During the 1965-1970 period, the International Labor Organization (1974) reported that the growth of assets was more pronounced among the NBFIs (9.1% per annum) than within the banking system (8.4% per annum).[14]

In 1971, a joint IMF-CB Banking Survey Commission undertook a study of the Philippine financial system. Major reforms of the financial system were made in November 1972, following the recommendations of the IMF study. Several presidential decrees were promulgated, which revised existing bank laws. Among the reforms were (a) an increase in the minimum required capital of commercial banks to at least 100 million pesos which resulted in the mergers of existing banks, and (b) the placing of all NBFIs under the supervision and control of the Bank since the NBFIs were engaged in borrowing

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[13]Non-bank financial intermediaries are primarily engaged in long-term financing for the expansion and modernization of productive ventures and, to a minor extent, for facilitating short-term placements in other financial institutions. These include investment houses, finance companies, and others, whose main functions include lending, investing, or placement of funds or evidence of indebtedness or equity deposited with them, acquired by them or coursed through them, either for their own account or for the account of others. Investment houses are enterprises engaged in guaranteed underwriting of securities of another person or enterprise, including securities of government and its instrumentalities. For a historical review of NBFIs, their types and functions and financial highlights during 1975-1985, see P. L. Teodoro, 1985, "Non-bank financial intermediaries- a decade of performance" Central Bank Review, Volume XXXVII, Number 9, pages 16-20.

[14]See International Labor Organization, 1974, "Reform of credit and interest rates" in Sharing in Development: A Programme of Employment, Equity and Growth in the Philippines. National Economic and Development Authority, pages 231-232.

with the issuance of their own debt instruments in which the extension of credit was beyond the scope of the statutory capability of the Bank. Moreover, the expanded supervisory authority of the Bank was aimed at closing or narrowing down the regulatory gap between banks and NBFIs. Only banks were then subject to such regulations as interest rate ceilings, reserve requirements and others.

Despite the supervision and control of the Bank, the faster pace of development of the NBFIs continued during the early 1970s due to the unregulated higher rates of return offered to savers or lenders of funds even including commercial banks and other financial institutions. Consequently, transactions in the money market (including short-term interbank call loans, bank acceptances, and large company claims) increased rapidly and even rose four times in 1973 relative to 1972. Thus, the market for short-term instruments expanded considerably. The rapid development of the money market (particularly interbank call loans) during the early 1970s was in response to the increasingly restrictive interest rate ceiling and hence resulted in lower real interest rates offered to bank depositors. Nominal deposit rates were kept at low levels while inflation rates were high. Thus, the money market seemed to be a legitimate way of evading interest rate regulations.

What was worrying was the heavy participation in the money market by the investment houses whose primary responsibility was to provide longer-term financing. With a high rate of return on liquid money market instruments, there was no incentive for the investment houses to shift to the long-term capital market. In order to lessen the participation of investment houses in the money market, the Bank (a) directed them to meet a target volume of underwriting which was set initially at 25% of the paid-in-capital of an investment house, (b) imposed a reserve requirement of 5% on the previously exempt deposit substitutes, and (c) imposed a 35% final tax on money market transactions. Lee and Jao (1982) pointed out that the controversial growth appeared to be somewhat reduced in 1979 when the investment houses started to shift their funds to

equity issues and long-term instruments as a consequence of the new tax measures.[15]

In their analysis of the Philippine financial system during the second half of the 1970s, the joint IMF-World Bank mission in 1979 had the following conclusions.[16] Firstly, much of the outstanding credit maintained by the system was short-term in nature and the existing financial structure as a whole was not conducive to the development of an industrial base, which requires long-term financing to maintain operational viability. Secondly, the preference for short-term investments was attributed to the prevailing interest rate structure and the legislated specialization of financial institutions.

The mission's recommended monetary and banking reforms which were instituted during the early 1980s were aimed at (a) increasing the competitive conditions with resulting greater efficiency, and (b) increasing the availability of and accessibility to longer-term funds. The first objective was to be achieved via lessening the enforced specialization of banks and broadening the range of services offered by financial institutions. Thus, while the three main categories of banks, i.e. commercial banks, rural banks, and thrift banks were kept, the functional differentiations between them were lessened. Rural banks may now offer broader domestic banking services and broader clientele (before they serviced basically farmers and small merchants). Thrift banks may now offer full domestic commercial banking services, i.e. excluding international banking operations and hence narrow down the distinction between the powers of the thrift banks and the commercial banks.

A notable feature of the 1980 reforms was the introduction of universal banking, i.e.

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[15]See S.Y. Lee and Y.C. Jao, 1982, "Financial structure and monetary policy in the Philippines", in Financial Structure and Monetary Policies in Southeast Asia, page 183.

[16]See International Monetary Fund-World Bank Report, 1979, in Philippines: Aspects of the Financial Sector. Both the IMF and the World Bank maintain an on-going interest in the financial sector in the course of their operation. The particular report looks at the situation of the financial sector in the light of the need to increase the flow of long-term credit.

some commercial banks are now operating with expanded banking power and hence are known as "universal banks or unibanks", with a capital base of at least 500 million pesos (achieved through merger or consolidation or outright increase in capitalization). Unibanking is simply defined as a combination of commercial banking (full domestic and international banking) with the powers of an investment house (underwriting, securities dealership and equity investment). Non-bank financial institutions engaged in quasi-banking functions denoted as NBQBs (e.g. investment houses and finance companies) are now granted additional banking powers via going into trust operations and foreign exchange operations. During the early 1980s, there are at least ten universal banks operating in the Philippines. Investment houses have been acquired by unibanks to complement their operations. Some rural banks have merged with commercial banks.

In order to encourage long-term lending by banks and non-banks, long-term papers are now eligible for rediscounting with the Bank, and a lower reserve rate of 5% was imposed on long-term deposits of banks and non-banks as opposed to 18% reserve rate for short-term deposits.

2.3.2 Determination of Monetary Policy

This section summarizes the process of determining monetary policy in the Philippines and the changes in monetary policy via variations in the use of the different instruments of monetary control.

Monetary policy is defined as the deliberate manipulation of the monetary policy instruments by the monetary policy makers. Within the existing legal and institutional structure of the Philippines, monetary policy makers, often referred to as monetary authorities, are the Central Bank of the Philippines and the Treasury insofar as the latter's monetary functions and transactions with the International Monetary Fund are concerned.[17]

The primary responsibility for the conduct of monetary policy, rests with the Bank. The powers and functions of the Bank, however, has been exercised by a Monetary Board which consists of the following: the Bank Governor (chairman of the Board), the Finance Minister, the Director General of the National Economic and Development Authority (formerly known as the National Economic Council), the Chairman of the Board of Investments, and three part-time members from the private sector appointed by the President. The Bank via its Monetary Board has, therefore, determined and implemented monetary policy in the Philippines. The President has, however, had ultimate responsibility for monetary policy via his appointed officers and members of the Monetary Board.

An indicator of the conduct of monetary policy is changes in the narrow money supply which has two components (a) changes in the money base and (b) changes in credit created by banks. The first component, changes in the money base, is equal to the balance of payments (which in turn is equivalent to the changes in foreign reserves), plus the budget deficit, minus bond sales. The difference between the budget deficit and bond

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[17]See Philippine Financial Statistics, December 1982, Central Bank of the Philippines, page 2.

sales is referred to às changes in domestic credit by the Bank. An increase in the money base, therefore, stems from an increase in domestic credit and/or an increase in foreign exchange reserves (via a balance of payments surplus). A zero growth of the money base indicates that the expansionary monetary impact of an increase in domestic credit is fully offset by a contractionary monetary impact of a balance of payments deficit.

Because the Bank is not an independent financial institution, the conduct of monetary policy by the Bank is largely influenced by the Philippine President, the Philippine Government and the Treasury via the different components of the money base. In particular, the Treasury controls the government budget deficit. Thus, via the budget deficit there exists a link between fiscal and monetary policy. The President, the Treasury, and the Government influence the sale of bonds by the Bank thereby influencing the conduct of monetary policy.

The second component of changes in money supply is changes in bank lending which is influenced by the Bank and by the controls or regulations instituted by the government, by the Bank, and by the Treasury.

Until 1972, the Bank had supervisory authority over the banks alone. Subsequently, however, the Bank's supervision has been expanded over the entire financial system i.e. including authority over both banks, and non-bank financial institutions. With the use of the different instruments of monetary policy, the Bank has exercised supervision and control over the whole financial sector.

The set of monetary policy instruments controlled by the Bank consists of the following: (1) open market operations (OMO) which refer to purchases and sales of government bonds; (2) changes in rediscounting policy which refer to increases (decreases) in the rediscount ceilings set by the Bank aimed at increasing (decreasing) the volume of credit granted by the Bank to the domestic banks, changes in the Bank rediscount rates and changes in bank lending rates of papers eligible for rediscounting with the Bank; (3)

interest rate regulations via ceiling rates on interest rates that banks can pay on deposits (savings, time, and deposit substitutes); (4) variations in reserve requirements of banks; and (5) quantitative controls on bank loans and advances.[18]

(1). Open Market Operations. In regulating the conduct of monetary policy, the Bank has depended mostly on the use of open market operations (OMO), which have now become the major monetary policy instrument of the bank.[19] A strategy of using OMO is fundamentally advantageous relative to other monetary policy instruments because of its flexibility so that the direction and strength of monetary policy can be shifted daily. Aghevli, Khan and others (1979) have argued that OMO of the Bank have been fairly successful in the Philippines relative to other Asian countries because of (a) the availability of sufficient suitable government securities, and (b) the existence of a more developed secondary financial market relative to other Asian countries.[20]

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[18]For studies which have analyzed the different instruments of monetary policy in the Philippines, see E. A. Tan, 1980; J. Encarnacion, Jr., 1972, "A monetary submodel of the Philippine economy:1950- 1969", The Philippine Economic Journal, University of the Philippines School of Economics, Volume XI, No.2; B. Aghevli, M. S. Khan, P. R. Narvekar, and B.K. Short, 1979, "Monetary policy in selected Asian countries", IMF Staff Papers, Volume 26, No.4, pages 775-824; J. T. Degamo, 1981, "The rediscount policy and its impact on the lending patterns of commercial banks and on the economy", in The Philippine Economic Journal. No.48, Volume XX, pages 311-336; S. Y. Lee, and Y. C. Jao, 1982, "Financial structure and monetary policy in the Philippines", in Financial Structure and Monetary Policies in Southeast Asia The Macmillan Press Ltd., pages 172-197; C. T. Arguelles, 1982, "Central bank credit priorities and rediscounting operations", Bondline, Central Bank of the Philippines, pages 12-15; C. G. Polvorosa, Jr., 1983, "Government securities as fiscal and monetary policy instruments", in Central Bank Review. Central Bank of the Philippines, pages 11-15 and 21; A San Jose, 1985, "The reserve requirement and Philippine monetary policy: a historical perspective", in Central Bank Review, Central Bank of the Philippines, pages 9-11; and O. Vital, 1985, "Philippine interest rates and monetary policies: a perspective", in Central Bank Review, Central Bank of the Philippines, pages 10-14.

[19]The basic principle involved is that when the Bank undertakes OMO, the reserve base of the banking system is affected which in turn affects credit or lending activity of the banks. If the Bank buys government securities from banks, their primary reserves rise which initially creates excess reserve position and hence provide a base for credit expansion. Consequently, the money supply expands by a larger amount than the original OMO-induced rise in the base. Interest rates in the money market will go down since their excess reserves induces banks to lower their lending rates in order to encourage borrowing and use of idle funds for lending purposes. The sale of government securities, on the other hand, will lead to a contraction of primary reserves thus resulting in a tightening of bank credit. The money supply, therefore, contracts. Interest rates in the money market increase.

[20]See Aghevli and others, 1979. The study provides an overview of the role of money and monetary policy in selected Asian countries including the Philippines, and focuses on a general cross-country analysis rather than on the individual experiences of the countries and does not deal in detail with the institutional aspects of monetary policy as such.

In 1970, the Bank started issuing its own certificates of indebtedness popularly known as CBCIs and repurchased them (even prior to their date of maturity) in order to change banks reserve position. Because of the flexibility of OMO, the Bank has been in a better position to reduce the money supply if conditions so require. The Bank initiated a rationalization program for government securities in 1981. It started phasing out its CBCIs in 1981 to pave the way for making the Treasury Bill the primary short-term government security in the securities market. In 1984, OMO became more active with the introduction of high yielding Bank Bills and the unprecedented increase in the 91-day Treasury Bill rates to as high as 41 percent.

(2). Changes in rediscounting policy. Via the use of rediscounting,[21] the Bank can (a) increase (decrease) the volume of credit through an increase (decrease) in rediscounting ceilings of borrowing banks, i.e. overdraft facility, the allowable maximum outstanding loans of a particular bank with the Bank; (b) regulate the cost of credit via an increase or decrease of the rediscount rate[22] charged by the Bank on its loans and advances to banks via the rediscounting facility; (c) increase or decrease the maximum bank lending rates and other authorized bank charges on rediscounted securities; and (d) affect the character of credit by setting priorities in the types of collateral papers eligible for rediscounting.

Under a system of rediscounting, there can be a preferential rediscount rate and/or a basic rediscount rate. Changes in these rates reflect the direction of the development policy of the government and hence the responsiveness of the policy to the needs of the economy. From 1949 until 1958, only one rate was then prevailing. In 1959, a differential

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[21]The Bank services the eligible credit requirements of banks and NBQBs. The process of rediscounting has two interpretations. In a strict sense, a borrowing bank discounts with the Bank its customers' promissory notes or other credit instruments previously discounted by the borrowing bank. This definition makes rediscounting tantamount to a purchase at a discount of a bank's assets by the Bank. In a broader sense, rediscounting includes the privilege extended to banks and NBQBs of the guaranteed right to borrow or obtain loans and advances from the Bank against eligible papers of their debtors. It is this definition of rediscounting which is adopted in this study.

[22]The bank negotiates to sell its customer papers to the Bank at an amount which is less than the face value of the papers. The amount deducted, which is the interest collected in advance by the Bank, is the rediscount rate.

rate existed, i.e. the agricultural sector received preferential rediscount rates, and hence depicting that the development policy of the government was directed towards the development of the agricultural sector.

In 1967, the preferential rediscount rates reflected the emphasis of the government on the growth of the export sector.

In 1975, the Bank prescribed a rediscount rate of 1% per annum for eligible credit instruments falling under a supervised credit program, and 5% for those not under the supervised program. Since 1979, the system of rediscounting under preferential and basic rates has been existing. The Bank prescribed a basic rediscount rate at 11% and raised the rediscount rate for traditional exports from 4% to 6 percent.

In 1981, the rediscount rates were increased to 3% for supervised credits, and to 8% for non-supervised credits, export-oriented industries and small-scale industries. In 1983, non-traditional exports were charged a higher 7% rediscount rate while other categories were charged the same as in 1981. In 1984, the rediscount rates were adjusted based on Manila Reference Rate (MRR)-90, which refers to the reference rate for 90 days determined and announced by the Bank for floating rate loans.

(3). Interest Rate Regulations. Interest rates can be either nominal or real. During periods of stable prices, nominal and real interest rates are the same. During periods of unstable prices, they differ. As indicators of monetary policy, high real interest rates usually indicate a tight monetary policy, while low interest rates, an easy monetary policy. This is not always the case since nominal interest rate policy, either as a main or complementary part of monetary control depends positively on the rate of inflation.

Officially quoted bank interest rates in the Philippines were subjected to ceilings from the beginning of central banking until the middle of 1981. Interest rates on three sets of instruments -savings deposits, time deposits, loans and discounts, were controlled.

From time to time, maximum interest rates had been adjusted upwards. Real rates of return were, however, more often than not negative during the 1970s which was characterized with minimal adjustments in the ceiling rates of interest and higher rates of inflation. Thus, interest rates movements were not as volatile as the fluctuations in the rates of inflation. Changes in the nominal interest rate ceilings were, to a large extent, the consequence of policy decisions stemming from the need to compensate for faster rates of inflation, and the need to align the country's rates of interest with foreign rates.

In response to the increasingly restrictive interest rate ceilings on banks, the non-bank financial market expanded very rapidly during the 1970s. New instruments of financial claims were offered in order to cope with the varied preferences for liquidity and riskiness of borrowers and lenders. Transactions in the money market on short-term interbank and large company claims increased rapidly because of the relatively high rates offered in this market. This market might have been a legitimate way of evading the interest rate regulations.

Another problem in enforcing interest rate ceilings in the Philippines is the fact that banking institutions have evaded ceilings on their lending rates via imposing service charges and withholding interest at the time that loans were disbursed so that effective interest rates had risen.

The adoption of flexible interest rate policy had its beginning in the early 1970s when G. P. Sicat, in his capacity as Chairman of the National Economic Council, argued the need for a fundamental reform of the interest rate policy characterized with the existence of ceilings on loans (and deposits) and therefore resulted in the rigidity and inefficiency of the interest rate structure.[23] As a consequence, the policy of interest rate deregulation has evolved gradually when the Bank lifted the interest rate ceilings on time deposits and deposit substitutes with maturity of over two years. In August 1980, the

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[23]See G. P. Sicat, 1972. "Report of the inter-agency committee on the study of interest rates", pages 69-78.

Bank floated the interest rates on loans with maturity of over four years.[24] Then in July 1981, the interest rate ceilings on short-term deposits and deposit substitutes, and on long-term loans, were lifted. In January 1983, the interest rate ceilings on short-term loans were also lifted. Zialcita (1983) pointed out that while it is true that the financial market has been freed of the Bank administered ceilings, it is still very much subject to the open market operations of the Bank and to a lesser extent by its rediscounting operations (in which the rediscounting banks peg their lending rates to priority industries at certain rates).[25]

Both deposit and loan rates, however, were fully deregulated beginning in the eighties. The deregulation of the interest rates was part of an overall plan to liberalize a repressed or controlled economy and to make it more market-oriented and hence to make the economy more efficient and competitive.

(4). Variations in Reserve Requirements.[26] Compared to open market operations, the use of reserve requirements is a relatively inflexible instrument of monetary policy since it cannot be easily changed, i.e. small changes in legal reserve ratios result in relatively large shifts among bank assets.

Reserve requirement for commercial banks. Prior to 1968, the legal reserve requirements of commercial banks against demand deposits were higher than those against savings and time deposits, and hence effectively discriminated against demand deposits in favor of the other two kinds of deposits. Subsequently, reserve requirements

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[24]For an analysis of the financial reforms undertaken by the government during the eighties, see E. Remolona and M. Lamberte, 1985, "Financial reforms and balance of payments crisis:the case of the Philippines:1980-83", Seminar Paper, University of the Philippines School of Economics.

[25]For a short survey of the interest rate policy of the Philippines particularly during the eighties, see E. P. Zialcita, 1983, "Issues on interest rate policy", Staff Papers, Number 9, Central Bank of the Philippines.

[26]A lowering of the reserve ratio will provide banks with excess reserves for lending which in turn will be accompanied by the creation of additional deposits. This also results in an increase not only in deposits but also in holdings of currency outside the banking system. A lower reserve ratio, therefore, increases the money supply at a given level of reserve money.

against all forms of deposit liabilities were made uniform for commercial banks, at 18% of the deposit liabilities. Following the heavy deficit spending in 1969, the reserve requirements were raised on a staggered basis from 17% starting 16 February 1970 to 20% on 1 August 1970. Subsequently until early 1981, the reserve requirement for commercial banks remained at 20 % since there was a prolonged period of liquidity crisis during the 1970s (which was began by the insolvency of one bank) so that changes in reserve requirements would have been an impractical policy. The Bank allowed some government securities to form part of bank reserves.

Reserve requirement for rural banks and thrift banks. Prior to 1975, reserve ratios against savings and time deposits were different for thrift banks and rural banks. During the second half of the 1970s, these ratios were made uniform at a rate of 8% of deposit liabilities (while that of commercial banks remained at 20 percent).

Reserve requirement for NBQBs. The previously exempt "deposit substitutes" were subjected to a 5% reserve requirements starting February 1974, except those maturing in more than two years. During the 70s, deposit substitutes became increasingly attractive so that an imposition of reserve requirement would regulate their effect on domestic liquidity. The reserve requirements against deposit substitutes were raised by one half percentage point per month effective April 1976 until it reached 20% in September 1978. Other than regulating the growth of domestic liquidity, this regulation also removed the discrimination between peso deposits of commercial banks and deposit substitutes of NBQBs.

Reserve requirement for all banks and NBQBs. The structure of the reserve requirements was revised toward a less differentiated financial system in line with the adoption of universal banking in 1980 via equalizing the reserve requirements against short-term deposits and deposit substitutes resulting in a uniform rate of 16 percent for

banks and NBQBs.[27]

The composition of required reserves was made uniform for all thrift banks, rural banks and commercial banks based on that of the commercial banks thereby supporting the equalization thrust effected by universal banking.

2.3.3 Money Supply Changes

The evolution of the changes in the narrow money supply[28] in Figure 2-2[29] reflected a generally increasing trend during the 1966 to 1977 period, followed by a decreasing trend until 1982, increased significantly in 1983, and subsequently declined.

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[27]The reduction was to be carried out in stages at the rate of one percentage point every semester (starting February 1981) until 16% would be reached in the latter half of 1983. The lowering of the reserve requirements for commercial banks and thrift banks (from 20% to 16%) would assist them absorb the impact of the deregulation of interest rates.

'In 1982, the reserve requirements were increased to 18% (and therefore, suspended the scheduled reduction of the reserve requirement in January 1983 from 18% to 17%) in order to prevent further increase of excess liquidity emanating from the reduction of reserve ratios.

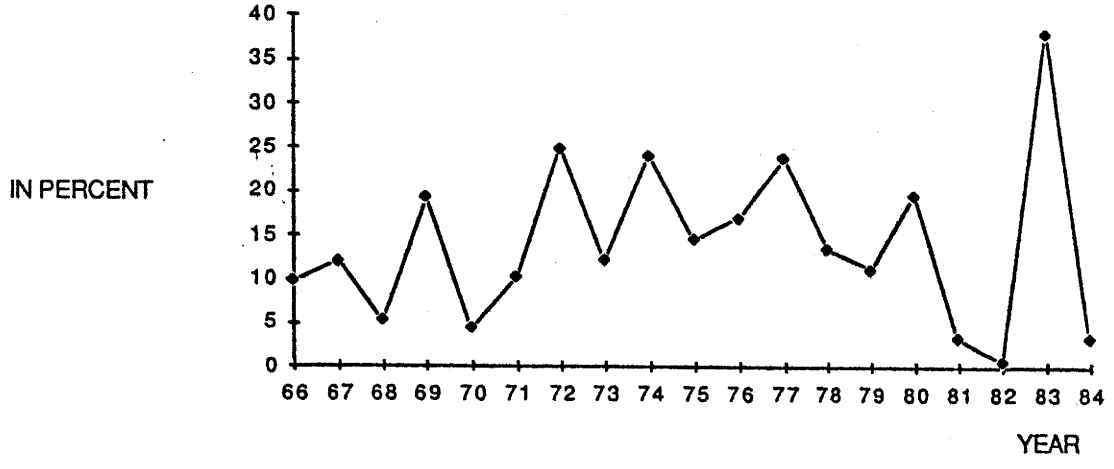
The reserve ratios were increased in 1983 on four occassions from 19% on 15 September to 23% on 1 December. This was implemented in order to carry out a tighter monetary policy aimed at avoiding further deterioration of the balance of payments.

The reserve requirements were increased to 24% on 25 April 1984 in order to help siphon off excess liquidity effected by non-payment of matured and maturing foreign obligations following a declared moratorium on external debt.

[28]For an analysis of the formation of money supply and bank credit in the Philippines during the period 1970-1980, see T. Daquila, 1987a, "Analysis of money and bank credit in the Philippines: an application of the Brunner-Meltzer framework", Working Paper in Trade and Development 87/3, The Australian National University.

[29]See Appendix C, Table 8 for the data on narrow money supply changes and its components.

Figure 2-2: ANNUAL CHANGES IN THE NARROW MONEY SUPPLY

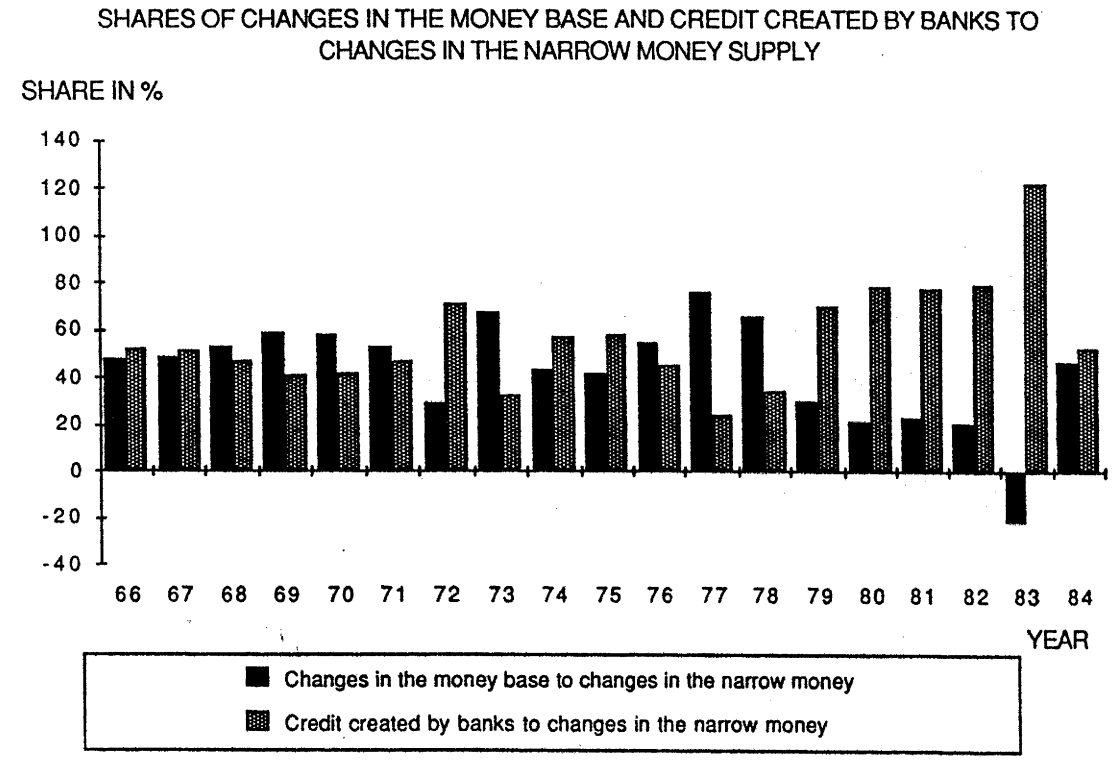


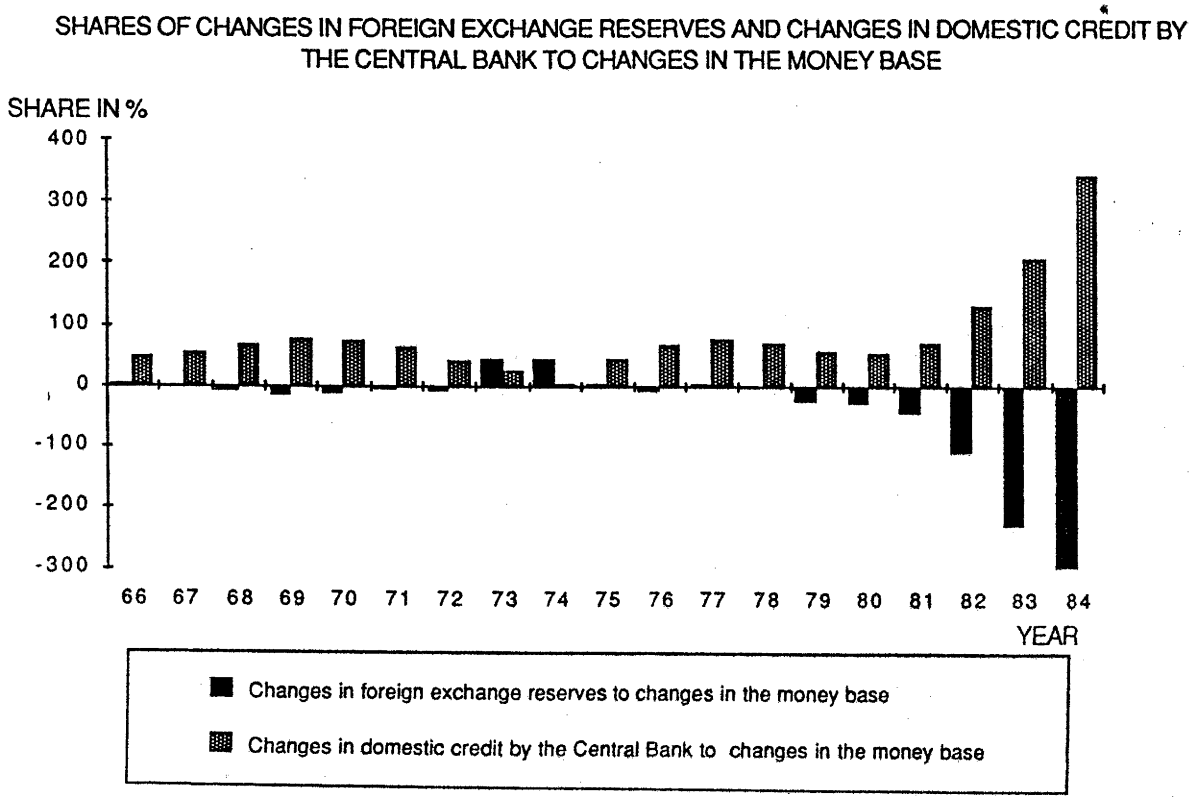
The narrow money supply grew at rates of growth which were as high as 20% per annum in some years. The growth of the money supply during the entire period can be attributed to the combined expansionary monetary impact of increases in the money base and in credit created by banks. Figure 2-3 shows that their shares to total money supply were almost equal during the period 1966 to 1968. Subsequently until 1978 (except in 1972, 1974 and 1975), increases in the money base accounted for most of the expansion of the money supply since its share to total money exceeded the shares of the credit created by banks.

The 1979-1984 period reflected the reverse picture of the earlier period. Credit creation by banks accounted for most of the growth in the money supply during the eighties, ie. the shares of credit created by banks exceeded the shares of the money base to total money.

The expansion of the money base can be attributed to increases in domestic credit by the Bank and/or a balance of payments surplus. In the case of the Philippines, Figure 2-3 shows that the expansionary monetary impact of domestic credit by the Bank more than offset the contractionary monetary effect of balance of payments deficits throughout the entire period (except in 1973, 1974, and 1983), and hence resulted in the expansion of the money base. Domestic credit by the Bank, therefore, assumed a dominant and increasing role in the upward movement of the money base (and hence the money supply). In 1973 and 1974, the balance of payments surpluses generated additional expansionary monetary effects to domestic credit by the Bank. Only in 1983, the fall in reserves of foreign exchange due to a balance of payments deficit exceeded the expansionary impact of credit by the Bank and hence resulted in an over-all contraction of the money base.

Figure 2-3: COMPONENTS OF CHANGES IN THE NARROW MONEY SUPPLY





CHAPTER 3

EXCHANGE RATE POLICY AND EXPERIENCE

3.1 Introduction

Currencies are bought and sold against each other in the foreign exchange markets. Exchange rates are the prices per unit of one currency in terms of another. In most countries, exchange rates are quoted as the price of a unit of foreign currency in terms of domestic currency. In the Philippines, the domestic currency is the "peso" and historically, it used to be tied to the United States dollar. The rate was 2 pesos/US$ in 1949 and had declined through a series of devaluations to 4.0 pesos/US$ in 1969. The fixed rate system was replaced by a flexible rate system in 1970 when the exchange rate depreciated to 6.0 pesos per US dollar. The Bank has, however, intervened in the foreign exchange market. In 1984 the rate was 16.7 pesos per US dollar.

The task of this chapter is to analyze the exchange rate policy and experience in the Philippines. This chapter consists of four sections. The first section deals with the determination of exchange rate policy in the Philippines, which is then followed by an analysis of the Philippine choice of the exchange rate system. The third section analyzes the various exchange controls. Finally, we analyze the impact of exchange rate policy and of the existence of exchange controls via the black market for foreign exchange.

3.2 Determination of Exchange Rate Policy

Exchange rate policy in the Philippines has been determined and administered by the Bank. since it began operations in 1949. For most of the period 1949-69, the Bank prescribed the country's exchange rate and agreed with the IMF to keep its currency within one percent of an agreed upon par value (the official price at which the Philippines was prepared to trade its currency). The par value of the Philippine peso was set initially in terms of gold. But it became an established practice

for the Philippines to state the par value in terms of the United States dollar. For most of 1962, the peso was allowed to float.

The Bank uses its dollar holdings when intervening to keep the peso-dollar rates within the agreed margin of one percent. If the price of the peso neared one percent below the par value, the Bank used its foreign exchange reserves to buy its own currency in the foreign exchange market. Similarly, if the price of the peso increased towards the upper intervention point, the Bank would sell pesos (buy dollars) until its price dropped.

Since 1970, the Philippines has had a floating exchange rate. The spot peso-dollar rate has been determined daily in interbank trading in the foreign exchange market. Until April 1972, the daily interbank spot peso-dollar exchange rate was based on the buying and selling rates of the last transaction in the foreign exchange market. , ie. previous day's transaction.

Although officially the exchange rate is market-determined, monetary authorities, however, intervened in the foreign exchange market via purchases and sales of foreign exchange to commercial banks and other entities. Table 3-1 shows that during the post-1970 regime, the Bank has sometimes intervened quite heavily in the foreign exchange market. The Bank made a cumulative net purchase of US$966.46 million from 1970-1974 when there was an increase in foreign exchange reserves due to balance of payments surpluses. The Bank made a net sale amounting to US$7435.74 million from 1975 to 1984 during which period the foreign exchange reserves declined because of the balance of payments deficits.

The Bank has also managed the exchange rate via maintaining bands or margins around a guiding rate, i.e. there exists regulatory ceilings on the maximum and minimum rates and the Bank prohibited individual traders, mostly commercial banks, from trading outside this range. Pante (1982) reported that until April 1972, the guiding rate refers to the daily interbank spot peso-dollar exchange rate which was based on the buying and

Table 3-1: CENTRAL BANK PURCHASES & SALES OF FOREIGN EXCHANGE

Year	(In Million US Dollars) Purchases (1)	Sales (2)	Net Purchase or Net Sale (-) (3)
1970	495.27	444.23	51.04
1971	708.40	521.30	187.10
1972	776.77	620.33	156.77
1973	1244.24	783.25	460.99
1974	1524.81	1414.25	110.56
1975	2013.12	2544.38	-531.26
1976	2199.19	2224.03	- 24.84
1977	1776.31	1724.90	51.41
1978	1989.82	2213.13	-223.31
1979	3794.81	4309.63	-514.82
1980	6720.81	7322.00	-601.19
1981	12864.09	14398.96	-1534.87
1982	20250.83	22145.32	-1894.49
1983	26972.85	28086.36	-1113.51
1984	7113.33	6028.48	-1048.85

Column 3 is obtained by subtracting column 2 from column 1.
Source: Department of Economic Research, Central Bank of the Philippines.

selling rates of the previous day's transaction in the foreign exchange market.[1] Subsequently until 1984, the guiding rate was established on the basis of the weighted average of exchange rates for all sales made in the preceding day. Starting December 13, 1984, the guiding rate is now called Bankers Association of the Philippines (BAP) Reference Rate which has been determined by the weighted average of all spot transactions on and off the trading floor inclusive of the Bank's transactions for the day. No ceiling on the buying and selling

[1]See F. Pante, Jr., 1982, "Exchange rate flexibility and intervention policy in the Philippines, 1973-1981", The Philippine Economic Journal, Volume XXI, Number 49, University of the Philippines School of Economics, page 6. Pante's paper deals primarily with the implications of exchange rate flexibility in less developed economies and attempts to evalutate the exchange experience of the Philippines during the period of generalized floating of major currencies.

rates has been set. As a result the system is more competitive (as opposed to the previous non-competitive system characterized with regulatory ceilings on the maximum and minimum rates).[2]

On the buying side (i.e. buying US dollar and selling pesos), the maximum and minimum rates were 0.50% and 1.0% below the guiding rate or central rate, respectively, during 1970-72. Subsequently until 1976, the maximum buying rate was changed to 1/2 of 1.0% below the guiding rate while the minimum buying rate remained the same. From 1977 until 1983, the 1976's rates were applied to spot transactions of less than US$100,000 and no ceiling on the buying rates was set for transactions exceeding US$100,000. In 1984, no ceiling on the buying rates was set, regardless of the amount of transactions.

On the selling side (i.e. selling US dollar and buying pesos), the minimum and maximum rates were 0.75% and 1.25% above the guiding rate, respectively, during 1970-72. Subsequently until 1976, the minimum rate was changed to 3/4 of 1% above the guiding rate while the maximum rate remained the same. From 1977 until 1983, the 1976's rates were applied to transactions of less than US$100,000 and no ceiling was set on the ceiling rate for transactions exceeding US$100,000. In 1984, no ceiling on the selling rates was set, regardless of the amount of transactions.

Figure 3-1[3] shows that buying, selling and guiding rates remained generally stable during the 1970-1982 period. Subsequently these rates increased markedly. Figure 3-1 also shows the annual percentage changes of the interbank guiding rate, which stood at an annual average of 3.0 % during 1971-82; and increased significantly in 1983 and in 1984.

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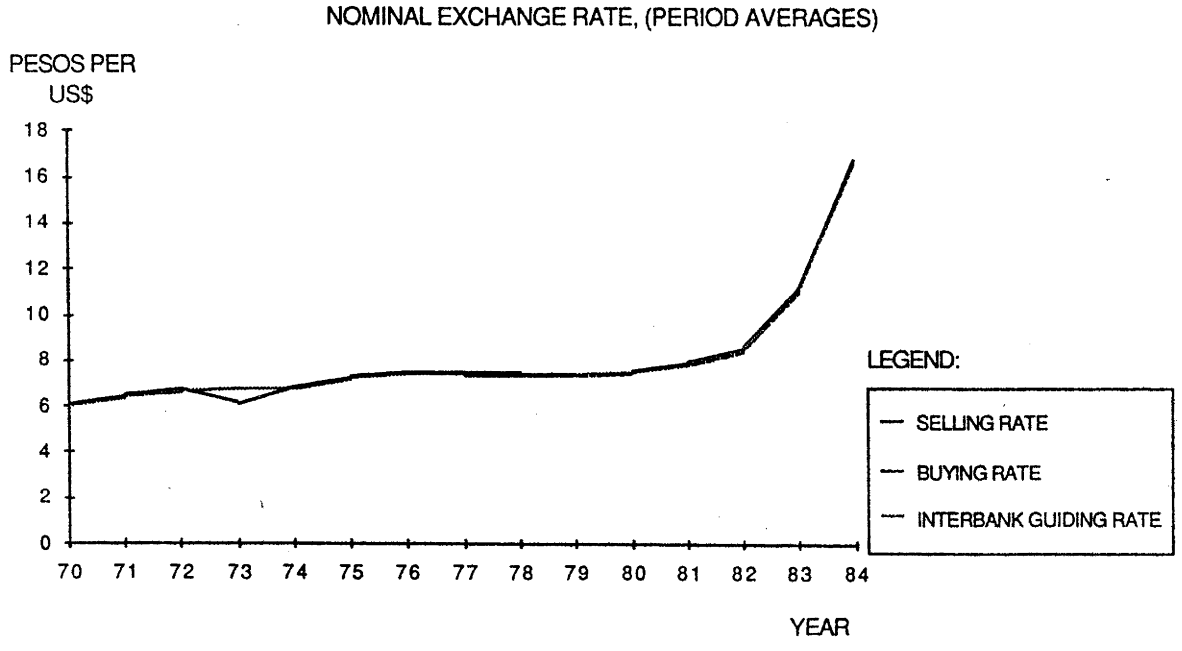
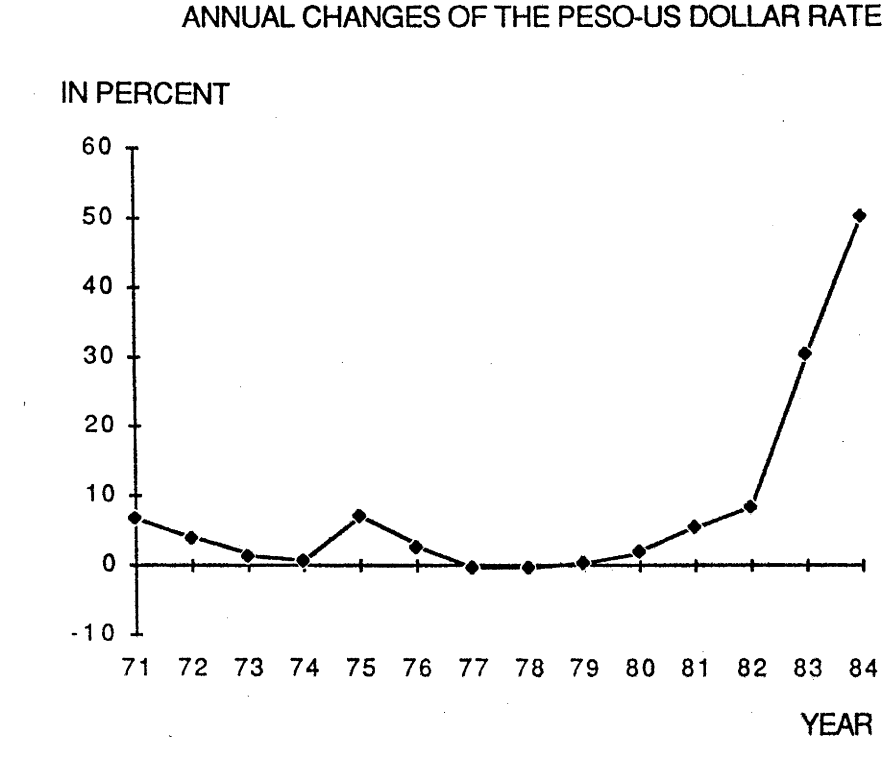
[2]This has to be distinguished from a competitive system where the private buyers and sellers were free to trade in an open market (where there no controls). The fact that the Bank also trades in this market and stands ready to buy and sell to keep rate within some range does not make the system non-competitive.

[3]See Appendix D, Table 9 for the data on the nominal peso-US dollar rates during the period of 1970-1984.

Figure 3-1: MOVEMENTS IN THE NOMINAL PESO-US DOLLAR RATE





3.3 Choice of the Exchange Rate System

A very important international institution which has influenced the choice of the exchange rate system in the Philippines is the International Monetary Fund. In 1944, the Fund established an international monetary system known as the Bretton Woods system which rested on the maintenance of stable exchange rates.[4] In agreement with the Fund, the Philippines[5] adopted a fixed exchange rate system at the end of World War II and simultaneously imposed exchange controls.[6] A fixed rate of 2 pesos per US dollar was maintained from 1946 until 1960.

Then during the early 1960s, the Philippines switched to a dual exchange rate system which stemmed from the need to lessen the extent of overvaluation of the peso which in turn caused growing current account deficits.[7] There existed (a) an official rate of 2 pesos/US$ plus a margin fee of 25% (or effectively 2.5 pesos/US$) for imports of consumer and producer goods, and (b) a "free market" rate of 3.2 pesos/US$ plus a margin fee of 25% (or effectively 4.0 pesos/US$) for all other import transactions. The free market rate of 3.2 pesos/US$ only lasted from April to September 1960. It was then reduced to 3.0 pesos/US$, where it remained until January 1962. The actual exchange rate that applied to sales of foreign exchange earnings to the Bank relied on the proportions at which this exchange could be converted at the official and free market rates. A dual exchange rate system in which importers pay 4.0 pesos/US$ and exporters get 3.2 pesos/US$ is,equivalent to free rate of 4.0 pesos/US$ plus a uniform tax on exports at 20%, ie. 3.2=0.8x4.0; and, equivalent to free rate of 3.2 pesos/US$ plus a uniform tariff on imports at 25%, ie. 4.0= 1.25x 3.2 pesos/US$.

[4]Until mid-1960s, the Bretton Woods system functioned reasonably well. However, in the late 1960s, the system was unduly strained by the world inflation emanating from the easy monetary policies in the United States. The system was further strained in 1970 via the lowering of American interest rates in order to combat its recession and via the strict monetary policies adopted by European countries, Germany in particular, to contain inflation. The changing interest rates led to substantial capital outflows of American dollars from US. The major recipient of these outflows from the US was West Germany. This resulted from increased integration of capital markets.

[5]For an interesting historical account of the exchange rate system in the Philippines since 1946 until 1971, see R. E. Baldwin, 1975, Foreign Trade Regime and Economic Development:The Philippines, Volume 5, National Bureau of Economic Research, New York.

[6]See discussion of exchange controls in section 3.5.

[7]Hill and Jayasuriya (1985, page 9) concluded that throughout virtually the entire independence period [post World War II], the peso has been overvalued which has the familiar effects of discouraging exports and encouraging imports.

Profits and dividends earned on foreign investments approved after January 1, 1960, were permitted to be remitted entirely at the "free market" rate. Foreign workers employed by firms doing business in the Philippines were allowed to remit abroad up to 50% of their salaries at the "free market" rate.

In 1962, the peso was floated temporarily in the free market (simultaneously with the liberalization of exchange controls). The Bank, however, intervened in order to prevent excessive short-run movements of the exchange rate. Following the float of the peso, the free market rate stabilized at 3.9 pesos/US$ as early as the end of 1962. On 8 November 1965, the peso was formally devalued from the official rate of 2.0 pesos/US$ to 3.9 pesos/US$. This rate lasted until 1969.

Faced with the balance of payments crisis which was aggravated by the rising level of maturing external obligations and the unavailability or shortage of foreign exchange reserves, the government adopted a floating rate system during the early 1970s[8] as part of the stabilization package agreed between the Bank and the International Monetary Fund. The peso was floated (with some administrative controls) in February 1970 and stabilized at the rate of 6.4 pesos/US$ in October 1970 (a 60% depreciation relative to 4.0 pesos/US$). Thus, it would seem that the monetary authorities floated the exchange rate at that time mainly to determine the new peso-dollar rate rather than to switch to a flexible exchange rate system. Bautista (1981) further claimed that it cannot be said, however, that the country opted for exchange rate flexibility at the time, since the declared objective of floating was to seek the exchange rate that would balance

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[8]Developments in the international monetary system since 1970 are very well documented by Sodersten (1980, pp. 441-485). All major currencies, except the yen, were floated (subject to controls and official intervention) following President Nixon's declaration of inconvertibility of the US dollar into gold on 15 August 1971. The leading currencies; namely, the US dollar, the Japanese yen and the German mark, were realigned under the Smithsonian agreement in late 1971. The US dollar was devalued in terms of gold by 8%, the Japanese yen was revalued by 17% relative to US$ and the German mark by 14% relative to US$. The agreement also widened the permissible band of movements of the exchange rates to 2.25% above or below the new parities of central rates. The change of parities and the widened band were both steps in the direction of a needed adjustment of the exchange rates. This agreement lasted only for 14 months until March 1973, when all the major currencies were allowed to float more or less freely, thereby effectively ending the Bretton Woods system.

international transactions.[9]

Licaros (1982) indicated that the adoption of a "floating rate" system was one of the three alternatives available to the Bank ; the other two were: maintaining the 4.0 pesos per US$ or devaluing the peso to a new fixed rate.[10] The decision of the Bank to "float" the peso was based on the following premise. The old parity rate of 4.0 pesos/US$ could no longer be kept since the foreign exchange reserves were at a very low level. Moreover, the no-devaluation policy would hold back export growth. Additional foreign borrowings without new foreign exchange income sources for repayment could no longer be continued. The devaluation of the peso could not be done since the peso had been supported for too long at an artificially overvalued level. International reserves were so small that if the rate had been fixed, rigid import and exchange controls have had to be imposed.

Exchange rate policy in the Philippines has shown consistency or conformity with the developments in the international monetary system since 1973, the period known as generalized floating.[11] The exchange rate has continued to be determined by market forces during the post-1973 regime. The Bank, however, has directly controlled the exchange rate via purchase or sale of foreign exchange to commercial banks and other entities and via maintaining bands or margins around the guiding rate within which the peso-dollar rate is allowed to float.

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[9]See, R. M. Bautista, 1981, "Exchange rate flexibility and the LDCs: a survey of empirical research and policy issues". The Philippine Economic Journal. University of the Philippines School of Economics, Volume 20, Number 1, page 2. His study is an exploratory survey of policy issues and empirical work related to the implications of generalizd currency floating for the LDCs.

[10]See G. Licaros, 1982, Philippine Monetary Policy-Making in the Seventies: Selected Speeches and Papers, Central Bank of the Philippines, pages 122-123.

[11]The Bretton Woods system had suffered from want of an effective adjustment mechanism. Then in March 1973, members of the European Economic Community and two non-EEC members Norway and Sweden floated jointly their currencies. The common European float limited the fluctuations of their currencies relative to each other to a smaller band. Fluctuations with other curencies would remain within the limits provided by the band proposal. Thus, a new era of floating exchange rates was born. The strive towards international monetary cooperation has continued. In March 1979, the European Monetary System was created which has tried to limit the internal exchange rate movements among the participating European currencies by not more than 2.25% from the central rates. At the heart of the system is the European Currency Unit (ecu), which is a basket currency of a unit of account made up of the major European currencies. Over 50% of the ecu consists of the German mark and the French frank.

We can therefore, conclude, that the exchange rate system in the Philippines since the 1970s is essentially a managed float. On some occasions, the peso was allowed to float freely, with the Bank then attempting to stabilize the peso-dollar rate once it had reached its equilibrium level. This conclusion is consistent with other studies. Rana (1981) observed that the official Philippine exchange rate policy (since July 1975) has been one of managed floating.[12] Pante (1982) also characterized the exchange rate system during the post-1970 regime as one of limited rather than full flexibility.[13]

The fact that the Philippines has allowed less than full flexibility of the peso-dollar rate can be attributed to (a)the geographic concentration of trade, (b)the extent of capital mobility and (c) the state of capital and financial markets. Each of these factors will be discussed.[14]

The theory of optimum currency areas[15] suggests that in small and very open economies, such as the Philippines, fixed rates work better than floating rates because domestic residents would tend to make contracts to be effectively denominated in foreign currency so that there will be little basis for domestic currency. The proportion of trade in goods and services to GDP (a measure of openness) ranges from 36% to 50% during 1970-1984.

Moreover, the greater the geographic concentration of trade and payments the stronger might be the case for pegging the country's currency to that of its major trading partner. Pegging has prevented a disruption of trade and capital flows and has been

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[12]See P. B. Rana, 1981, ASEAN Exchange Rates:Policies and Trade Effects, Institute of Southeast Asian Studies, Singapore, page 14.

[13]See Pante, 1981, page 4.

[14]In his study, Exchange-Rate Management in Theory and Practice, Princeton Studies in International Finance, Number 50, V. Argy (1982, page 28) cited the studies of Heller (1978) and Holden and others (1979) which relate "country characteristics" to the appropriate degree of exchange rate flexibility. Argy provides an analysis of techniques in managing exchange rates, theoretical rationale for exchange rate management, and experience with exchange rate management in Germany, United Kingdom and Japan.

[15]For a very good exposition on the theory of optimum currency areas and exchange rate flexibility, see E. Tower and T. Willett, 1976, The Theory of Optimum Currency Areas and Exchange Rate Flexibility, Special Papers in International Economics No. 11. Princeton University.

convenient administratively. The Philippines has continued to peg the peso to the US dollar since Philippine trade is heavily concentrated in the United States. During the 1970-84 period, Philippine trade with the United States in proportion to total trade has remained high ranging from 25% to 40 percent.

Even with perfect capital mobility, a flexible exchange rate system gives government authorities some autonomy in their conduct of domestic monetary policies, without being constrained by the balance of payments. Under a fixed rate, with perfect capital mobility, authorities have no control of domestic monetary policy. With imperfect or even zero capital mobility they have some control in the short-run -but even with zero capital mobility the domestic money supply cannot be controlled in the long-run under a fixed rate- and attempts to control it in the short-run are likely to produce de-stabilizing speculation.[16] Therefore, the case for flexible exchange rate does not depend on the assumption of perfect capital mobility. For some countries, a fixed rate may be optimal but if a fixed rate is adopted, it is necessary to abandon the attempt to use monetary policy either for countercyclical policy or to influence inflation. If the labor market can not be left to take care of itself (via flexible money wages) then it is better to abandon a fixed rate, than to try to combine a fixed rate with active countercyclical monetary policy.

Both the capital and financial markets in the Philippines are still at low levels of development. The process of financial intermediation is not yet developed and is still very limited.[17]

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[16]See Sieper and Fane, 1982, pp. 273-275.

[17]This was also the situation in Australia before the relaxation of exchange controls. Get rid of the controls and countries like Australia and the Philippines can quickly reach the level of development and sophistication of Hongkong.

3.4 Exchange Controls

The foreign exchange market has functioned mainly via the Bank and some foreign exchange dealers. Pante (1982) reported that there is no domestic forward exchange market, but forward cover is made available by the Bank for transactions involving swap arrangements.[18] The slow pace in the development of the foreign exchange market has been attributed to a higher degree of government intervention. Thus, with less developed financial and capital markets, the Philippines has continued to fix the exchange rate of the peso to the US dollar.

Monetary authorities have, likewise, relied on the use of trade and exchange controls.[19] The 1950s was known as the period of controls, when exchange controls were implemented and intensified. One particular form of exchange controls required importers to secure import licenses. Exchange controls became increasingly used to promote import-substitution; that is, substituting domestic manufacturing for imports of manufactures. The rate of growth of imported consumer goods dropped drastically from 50% in 1950 to 15% in 1960. The success of the exchange control measures was, however, more than offset by the unfavorable export prices so that the current account deficits remained in the red during the 1950s.

From April 1960 to mid-1967, exchange controls were liberalized; this period was characterized as the period of "decontrol". This liberalization involved the removal of most exchange controls; elimination of margin fees; elimination of special time deposits requirement for all import letters of credit; and elimination of reserve requirements against special time deposits and elimination of dual exchange rate system.

The period from mid-1967 until February 1970 could be characterized as a return to

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[18] See Pante, 1982, page 6.

[19] For a historical account of trade and exchange controls in the Philippines over the period 1946 until 1975, see G. M. Jurado, 1978, "Foreign trade and external debt", The Philippine Economic Problems in Perspective, Encarnacion, J.Jr. and others, University of the Philippines School of Economics Philippines, pages 262-288. Also, see Pante (1981) and Baldwin (1975).

moderate exchange controls. The following measures were introduced: (a) All commercial banks were required to maintain a one-to-one ratio between actual foreign exchange assets and foreign exchange liabilities; (b) An absolute limit on the foreign exchange liabilities of commercial banks was imposed; and (c) The requirements that importers make special time deposits against import letters of credit at the Bank was re-introduced. Higher rates of special time deposits were required for less essential imports.

The monetary authorities have still relied on the use of trade and exchange controls during the post-1970 regime basically to ration the limited supply of foreign exchange. However, these restrictions were less stringent than those during the 1950s and the 1960s. The government has decided to leave a certain amount of administrative regulation over foreign exchange disbursements while leaving the exchange rate to be determined in the market subject to Bank intervention. The government has prohibited the use of foreign exchange for some imported goods.

Profits and dividends are now remitted free of restrictions. Quantitative limitations are imposed on travel expenses abroad, educational expenses abroad, and maintenance of dependents overseas. All inward and outward capital movements require prior and specific approval of the Bank, with the exception of certain banking operations and certain transactions related to the financing of international trade. For the inward foreign investments and new foreign borrowings, preference is given to projects approved by the Board of Investments. The Board has especially favored investment in export-oriented industries. Foreign direct cash investments made after March 15,1973 are freely repatriable without the need for formal clearance. Without prior Bank approval, commercial banks may not receive credits from abroad[20] other than credit arising from normal international trade transactions.

Domestic residents are not allowed to purchase foreign securities nor maintain bank

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[20]Presumably they receive them, but have to surrender the foreign exchange at the official exchange rate.

balances overseas. They can, however, maintain foreign currency deposits domestically, provided the source of the deposit is eligible for deposits.[21]

In 1983 additional exchange controls were adopted via (a) creating a foreign exchange pool for priority import payments by requiring all banks to sell 100% of their foreign exchange receipts to the Bank; (b) setting priorities in the allocation of foreign exchange to certain goods,[22] and (c) setting ceilings for payments and new import letters of credit. Import licenses were also re-introduced for some categories. In October 1984, the Bank abolished the foreign exchange priority allocation program for imports. The Bank also increased the proportion of foreign exchange receipts that commercial banks can keep (for their own desired purposes, sell in the open market, buy US$ securities, etc.) from 20% in June 1984 to 30% in December 1984.

3.5 The Black Market for Foreign Exchange

A black market for foreign exchange has existed in the Philippines since exchange controls were established in 1949 as a means of circumventing Bank's control over the price (exchange rate) and the quantity of foreign exchange. Since exchange controls have been geared toward rationing access to the limited supply of foreign exchange, importers who are not able to obtain foreign currency legally resort to purchasing from the black market. Also exporters and other recipients of foreign exchange are usually tempted to sell their foreign exchange holdings in the blackmarket to obtain higher rate of exchange than the official rate. The black market has also served as a vehicle for the substantial capital flight from the Philippines via Hongkong and Singapore to Switzerland and the United States and other countries. Black market operations are widely believed to have been mostly in the hands of Chinese dealers with international connections. These beliefs are supported by reports in Pick's World Currency Yearbook.

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[21]Foreign exchange earned from Philippine exports, foreign exchange earned by resident owners or operators of ocean-going vessels, US dollar pensions received by Philippine residents, and foreign exchange acquired by resident insurance companies, are required to be surrendered to the Bank or its agent banks, and thus, are not eligible for deposit.

[22]There is a priority system under which foreign exchange for import payments is provided in order of importance for (a) oil imports, and (b) trade related payments for (i) inputs into export production, (ii) raw materials for vital domestic industries and (iii) food grains.

Table 3-2 shows that the ratio of blackmarket prices to official prices stood at an average of 1.086 during the 1970-83 period, which is lower than the average of 1.674 and 1.099 during the 1950s and 1960s, respectively. This trend was attributed to the fact that exchange controls were less stringent during the post-1970 regime than in the previous two decades. Moreover, speculative activities were more important during the 1950s and the 1960s (a period of fixed exchange rate system) than during the post-1970s (a period of limited exchange rate flexibility). Expected large devaluations generated substantial gains for speculators during the earlier period of adjustable par values. Because of minimal adjustments in the nominal exchange rates during the post-1970 regime, incentives for speculation might have been decreased.

Table 3-2: OFFICIAL AND BLACK MARKET RATES OF FOREIGN EXCHANGE

Year	Pesos per US dollar: Black Market Rates (1)	Pesos per US dollar: Official Rates (2)	Black Market to Official Ratios (3)
1950-1959	-	-	1.674*
1961-1969	-	-	1.099*
1970	6.680	5.904	1.131
1971	7.005	6.431	1.089
1972	7.033	6.671	1.054
1973	7.170	6.756	1.061
1974	7.132	6.788	1.050
1975	7.895	7.248	1.089
1976	7.905	7.440	1.062
1977	7.800	7.403	1.053
1978	7.857	7.366	1.067
1979	7.966	7.378	1.080
1980	8.035	7.511	1.070
1981	8.298	7.900	1.050
1982	9.079	8.540	1.063
1983	14.350	11.113	1.291
1984	n.a.	16.700	-
1970-1983	8.158	7.502	1.086

Sources: * Average ratios of black market to official rates for 1950-1959 and for 1960-1969, data were taken from Pante (1982, page 18).

(1) Annual averages based on monthly rates published in Pick's World Currency Yearbook (1970-1983).

(2) Annual averages obtained from the IMF International Financial Statistics, 1981 issue for 1970-1980, page 353, and December 1985 issue for 1981-1984, page 380.

CHAPTER 4

STRUCTURE OF THE BASIC MODEL

4.1 Introduction

We have seen in the introductory chapter that in the case of the Philippines, the role of external shocks in its economic performance cannot be denied. We have also concluded that internal factors have contributed to a larger extent. While external difficulties were indeed a necessary condition for the present economic crisis, the domestic macroeconomic policy also contributed significantly to the economic debacle.

The major concern and hence the contribution of the thesis is to provide a theoretical framework for analyzing macroeconomic policy and its impact on a country's economic activity. The analytical framework is developed in the context of the Salter-Swan two-sector model: tradeables and non-tradeables. Then, we relate this framework to analyze Philippine macroeconomic policy and its impact on the domestic economy.[1]

The assumption of fixed terms of trade is of course an oversimplification. In some of its export market, the Philippines may well have some monopoly power;this would be important in an analysis of optimal tariffs but is unlikely to be significant in an analysis of macroeconomic policy:spending-induced changes in domestic consumption of Filipino exports are not likely to amount to a significant fraction of total world consumption of these products.

[1]Equivalently, we are interested in formulating a macroeconomic model based on existing theoretical literature of developed economies and determine its relevance in the case of developing economies such as the Philippines. In his study "The relevance for developing countries of recent developments in macroeconomic theory in developed countries", Working Paper in Trade and Development Number 86/1, The Australian National University, W. M. Corden (1986) claimed that every idea that can be found in the recent literature in developed economies can be shown to have some relevance for some LDC somewhere. Interesting country applications of the tradeable and non-tradeable framework include (a) case of Singapore, see, W. M. Corden, 1984, "Macroeconomic targets and instruments for a small open economy", The Singapore Economic Review, Volume XXIX, Number 2, National University of Singapore, pages 27-37; (b) case of Indonesia, see P. Warr, 1984, "Exchange rate protection in Indonesia", Bulletin of Indonesian Economic Studies. Volume XX, Number 2, The Australian National University, pages 53-89, and P. Warr, 1986, "Indonesia's other dutch disease: economic effects of the petroleum boom", in National Resources and the Macroeconomy, J. P. Neary and S. van Wijnbergen (eds), Oxford, pages 288-320; and (c) case of the Philippines, see, D. Lal, 1983, "Real wages and exchange rates in the Philippines", World Bank Staff Working Paper Number 604, and T. Daquila, 1987b, "Macroeconomic policy and its impact on the Philippine economy", Working Paper in Trade and Development, Number 87/12, The Australian National University.

The highlight of this framework is an analysis of fiscal policy and monetary policy under fixed and flexible exchange rates. The measure of pure fiscal expansion that we will use is the amount of any bond-financed rise in the government's domestic budget deficit. An increase in the domestic budget deficit results from an increase in government expenditures on non-tradeables unmatched by revenues. Pure monetary policy refers to domestic credit creation via open market operations. A budget deficit financed by domestic credit creation involves both fiscal and monetary expansion.

Following Ahmed (1983), we can distinguish the assumption of the monetarists from that of the Keynesians in their analysis based on the tradeable/non-tradeable approach.[2] Monetarists assume tendency to natural rate of unemployment (which we can call full employment) while Keynesians tend to assume downward rigidity of nominal wages so that the economy is at less than full employment.

Consider an economy which is initially disturbed by an increase in government budget deficit (rise in expenditures measured in terms of non-tradeables which is unmatched by revenues). There is a direct effect on demand via an increase in the public sector component of demand. If the budget deficit were financed by increases in domestic credit creation, there is an indirect effect on demand: raising the rate of growth of domestic credit induces an increase in nominal expenditures.

According to the monetarists model, if the economy is at full employment the rising expenditure level results in a real appreciation, reduces the competitiveness of the tradeable sector and causes a shift in the output composition (more of non-tradeables and less of tradeables). According to the Keynesian model (where the economy is at less than full employment), with nominal wages relatively rigid, an increase in demand for non-tradeables generates domestic inflation and hence lower the real wage. Output of non-

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[2]For a survey of what existing analytical models can tell us about the effects of and policy tradeoffs involved in the implementation of stabilization incomes in LDCs, see L. Ahmed, 1983, Stabilization Policies in Developing Countries: A Survey, World Bank.

tradeable sector expands. Because of the increased demand for tradeables there is an external (current account) deficit.

Both monetarist and Keynesian models indicate that an increase in the government budget deficit, resulting from extra spending on home goods, which is financed by an increase in domestic credit creation leads to an appreciation of the real exchange rate (ie. the relative price of home goods rises), an increase in domestic inflation, and a current account deficit. These effects will also be associated with an increase in output and falling real wages according to the Keynesian model. Full employment models put emphasis on the changes in the composition of output.

In this chapter, the structure of the basic model will be analyzed. The basic model will be formulated via packaging or integrating various elements of the existing macroeconomic theory such as (a) a small country assumption, (b) labor market condition, (c) output market condition, (d) internal balance condition, (e) private spending function, (f) money market condition, and (g) balance of payments equation. Then, we will provide a summary of the basic medium-run model under fixed and flexible exchange rates.

4.2 The Basic Model

Although our analysis will center in the medium-run, we might as well distinguish the three "runs": the short-run Keynesian, the medium-run and the long-run.[3] (1) The very short-run: this is defined as a period in which money wage is assumed sticky and full employment is not guaranteed. (2) The medium run: this is defined as a period in which money wage adjusts to give full employment but current account may not balance. The country is saving or dissaving. (3) The very long run: this is defined as a period in which

[3]In his study "A geometric analysis of exchange rate adjustment under static and rational expectations", The Economic Record, Volume 58, Number 163, pages 367-374, G. Fane (1982) formulated a macroeconomic model with short-run Keynesian and neoclassical or monetarist properties in the long-run. In this paper, Fane presents a simple geometric apparatus for analyzing macroeconomic questions relating to small open economies, particularly, the adjustment of a floating exchange rate regime to a step increase in the money supply.

the current account surplus (or deficit) is corrected via wealth effects e.g. with current account deficit, wealth is falling so that spending gradually falls. The current account tends towards balance. While the concepts of short-run, medium-run and long-run are used here only in an analytical sense, it may be helpful to think of the "short-run"as covering a period of up to 1 or 2 years, and the "long-run". as : covering a period of more than 5-10 years; the "medium-run" would then cover the intervening period.

4.2.1 Small Country Assumption

The model is a two-sector model: tradeable sector (T) and non-tradeable sector (N). Tradeables consist of exportables and importables. Exportables consist of exports, and export-substitutes which are sold domestically. Importables consist of imports, and import-competing goods. Assume that the country (the Philippines) is a price taker in the world market for importables and exportables. Equation (4.1) represents the small country assumption,[4] ie. the domestic prices of tradeables (P_T) are determined by the nominal exchange rate (e, which is pegged under fixed exchange rates, and floating under flexible exchange rates), and the foreign prices of tradeables (P_T^*). With the small country

[4] A small country assumption enables one to handle analysis with convenience, and it also follows the assumption of Lal (1983) in his study, "Real wages and exchange rates in the Philippines". He aggregated commodities into two composite goods: traded and non-traded whose relative price was used as the real exchange rate. In another study "Economic liberalization and the real exchange rate in developing countries", a paper presented at the Carlos Diaz- Alejandro Memorial Conference, S. Edwards, 1986, cites, among others, the studies of Dornbusch (1974, 1980), Krueger (1978, 1983), Katseli (1983), Neary and Purvis (1983), which have defined the real exchange rate in the context of the dependent economy-type models, as the relative price of tradeables to non-tradeables. Assuming that the law of one price holds for tradeables, the real exchange rate is defined by these authors as: $p = (P_T/P_N) = (e\ P_T^*/P_N)$ where P_T is the domestic price of tradeables, P_T^* is the world price of tradeables, P_N is the domestic price of non-tradeables, e is the nominal exchange rate.

assumption, the terms of trade[5] are exogenously given so that we can aggregate exportables and importables into a composite commodity called the tradeables. With given terms of trade, the relevant measure of real exchange rate is the domestic price of tradeables relative to the domestic price of non-tradeables (P_T/P_N).

$$P_T = e\, P_T^* \tag{4.1}$$

Nontradeables consist of all goods and services the prices of which, P_N, are determined by domestic supply and demand.

4.2.2 Labor Market Conditions

With fixed capital and diminishing returns, the demand for labor in the tradeable sector, L_T, and the demand for labor in the non-tradeable sector, L_N, are decreasing functions of the real wage in each sector which is defined as the nominal wage (W) deflated by the price of goods in each sector, P_T and P_N, respectively.

$$L_T = L_T(W/P_T) \tag{4.2}$$
$$-$$

$$L_N = L_N(W/P_N) \tag{4.3}$$
$$-$$

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[5]Terms of trade, TOT, is defined as the ratio of the domestic price of exportables, P_X, to the domestic price of importables P_M. If we allow terms of trade effects, we must consider a three-good model: exportables (X) importables (M), and non-tradeables (N). Terms of trade deterioration can be effected via (a) a decline in the domestic prices of exportables with constant domestic prices of importables; (b) an increase in the domestic prices of importables with constant domestic prices of exportables, or (c) domestic prices of importables rise faster than the fall in the domestic prices of exportables. Given the exchange rate and foreign price of exportables, if the foreign price of importables rises, then the domestic price of importables rises proportionately. Given the exchange rate and the foreign price of importables, if the foreign price of exportables falls, then the domestic price of exportables declines proportionately.

If we introduce the terms of trade effects, it is indeed necessary to distinguish between importables and exportables. In the basic model, we are concerned with only one measure of the real exchange rate - the relative domestic prices of tradeables to domestic prices of non-tradeables ($p = P_T/P_N$). With terms of trade effects, we have two measures of the real exchange rates such as (a) p_x which is the domestic price of exportables relative to domestic price of non-tradeables; and (b) p_m, which is the domestic price of importables relative to the domestic price of non-tradeables.

Assume that the total labor force (L) is fixed but the allocation between sectors is endogenous; that is, labor is mobile between sectors. Assume factor-price flexibility to ensure full employment. Equilibrium in the labor market is obtained when

$$L = L_T(W/P_T) + L_N(W/P_N) \tag{4.4}$$

From equation (4.4), we can obtain the nominal wage W which equates the demand and supply of labor. Thus, in order to ensure continuous full employment, the nominal wage W is assumed to be perfectly flexible. In its simplified notation, equilibrium wage W is expressed as

$$W = W(P_T, P_N) \tag{4.5}$$

By log-differentiation of equation (4.4), we obtain the relationship between wages and goods prices.[6]

$$\hat{W} = \beta\hat{P}_N + (1-\beta)\hat{P}_T \tag{4.6}$$

or

$$\hat{W} = \hat{P}_T - \beta(\hat{P}_T - \hat{P}_N) \tag{4.7}$$

where a ($\hat{}$) denotes a percentage change. The symbol β is denoted as

$$\beta = (\delta_N\epsilon_N)/(\delta_N\epsilon_N + \delta_T\epsilon_T) \tag{4.8}$$

where, ϵ = elasticity of labor demand in each sector

δ = share of labor in each sector

Equation (4.7) means that the change in the equilibrium wage rate equals the

[6]See Appendix A, section 1 for the derivation of the relationsip between wages and goods prices.

change in the price of tradeables adjusted for changes in the relative price of tradeables in terms of non-tradeables. Manipulation of equation (4.7) yields

$$\hat{W} - \hat{P}_T = -\beta(\hat{P}_T - \hat{P}_N) \tag{4.9}$$

or, equivalently

$$\hat{W} - \hat{P}_N = (1-\beta)(\hat{P}_T - \hat{P}_N) \tag{4.10}$$

An increase in the domestic price of tradeables relative to the domestic price of non-tradeables reduces the equilibrium relative wage in terms of tradeables as in equation (4.9) and raises the real wage in terms of non-tradeables as in equation (4.10). Given the capital stock in each sector and the technology, a lower real wage in terms of tradeables increases the demand for labor and hence employment in that sector, while a higher real wage in the non-tradeables sector decreases the demand for labor and hence employment in that sector.

4.2.3 Output Market Conditions

Assume that non-tradeables and tradeables are produced by inputs of capital (in fixed supply) and labor which is mobile between sectors.

Production of non-tradeables, Q_N, and of tradeables, Q_T are assumed as increasing functions of labor in each sector.

$$Q_N = Q_N(L_N) \tag{4.11}$$
$$\quad\quad +$$

$$Q_T = Q_T(L_T) \tag{4.12}$$
$$\quad\quad +$$

Assume competitive product markets and profit maximization, we can now express the production of non-tradeables and tradeables as follows:

$$Q_N = Q_N(L_N(W/P_N)) \tag{4.13}$$

$$Q_T = Q_T(L_T(W/P_T)) \tag{4.14}$$

Substituting the equilibrium value of W in a simplified notation, and with the price of non-tradeables as numeraire, the supply functions now depend only on the relative price of tradeables to non-tradeables.

$$Q_T = Q_T(P_T/P_N) \tag{4.15}$$
$$\quad +$$

$$Q_N = Q_N(P_T/P_N) \tag{4.16}$$
$$\quad -$$

An increase in the relative price of tradeables to non-tradeables increases the output of tradeables and decreases the output of non-tradeables. The supply schedules correspond to full employment supplies along the production possibility curve (ppc) since they are obtained from labor market equilibrium. In other words, equations (4.15) and (4.16) are consistent with a ppc denoted as TT' in Figure 4-1, around which output moves because relative price changes.

Equation (4.17) expresses the aggregate supply Q using non-tradeables as numeraire.

$$Q(P_T/P_N) = Q_N(P_T/P_N) + (P_T/P_N).Q_T(P_T/P_N) \tag{4.17}$$
$$\quad +\qquad\qquad\quad -\qquad\qquad\qquad\quad +$$

With full employment level of output Q, an increase in the relative price of tradeables to non-tradeables will change the composition of output. It will also unambiguously raise total output measured with non-tradeables as numeraire (and lower total output with tradeables as numeraire). In Figure 4-1, with an increase in P_T/P_N (slope of the price line through Q_1 is steeper than the price line through Q_0), more of tradeables and less of non-tradeables will be produced.

We can now summarize the effects in the output and labor markets of an increase in the relative price of tradeables to non-tradeables. In the labor market, the relative wage in terms of tradeables declines while the relative wage in terms of non-tradeables increases. The effect on the real wage as perceived by workers depends on the proportions of tradeables and non-tradeables in their total consumption. Demand for labor and hence employment in the tradeables sector increases while demand for labor and hence employment in the non-tradeables sector decreases. Total employment does not change. In the output market, production of tradeables increases while production of non-tradeables declines. The direction of the effect on aggregate output depends on the choice of numeraire; ie, total output increases if measured with non-tradeables as numeraire, and decreases, if measured with tradeables as numeraire.

4.2.4 Internal Balance Condition

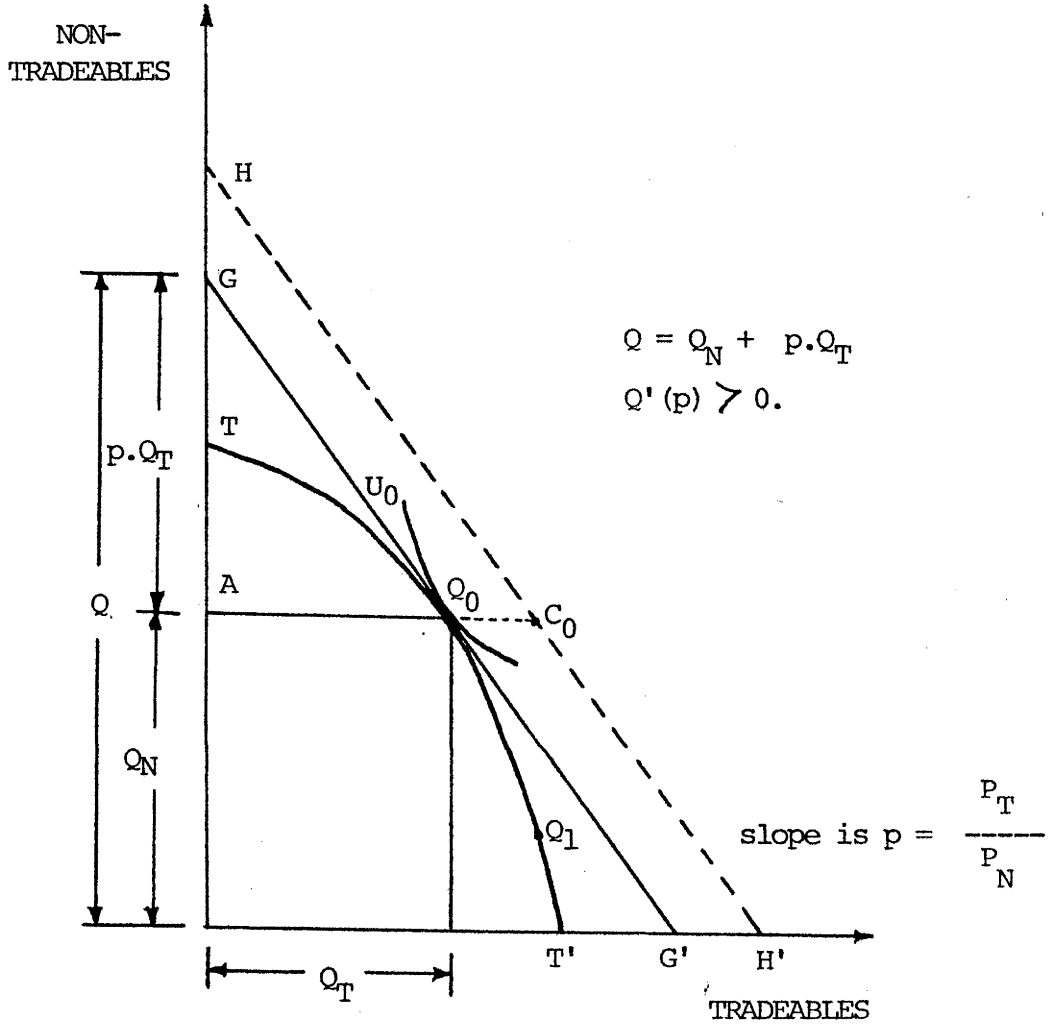
Equation (4.18) states that there is internal balance when the total supply of non-tradeables (Q_N) equals the total demand for non-tradeables (when the non-tradeables market clears).

$$Q_N(P_T/P_N) = D_N(P_T/P_N, z) + G_N \qquad (4.18)$$
$$\quad - \qquad\quad + \quad +$$

The total demand for non-tradeables is the sum of the private demand (D_N) and the government demand (G_N) for non-tradeables. The demand for non-tradeables by the private sector is positively related to the relative price of tradeables to non-tradeables and also positively related to the real private spending (z).

When total supply of non-tradeables exceeds its total demand, unemployment occurs in the non-tradeables sector in the short-run. The excess supply of labor, however, will be absorbed by the tradeables sector so we are back to full employment in the medium-run. It has to be remarked that in order for equation (4.18) to hold, the prices of non-tradeables are assumed flexible. An important point is that the output of tradeables can only be increased by reducing the labor available to the non-tradeables sector. This movement of labor requires an increase in the relative price of tradeables to non-tradeables.

Figure 4-1: PRODUCTION POSSIBILITY CURVE



4.2.5 Private Spending Function

Equation (4.19) gives the real private spending function as a function of the domestic interest rates (r), foreign interest rates (r^*), income derived from output (Q), and wealth (W_h).

$$z = z(\underset{-}{r}, \quad \underset{+}{Q}, \underset{+}{W_h}) \tag{4.19}$$

Real private spending is obtained by dividing the nominal value of private expenditure Z ($= D_T P_T + D_N P_N$), by the aggregate price index $\tilde{P}$ (which is weighted by the share of tradeables in the price index, α, and the share of non-tradeables in the price index, 1-α, ie. $\tilde{P} = \alpha P_T + (1-\alpha)P_N$). An increase in the price of tradeables, holding P_N constant, increases the aggregate price index so that the real value of expenditure, z, falls for given Z. We assume that private spending varies inversely with the domestic interest rate, is positively related with income derived from output and varies directly with wealth.

We also assume that the private demand for tradeables and for non-tradeables are given as follows:

$$D_T = D_T(\underset{-}{P_T/P_N}, \underset{+}{z}) \tag{4.20}$$

$$D_N = D_N(\underset{+}{P_T/P_N}, \underset{+}{z}) \tag{4.21}$$

An increase in the relative price of tradeables to non-tradeables, given z, reduces the demand for tradeables and increases the demand for non-tradeables. An increase in real spending, z, raises both demands.

4.2.6 The Money Market Conditions

Changes in the nominal money stock (ΔM) consists of two components: changes in high-powered money or base (ΔH, credit creation by the Bank) and credit creation by domestic banks, (ΔCC). Thus,

$$\Delta M = \Delta H + \Delta CC \tag{4.22}$$

In an open economy, changes in the high-powered money (ΔH) originate from changes in the foreign exchange reserves (ΔFX, or equivalently the balance of payments), and from changes in the domestic credit (ΔDC). Base money creation, therefore, comes from two sources in an open economy: (1)money of internal origin (ΔDC) and (2) money of external origin (ΔFX).[7] Symbolically, the money base identity can be written as:

$$\Delta H = \Delta DC + \Delta FX \tag{4.23}$$

By substituting (4.23) into (4.22), changes in the stock of money[8] can be expressed as follows:

$$\Delta M = (\Delta DC + \Delta FX) + \Delta CC \tag{4.24}$$

Since domestic credit creation by Bank (ΔDC) is equivalent to the difference between the government's domestic budget deficit (G - T) and net bond sales by the government (ΔB), ie.

$$\Delta DC = (G - T) - \Delta B \tag{4.25}$$

then, under fixed exchange rates we can express the nominal money supply (M) as the sum of last year's money supply (M_{-1}), plus changes in the foreign exchange reserves

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[7]On the uses side, the change in the money base is equal to the sum of the change in currency in circulation and the change in the cash reserves of the domestic banks.

[8]See Appendix A, section 2 for the derivation of the money supply identity from the consolidated balance sheets of the economy.

(ΔFX) times the nominal exchange rate (e), plus the government's budget deficit (G - T) minus net bond sales by the government (ΔB), plus credit creation by the banks (ΔCC); ie,

$$M = M_1 + \Delta FX.e + (G - T) - \Delta B + \Delta CC \qquad (4.26)$$

Under flexible exchange rates, the change in the foreign exchange reserves is zero.

The real demand for money (R^d) is given as follows:

$$R^d = R^d(r, Q_N, Q_T, Wh) \qquad (4.27)$$
$$\quad\; - \; + \; + \; +$$

An increase in the interest rate, given Q, reduces the real demand for money. An increase in the real income derived from output, given r, increases the real demand for money. The real demand for money is also positively related with wealth.

Equilibrium in the money market is obtained when the real demand for money is equal to the real money supply; ie.

$$R^d(r, Q_N, Q_T, Wh) \equiv [M_{-1} + \Delta FX.e + (G - T) - \Delta B + \Delta CC]/\tilde{P}(P_T, P_N) \qquad (4.28)$$
$$\quad - \; + \; + \; +$$

An increase in interest rate reduces the real demand for money and therefore must be accompanied by an increase in real income to maintain real demand for money equal to the given supply of real cash balances, $M/\tilde{P}$. M is deflated by $\tilde{P}$ which is the aggregate price index. This reflects the idea that in an open economy, the real value of the money stock declines when the price of tradeables increases.

4.2.7 Balance of Payments Equation

Equation (4.29) gives the balance of payments equation, or equivalently, the changes in foreign exchange reserves. In a fixed exchange rate system, the change in foreign exchange reserves is not zero. In the absence of capital mobility, the balance of payments is the current account balance which can be a deficit or a surplus. The balance of payments is the sum of the current account and capital account balances. In a flexible exchange rate system, the change in foreign reserves is zero so that a current account deficit, (which is equivalent to an excess demand for tradeables in our model) must be financed by capital inflows. In the absence of capital flows, the current account balance must be zero.

$$\Delta FX = [Q_T(P_T/P_N) - D_T(P_T/P_N,\ z) - G_T]P_T^* + CAPS(r, r^*) \qquad (4.29)$$
$$\qquad\qquad +\qquad\qquad -\quad +\qquad\qquad +\ -$$

Following Sieper and Fane (1982),[9] assuming zero capital mobility means that foreigners (non-residents) can neither directly lend to domestic residents nor borrow from them directly and hence domestic interest rates are not directly pressured to adjust to world interest rates.[10] It would be realistic to assume zero capital mobility if there are sufficiently Draconian exchange controls. It would be somewhat unrealistic to assume perfect capital mobility even in the complete absence of exchange controls; however, in this latter situation there would be strong pressures to prevent domestic interest rates from diverging widely from foreign interest rates, after allowing for expected changes in the exchange rate. Because exchange controls can only influence short-term capital flows, it would be reasonable to assume a fairly high degree of capital mobility in the Philippines. A country like the Philippines is a net borrower of capital from the world market and must therefore offer foreigners the same expected rate of return which they could earn elsewhere. This remains true in the presence of exchange controls; it is therefore reasonable

[9] See Sieper and Fane, 1982, pages 237-238.

[10] Indirect borrowing and lending is possible by running balance of payments surplus or deficit under a fixed exchange rate regime. For instance, if the Philippines has a bad harvest in year 1 and a good harvest in year 2, it can borrow in period 1 and repay in period 2 by running a current account deficit which is equal to the balance of payments deficit in year 1 and a current account surplus which is equal to the balance of payments surplus in year 2.

to assume a fairly high degree of capital mobility in the Philippines at least in the long-run.

4.2.8 Differences Between Money-financing and Bond-financing

Although our later analysis will be confined to a pure fiscal expansion and a pure money expansion, it will be interesting to analyze money-financed budget deficits, which can be thought of as the combination of monetary and fiscal expansion. The difference between money-finance and bond-finance[11] is identical to pure money expansion.

Bond-financing keeps domestic credit (and hence the money supply) constant while money-financing increases it.[12] Money financing can be thought of as arising from operations (1) and (2) combined into one: (1) the budget deficit is financed by a sale of bonds by the government and that (2) the Bank engages in open-market operations: it buys bonds, thus increasing the money supply to that extent. If purchase of bonds by the Bank is matched by the government's sale of bonds then the money supply remains constant.[13] With money-financed deficits, therefore, the Bank simply finances the budget deficit by credit to the government and hence increases the money base and the money supply. With a money-financed budget deficit, there is an automatic link between monetary and fiscal policy. With a bond-financed budget deficit, monetary policy takes the form of open-market operations; that is, the Bank redeems or buys back the government bonds.

Bond-financing increases interest rates. With money-financed budget deficits,

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[11]For a discussion of the theoretical literature on the impact of fiscal and monetary policy and focuses in the long-run effects of money-financed and bond-financed deficit spending, see N. N. Choudry, 1976, "Integration of fiscal and monetary sectors in econometric models:a survey of theoretical issues and empirical findings", IMF Staff Papers. Volume 23. pages 395-440.

[12]The implications of having a fixed exchange rate with sterilization of the monetary effects of a balance of payments deficit is as follows. Money supply increases owing to money-financing of budget deficit, and money supply is reduced owing to a balance of payments deficit. The money-financing of the budget deficit thus represents sterilization of the monetary effects of the balance of payments deficit. Foreign assets of the banking system falls and domestic assets rise, and money supply stays constant.

[13]Open-market purchase of bonds by the Bank is also referred to as "inside money creation", and exogenous increase or expansion of credit (and hence money supply) as "outside money creation." It then follows that the sale of bonds by the government plus "inside money creation" is equivalent to "outside money creation".

interest rates can either rise or fall. Bond-financing therefore generates a smaller impact on aggregate demand than money-financing. This is so since the negative interest rate effect of bond-financing works opposite the positive effect of increased budget deficit. On the other hand, assuming that the interest rate falls resulting from money-financed budget deficit, the positive interest rate effect of money-financing on absorption compounds the positive effect of a budget deficit on aggregate demand.

4.3 Summary of the Basic Model

We assume that equations 4.30 through 4.36 present the general specifications of the model for a small open economy. Analysis of the basic model will be focused in the medium-run. We will proceed as follows: the basic medium-run model will be specified firstly assuming fixed exchange rates and then assuming flexible exchange rates.

4.3.1 The Basic Medium-run Model, Fixed Exchange Rates

$$P_T = e\,P_T^* \tag{4.30}$$

$$L = L_T(W/P_T) + L_N(W/P_N) \tag{4.31}$$
$$(-) \qquad (-)$$

$$Q(P_T/P_N) = Q_N(P_T/P_N) + (P_T/P_N)Q_T(P_T/P_N) \tag{4.32}$$
$$(+) \qquad (-) \qquad (+)$$

$$Q_N(P_T/P_N) = D_N(P_T/P_N, z) + G_N \tag{4.33}$$
$$(-) \qquad (+) \quad (+)$$

$$z = z(r, \; Q, \; Wh) \tag{4.34}$$
$$(-) \quad (+) \; (+)$$

$$R^d(r, Q_N, Q_T, Wh) = [M_{-1} + \Delta FX.e + (G\text{-}T) - \Delta B + \Delta CC]/P(P_T, P_N) \tag{4.35}$$
$$(-) \; (+) \; (+) \; (+)$$

$$\Delta FX = [Q_T(P_T/P_N) - D_T(P_T/P_N, z) - G_T]P_T^* + CapS(r, r^*) \tag{4.36}$$
$$(+) \qquad (-) \; (+) \qquad (+) \; (-)$$

where,

P_T = domestic prices of tradeables

P_T^* = foreign price of tradeables

P_N = domestic prices of non-tradeables

e = nominal exchange rate, pesos/US dollar

L = total labor force

L_T = employment in the tradeable sector

L_N = employment in the non-tradeable sector

W = money wage

Q = total output

Q_T = tradeables output

Q_N = non-tradeables output

G_N = government demand for non-tradeables

G_T = government demand for tradeables

D_N = private demand for non-tradeables

D_T = private demand for tradeables

z = real private spending

r = domestic interest rate

r^* = foreign interest rate

Wh = wealth

R^d = real demand for money

M = nominal money supply

$\tilde{P}$ = aggregate price level

$G - T = G_T + G_N - T$ = government budget deficit

ΔB changes in the stock of government bonds

ΔCC credit created by domestic banks

ΔFX = changes in the foreign exchange reserves, US dollars

CapS = capital account surplus, US dollars

The basic medium-run model specified above assuming fixed exchange rates consists of a simultaneous system of seven equations. We, therefore, have seven endogenous variables such as W, P_T, P_N, z, Q, r and ΔFX. The exogenous variables are L, e, P_T^*, r^*, G_N, G_T, and Wh.

4.3.2 The Basic Medium-run Model, Flexible Exchange Rates

If we assume flexible exchange rates, equations 4.30 to 4.36 also hold true, with equation 4.30 now allowing for a flexible nominal exchange rate, ie. the exchange rate is now endogenous and changes in the foreign exchange reserves is zero. (Under fixed exchange rate system, e is exogenous and ΔFX is not zero).

With flexible exchange rates, we also have a simultaneous system of seven equations. We, therefore, have seven endogenous variables such as W, P_T, P_N, e, Q, r and z. The exogenous variables are L, M, P_T^*, r^*, G_N, G_T and Wh.

CHAPTER 5

THE MODEL WITH FIXED AND FLEXIBLE EXCHANGE RATES

5.1 Introduction

Assuming fixed exchange rates, we will analyze the effects on the current account, the real exchange rates, employment and output of the following: (i) a pure money expansion (open market purchase of bonds by the Bank at a given budget deficit) in which the money supply increases, $\Delta M > 0$, and bonds decrease, $\Delta B < 0$ while government expenditures on non-tradeables remain constant, $\Delta G_N = 0$; and (ii) a pure fiscal expansion in which the government increases its expenditures on non-tradeables , $\Delta G_N > 0$ via sale of bonds, $\Delta B > 0$ while $\Delta M = 0$. *

We will analyze the adjustment process of a pure money expansion and a pure fiscal expansion in an economy which has Keynesian properties in the short-run and neoclassical or monetarist properties in the long-run. In the short-run, money wage is rigid and full employment is not guaranteed. In the medium run, money wage adjusts to give full employment but current account may not balance so that the country either builds up, or pays off, its foreign debts. In the long-run, the current account tends to balance.

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*An increase in government spending on tradeables would have no impact in the short-run, except to worsen the current account deficit. In the medium-run and long-run, it would lead to reductions in private spending and would presumably require a fall in the relative price of non-traded goods.

5.2 Fixed Exchange Rates

5.2.1 Case of Pure Money Expansion

Assume initially that there is internal balance and external balance, a situation depicted by point Q_0, Figure 5-1. Assume now an exogenous increase in the domestic credit to the government by the Bank in order to finance the given budget deficit or equivalently, an open-market purchase of bonds at a given budget deficit. In the presence of perfect capital mobility, pure monetary policy only affects the balance of payments and does not affect output and employment in the short-run, medium-run or long-run.

In the absence of perfect capital mobility, and starting from a position with some Keynesian unemployment, pure monetary policy does have effects in the short-run (with money wages fixed), it increases employment and output of the non-tradeable sector while leaving output and employment of the non-tradeable sector unchanged. In the medium-run, money wage increases.

Given imperfect capital mobility, the immediate effect of the consequent rise in the money supply is lowering of the domestic interest rate. This has an effect on the behavior of the beneficiaries of the increase in cash (credit). They will avoid building up cash balances via increasing their expenditures. The lower interest rate induces absorption (expenditure line HH'), and hence spending exceeds income (line GG') in Figure 5-1. At the original real exchange rate, spending would be at X. But at X there is an internal excess demand for non-tradeables which raises the prices of non-tradeables and therefore causes the real exchange rate to appreciate. In Figure 5-1. this is represented by the broken lines with slope p_1, and $p_1 < p_0$.

The demand and supply reactions to relative price changes are as follows. On the supply side, increased prices of non-tradeables lead to an increase in their production at the expense of traded goods (a movement of resources away from production of tradeables to non-tradeables). This is represented as a movement to the left around the transformation curve from Q_0 to Q_1. On the demand side, the higher price of non-tradeables reduces the demand for non-tradeables and adds to the demand for tradeables

(a movement to the right of the indifference curve from X to C_1). Thus, equilibrium is restored at Q_1 (for production) and C_1 (for consumption) with internal balance, external (current account) deficit, and increased output and consumption of non-tradeables.

The real appreciation of the exchange rate is presumably less in the model with capital mobility than without capital mobility. Consequently, the decline of production in the tradeables sector is less in the model with capital mobility than in the model without capital mobility. The increase in the production of non-tradeables is also presumably less in the model with capital mobility than in the model without capital mobility.

It then follows that, in the labor market, movement of labor out of tradeables into the non-tradeables sector is larger in the model without capital mobility than with capital mobility since relative wages in terms of tradeables has increased more in the model with capital mobility than in the model without capital mobility.

In the long-run, the current account deficit causes wealth to fall and this decreases spending until the current account balances. As spending falls during this transition the relative price of non-tradeables to tradeables must decline in order to attain equilibrium in the market for non-tradeables (ie, D_N should equate Q_N); production of tradeables, therefore, rises while production of non-tradeables declines.

5.2.2 Case of Pure Fiscal Expansion

Assume initially a situation where there is both internal and external balance. The government decides to increase its expenditures on non-tradeables $\Delta G_N > 0$. If unmatched by revenues, this yields a budget deficit. In the absence of capital mobility, the government sells bonds (borrows) in the domestic capital market so that bonds increase $\Delta B > 0$ while money base remains constant $\Delta H = 0$.

In the short-run with rigid money wages, the increased government spending on non-tradeables increases their prices, and hence employment and output of the non-tradeable sector increase. The real exchange rate appreciates.

Figure 5-1: EFFECTS OF PURE MONEY EXPANSION UNDER FIXED RATES

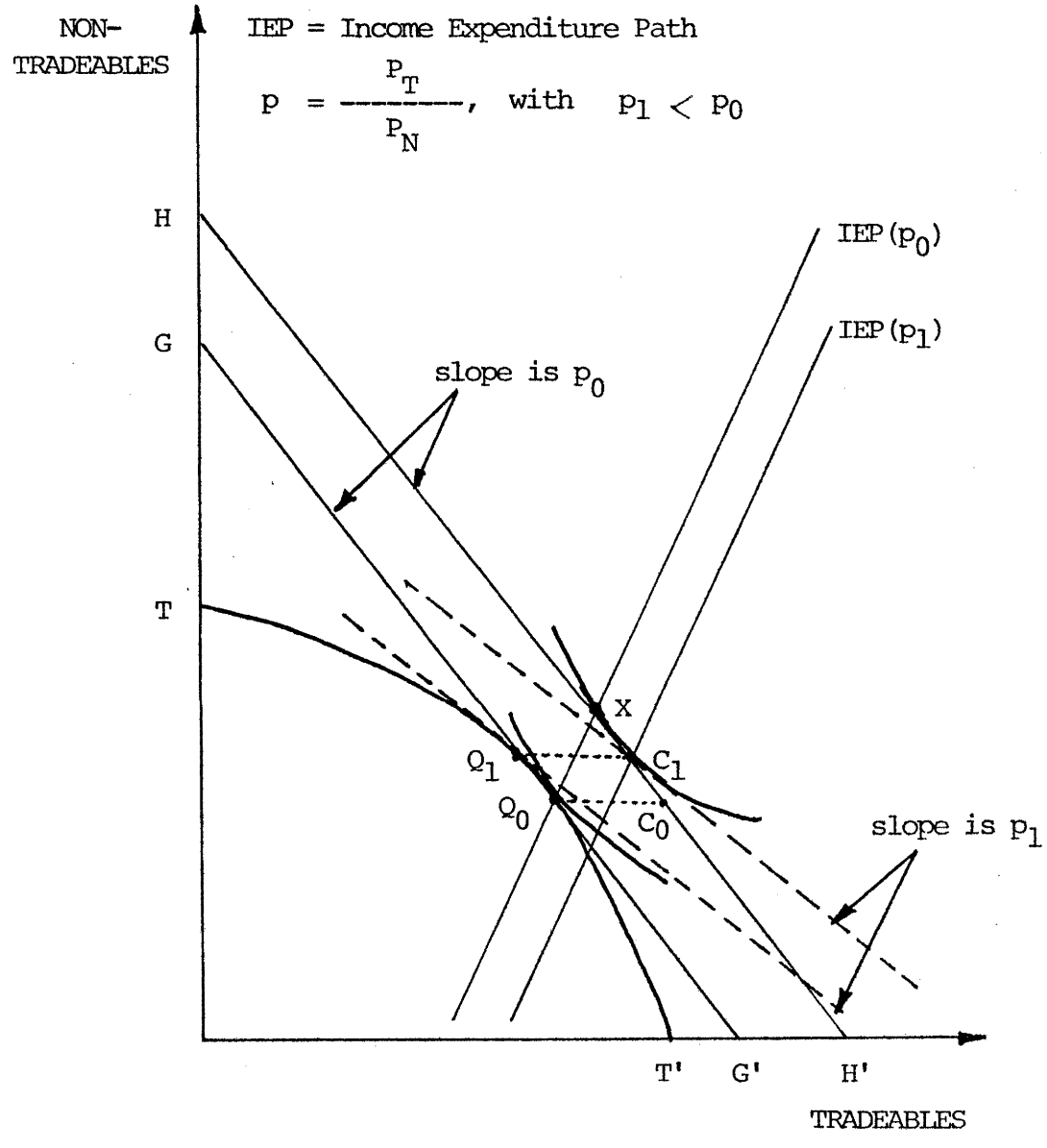

Table 5-1: EFFECTS OF PURE MONEY EXPANSION UNDER FIXED RATES*

	Short-run effects	Medium-run effects	Long-run effects
Relative price of tradeables to non-tradeables (real exchange rate, P_T/P_N)	Decreases	Decreases (Real appreciation)	0
Current account	Deficit	Deficit	0
Relative wage in terms of tradeables (W/P_T)	0	Increases	0
Relative wage in terms of non-tradeables (W/P_N)	Decreases	Decreases	0
Employment and output in the tradeable sector (L_T & Q_T)	0	Decreases	0
Employment and output in the non-tradeable sector (L_N & Q_N)	Increases	Increases	0

* Assuming fixed exchange rates and less than full capital mobility, effects of domestic credit expansion via open-market purchase of bonds at given budget deficit.

Let us now analyze the production and employment effects in the medium-run with reference to Figure 5-2. To restore equilibrium in the non-tradeable market, given an increase in government spending on non-tradeables, the relative price of tradeables to non-tradeables (p P_T/P_N) must fall. With $p_1 < p_0$, private consumption of non-tradeables decreases while government consumption of non-tradeables increases. Consumption of non-tradeables by the private and government sectors taken together increases and the supply of non-tradeables therefore increases. The economy (private plus government) produces at Q_1 and consumes at C_1 and therefore runs a deficit on the current account.

The relative wage in terms of the tradeables increases so that demand for labor and hence employment in that sector declines. The relative wage in terms of the non-tradeables declines so that demand for labor and hence employment in that sector increases. Consequently, production of tradeables declines while production of non-tradeables increases.

Eventually the fall in wealth (due to a current account deficit) reduces spending by the private sector. As spending falls, there is a real depreciation ($p\sim > p_1$) and the final equilibrium will be between Q_0 and Q_1, with $p\sim$ as the final long-run equilibrium relative price. With $p_0 > p\sim > p_1$, the current account is in balance in the long-run.

If we introduce some but not perfect capital mobility, the budget deficit will then lead to an import of capital (private capital inflows)[1] because, the initial excess of planned domestic investment over planned domestic savings will draw in capital from overseas instead of driving up domestic interest rates. Total aggregate domestic spending will therefore be higher (and the current account deficit will be correspondingly higher) than in the absence of capital mobility. The current account deficit will have been balanced by in part by the capital account surplus.

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[1] We are given the identity that changes in the foreign assets of the private sector ΔFA^{Pri} plus changes in the foreign assets of the government sector ΔFA^{Govt} plus changes in the foreign assets of the overseas sector ΔFA^{OS} is equal to zero; that is,

$$\Delta FA^{Pri} + \Delta FA^{Govt} + \Delta FA^{OS} = 0 \qquad (5.1)$$

Equivalently, we can express (5.1) as

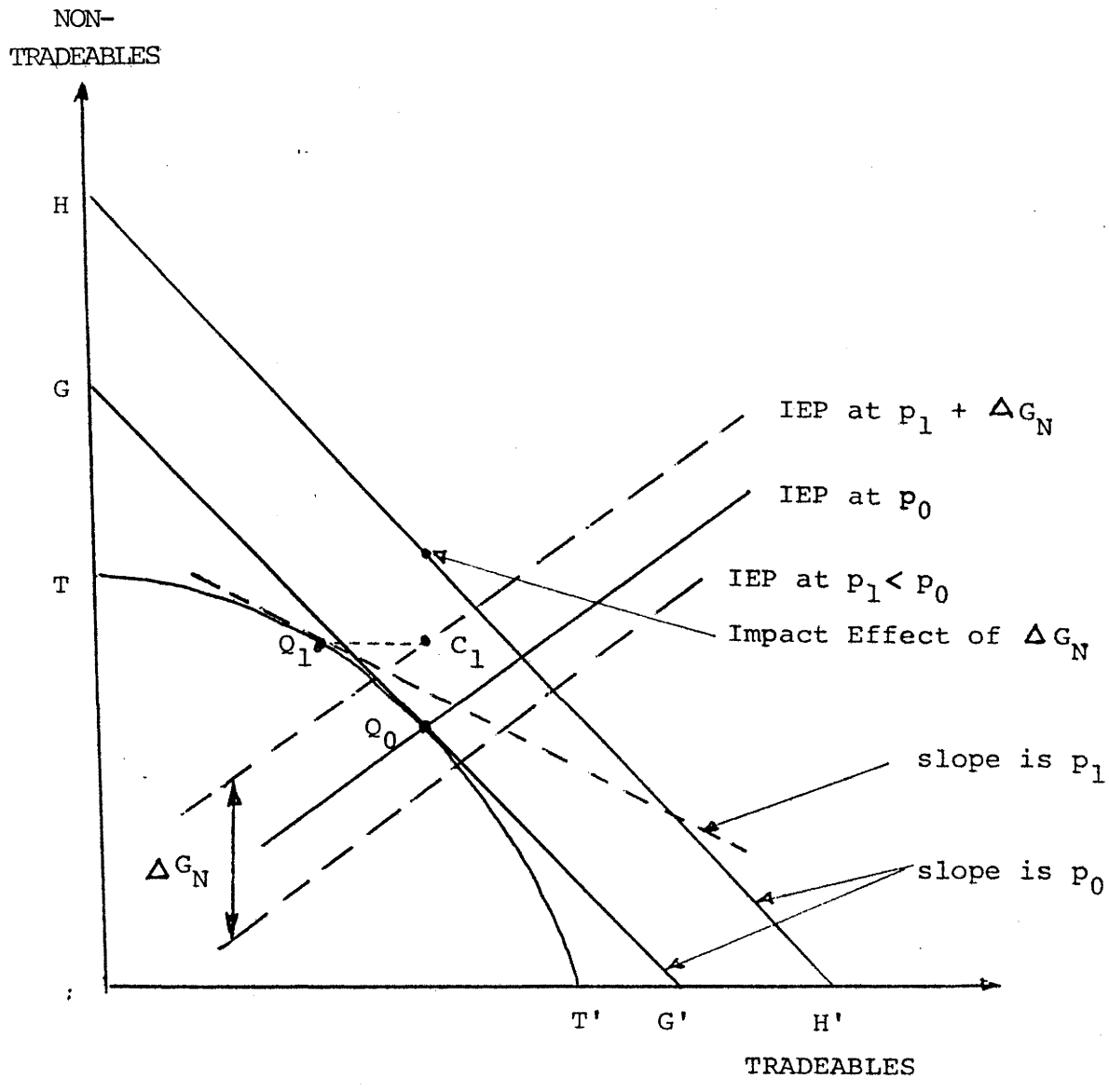
$$[S^{Pri} - I^{Pri}] - (G - T) + CurrD = 0 \qquad (5.2)$$

Therefore,

$$G - T = [S^{Pri} - I^{Pri}] + CurrD \qquad (5.3)$$

It follows, therefore, that if the budget deficit (G - T) rises by 1 million pesos because government spending on non-tradeables increases (financed by bonds) the rise in output will stimulate private savings(S^{Pri}) and the rise in interest rate will reduce private investment (I^{Pri}). Therefore current account deficit (CurrD) will worsen by less than the full 1 million pesos.

Figure 5-2: EFFECTS OF PURE FISCAL EXPANSION UNDER FIXED RATES



We can therefore say that, in the presence of capital mobility, the level of absorption and of aggregate demand will tend to be higher, following a fiscal expansion, than in the absence of capital mobility. The current account deficit will be higher in the case of bond-financed budget deficit with some capital mobility than without any capital mobility.

Table 5-2: EFFECTS OF PURE FISCAL EXPANSION UNDER FIXED RATES*

	Short-run effects (Fixed wage)	Medium-run effects	Long-run effects
Relative price of tradeables to non-tradeables (P_T/P_N)	Decreases	Decreases	Decreases
Current account	Deficit	Deficit	Balances
Relative wage in terms of tradeables (W/P_T)	0	Increases	Increases
Relative wage in terms of non-trade ables (W/P_N)	Decreases	Decreases	Decreases
Employment and output in the tradeable sector (L_T & Q_T)	0	Decreases	Decreases
Employment and output in the non-tradeable sector (L_N & Q_N)	Increases	Increases	Increases

* The effects of an increase in government expenditures on non-tradeables financed by bonds assuming fixed exchange rates and some (but not perfect) capital mobility.

5.3 Flexible Exchange Rates

5.3.1 Case of Pure Money Expansion

Assume the government undertakes an open market purchase of bonds at a given budget deficit; that is, a pure monetary expansion (money supply increases, bonds decrease). With zero capital mobility, monetary expansion increases employment and output of both the non-tradeable and tradeable sectors in the short-run with rigid money wages. In the presence of perfect capital mobility, monetary expansion also increases employment and output in both sectors in the short-run. In the case of the model with no capital mobility, the channels through which monetary changes affect output are similar as in the case of a closed economy, ie, via reduced interest rates. Lower interest rates stimulate investment expenditures which then leads to expansion of output. In the case of perfect capital mobility, interest rates remain unaffected and monetary policy works through its effects on the external balance.

A pure money expansion results in a lowering of the real interest rates in the short-run, given imperfect capital mobility and a rigid nominal wage. This leads to an increase in absorption, generating an excess demand for non-tradeables (internal imbalance) and excess demand for tradeables (external deficit). The excess demand for non-tradeables causes the absolute price of non-tradeables to rise and therefore stimulates the production of non-tradeables. The excess demand for tradeables tends to depreciate the nominal exchange rate and stimulate the production of tradeables. Thus, in the short-run (the period before money wage adjusts), pure money expansion does have short-run effects.

Once the money wage adjusts in the medium-run, the effects of open-market expansion under flexible exchange rates are purely nominal. If M increases by 1%, bonds decrease; money wages increase by 1%, prices of non-tradeables also rise by 1%, prices of tradeables also increase by 1%, and nominal exchange rate depreciates by 1 percent. Output and employment in both sectors and the domestic interest rate remain unaffected by monetary expansion in the medium-run and in the long-run (even if there is not perfect capital mobility).

Table 5-3: EFFECTS OF PURE MONEY EXPANSION WITH FLEXIBLE RATES*

	Short-run effects (Fixed wage)	Medium & Long-run effects
Relative price of tradeables to non-tradeables (P_T/P_N)	Ambiguous	0
Current account	Deficit	0
Relative wage in terms of tradeables (W/P_T)	Decrease	0
Relative wage in terms of non-tradeables (W/P_N)	Decrease	0
Employment and output in the tradeable sector (L_T & Q_T)	Increase	0
Employment and output in the non-tradeable sector (L_N & Q_N)	Increase	0
Domestic price level ($\bar{P}$)	Increase	Increase

* The effects of an open-market purchase of bonds at a given budget deficit, ie. $\Delta G_N = 0$, $\Delta M > 0$, and $\Delta B < 0$, assuming flexible exchange rates and some (but not perfect) capital mobility.

5.3.2 Case of Pure Fiscal Expansion

Assume the government undertakes fiscal expansion, ie increases spending on non-tradeables. In the presence of capital mobility, the increased government spending on non-tradeables surely increases the prices of non-tradeables and hence its price relative to tradeables also increases in the short-run, ie. the real exchange rate appreciates and this results in an increased demand for tradeables giving rise to a current account deficit. Employment and output in the non-tradeable sector certainly increases since relative wages in terms of non-tradeables decline. Employment and output in the tradeable sector declines given high capital mobility since relative wage in terms of tradeables increases.

As money wages adjust in the medium-run, the relative wage in terms of tradeables increases so that employment and output in the tradeable sector decline. The relative wage in terms of non-tradeables declines so that employment and output in the non-tradeable sector increases. In the long-run we expect the same qualitative effects as in the medium-run except that the current account balances, so that in transition from medium-run to long-run, the tradeable sector expands a bit and the non-tradeable sector contracts.

Table 5-4: EFFECTS OF PERMANENT RISE IN G_N UNDER FLEXIBLE RATES

	Short-run effects	Medium-run effects	Long-run effects
Relative price of tradeables to non-tradeables (P_T/P_N)	Decreases	Decreases	Decreases
Current account	Deficit**	Deficit**	Balance
Relative wage in terms of tradeables (W/P_T)	Increases	Increases	Increases
Relative wage in terms of non-tradeables (W/P_N)	Decreases	Decreases	Decreases
Employment and output in the tradeable sector (L_T & Q_T)	Decreases	Decreases	Decreases
Employment and output in the non-tradeable sector (L_N & Q_N)	Increases	Increases	Increases

* The effects of a permanent rise in government spending on non-tradeables $\Delta G_N > 0$, $\Delta B > 0$ and $\Delta M = 0$, assuming flexible exchange rates and high capital mobility. The impact on domestic price level (P is ambiguous, but probably small given high capital mobility.

**In the short-run and in the medium-run, the current account balances if there is zero capital mobility.

5.4. Summary

In this chapter, we distinguish the effects of pure money expansion and pure fiscal expansion under fixed and flexible exchange rates in the short-run, medium-run and the long-run. In the short-run, the money wage is rigid and full employment is not guaranteed; medium-run, money wages adjust to give full employment but the current account may not balance so that the country saves or dissaves; and the long-run, the current account balances.

Assuming fixed exchange rates and imperfect capital mobility, a pure money expansion increases employment and output in the non-tradeable sector (leaving employment and output in the tradeable sector unchanged) in the short-run; decreases employment and output in the tradeable sector in the medium-run; but it has neutral effects for tradeable and non-tradeable sectors in the long-run. Assuming flexible exchange rates and some but not perfect capital mobility, money expansion stimulates output and employment in both sectors and produces balance of payments deficits in the short-run; but it has neutral effects in the medium-run and in the long-run.

Assuming fixed exchange rates and some but not perfect capital mobility, pure fiscal expansion stimulates employment and output in the non-tradeable sector (leaving those of the tradeable sector unchanged) in the short-run; decreases employment and output in the tradeable sector in the medium-run; and the current account tends to balance in the long-run. Assuming flexible exchange rates and high capital mobility, pure fiscal expansion stimulates employment and output in the non-tradeable sector and decreases those of the tradeable sector in the short-run; decreases employment and output in the tradeable sector and increases those of the non-tradeable sector in the medium-run; and enables the current account to balance in the long-run.

CHAPTER 6

REAL EXCHANGE RATES, CURRENT ACCOUNT, EMPLOYMENT AND OUTPUT

6.1 Introduction

In this chapter, we will provide an analysis of alternative measures of the real exchange rates; the current account; sectoral employment; and sectoral output in the Philippines within the context of the theoretical framework developed in the fourth and fifth chapters.

The real exchange rate is defined as the price of tradeables relative to the price of non-tradeables and we follow the convention in the literature of referring to a fall in the relative price of non-traded or home goods as a real depreciation even though such a fall involves an increase in the real exchange rate. Similarly, a real appreciation corresponds to a fall in the real exchange rate.

The relevant data input requirements such as domestic price of tradeables, domestic price of non-tradeables, sectoral output and employment are not directly available. Procedures for estimating/calculating these data requirements are also discussed. An important part of this chapter is the grouping of the 12 sectors of the economy into two aggregates: the tradeable sector and the non-tradeable sector, which then enables us to come up with estimates for the domestic price of tradeables, the domestic price of non-tradeables, the real exchange rates (ratio of the former to the latter), sectoral employment and sectoral output.

6.2 Real Exchange Rates and the Current Account

In this section, we will discuss procedures for the estimation of the real exchange rate and analyze the movements of the current account balance and the real exchange rate.

6.2.1 Real Exchange Rate Estimation

Following the theoretical framework, we disaggregate the economy into the two sectors under investigation: the tradeable sector and the non-tradeable sector, assuming that the terms of trade are exogenously given.[1] The sectoral disaggregation of the economy is an important step toward the construction and estimation of the domestic price of tradeables, domestic price of non-tradeables, and hence, the real exchange rate (in which we use the ratio of the former to the latter as its indicator). The question which arises is, which sectors should be classified as tradeables and which should be treated as non-tradeables. Because any classification of the complexities of a real economy into the stylized framework of a theoretical two-sector model is inevitably somewhat arbitrary, we have considered three alternative classifications which are set out below; namely classification I, classification II, and classification III. Our conclusion is that the broad features of the results are not sensitive to the classification adopted.

Classification I provides a narrower definition of the tradeable sector and a broader definition of the non-tradeable sector. This classification follows that of Lal (1983)[3] which is based on the input-output table of the Philippines. Sectors 1-Agriculture , 2-Fisheries, 5-Food Manufactures, 7-Construction, 8-Utilities, 9-Transportation, 10-Trade, 11-Building, Insurance and Real Estate, and 12-Other Services, were considered as sectors constituting the non-tradeable sector. The remaining sectors, namely 3-Forestry and Logging, 4-Mining and Quarrying, and 6-Other Manufactures, were treated as sectors comprising the tradeable sector.

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[1] A small country assumption enables one to handle the analysis with convenience. Then in the latter part of section 6.2.2, we link the changes in the real exchange rates to the terms of trade changes.

[2] I am thankful to Drs. George Fane, Hal Hill, and Sisira Jayasuriya for their helpful suggestions in the improvement of the tradeable/non-tradeable sectoral classification.

[3] See Lal, 1983, page 13.

Classification II provides an intermediate definition of the tradeable sector and of the non-tradeable sector. If one considers that such food manufactures as rice milling and sugar refining must be tradeables, then an alternative definition of the tradeable sector would include food manufactures (and exclude it from the non-tradeable sector of classification I).

Classification III provides a broader definition of the tradeable sector and a narrower definition of the non-tradeable sector than classifications I and II. We broaden the definition of the tradeable sector via disaggregating the agriculture sector in classification I into agricultural crops, livestock and poultry. We include the agricultural crops into the tradeable sector of classification II since most of them are tradeables and leave livestock and poultry in the non-tradeable sector. Thus under classification III, the tradeable sector includes the sub-sectors as defined under classification II, including food manufactures, plus the agricultural crops.

Following three classifications, we then calculated the average domestic price of tradeables. denoted as P_T, as the weighted sum of the prices of the sectors classified as tradeables, denoted as w_tP_t. Similarly, the average price of non-tradeables, P_N, was estimated as the weighted sum of the prices of the sectors treated as non-tradeables, denoted as w_nP_n. Symbolically,

$$P_T = \sum_t (w_tP_t) \tag{6.1}$$

$$P_N = \sum_n (w_nP_n) \tag{6.2}$$

The sum of the weights within each sector is equal to one for each year, that is,

$$\sum_t w_t = 1$$

$$\sum_n w_n = 1$$

The only available data series to represent sectoral weights, w_t, were the proportions or shares of each tradeable sector's output, Q_t, to total tradeables output, Q_T; and the sectoral weights, w_n, were the proportions or shares of each non-tradeable sector's output, Q_n, to total non-tradeable output, Q_N. Symbolically,

$$w_t = (Q_t/Q_T) \tag{6.3}$$

$$w_n = (Q_n/Q_N) \tag{6.4}$$

where

$$Q_T = \sum_t Q_t$$

$$Q_N = \sum_n Q_n$$

and

$$GDP = Q_T + Q_N$$

The available price series data with sub-sectoral classification are those of the consumer price index (CPI) and the GDP deflators. The CPI series has six sub-sectors, namely; (a) food, beverages, and tobacco, (b) clothing, (c) housing and repair, (d) fuel, light and water, (e) service and (f) miscellaneous. The GDP deflator series has 12 sub-sectors which are based on the input-output table of the Philippines, which we enumerated already earlier in the tradeable/non-tradeable classification (ie. see classification I). The sub-sectoral classification of the CPI series is, therefore, totally different from that of the GDP deflator series.

We prefer the use of the GDP deflator series since we could come up with the estimation of the domestic prices of tradeables and non-tradeables (and hence the real exchange rates) based on the sub-sectoral classification provided by the input-output

table. Moreover, we also need to come up with estimates of the sub-sectoral output and sub-sectoral employment. Available data series on output and employment are also based on the 12 sub-sectoral classification. (We do not have data on output and employment using the sub-sectoral classification of the CPI series).

Given data constraints and for consistency purposes, we adopted the GDP deflators of the different sub-sectors instead of the CPI series. We recognize the fact that the sectoral GDP deflator which we denote as V_j is different from the price of the final output [4] which we denote as P_j. Consider the following equation:

$$V_j = P_j - \sum_i P_i a_{ij} \tag{6.5}$$

where,

V_j = GDP deflator of sector j, j = t (for tradeable sector) and j = n (for non-tradeable sector).

P_j = Price of the final output of sector j, j = t, n.

P_i = Price of the good i used as intermediate input, i = t, n.

a_{ij} = Peso amount of the output of industry i that industry j must purchase to produce one peso's worth of good j.

Thus, for j = t, and j = n, we consider the following

$$V_t = P_t - (P_t a_{tt} + P_n a_{nt}) \tag{6.6}$$

$$V_n = P_n - (P_n a_{nn} + P_t a_{tn}) \tag{6.7}$$

In the context of Corden's (1971) style formulas,[5] we can come up with an

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[4] I am particularly thankful to Dr. Fane for his kind assistance in clarifying this point.

[5] See W. M. Corden, 1971, The Theory of Protection, page 39 equation number (4.5). See Appendix B, section 3 for the derivation of the relationship between GDP deflators and prices of final output.

expression showing the relationship between GDP deflators and prices of final output, as expressed in the following equation:

$$\frac{dV_n}{V_n} = \frac{\frac{dP_n}{P_n} - \left(\alpha_{nn} \frac{dP_n}{P_n} + \alpha_{tn} \frac{dP_t}{P_t} \right)}{1 - \left(\alpha_{nn} + \alpha_{tn} \right)} \qquad (6.8)$$

$$\frac{dV_t}{V_t} = \frac{\frac{dP_t}{P_t} - \left(\alpha_{nt} \frac{dP_n}{P_n} + \alpha_{tt} \frac{dP_t}{P_t} \right)}{1 - \left(\alpha_{nt} + \alpha_{tt} \right)} \qquad (6.9)$$

On the left-hand side of equations (6.8) and (6.9) are the changes in GDP deflators of the non-tradeable sector (n) and of the tradeable sector (t). On the right-hand side are the changes in prices of the final output. The sum of the shares of the primary inputs, α_{on}, and the shares of the intermediate inputs ($\alpha_{nn} + \alpha_{tn}$) in the cost of n is equal to one; and the sum of the shares of the primary inputs, α_{ot}, plus the shares of the intermediate inputs ($\alpha_{tt} + \alpha_{nt}$) is also equal to one. Symbolically,

$$\alpha_{on} + \alpha_{nn} + \alpha_{tn} = 1 \qquad (6.10)$$

$$\alpha_{ot} + \alpha_{tt} + \alpha_{nt} = 1 \qquad (6.11)$$

where,

$\alpha_{on} = V_n/P_n$

$\alpha_{tn} = a_{tn}P_t/P_n$

$\alpha_{nn} = a_{nn}$

and,

$\alpha_{ot} = V_t/P_t$

$\alpha_{nt} = a_{nt}P_n/P_t$

$\alpha_{tt} = a_{tt}$

From the two equations (6.8) and (6.9), we can derive the relationship between the relative GDP deflators and the relative prices of final output. Hence we can obtain a relationship between the change in the GDP deflator of the tradeable sector relative to that of non-tradeable sector $[dV_t/V_t] - [dV_n/V_n]$ and the change in the prices of the tradeables relative to that of the prices of the non-tradeables $[dP_t/P_t] - [dP_n/P_n]$.

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = \left(1 + \frac{\alpha_{tn}}{\alpha_{on}} + \frac{\alpha_{nt}}{\alpha_{ot}}\right)\left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n}\right) \quad (6.1$$

On the left-hand side of equation (6.12) are the changes in the GDP deflator of the tradeable sector relative to non-tradeable sector. On the right-hand side

are the changes in the prices of the goods produced by the tradeable sector relative to the non-tradeable sector. From equation (6.12), we can conclude that the smaller the shares of the intermediate inputs relative to primary inputs, the closer are the magnitudes of the changes in the relative GDP deflators to changes in the relative prices of the final goods.

After estimating the sub-sectoral weights [w_t and w_n based on equations (6.3) and (6.4)], and given the sub-sectoral GDP deflators (P_t and P_n), we estimated the domestic price indices of the different sub-sectors by multiplying w_t by P_t and then summed up the products [ie. $w_t.P_t$] of the different sub-sectors to comprise the total tradeable sector and came up with an estimate of the domestic price of the total tradeable sector, (P_T). Then we also summed up the products [ie. w_nP_n] of the different sub-sectors to comprise the non-tradeable sector and came up with an estimate of the domestic price of the total non-tradeable sector (P_N). Then we estimated the real exchange rate as the domestic price of the total tradeable sector relative to the domestic price of the total non-tradeable sector, that is, P_T/P_N. This procedure for estimating the real exchange rate was done for each year over 18 years (from 1967 to 1984). Since we have three tradeable/non-tradeable sectoral classifications (I, II, and III), we painstakingly repeated the estimation procedure three times, and came up with the three series of estimates of the real exchange rates.[6]

6.2.2 Trends and Analysis

We obtained three alternative estimates of the real exchange rates based on the three different classifications: classification I which is based on a narrower definition of the tradeable sector; classification II which is based on an intermediate definition of the tradeable sector; and classification III which is based on a broader definition of the tradeable sector.

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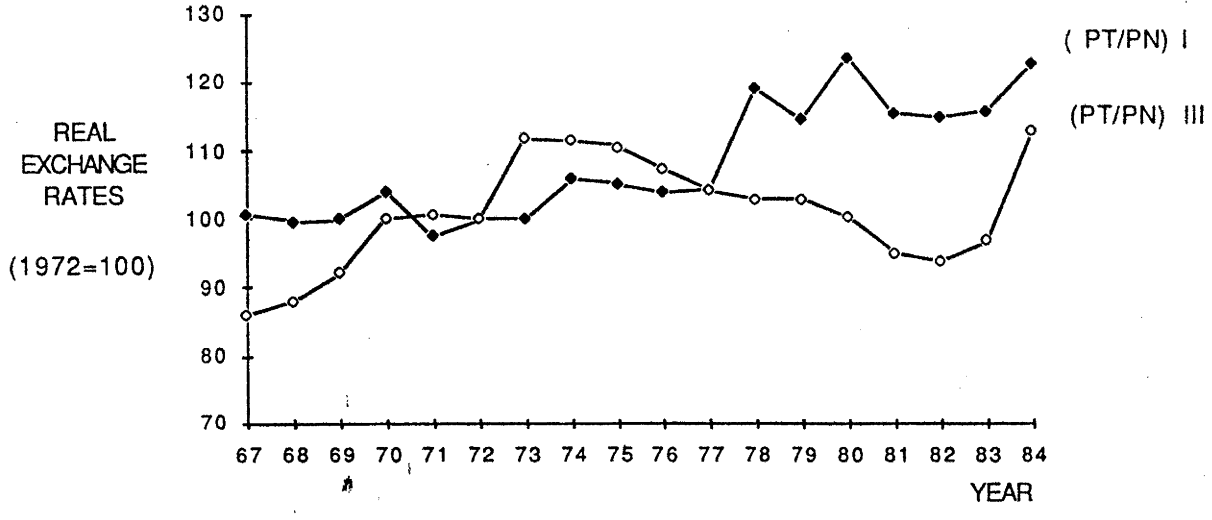
[6]See Appendix E for the relevant data: domestic prices of tradeables and non-tradeables for the three classifications (Table 10); real exchange rate estimates for the three classifications (Table 11); for the weights (w_t), price indices (P_t) and the weighted prices (w_tP_t) of the different sub-sectors comprising the tradeable sector (Tables 13 to 19 for Classification I, Tables 25 to 32 for Classification II, and Tables 37 to 44 for Classification III); and for the weights (w_n), price indices (P_n) and weighted prices (w_n)P_n of the different sub-sectors comrpising the non-tradeable sector (Tables 20 to 23 for Classification I, Tables 33 to 35 for Classification II, and Tables 45 to 47 for Classification III).

Figure 6-1 shows the trends of the real exchange rate estimates based only on classification I and III.[7] (Recall that in the present analysis, we are ignoring the terms of trade effects).[8] Classification I, however, reflects the huge rise in the prices of importables, particularly those of oil, while classification III reflects the fall in the prices of exportables particularly those of the traditional exports, namely, sugar, coconut oil, copra, lumber and copper. Classification III thus reflects a sustained appreciation of the real exchange rate during the post-1973 period until 1982. The classification III estimates are preferred to Classification I estimates for the purposes of analyzing sectoral shifts in employment and output because the production of sugar, coconut oil, copra, lumber and copper are quantitatively important in the Philippines, whereas the production of oil is not.

[7]See Appendix E, Table 10 for the three alternative estimates of the domestic prices of tradeables and non-tradeables and Table 11 for the real exchange rate estimates.

[8]We will introduce the terms of trade effects in the latter part of section 6.2.2.

Figure 6-1: REAL EXCHANGE RATE ESTIMATES (PT/PN)



LEGEND :

(PT/PN) I = Real exchange rate estimate based on narrower definition of tradeables (which treats agricultural crops and food manufactures as non-tradeables).

(PT/PN) III = Real exchange rate estimate based on broader definition of tradeables (which treats agricultural crops and food manufacture s as tradeables).

Figure 6-2[9] indicates a strong relationship between the real exchange rates (based on the broader definition of the tradeable sector, ie. classification III) and the current account balance. The real exchange rate depreciated during the final years of the fixed exchange rate regime (1967-1969), as the domestic price of tradeables increased relative to the domestic price of non-tradeables. During the first three years of the flexible exchange rate regime (1970-1972), movements in the domestic prices of tradeables and non-tradeables coincided with each other so that we observed that the real exchange rate remained constant over this period. This was followed by a depreciation of the real exchange rate in 1973. Broadly, we observed a real depreciation during the 1967-1973 period.

The increase in the real exchange rate during the 1966-1973 period resulted in the narrowing down of the current account deficits and eventually towards generating surpluses. A significant depreciation of the real exchange rate in 1973 brought about a marked increase in the current account surplus to 5.5% of GNP.

During the post-1973 period until 1982, we observed an opposite picture; that is, domestic prices of tradeables fell relative to the domestic prices of non-tradeables, thereby indicating a sustained real appreciation. As a proportion of GNP, the current account deficit widened from 1.0% in 1974 to 7.5% in 1982.

The real exchange rate depreciated during the 1983-1984 period and this was reflected in the improvement of the current account balance during this period. The current account deficit narrowed down to 2.8% as a proportion of GNP.

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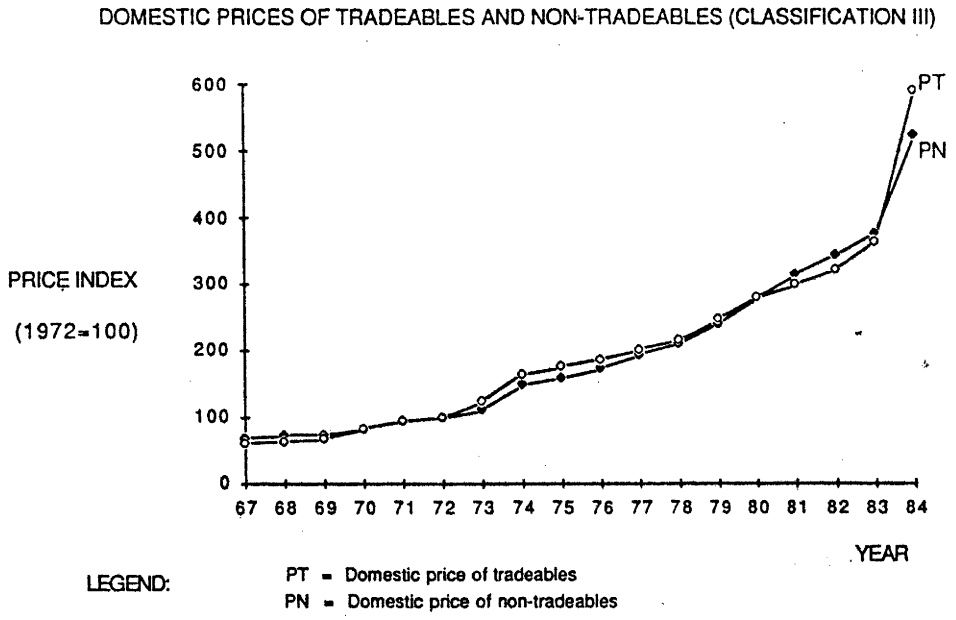
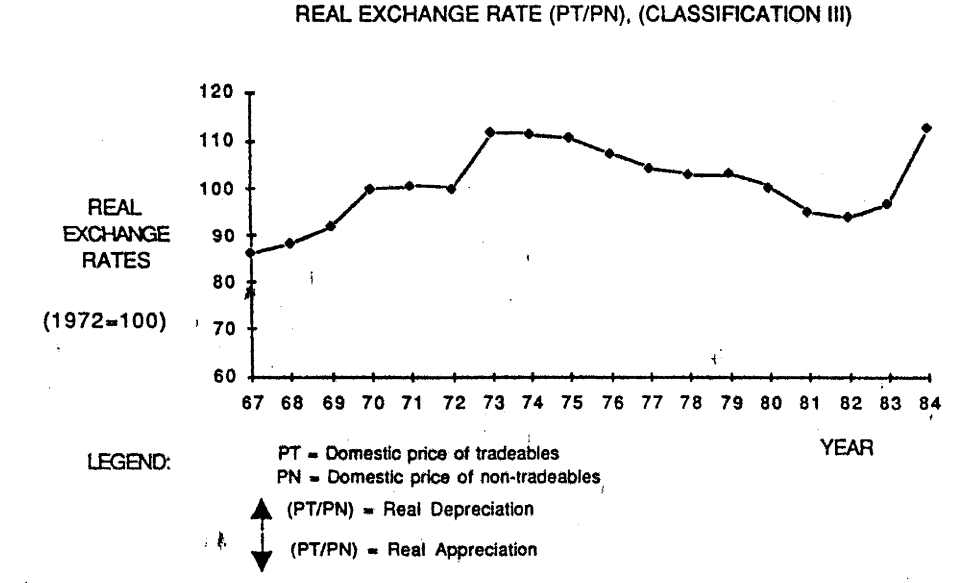
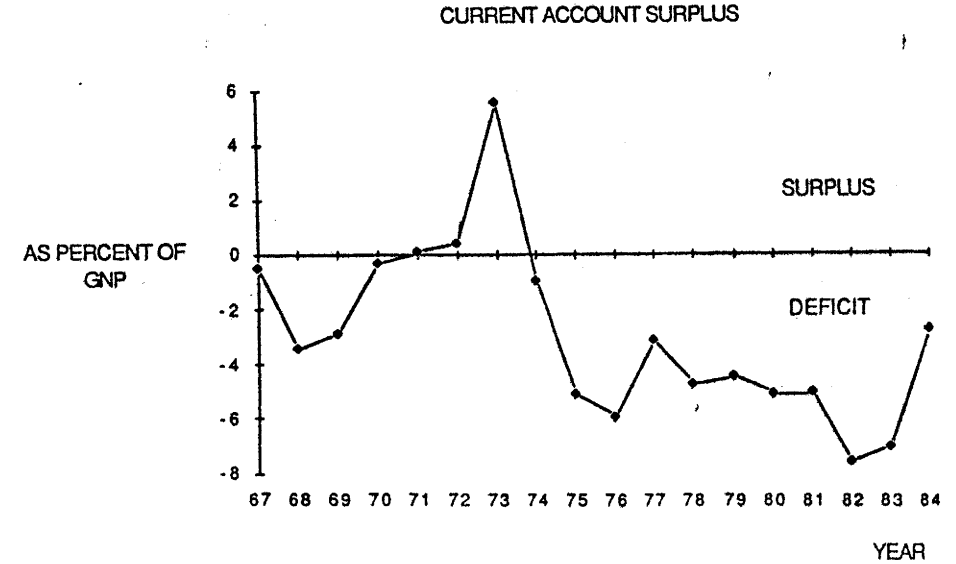
[9]See Appendix E, Table 10 for the domestic price of tradeables and non-tradeables and Table 11 for the real exchange rate estimates and the current account surplus as a proportion of GNP.

Figure 6-2: THE REAL EXCHANGE RATE AND CURRENT ACCOUNT SURPLUS







Thus, the over-all pattern was that the depreciation of the real exchange rates during the 1967-1973 period and again during 1983-1984 was reflected in the improvement of the current account balance and the real appreciation during the post-1973 period until 1982 was reflected in the growing current account deficits. The increased government spending on non-tradeables during the post-1973 period until 1982 caused an appreciation of the real exchange rate: the higher relative domestic prices of non-tradeables switched private spending towards tradeables and switched production away from tradeables. Both these switches tended to worsen the current account.

The adverse fiscal-policy effect on the current account was accentuated by the increasing share of government spending which was deficit financed. In addition, the deterioration of the terms of trade associated especially with rising oil prices and falling prices of the traditional exports after 1973/1974 also worsened the current account situation.

A simple regression of the current account balance as a proportion of gross national product (CurrGNP) on the real exchange rate index (RER, which is the relative price of tradeables to non-tradeables, P_T/P_N), the lagged dependent variable ($CurrGNP_{-1}$), and

the time variable (T) yields the following results:[10]

$$\text{CurrGNP} = -30.92 + 0.32\ \text{RER} - 0.38\ \text{CurrGNP}_{-1} - 0.66\ \text{T}$$
$$(-3.87)\quad (3.94)\quad (-1.89)\quad (-3.91)$$

$$\bar{R}^2 = 0.71, \quad \text{D.W.} = 1.85, \quad \text{Durbin h-statistic} = 0.53$$

Thus, both the casual observation of the movements between the current account balance and the real exchange rate, and the results of the empirical estimation support our theoretical contention that the Philippines' current account balance is significantly influenced by the movements in the real exchange rate. This significant relationship between the current account deficit and the real exchange rate can be traced to the linkage between the changes in the real exchange rate and the exogenous changes in fiscal and monetary policy. Although there is no one-to-one causal link from the RER to the current account, keeping up government spending on non-tradeables and financing the current account deficit and government spending on non-tradeables by external borrowing, the Philippines has been able to prevent/postpone the fall in spending (and the associated fall in the domestic price of non-tradeables relative to tradeables) which would otherwise have occurred.

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[10]Using the regression technique which considers the presence or absence of serial autocorrelation, the Durbin-Watson (D.W.) test statistic considerably improved (over that obtained using simple OLS) with the inclusion of the lagged dependent variable. In estimating distributed lag models in the autoregressive form, the D.W. test statistic is, however, not applicable. Durbin suggests an alternative statistic known as the "h-statistic" which is computed based on the following formula:

$$h = \hat{\rho}\sqrt{\frac{n}{1 - n\,V(\hat{a})}}$$

where h is the standard normal deviate to test the hypothesis that $\hat{\rho} = 0$. Here $\hat{\rho}$ is the estimated first order serial correlation, n is the sample size and $V(\hat{a})$ is the estimated variance of the estimated coefficient of the lagged dependent variable, a. See G. S. Madalla, 1977, Econometrics, McGraw Hill Book Co., pages 371-372.

The estimated first order serial correlation is very low ($\hat{\rho} = 0.07$) for the estimated CurrGNP equation. The computed Durbin h-statistic lie in the interval (-1.645, +1.645). In other words, with $\Pr(-1.645 < h < +1.645) = 0.95$, the null hypothesis that no autocorrelation exists is therefore not rejected. (The same observation holds true for the estimated equations for the non-tradeables output and for the tradeables output, where $\hat{\rho} = -0.03$ and 0.23, respectively. These equations are presented in the following section.)

We can also link the changes in the real exchange rate (RER) to terms of trade changes. We define the terms of trade as the ratio of domestic price of exportables to the domestic price of importables.

Figure 6-3[11] shows that the Philippine terms of trade gradually fell during the 1967-1984 period. While the domestic price of exportables remained constant prior to 1972, the domestic price of importables rose slightly so that the Philippine terms of trade fell during the 1967-1972 period. During the 1973-1974 period, both the domestic prices of exportables and importables rose sharply. This was the period when the world prices of Philippine traditional exports (for instance, sugar, copra, coconut oil, and lumber) rose markedly on the one hand, and the world price of oil also increased significantly (known as the first oil shock) on the other hand, with the former rising faster than the latter so that the terms of trade slightly improved during the 1973-1974 period.

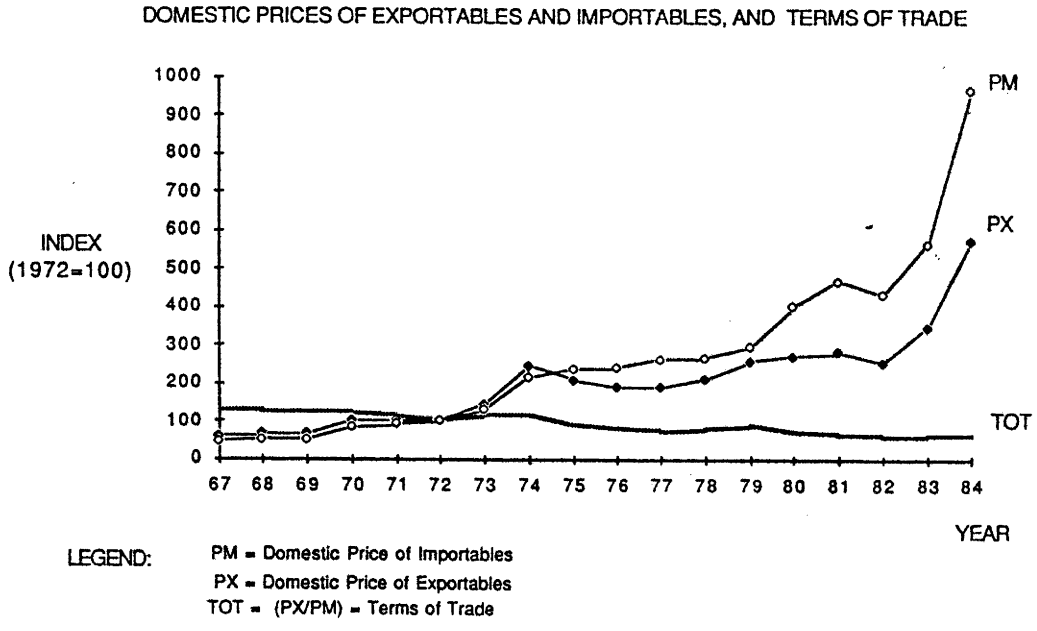
While we observe mixed trends for the domestic price of exportables during the post-1974 period, the domestic price of importables continuously showed an uptrend with a marked increase during the 1979-1981 period as a result of the second oil shock. As a consequence, the terms of trade drastically declined over the 1974-1984 period.

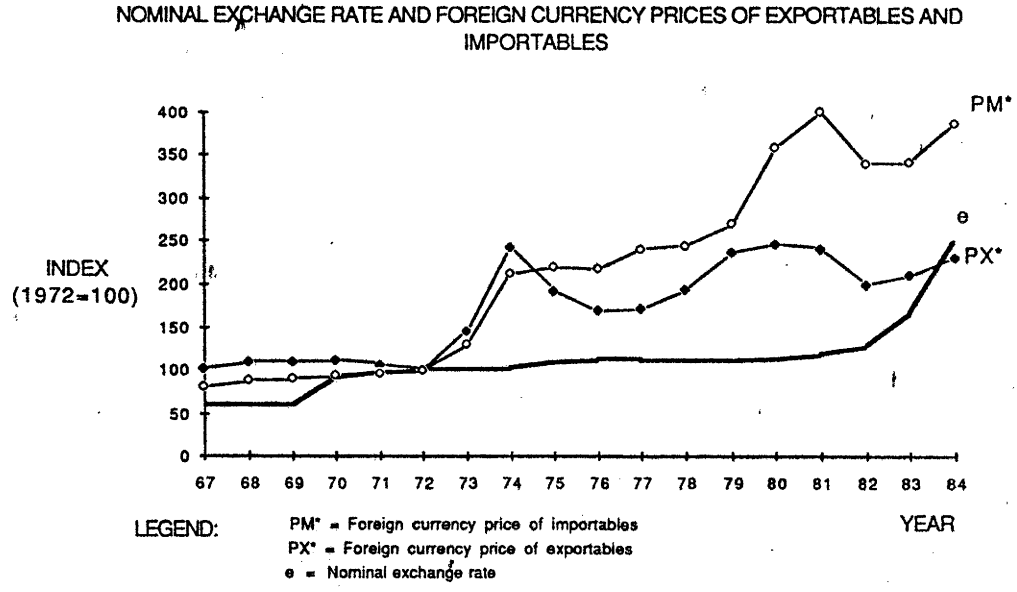
We now have to explain the behavior of the domestic price of exportables and importables in terms of changes in the nominal exchange rate and changes in the foreign currency prices of exportables and importables. Recall that the domestic price of exportables (importables) is the product of the nominal exchange rate and the foreign currency price of exportables (importables). Figure 6-3 shows fixed nominal peso-US dollar rate during the 1967-1969 period and some nominal depreciation during the post-1969 period until 1984. (Relative to 1967, the nominal exchange rate depreciated four times). The foreign currency price of exportables, which is proxied by the unit value of exports, showed a generally declining trend during the post-1973 period stemming

[11]See Appendix E, Table 57 for the data on the terms of trade and its components.

mainly from the fall in the world prices of the traditional exports notably sugar, coconut oil, copra, copper and lumber. The foreign currency price of importables, which is proxied by the unit value of imports, showed a continuous uptrend during the post-1973 period with marked increases during the first and second oil shocks: 1973-1974 and 1979-1981, respectively. We can therefore attribute the deterioration in the terms of trade essentially to the falling world prices of traditional exportables relative to the rising world price of oil.

Figure 6-3: TERMS OF TRADE CHANGES AND ITS COMPONENTS





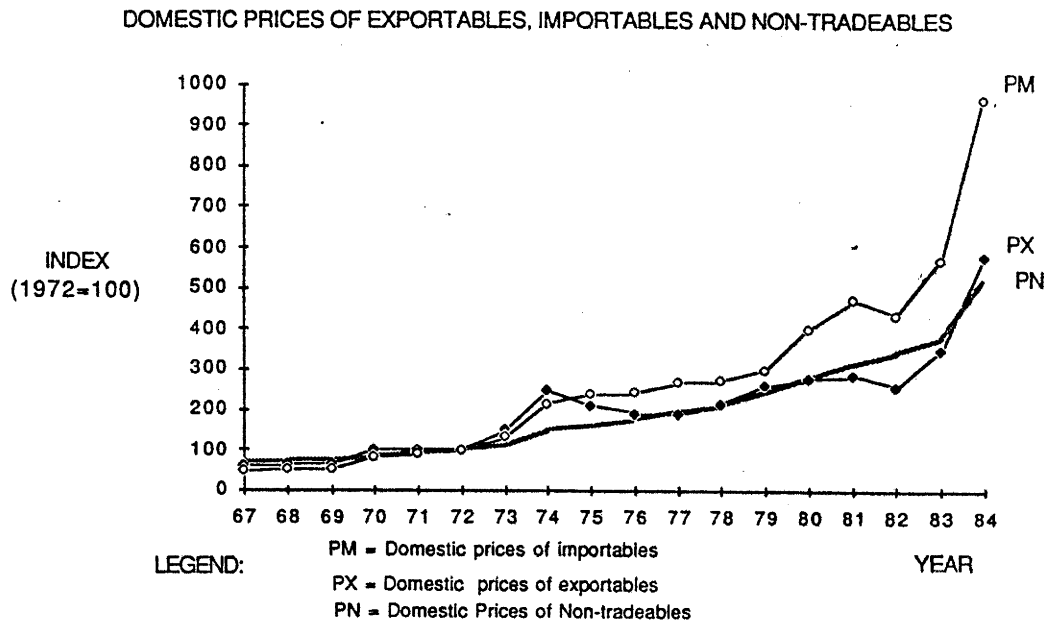
How does the change in the terms of trade affect our analysis of the real exchange rates? With terms of trade effects, we now have two estimates of the real exchange rates (a) P_X/P_N which is the domestic price of exportables relative to the domestic price of non-tradeables and (b) P_M/P_N which is the domestic price of importables relative to the domestic price of non-tradeables.

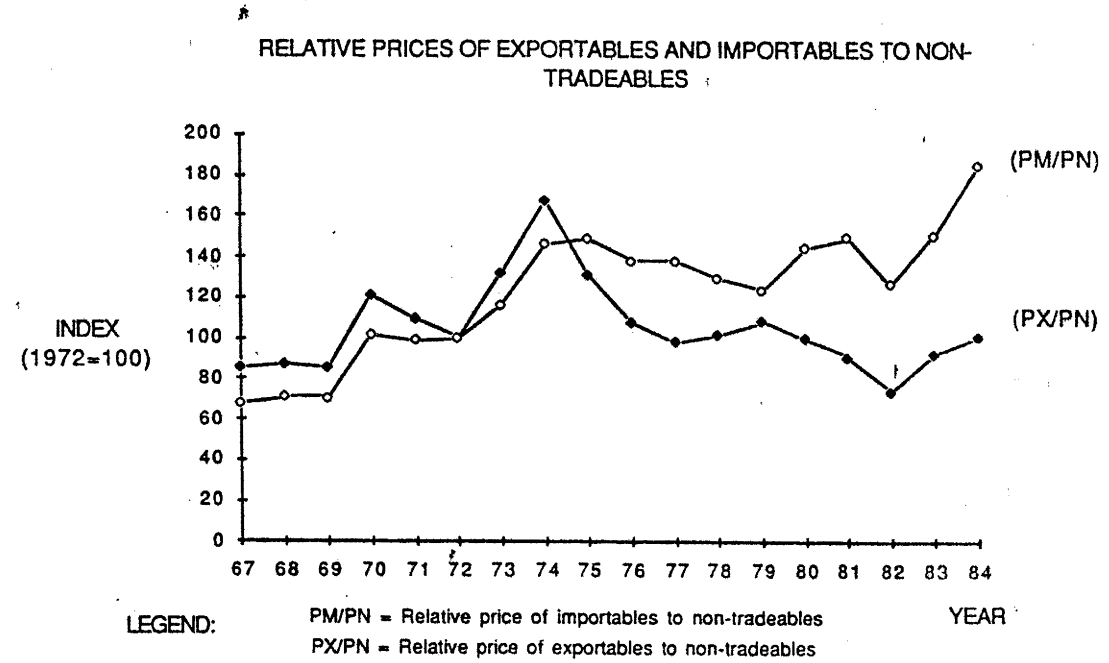
Figure 6-4[12] shows the trend of our estimated measures of the real exchange rates (P_X/P_N and P_M/P_N). Both measures reflected a real depreciation prior to 1974 period. This observation is consistent with our earlier finding on the depreciation of the real exchange rate which ignores the terms of trade effects (that is, the GDP deflator of domestically produced tradeables increased relative to the GDP deflator of domestically produced non-tradeables).

During the post-1974 period until 1979, the relative price of importables to non-tradeables fell and then broadly increased until 1984. The relative price of exportables to non-tradeables registered a continuous downtrend until 1982, thereby indicating a sustained appreciation of the real exchange rate. This observation is again consistent with our earlier finding when we ignore the terms of trade effect, that is, the GDP deflator of domestically produced tradeables fell relative to the GDP deflator of domestically produced non-tradeables. Then during the 1983-1984 period, the relative price of exportables to non-tradeables increased.

[12]See Appendix E, Table 58 for the data on the alternative measures of the real exchange rate with terms of trade changes, ie. the relative prices of exportables and importables to non-tradeables.

Figure 6-4: RELATIVE PRICE OF IMPORTABLE AND EXPORTABLE TO NON-TRADEABLE





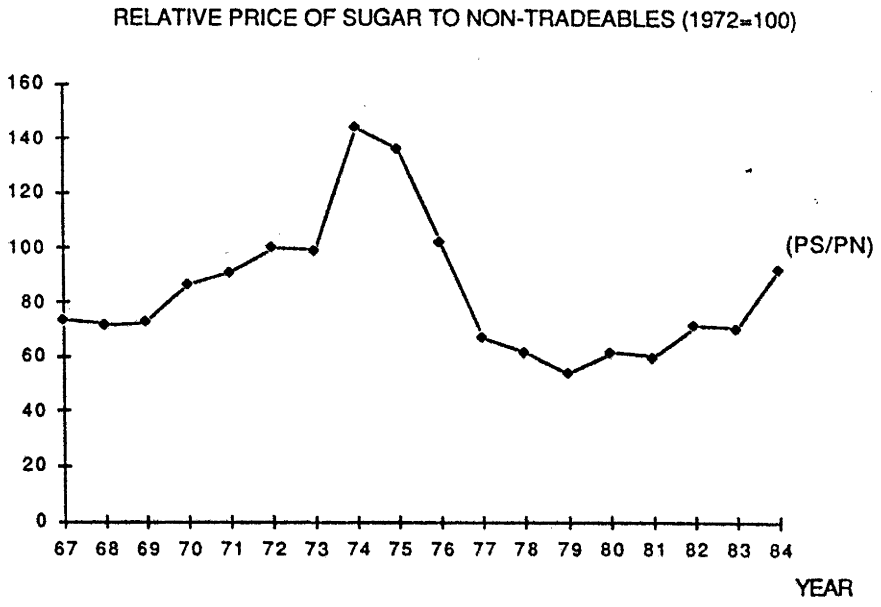
We can illustrate further the effects of the terms of trade changes via its impact on the domestic prices of some selected commodities relative to non-tradeables in Figures 6-5 and 6-6.[13]

The relative price of oil to non-tradeables (P_O/P_N) showed a slight uptrend during the 1967-1973 period, rose significantly during the 1973-1974 period, and then declined until 1978, and broadly increased until 1984 with a marked rise in 1979-1980. The relative price of sugar to non-tradeables (P_S/P_N) behaved more or less the same as the relative price of copper to non-tradeable (P_{CO}/P_N until 1978, which is consistent with the trend of the relative price of exportables to non-tradeable sector (P_X/P_N) in Figure 6-4). From 1979 until 1984, P_S/P_N, indicated an uptrend while P_{CO}/P_N showed a downtrend.

While the relative price of lumber to non-tradeables (P_L/P_N) showed a broadly increasing trend during the 1967-1984 period, the relative price of copra (P_{CP}/P_N) showed mixed trends, with marked increase during 1972-1974 period and a drastic decline in 1975.

[13]In appendix E, Figures 1 and 2, (also Tables 60-61) we have also shown the trends of the domestic prices of these selected commodities relative to construction (the latter as an example of a non-tradeable). Similar trends were observed whether we used the domestic price of the total non-tradeable sector or construction price as the numeraire.

Figure 6-5: RELATIVE PRICE OF OIL AND SUGAR TO NON-TRADEABLE



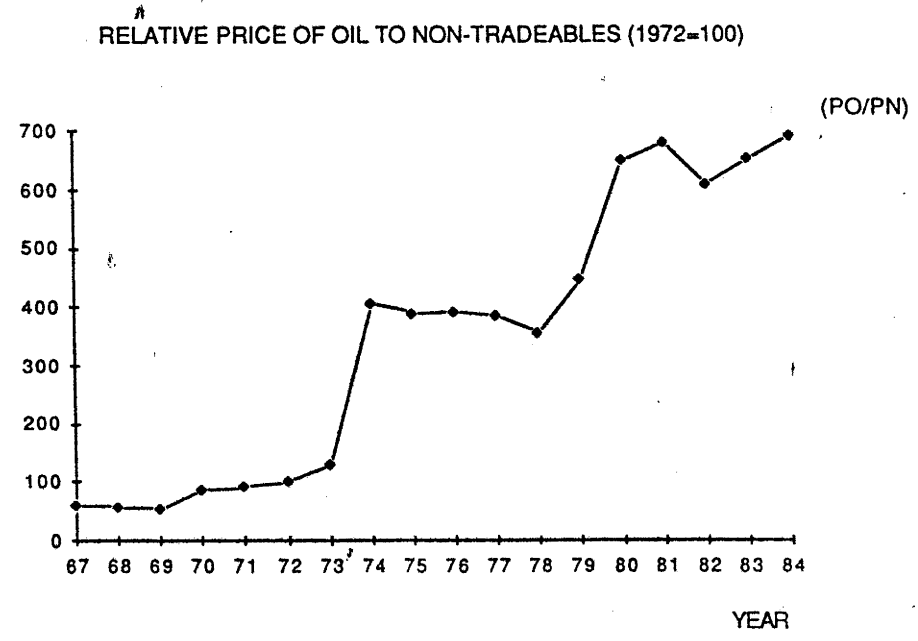
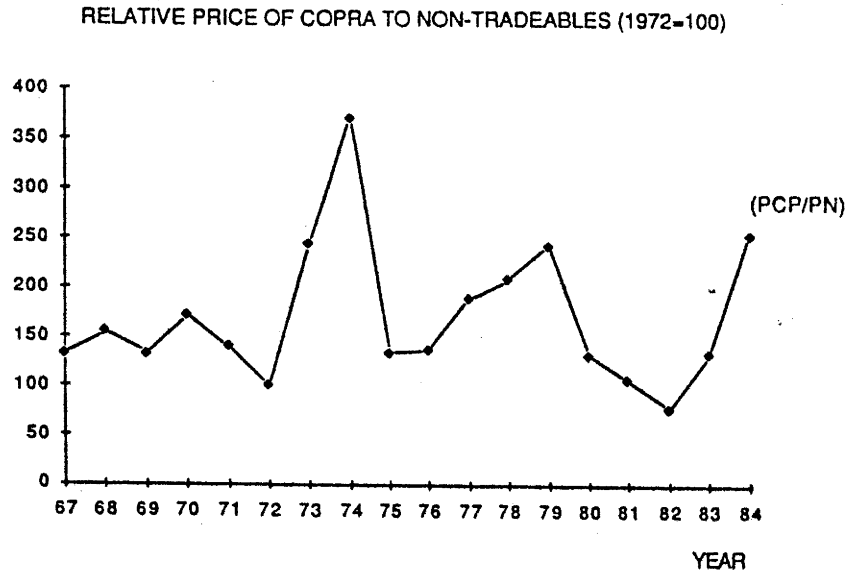
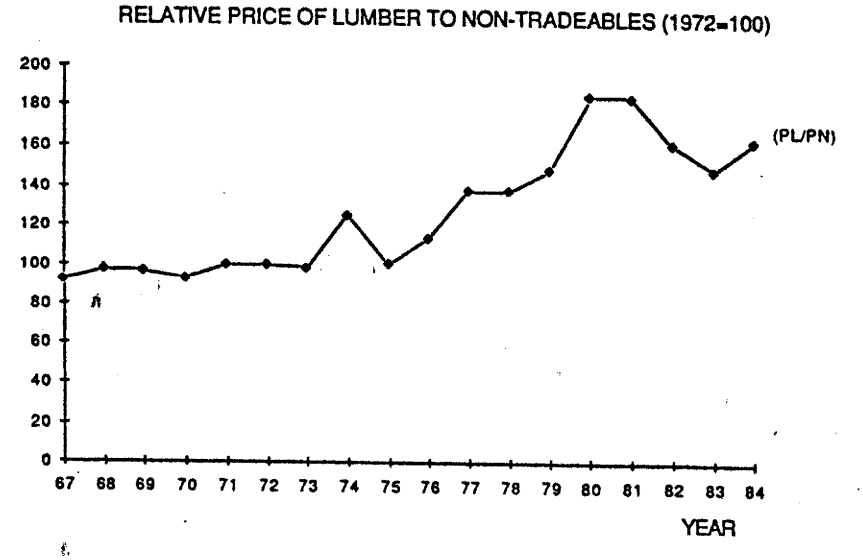
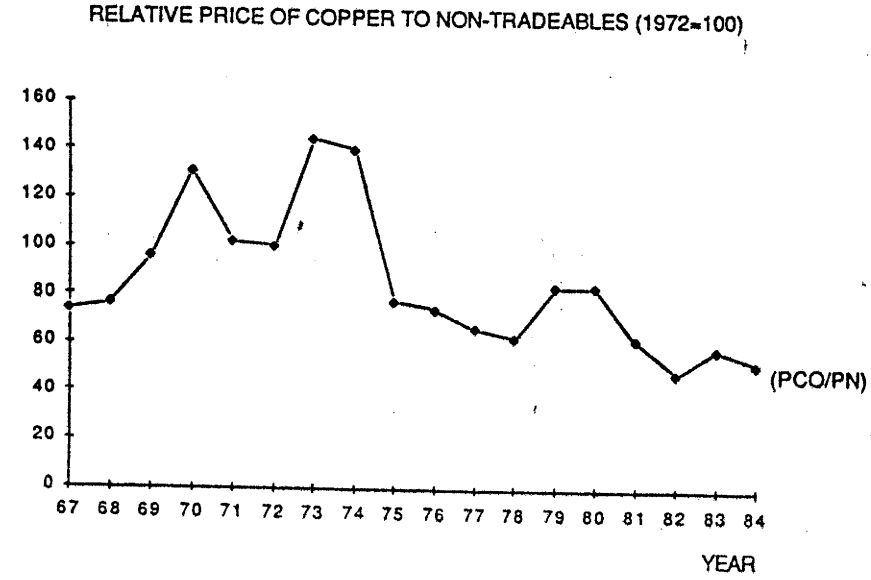


Figure 6-6: RELATIVE PRICE OF COPRA, LUMBER, AND COPPER TO NON-TRADEABLE







6.3 Employment and Output

In this section, we will discuss the procedure for the estimation of the sectoral employment and sectoral output and investigate the employment and output effects of the changes in the real exchange rate.

6.3.1 Output and Employment Estimation

Production of the tradeable sector (Q_T) and of the non-tradeable sector (Q_N) for each year were obtained by taking the sum of the sectoral production shares to total production (Q) proxied by GDP, ie.

$$Q_T = \sum_t (Q_t/GDP) \times 100 \qquad (6.13)$$

$$Q_N = \sum_n (Q_n/GDP) \times 100 \qquad (6.14)$$

Employment in the tradeable sector (L_T) and in the non-tradeable sector (L_N), were measured as the sum of the sectoral employment shares to total employment (L), ie.

$$L_T = \sum_t (L_t/L) \times 100 \qquad (6.15)$$

$$L_N = \sum_n (L_n/L) \times 100 \qquad (6.16)$$

In the context of our theoretical formulation, the output of tradeables Q_T is positively related to the real exchange rate, P_T/P_N; ie. given flexible wages and fixed labor, a depreciation of the real exchange rate increases the output of tradeables, while a real appreciation decreases its output. With real appreciation, output of non-tradeables increases.

6.3.2 Trends and Analysis

In similar fashion as domestic prices of tradeables and non-tradeables, and the real exchange rates, we also came up with three estimates of the sectoral output and employment based on the three tradeable/non-tradeable sectoral classifications. Comparative estimates of the sectoral output and of the sectoral employment are presented in the appendix.[14] Only the estimates based on the broader definition of the tradeable sector will be presented in this section to be consistent with the analysis on the real exchange rate.

We have observed from Figure 6-2 that the domestic prices of tradeables increased relative to the domestic prices of non-tradeables throughout the 1967-1973 period. During the post-1973 period, however, the relative price of tradeables to non-tradeables decreased. Casual observations of output trend from Figure 6-7[15] shows that during 1967-73, output of the tradeable sector was slightly rising and broadly declined thereafter. Output of the non-tradeable sector, on the other hand, was first gradually declining until 1973 and broadly rising afterwards.

Regression of the non-tradeables output (Q_N), and of the tradeables output (Q_T), on the real exchange rate (RER = P_T/P_N), on the lagged dependent variable $(Q_N)_{-1}$, and $(Q_T)_{-1}$, respectively, and on the time variable (T) yields the following estimated results:

$$Q_N = \underset{(2.66)}{55.09} - \underset{(-2.38)}{0.33\ RER} + \underset{(1.70)}{0.39\ (Q_N)_{-1}} + \underset{(1.77)}{0.15\ T}$$

$$\bar{R}^2 = 0.50, \quad D.W. = 1.99, \text{ and Durbin h-statistic} = -0.39$$

$$Q_T = \underset{(1.54)}{10.91} + \underset{(1.30)}{0.03\ RER} + \underset{(4.21)}{0.71\ (Q_T)_{-1}} - \underset{(-2.07)}{0.06\ T}$$

$$\bar{R}^2 = 0.62, \quad D.W. = 1.53, \text{ and Durbin h-statistic} = 1.26$$

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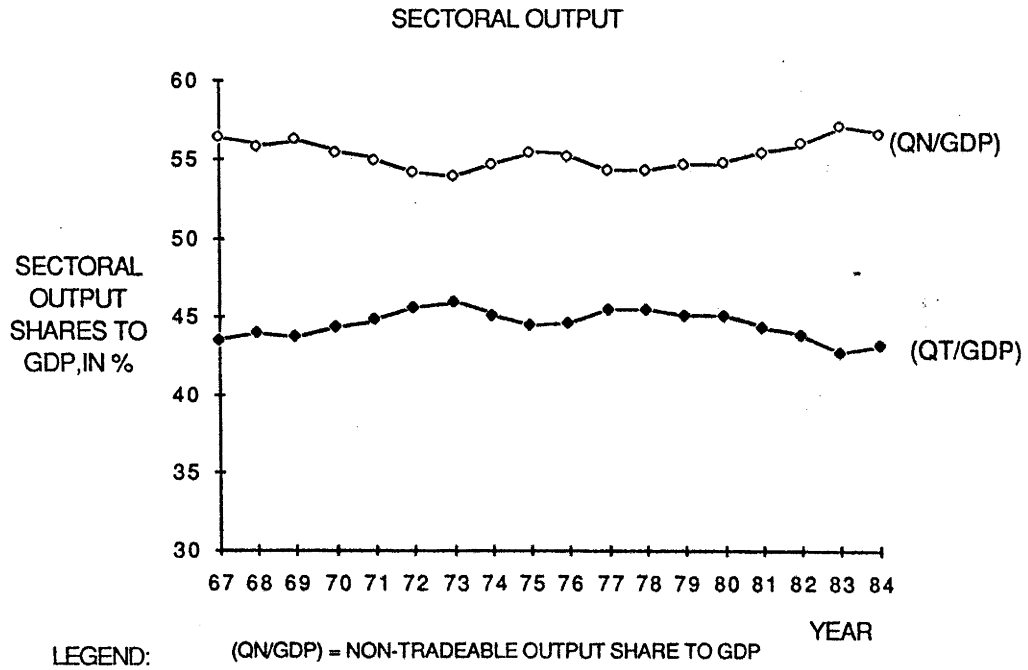
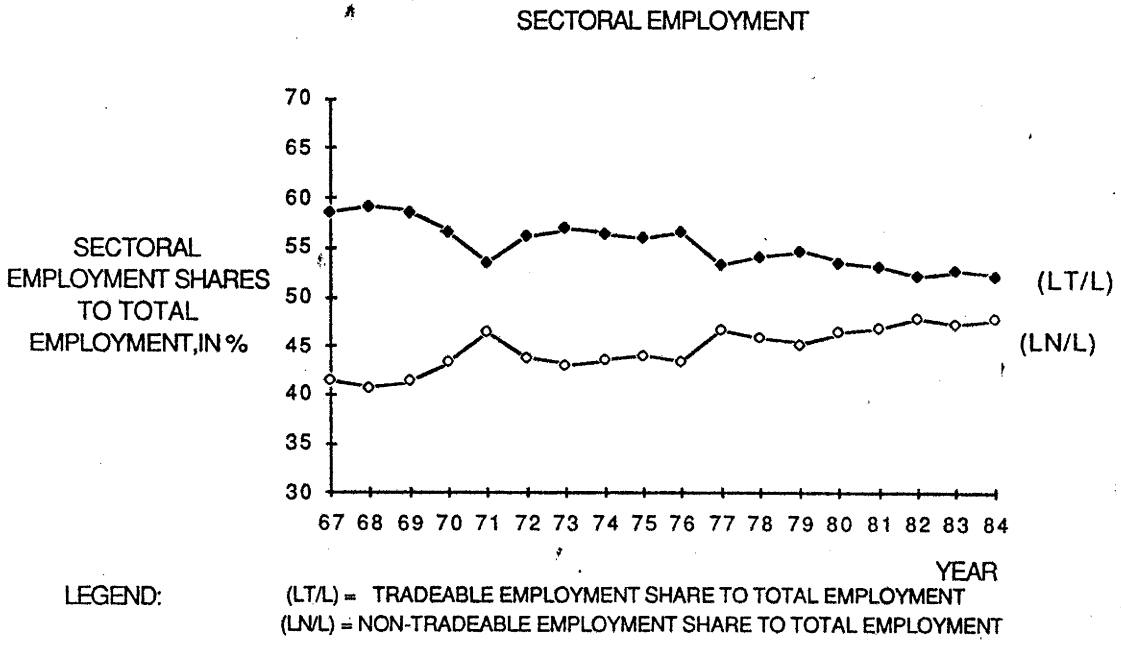
[14] See Appendix E, Table 50 for sectoral output and Table 56 for sectoral employment.

[15] See Appendix E, Table 50 for tradeable and non-tradeable output share to total output.

Figure 6-7: SECTORAL OUTPUT AND EMPLOYMENT





It can be concluded that casual observations confirm the significance of the effects of the real exchange rate RER on the output of both tradeables and non-tradeables. Regression results also seem to support this observed relationship for non-tradeables but not for tradeables.

The sectoral employment trends are also shown in Figure 6-7.[16] Although there seems to be an inconsistency with the output trends from 1967 until 1973, we observed that the sectoral employment trends were consistent with the output trends during the post-1973 period, ie. tradeable employment share to total employment declined while non-tradeable employment share to total employment increased. The "inconsistency" of trends in employment and output shares between 1967 and 1973 presumably reflects the fact that labor productivity increased substantially faster in the tradeable sector.

Underlying the changes in sectoral employment and output are changes in real wages. No data on sectoral wages were available,* but presumably the real wages in terms of non-tradeables declined at least relative to real wages in terms of tradeables, given that non-tradeables prices rose as a result of increased government spending on non-tradeables. Thus, employment and output of the non-tradeables sector increased.

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[16]See Appendix E, Table 56 for the data on tradeable and non-tradeable share to total employment.

*Although the Central Bank of the Philippines 32nd Statistical Bulletin (1980), page 267, provides indexes of average monthly earnings by major industry division, I was unable to collate the information in a way that would yield acceptable separate indexes for the tradeable and non-tradeable sectors for the whole period of study. Moreover, there was no breakdown of the agricultural sector into agriculture, fishery, and forestry; and there is no breakdown of the manufacturing sector into food manufactures and other manufactures.

CHAPTER 7

DEBT, SAVINGS, INVESTMENT, AND WEALTH

7.1 Introduction

This chapter will provide a theoretical framework which will enable us to analyze the long-run effect of macroeconomic policy on each of the following economic variables: the country's gross and net external debt, national and sectoral (public and private) investment and savings, and real wealth, and then we relate each of these framework to the case of the Philippines. Estimation procedures for relevant data input requirements and other economic variables will also be discussed.

Faced with external current account deficits, the Philippines allowed the persistent rise in government spending, and the financing of the current account deficit and government spending on non-tradeables and tradeables by foreign borrowings. Gross external debt has risen; current account deficit grows, or equivalently, the national investment-savings gap has widened; and real wealth has increased.

Assume that there is an internal imbalance (excess demand for non-tradeables) as a result of increased government expenditure on non-tradeables. The excess demand for non-tradeables causes the real exchange rate to appreciate so that production of non-tradeables increases and consumption of non-tradeables falls. Because of the rise in total spending, a current account deficit exists, ie, national spending exceeds national income. The country is building up foreign debts to the extent that the higher government spending raises interest rates and crowds out investment the country's wealth will be falling for two reasons: declining investment and growing debt. Real wealth falls which in turn reduces spending. As spending falls, (1) there is a real depreciation to preserve equilibrium in the non-tradeables market, and (2) the current account deficit disappears. Thus, there exists natural long-run equilibrating forces which remove current account imbalances in the absence of destabilizing government policies.

Dornbusch (1984) explores the role of disequilibrium exchange rates and budget deficits in promoting external indebtedness and the current debt crisis in some countries.[1]

Instead of allowing the equilibrating processes to take place in the long-run, a number of countries allowed their budget deficits to rise. The availability of external borrowing encouraged these countries to finance their persistent budget deficits and to allow their real exchange rates to appreciate thereby preventing or at least inhibiting the natural depreciation of the real exchange rate in the long-run. As the real exchange rate appreciates, the current account deficit grows. There is no one-to-one causal link from the real exchange rate, P_T/P_N, to the current account. Rather by keeping up government spending on non-tradeables, G_N, and financing current account deficit and G_N by external borrowing a country prevents/postpones the fall in spending (and the associated fall in P_N/P_T) which would otherwise occur. Government spending on tradeables could also be financed by foreign borrowing thereby postponing domestic adjustment and exacerbating the eventual adjustment process. Tan (1984) cited that foreign borrowing should only be used to cover the balance of payments deficits for a very temporary or in exceptional cases; otherwise it tends to exacerbate the BOP problem. She further claimed that the inflow of foreign exchange borrowing will suppress the depreciation of the domestic currency that may be expected from a persistent balance of payments deficits.[2]

Edwards (1983) noted that during the 1970s, the developing countries underwent serious current account deficits in their balance of payments, which led, inter alia, to major increases in their foreign debt. The foreign public and publicly guaranteed debt of the middle income countries increased from 11.8% of GNP to 17.4% of GNP in 1980.[3]

Dornbusch (1984) claimed that, although oil, interest rates and world recession are often isolated as the chief causes of the world debt crisis, these factors only have made

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[1]See Dornbusch, 1984. These countries include Brazil, Chile and Argentina.

[2]See E. A. Tan, 1984, "Philippine external debt", Paper presented to the University Colloquia on "The Nation in Crisis", 9 March, University of the Philippines, page 4.

[3]See Edwards, 1983, page 143.

much more apparent and unsustainable an underlying disequilibrium in which exchange rate overvaluation and/or budget deficits were perpetuated by continuing and excessive recourse to the world capital market.[4]

7.2 Rise in Gross External Debt

The most useful subdivision of the balance of payments for macroeconomic analysis is into the balance on the the current account and the balance on the capital account. Thus, in equation (7.1) the balance of payments (BOP) which is equivalent to the changes in official reserves (ΔFX) is equal to the current account surplus (CurrS) plus the capital account surplus (CapS).

$$\Delta FX = CurrS + CapS \tag{7.1}$$

We can decompose the capital account surplus into three components: portfolio investments and net direct investments (ΔDCI), gross foreign borrowing or external debt (ΔD), and gross private capital outflows (ΔPCO).[5]

$$\Delta FX = CurrS + \Delta DCI + \Delta D - \Delta PCO \tag{7.2}$$

Rearranging the terms of equation (7.2), we can identify the components or proximate surces of the increase in the country's gross foreign borrowings or external debt.

$$\Delta D = CurrD + \Delta FX + \Delta PCO - \Delta DCI \tag{7.3}$$

Equation (7.3) states that an increase in a country's external debt can be attributed to current account deficits, and to increases in official reserves, and to private capital outflows, minus net ouflow of portfolio investments and direct investments, or a combination of these proximate sources.

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[4]See Dornbusch, 1984, page 1.

[5]This decomposition follows Dornbusch, 1984, pp. 4-5, and that of the IMF International Financial Statistics which provides one of the sources of basic data.

We have to distinguish between two possible cases of an increase in external debt. In the first case, we may look at a rising gross external debt to finance capital flight, not current account deficits. The government or the Bank borrows abroad or runs down existing foreign exchange reserves and sells foreign exchange to domestic residents so that they can acquire foreign assets. In this first case, there is no change in aggregate net foreign assets. If there is a current account deficit, then it is almost entirely financed by direct investment and portfolio capital inflows or by falling foreign exchange reserves under a fixed exchange rate regime.

In the second case, we may look at an increased external debt reflecting current account deficits and not capital flight. We can probably assume here that direct investments and portfolio investments finance only a part of the current account deficits so that external debt rises by the difference. In practice, the cumulative current account deficits are the more common counterpart of increased external indebtedness, which results in a decline in aggregate net foreign assets (or an increase in aggregate net foreign liabilities).

An interesting highlight of this paper is that the Philippine gross external debt rose significantly during the 1971-1984 period, with two-thirds (2/3) of the cumulative increase in the gross external debt financing the current account deficits and one-third (1/3) financing capital outflows.

A more detailed analysis can be observed from Table 7-1 which provides us an estimate of the components of the increase in gross external debt from 1971 to 1984. Data were taken from different sources in our attempt to identify the proximate sources of the increase in gross foreign debt. The cumulative increase of gross external debt from 1971 to

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[6]In the case of Argentina, Dornbusch (1984) concluded that the increase in debt during the 1978-1982 period corresponded to a large extent to the financing of capital flight. The current account deficit was almost entirely financed by direct investment and portfolio capital inflows. In the case of Brazil and Chile, the increased debt reflects the current account deficits, not capital flight. In both countries, direct investment and portfolio capital flows financed only part of the current account deficits and hence external debt increased by the difference.

1984 was US$23.0 billion while the cumulative current account deficits over the same period stood at US$16.175 billion, and the cumulative increase in foreign exchange reserves and private capital outflows was estimated at US$7.3 billion. We estimated that private capital outflows was an aggregate of about US$7.7 billion and the cumulative change in foreign exchange reserves ended up with -0.3 billion US dollars.

In other words, we estimated that Philippine residents had salted abroad about US$7.7 billion from 1971 to 1984, which was financed by a massive build-up of the country's external debt during the period. Our finding is consistent with Tiglao's report (1985) on the capital flight estimates of the Philippines: at US$2.1 billion from 1974-1977 estimated by the US Federal Reserve System and that of the World Bank at US$3.1 billion from 1978 to 1982, or a total of US$5.2 billion from 1974 to 1982[7] (which is within our estimated total of US$8 billion from 1971 to 1984).

[7]See R. Tiglao, 1985, "Capital flight from RP totals $3.9B, US Fed paper says". in Business Day.

Table 7-1: COMPONENTS OF CHANGES IN GROSS EXTERNAL DEBT

Year	Increase in Gross External Debt (ΔD) (1)	Current Account Balance (-CurrD) (2)	Net Direct Investments and Portfolio Investments (ΔDCI) (3)	Changes in Foreign Exchange Reserves (ΔFX) and Private Capital Outflows (PCO) (ΔFX + PCO) (4)	(ΔFX) (5)	(PCO) (6)
	IN BILLION US DOLLARS					
1971	0.071	0.009	-0.004	0.076	0.031	0.045
1972	0.295	0.011	-0.022	0.284	0.038	0.246
1973	0.183	0.487	0.064	0.734	0.558	0.176
1974	0.692	-0.176	0.028	0.544	0.290	0.163
1975	0.854	-0.892	0.124	0.087	-0.076	0.162
1976	1.953	-1.050	-0.144	0.759	0.066	0.693
1977	1.690	-0.752	0.216	1.154	0.279	0.875
1978	2.573	-1.102	0.100	1.571	-0.003	1.574
1979	2.584	-1.497	0.020	1.107	-0.089	1.196
1980	3.930	-1.904	-0.102	1.924	0.620	1.304
1981	3.169	-2.061	0.175	1.283	-0.240	1.523
1982	3.506	-3.200	0.017	0.323	-0.982	1.305
1983	1.000	-2.750	0.112	-1.638	-1.329	-0.309
1984	0.446	-1.298	-0.009	-0.861	0.520	-1.381
1971-1984	22.946	-16.175	0.576	7.347	-0.317	7.664

Sources: Basic data for gross external debt (column 1) were obtained from Appendix F, Table 65. Data for columns (2) and (3) were from the Philippine Statistical Yearbook: 1983 issue for 1971-73 data, Table 7-9, pages 400-01; and 1985 issue for 1974-84 data, Table 7-9, pages 388-89. The sum (column 4) of changes in foreign exchange reserves and capital outflows were taken as a residual, increase in external debt plus current account deficit plus direct investments. Data for column (5) were taken from the monetary movements data of the balance of payments in the Philippine Financial Statistics (Central Bank), several quarterly issues. Data for column (6) were obtained as residuals (column 4 less column 5).

7.3 Widening Investment-Savings Gap

The current account measures the extent of a country's net borrowing or lending vis-a-vis the rest of the world in a given period, and thus is the result of savings and investment decisions. Thus, an alternative and equivalent definition of the current account deficit is that it equals the increase in external debt, defined as the excess of national spending over national income. Thus,

$$\text{CurrD} = \text{National Spending} - \text{National Income} \tag{7.4}$$

This means that external debt rises in order to finance the national investment-savings gap. The current account deficit (CurrD) is a national deficit, and is, therefore, the sum of financial deficits of the private sector ($I^{Pri} - S^{Pri}$) and of the public sector (G-T).[8]

It has to be emphasized that a current account deficit must have as its counterpart an excess of national investment over national saving.[9] Thus,

$$\text{CurrD} = \text{National Investment} - \text{National Savings} \tag{7.5}$$

$$\text{CurrD} = (I^{Private} - S^{Private}) + (I^{Public} - S^{Public}) \tag{7.6}$$

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[8] In an open economy, gross domestic product Q, is the sum of consumption (C), government spending (G), domestic investment (I), and net exports of goods and services (X-M). Thus, $Q = C + I + G + X - M$. Income derived from output can be used for three purposes: for consumption (C), for tax payments (T), and saving (S). Thus, $Q = C + S + T$. By manipulation, we come up with the identity: $M-X = I - S + G - T$, where S denotes the savings of the domestic non-government sector including savings out of net factor incomes paid abroad and T is government net revenue.

[9] For discussion of the relation between the balance of payments and the domestic economy, see Corden, W.M., 1982, "How the balance of payments relates with the domestic real and monetary economy". In their study "Budget deficits and the current account in the presence of classical unemployment". World Bank, J.T. Cuddington and J.M. Vinals, 1984, cites that recent models on the current account (see, for instance, J. Sachs, 1981, "The current account in the macroeconomic adjustment process"; L. Svensson, and A. Razin, 1981, "The terms of trade, spending, and the current account") have focused on the well-known accounting identity that expresses the current account as the difference between domestic saving and domestic investment. See also R.N. Cooper and J.D. Sachs, 1984, "Borrowing abroad: the debtor's perspective", Working Paper No.1427, National Bureau of Economic Research; E. Helpman and A. Razing 1981, "The role of saving and investment in exchange rate determination under alternative monetary mechanisms", Seminar Paper No. 181, International Institute for Economic Studies, Sweden; and M. Feldstein, 1982, "Domestic savings and international capital movements in the long-run and the short-run", Working Paper No. 947, NBER.

The private sector investment-savings gap reflects the net total borrowing of the private sector while the government I-S gap indicates the net total borrowings of the government sector. If the current account deficit reflects a decrease in private or government saving, then the country is borrowing abroad or (running down its foreign exchange reserves) in order to sustain or increase consumption; this is a cause for concern about the country's long-term prospects. On the other hand, if the current account deficit reflects an increase in investment, then the country is building up its capital stock and hence increases its future income. Thus, the country will be able to repay its borrowings or rebuild its stock of foreign exchange reserves, provided, of course, that the investments turn out to be profitable. To the extent that the current account deficit used to finance rising investments creates a "problem", it is one of short-run liquidity rather than of mortgaging the country's long-term future.

Let us discuss the procedure in estimating national investment and savings data in the Philippines and the sectoral breakdown (ie. public and private sectors). Data for investment-savings gap as a proportion of GNP are equivalent to the proportions of the current account deficit to GNP.

Gross national investment data were taken from the estimates of the National Accounts Staff of the National Economic and Development Authority and published in the Philippine Statistical Yearbook as gross domestic capital formation (which is the sum of the investment of the public and private sectors). Public sector investment is the sum of public fixed investment and changes in inventory of the public sector. Private sector investment is the sum of private fixed investment and changes in inventory of the private sector. The sectoral data on fixed investment (ie. public and private fixed investment) were explicitly available, but not the sectoral changes in inventory. From the Flow-of-Funds Capital Accounts Matrix (published in the NEDA Philippine Statistical Yearbook), however, we

*The expression (G-T) should be redefined to include in addition to G other government outlays in the form of property income payments (interest on national debt), transfer payments and subsidies, and also to include in addition to T other government revenue in the form of current transfer receipts and property income receipts. We then have in place of (G-T) an expression for:
Government Investment - (Government current receipts- Govt. Current Outlays)
which can be written alternatively as:
Government Investment - Government Saving.

computed the sectoral shares of the changes in inventory. Then, we used these sectoral shares as proxies to compute for the sectoral breakdown, given total changes in inventory.

Gross national savings were taken as the difference between the current account surplus and the gross national investment. There are some reasons for adopting this residual approach; namely, (a) to provide consistency with the framework developed earlier on the basis that the current account surplus is the excess of gross national savings over gross national investment, and (b) due to constraints on data availability and the time element involved in doing the research.[10]

Then, we compute the savings of both the public sector and the private sector. Public sector savings were taken as the savings of the general government (central plus local plus city) which were obtained from the combined capital reconciliation account published in the NEDA Philippine Statistical Yearbook. These data, however, do not include the savings of the government corporations so that total public sector savings are underestimated. Private sector savings were taken as the residual between gross national savings and public sector savings.

An interesting highlight of this paper is the observation that savings in the Philippines of both the private sector and the public sector remained positive during the 1970-1984 period which, therefore, indicates that the country's real wealth has in fact increased. Wealth was rising during the eighties even if more slowly than in the 1970s. *

[10]For studies which deals with savings estimation or which provides some criticism on savings estimation, see E. A. Tan, 1980, "Savings in the Philippines and in the rural sector", in Survey of Philippine Development Research, pages 235-240, and M. L. Treadgold, 1969, "Economic growth and the price level in the Philippines, 1946-65", Ph.D. Thesis, Volume II, The Australian National University, pages 278-297. Tan (1980, pages 235) cited that Hooley (1963) undertook a major estimation work leading to his monograph, Savings in the Philippines: 1951-1960. Among others, Treadgold (1969) undertakes an examination of Philippine saving data which includes a critical discussion of some deficiences in measuring techniques.

*Wealth estimates are presented in section 7.4 based on the concept developed. An alternative series for wealth estimates is beyond the scope of this thesis but which may become a possible extension for further research.

Total national savings (sum of the savings of public and private sectors) was constant at 21.0% of GNP during the 1970-1972 period and increased sharply to 27.1% in 1973 (Table 7-2). It dropped to 26.0% in 1974 and stayed constant at 25.6% during the 1974-1981 period before attaining its 1970 proportion and finally declined to 16.0% in 1984. Hill and Jayasuriya (1985) reported that gross domestic savings did not increase sufficiently and this could be attributed partly to government policies in the tightly regulated domestic financial system. Real interest rates were either negative or very low and hence provided little incentive for increased savings.[11]

Private savings as a proportion of GNP was generally constant during the 1970-1981 period and declined sharply afterwards reaching 12.1% in 1984 (far below the 18.8% proportion in 1970). On the other hand, public sector savings to GNP showed an increasing pattern (and remained above the 1970-72 proportions in most years except in 1976).

Total national investment (sum of investments of public and private sectors) was constant at around 21% of GNP during the 1970-1973 period. Subsequently it rose sharply to 31.2% of GNP in 1975 and remained at high proportions of GNP through 1983 before dropping to 18.6% in 1984. While the private sector investment posted a generally declining trend during the post-1974 regime (after a rising trend), the public sector on the other hand, posted a persistent rise in investment. As a proportion of GNP, public sector investment rose from 1.8% during 1970-1971 to 5.8% in 1975 to 7.5% in 1979 and hovered around 7.0% through 1982. Subsequently, it declined to 4.0% in 1984 (which was still more than twice the 1970 proportion).

As a proportion of GNP, national savings exceeded national investment during the first two years of the 1970s reaching its peak of 5.5% in 1973. Subsequently until 1984, the reverse picture emerged, ie. national savings lagged behind national investment. The

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[11] See Hill and Jayasuriya, 1985, page 16.

widening of the I-S gap during the post-1973 regime stemmed from the combined effects of the private sector deficit and the public sector deficit with the latter accounting for a larger share until 1982, which had been mainly financed by foreign borrowings. (No available data for savings of the government corporations were available so that the public sector savings were underestimated and private sector savings were overestimated).

. Leviste (1985) reported that the consolidated government budget deficit rose sharply from about 3% in 1978 to about 6% in 1982 and that foreign borrowings, which financed about 60% of the total budget deficit during 1978-82 period, also financed over half of the investment programs of the public corporations.[12] Tan (1984) also claimed that foreign borrowing seemed to have been another facet of the established pattern of high finance for government corporations and privileged business, and further argued that debts are seen to fill deficits in the BOP or in the government budget or in the national investment-savings gap.[13]

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[12]See Leviste, 1985, pages 50-51.

[13]See Tan, 1984, page 5.

Table 7-2: SAVINGS-INVESTMENT GAP AND ITS COMPONENTS

Year	As percent of GNP								
	National			Public Deficit			Private Deficit		
	S-I Gap (1)	GDS (2)	GDI (3)	Total (4)	S (5)	I (6)	Total (7)	S (8)	I (9)
1970	-0.3	21.2	21.5	0.6	2.4	1.8	-0.9	18.8	19.7
1971	0.1	21.2	21.1	0.9	2.7	1.8	-0.8	18.5	19.3
1972	0.4	21.3	20.9	-0.9	1.6	2.5	1.3	19.7	18.4
1973	5.5	27.1	21.6	2.9	5.7	2.8	2.6	21.4	18.8
1974	-0.9	25.9	26.8	-0.7	4.9	5.6	-0.2	21.0	21.2
1975	-5.1	26.1	31.2	-1.8	4.0	5.8	-3.3	22.1	25.4
1976	-5.9	25.0	30.9	-3.4	1.9	5.3	-2.5	23.1	25.6
1977	-3.1	25.6	28.7	-3.8	3.2	7.0	0.7	22.4	21.7
1978	-4.7	24.3	29.0	-2.8	4.0	6.8	-1.9	20.3	22.2
1979	-4.4	26.8	31.2	-2.2	5.3	7.5	-2.2	21.5	23.7
1980	-5.1	25.5	30.6	-1.5	5.0	6.5	-3.6	20.5	24.1
1981	-5.0	25.7	30.7	-3.3	3.8	7.1	-1.7	21.9	23.6
1982	-7.6	21.2	28.8	-4.2	3.0	7.2	-3.4	18.2	21.6
1983	-7.0	20.6	27.6	-1.7	3.7	5.4	-5.2	16.9	22.1
1984	-2.7	15.9	18.6	0.1	3.8	3.7	-2.8	12.1	14.9

Column (1) = (2) - (3); (4) = (5) - (6); and (7) = (8) - (9).
Sources of basic data: Appendix F, Tables 62 and 63.

7.4 Increasing Real Wealth

Since gross external debt has grown steeply, we are then interested in evaluating or considering two things: (a) the purpose for which the proceeds of the loans have been used - whether to increase domestic consumption or investment, and (b) the economic effectiveness of the investments undertaken.

Whether or not the proceeds of the loans have been used to finance investment can be measured directly by looking at what happens to the stock of capital. If the stock of capital has been increasing, then the external borrowings have been financing the accumulation of physical capital. Consequently, the country's real wealth is increasing and the country's debt problem is a liquidity problem. If the investment, however, has been in low-return activities, there is still a fall in national wealth: liabilities have gone up more than assets. There will be a net wealth effect if the present value of the liabilities is different from that of the assets. There will be no net change in national wealth; provided, that the present value of the higher capital stock is equal to the present value of the extra debt, given that the debt goes up and at the same time there has been a rise in the domestic capital stock.

It is, therefore, interesting to know what has happened to nominal wealth (W_n) and to real wealth (W_r). Symbolically, we express gross nominal wealth (W_n^G) and net nominal wealth (W_n^N), respectively, as follows:

$$W_n^G = P.K + FX + DFA \qquad (7.7)$$

$$W_n^N = P.K - D + FX + DFA \qquad (7.8)$$

Gross nominal wealth is the sum of the nominal value of the capital stock (P.K), plus foreign exchange reserves (FX) plus domestic holdings of foreign assets (DFA). Net nominal wealth is the difference between P.K and net external debt (which in turn is the difference between gross nominal debt (D) less FX less DFA.

Real wealth (W_r) is obtained as the difference between the capital stock (K) and real net external debt (ND) which in turn is obtained as the difference between real gross

external debt (D/P) and the sum of foreign exchange reserves of the Central Bank (FX/P) and of the domestic holdings of foreign assets (DFA/P).

$$W_r = K - D/P + [FX^{US\$}/P + DFA^{US\$}/P]e \tag{7.9}$$

Then the change in real wealth is given by

$$dW_r = dK - (D/P)[(dD/D) - (dP/P)] + (e/P)[FX^{US\$} \tag{7.10}$$

$$+ DFA^{US\$}][(de/e) - (dP/P)] + (e/P)[dFX^{US\$} + dDFA^{US\$}]$$

It is but essential that we discuss the procedure for estimating the data input requirements for analyzing gross and real wealth of the Philippines.

Capital stock data were estimated following the procedure suggested by Roemer and Stern (1981).[14] If investment and depreciation data are available for say 10 years or more, then an acceptable approximation may be to cumulate for as many years as possible. Let capital stock be equal to the cumulated gross investment less cumulated depreciation. Investment data (gross domestic capital formation at constant 1972 prices) were obtained from the NEDA Philippine Statistical Yearbook while depreciation data were estimated assuming a depreciation rate of 2.56 % per annum over 39 years (with 1946 as the initial year and 1984 as the final year). With the given investment data and estimated depreciation data, capital stock were estimated as the cumulated gross investment less cumulated depreciation. The obtained estimates of the capital stock using this procedure as suggested by Roemer and Stern, were 5% to 30% less than the estimates arrived at by Sanchez (1984).[15] If we use Sanchez estimates, capital stock would,

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[14]See M. Roemer and J. Stern, 1981, Cases in Economic Development: Projects, Policies, and Strategies, London, pages 198-200.

[15]See A. Sanchez, 1983, "Capital stock measurement and total factor productivity analysis", Ph.D. Thesis, University of the Philippines School of Economics. Also see Appendix F, Table 64 for the estimation of capital stock.

therefore, be even much larger and that real wealth would be even much larger too. Sanchez used the perpetual inventory method as the basic method of capital estimation, ie. by summing up post-investments over a suitable period of years.

Data on nominal gross external debt, on foreign exchange reserves, and on domestic holding of foreign assets were expressed in US dollars and hence were converted to Philippine pesos by multiplying with the peso-US dollar exchange rate. Only reserve holdings of the Central Bank were taken as foreign exchange reserves. Foreign assets of the banking sector were assumed to represent the domestic holding of foreign assets since no other data series are available. Moreover, it is indeed dif- ficult to estimate the domestic holding of foreign assets by the non- bank sector.

An interesting highlight is that real wealth of the Philippine economy increased in the period 1970-1984 (Table 7-3), ie. savings are positive which indicated that the growth of capital stock has indeed outgrown the growth of net external debt. As a matter of fact, the real value of net external debt declined during the 1970-1974 period. During the post-1974 period, net external debt increased but at a slower growth than the early 1970s. Thus, we can conclude that external debt was matched by the accumulation of physical capital, ie. much of the foreign borrowings were kept in physical investments. The real wealth of the Philippines has probably been increasing although the real value of the large fraction of domestic gross investment which has gone into somewhat dubious public sector projects is a cause for concern. Hopefully, however, the debt problem is largely a liquidity problem which will be self-financing if the investments undertaken turn out to have been profitable.

Table 7-3: REAL WEALTH AND ITS COMPONENTS

Year	Real Wealth (W_r) (1)	Capital Stock (K) (2)	Net External Debt (ND) (3)	Gross External Debt (D/P) (4)	Foreign Exchange Reserves (FX/P) (5)	Domestic Holdings of Foreign Assets (DFA/P) (6)
	In Million Pesos, At 1972 prices					
1970	124035	137938	13903	16650	1819	928
1971	136191	148876	12685	16280	2578	1017
1972	147281	160152	12871	17775	3663	1241
1973	164211	172371	8160	16239	5917	2162
1974	180828	187620	6792	15393	6535	2066
1975	196162	206118	9956	18896	5851	3089
1976	208828	225824	16996	26054	6742	2316
1977	224527	246118	21591	30057	5705	2761
1978	243010	268615	25605	36641	6504	4532
1979	265694	294175	28481	39713	7294	3938
1980	287774	320203	32429	46028	8481	5118
1981	307059	346725	39666	52192	6618	5908
1982	322163	372319	50156	61065	4391	6518
1983	329285	396705	67420	74721	2585	4716
1984	343982	411863	67881	76246	2658	5707

Column (1) = (2) - (3). Column (3) = (4) - [(5)+ (6)]. Sources of basic data: For the capital stock data (column 2), see Appendix F, Table 64. For columns (4), (5) and (6), see Appendix F, Table 65.

If the level of the marginal product of capital is low and constant, then the incurring of debt for investment is still a problem. The marginal product of capital is not the same as the incremental-capital-output-ratio (ICORs). The inverse of the latter measure, however, can be regarded as an index of the productivity of the investments undertaken.

Consider the case of the Philippines. Table 7-4 shows that during the 1970-1979 period, ICORs remained broadly stable.[16] During the eighties (except in 1984), these ratios increased considerably (particularly in 1983) due to the declining growth in GDP. The increasing ICORs during the post-1979 period may well support the widespread suspicion that most of the investments were not very productive. Our observation was consistent with the findings of Canlas and others (1984) that expenditures on highways, waterworks, flood controls, large public buildings and enormous participation in the hotel industry yielded little or no cash returns to the government, if they ever contributed to current output at all, while the returns on other projects like irrigation, harbors, rural electrification, railroads and others were meagre in the immediate post-construction years.[17]

Even if the investment efficiency had been higher, the Philippine economy could still run into serious difficulty owing to its failure to respond appropriately to the rising real interest rates during the late 1970s and the eighties (when foreign nominal rates increased and inflation rates declined), ie. when the cost of foreign borrowings rose. The widening investment-savings gap persisted and was financed by the more expensive foreign funds. Thus, the Philippines could no longer avail itself of the eroding real burden of foreign debt (as in the early 1970s when real interest rates were low). Moreover, the Philippines had to rely increasingly on short-term commercial loans. Thus, the total burden of debt servicing increased markedly. Quantitative evidence is shown in Table 2.1. While debt service payments as a proportion of GNP remained at 5% in 1975 (as in 1965), it increased to 10.8% of GNP in 1980 and to 20% in 1984.

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[16]The inverse of the ICOR is only an index to measure the productivity of investments. The broadly stable ratios during the 1975-1979 period, however, did not reflect the fact that many of the suspect investments were in place in 1975.

[17]See Canlas and others, 1984, pages 25-26.

Rising ICORs also indicated that the investment pattern was not especially directed to increase the debt-servicing capacity; that is, the direct effect of these investments on savings and foreign exchange earnings is so small that the debt-servicing capacity expanded insufficiently, and hence contributed to the payments crisis.

Table 7-4: INCREMENTAL-CAPITAL-OUTPUT-RATIOS (ICORS)

Year	In Million Pesos (At Constant 1972 Prices) Investment (1)	Change in GDP (2)	ICORS (3)
1970	50868	11222	4.25
1971	53689	11966	4.48
1972	55556	11982	3.86
1973	57405	14387	3.74
1974	61825	15360	3.56
1975	69974	17347	3.60
1976	78973	19436	3.60
1977	88228	21915	4.03
1978	98777	21866	4.08
1979	109462	24207	4.50
1980	115846	24346	4.98
1981	122238	23245	5.82
1982	125416	21009	7.26
1983	124109	17271	17.37
1984	113056	7144	-

Annual estimates of the ICORs (which are calculated as the ratio of investment in year t to the increase in output between years t-1 and t) are fundamentally flawed. Given that the increase in output is a consequence of prior investment, the measured increase in output should come after year t, say between years t and t+1. To smooth out short-term fluctuations in the ICOR, reflecting inter alia, variations in the degree of utilization of productive capacity, longer periods of measurement could be used. Using 1946 as the reference year, we calculated total investments column (1) and change in GDP, column (2), ie. by relating total investment over years t to t+4 inclusive to the increase in annual output between years t and t+5. Column (3) is obtained by dividing column (1) of year t by column (2) of year t+1.

Source: 1979 and 1985 NEDA Philippine Statistical Yearbook for 1946-84 data. Basic annual data for 1967-1984 are presented in Appendix F, Table 64 for column (1), and Appendix E, Table 50 for column (2).

Given the deterioration in the terms of trade since the 1970s, the Philippines could

have adjusted its domestic macroeconomic policy, ie. reduce absorption and devalue. The Philippines, however, failed to adjust to the external shock. Absorption had actually risen due to the expansionary demand policy via persistent budget deficits (through persistent government spending on non-tradeables and tradeables unmatched by revenues) and generally easier monetary policy via substantial credit creation by the Bank in order to help financed the budget deficits. Thus the macroeconomic policy during 1966 to 1984 period was a departure from the conservative economic policy during the 1950s and the early 1960s.

CHAPTER 8

SUMMARY AND CONCLUSION

We have been able to achieve the desired objective of the thesis. We have been able to formulate a general theoretical framework for analyzing a country's macroeconomic policy and its impact on the domestic economy and we have been able to relate this analytical framework to the case of the Philippines.

We have also been able to answer the three central questions of the thesis. The first central question, which is concerned with the conduct or determination of the fiscal, monetary, and exchange rate policy in the Philippines, has been answered via an historical and analytical review of the domestic fiscal and monetary policy and experience in the second chapter, and of the domestic exchange rate policy and experience in the third chapter.

The second central question, which is concerned with an analysis of the impact of domestic fiscal and monetary expansion on the real exchange rate, the current account, sectoral employment and output, has been answered via formulating a theoretical framework in the context of the Salter-Swan tradeable and non-tradeable model as discussed in the fourth and fifth chapters in which we were able to analyze the impact of pure money and pure fiscal expansion under fixed and floating exchange rates. In the sixth chapter, we have been able to apply the formulated analytical framework and hence we can conclude that the model has been relevant to the case of the Philippines.

The third central question, which is concerned with an analysis of the long-run effects of the domestic macroeconomic policy on the country's external debt, investment,

savings, and wealth, has been answered in the seventh chapter via formulating the relevant framework for each of these variables, and then relating to the case of the Philippines.

In the historical and analytical review of the Philippine macroeconomic policy during the 1966-1984 period presented in the second chapter, we come up with the following observations.

Firstly, the Philippine government embarked on a generally expansionary fiscal policy during the period of investigation. With the government budget deficit as the indicator of fiscal policy, the persistent deficits had stemmed from persistently high levels of government spending on non-tradeables and tradeables (unmatched by government revenues). There was a dominant shift of government expenditure away from spending on social services (education, manpower, training, housing, population, public health and other social welfare services) towards spending on utilities and infrastructure projects and services, this particular sector being the most-heavily favored sector by the government so that a spending cut in this sector would be politically undesirable. There was also a significant shift in the spending allocations away from current expenditures towards spending on capital outlays, particularly those of the government corporate sector which has grown very rapidly since the 1970s. Capital outlays were financed mostly by the domestic and foreign borrowings by the government.

Secondly, the Philipping government had also embarked on a generally expansionary monetary policy. With the annual changes in the narrow money supply as indicator of monetary policy, the money supply grew at rates of growth which were as high as 20 per cent per annum in some years. The expansion of the narrow money supply was attributed mainly to the expansionary monetary impact of increases in the money base, which in turn stemmed from the expansionary effect of the Central Bank's credit to the government, mostly used to finance government expenditures. These increases more than offset the contractionary monetary effects of the reduction in the foreign exchange

reserves due to the balance of payments deficits. In regulating monetary policy, the Bank has relied mainly on the use of open market operations and the Bank's rediscounting policy.

Thirdly, monetary policy in the Philippines, which has been vested in the Bank via the Monetary Board has been instigated by the Philippine President via his appointed officers and members of the Board. Because the Bank is not an independent financial institution, monetary policy has been influenced by the Philippine President, the Philippine government and the Treasury, via the different components of the money base, particularly via the government budget deficit. As a consequence, a direct link exists between monetary and fiscal policy. The Bank has had supervisory authority over the commercial banks, and since 1972 its supervision has been expanded over the entire financial sector, ie. covering also non-bank financial institutions such as investment houses, finance companies and others. The Bank's supervision and control over the entire financial sector reflects the fact that the country's financial system has been highly regulated.

In the historical and analytical review of the Philippine exchange rate policy and experience presented in the third chapter, we come up with the following four observations.

Firstly, the Philippines had fixed exchange rates since the end of World War II until 1969 (with a temporary float of the peso in 1962). Faced with the balance of payments crisis which was aggravated by the rising level of maturing external obligations and the unavailability or shortage of foreign exchange reserves, the Bank adopted a floating rate system in early 1970. The floating rate system had lasted until 1984 (even until now) subject to the Bank's intervention.

Secondly, the nominal peso-US dollar rates remained stable during the 1967-1969 period and depreciated during the post 1969 period, particularly during 1983-1984 when the exchange rate depreciated markedly.

Thirdly, although the Bank has adopted the flexible exchange rate system during the post-1970 period, the Bank has allowed less flexibility in the peso-US dollar rate. This observation was attributed to the following: (a) the extent of capital mobility, ie. with imperfect capital mobility in the Philippines, the Bank has some control in the domestic monetary policy in the short-run; (b) the low level of development of the capital and financial markets so that the foreign exchange market has functioned mainly via the Bank and some foreign exchange dealers; and (c) the geographic concentration of trade, ie. Philippine trade is heavily concentrated in the US so that the peso has been historically pegged to the US dollar.

Fourthly, the monetary authorities have also relied on the use of trade and foreign exchange controls which, however, have been less stringent during the post-1970 regime (a period of flexible exchange rates) than those during the 1950s and the 1960s (a period of fixed exchange rates) during which time speculative activities were more important than during the post-1970 period (ie. incentives for speculation might have been decreased).

From the historical and analytical review of the Philippine fiscal, monetary, and exchange rate policy, the question which has arisen is, why did the Philippine government opt for a generally expansionary macroeconomic policy? Firstly, it was presumably extremely difficult to reduce government expenditures due to political reasons. Infrastructure and utilities were the most-heavily favored sectors since the 1970s so that government expenditures in these sectors rose considerably during the post-1970 period. Since these sectors were managed or controlled mostly by a select group of presidential appointees and friends, a cut in government spending in this sector would therefore hurt this favored group, and hence would be politically undesirable.

Secondly, the Philippine economic policy-makers opted to maintain economic growth (rather than allow growth reductions). The factual evidence revealed the stability of economic growth, with real GDP growing at an average of 5.5% during the 1966-1973 period, and at an average of 6.2% during the 1974-1980 period.

Thirdly, the perpetuation of increased government spending and current account deficits also stemmed from the availability of foreign funds with which to finance them. While the Philippine reliance on external financing could have been economically justified prior to 1980, when the real cost of borrowing was low, its continued dependence on foreign funds during the post-1980 regime (when real interest rates rose) proved to be a major contributory factor in the economic crisis of the Philippines.

After the historical and analytical review of the domestic fiscal, monetary and exchange rate policies, we developed in the fourth and fifth chapters a theoretical framework which enabled us to analyze the impact of monetary and fiscal policy under fixed and flexible exchange rates. The central assumptions of the medium-run model are (a) a small country assumption in which the terms of trade are exogenously given so that the relevant measure of the real exchange rate is the relative price of tradeables to non-tradeables, (b) flexibility of nominal wages in order to guarantee full employment, and (c) flexibility of the non-tradeables prices in order to guarantee equilibrium in the non-tradeables market.

The measure of pure fiscal expansion that we used is the amount of any bond-financed rise in the government's domestic budget deficit. An increase in the domestic budget deficit results from an increase in government expenditures on non-tradeables unmatched by tax revenues. Pure monetary policy refers to domestic credit creation via open market operations. A budget deficit financed by domestic credit creation therefore involves both fiscal and monetary expansion.

Then, we distinguish the effects of pure money expansion and pure fiscal expansion under fixed and flexible exchange rates in an economy which has Keynesian properties in the short-run and neoclassical or monetarist properties in the long-run. In the short-run, the money wage is rigid and full employment is not guaranteed. In the medium run, as defined above, money wages adjust to give full employment, but the current account may not balance so that the country saves or dissaves. In the long run, the current account tends to balance.

An important assumption of the model is the existence of imperfect capital mobility; ie, because exchange controls can only influence short-term capital flows, we assume that the country (the Philippines, for instance) has a fairly high degree of capital mobility. A country like the Philippines is a net borrower of capital from the world market and must therefore offer foreigners the same expected rate of return which they could earn elsewhere. This remains true in the presence of exchange controls; it is therefore reasonable to assume a fairly high degree of capital mobility in the Philippines at least in the long-run.

Under fixed exchange rates and given imperfect capital mobility, a pure money expansion stimulates employment and output in the non-tradeable sector (while leaving employment and output in the tradeable sector unchanged) in the short-run; decreases employment and output in the tradeable sector in the medium-run; but, it has neutral effects for both the tradeable and non-tradeable sectors in the long-run. Under flexible exchange rates and given some (but not perfect) capital mobility, a pure money expansion stimulates employment and output in both sectors and produces balance of payments deficits in the short-run; but, it has neutral effects in the medium-run and in the long-run.

Under fixed exchange rates and given some (but not perfect) capital mobility, a pure fiscal expansion increases employment and output in the non-tradeable sector (while leaving employment and output of the tradeable sector unchanged) in the short-run: decreases employment and output in the tradeable sector in the medium-run; and the current account tends to balance in the long run.

Under flexible exchange rates and given high capital mobility, a pure fiscal expansion increases employment and output in the non-tradeable sector and decreases employment and output in the tradeable sector in the short-run; decreases employment and output in the tradeable sector and increases those of the non-tradeable sector in the medium-run; and enables the current account to balance in the long-run.

Then in the sixth chapter, we related the formulated theoretical framework of analysis in the case of the Philippines. An important contribution of the thesis is the estimation of alternative measures of the real exchange rate (the relative price of

tradeables to non-tradeables) and the estimation of sectoral (tradeable and non-tradeable) employment and sectoral output. Based on the three sectoral classifications (I, II and III as defined below), we were able to come up with alternative estimates of the domestic prices of tradeables, of the domestic prices on non-tradeables, of the real exchange rates, sectoral employment and sectoral output. In this chapter, we come up with the following conclusions: Firstly, the factual evidence, in the form of observations and some econometric work, enabled us to confirm and conclude the relevance of the Salter-Swan theoretical framework in analyzing the effects of fiscal and monetary policy in the Philippines under fixed and flexible exchange rates.

Secondly, our theoretical contention that there exists a significant relationship between the current account balance and the real exchange rates was supported by both the casual observation of the movements between these two variables and the results of the empirical estimation. The significant relationship can be traced to two factors: (a) there is a linkage between changes in the real exchange rate and the exogenous changes in fiscal and monetary policy: by keeping up government spending on non-tradeables and financing the current account deficit and government spending on non-tradeables by foreign borrowing, the Philippines has been able to prevent/postpone the fall in spending (and the associated fall in the domestic price of non-tradeables relative to tradeables) which would otherwise have occurred. (b) There is a linkage between changes in real exchange rate and changes in the terms of trade: given the terms of trade effects and some nominal depreciations of the peso-US dollar rate during the post-1970 regime, the domestic price of importables increased markedly relative to the domestic price of non-tradeables while the domestic price of exportables declined generally relative to the domestic price of non-tradeables.

Thirdly, employment and output increased in the non-tradeable sector and decreased in the tradeable sector presumably stemming from the lower product wage in the non-tradeable sector relative to the product wage of the tradeable sector.

From the analysis of the impact of macroeconomic policy on external debt, investment, savings, and wealth in the seventh chapter, we come up with the following conclusions:

Firstly, the increase in the gross external debt of the Philippines during the 1971-1984 period was attributed to the financing of the current account deficits to a large extent, and to the financing of capital outflows to a lesser extent, ie. with the former accounting for two-thirds, and the latter, for one-third of the cumulative foreign borrowings during the period.

Secondly, the Philippine investment-savings gap has widened during the post-1973 period stemming from the combined effects of the private sector deficit and the public sector deficit, with the latter accounting for a larger share than the former in some years (ie. 1974, 1976-78, and 1981-82). However, for the post-1973 period as a whole (ie. 1974-84) the cumulative public sector deficit formed slightly less than half the cumulative national investment-savings gap.

Thirdly, the real wealth of the Philippine economy increased in the period 1970-1984, ie. real savings were positive. This reflects the fact that the growth of capital stock exceeded the growth of net external debt. Although the real wealth of the Philippines appears to have been increasing, the real value of the large fraction of domestic gross investment which has gone into somewhat dubious public sector projects is a cause for concern. Hopefully, however, the debt problem is a liquidity problem which will be self-financing if the investments undertaken turn out to have been profitable.

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APPENDIX A: NOTES TO CHAPTER 4

1 DERIVED RELATIONSHIP BETWEEN WAGES AND GOODS PRICES

Equilibrium in the labor market is given as

$$L = L_T(W/P_T) + L_N(W/P_N) \tag{1}$$

Taking the logarithm of both sides and differentiating,

with $dL/L = 0$.

$$L_T'P_T dW - L_T'W dP_T + L_N'P_N dW - L_N'W dp_N = 0. \tag{2}$$

$$[L_T'P_T + L_N'P_N]dW = W[L_T'dP_T + L_N'dP_N] \tag{3}$$

$$(dW/W) = [L_T'dP_T + L_N' dP_N]/[L_T'P_T + L_N'P_N] \tag{4}$$

By manipulation, we get,

$$(dW/W) = [(\delta_T\epsilon_T)(dP_T/P_T) + (\delta_N\epsilon_N)(dP_N/P_N)]/[(\delta_T\epsilon_T) + (\delta_N\epsilon_N)] \tag{5}$$

where $\delta_T = L_T/L$, share of labor in tradeables sector

$\delta_N = L_N/L$, share of labor in non-tradeables sector

$\epsilon_T = (dL_T/L_T)(P_T/dP_T)$, elasticity of labor demand in tradeables sector

$\epsilon_N = (dL_N/L_N)(P_N/dp_N)$, elasticity of labor demand in non-tradeables sector.

Expressing in terms of percentage changes ($\hat{}$), we get

$$\hat{W} = [(\delta_T \epsilon_T)(\hat{P}_T) + (\delta_N \epsilon_N)(\hat{P}_N)]/[(\delta_T \epsilon_T) + (\delta_N \epsilon_N)] \quad (6)$$

Equivalently, we can express equation (6) as follows

$$\hat{W} = \beta \hat{P}_N + (1-\beta)\hat{P}_T \quad (7)$$

where,

$$\beta = [\delta_N \epsilon_N]/[(\delta_T \epsilon_T + \delta_N \epsilon_N] \quad (8)$$

2 DERIVATION OF THE MONEY SUPPLY IDENTITY

Consider the consolidated balance sheet of the whole economy.

Table 1: BALANCE SHEET OF THE CENTRAL BANK AND THE TREASURY

ASSETS	LIABILITIES
(7) Foreign Exchange Reserves, (FX)	(1) Base held by the private sector (currency), (C^P)
Physical Capital (K^G)	(2) Base held by banks, (C^B)
	(3) Bonds held by non-bank public, (B^P)
	(4) Bonds held by banks, (B^B)
	(5) Bonds held by foreign sector, (B^F)
	Networth or Wealth of the Government, (W^G)

Table 2: BALANCE SHEET OF THE COMMERCIAL BANKS

ASSETS	LIABILITIES
(2) Base held by banks, (C^B) (Currency in banks' vaults + Deposits at the Central Bank)	(6) Deposits, (D)
(8) Loans, (L)	
(4) Government Bonds, (B^G)	

Table 3: BALANCE SHEET OF THE PRIVATE SECTOR

ASSETS	LIABILITIES
(1) Base held by the private sector (currency), (C^P)	(8) Loans from banks, (L)
(3) Bonds held by the private sector, (B^P)	Wealth of the private sector, (W^P)
(6) Deposits in the banks, (D)	
Physical Capital, (K^P) (e.g. houses, factories)	

Table 4: BALANCE SHEET OF THE FOREIGN SECTOR

ASSETS	LIABILITIES
(5) Government bonds held by the foreign sector, (B^F)	(7) Foreign exchange reserves, (FX)
Physical capital, (K^F)	Wealth of the foreign sector, W^F

If we consolidate all the balance sheets from Table 1 to Table 5, we get the following:

$$K^G + K^P + K^F = W^G + W^P + W^F \quad (9)$$

But since money supply, $M = D + C^P$

$$M = [L + C^B + B^B] + C^P$$

$$M = [C^B + C^P] + [B^B + L]$$

Money supply = Base + Net Lending by banks
(ie. credit created by banks)

$$M = C^P + [C^B + B^B + L]$$

$$M = C^P + D$$

Since $M = C^P + D$, if $C^B = D$, then $M = C^P + C^B$, which is equal to the base; ie. there is no credit created by banks.

Also since the change in the wealth of the government, ΔW^G, is equal to the increase in capital stock of the government ΔK^G, minus the budget deficit (G - T) and since the balance of payments (BOPS) is equivalent to the changes in foreign exchange reserves (ΔFX), then we can get the following equation:

$$\Delta FX + \Delta K^G = \Delta C + \Delta B + \Delta W^G \quad (10)$$

$$\Delta FX + \Delta K^G = \Delta H + \Delta B + \Delta W^G \quad (11)$$

where, $\Delta H = \Delta C = \Delta C^P + \Delta C^B$, which is the changes in the money base, and $\Delta B = \Delta B^P + \Delta B^B + \Delta B^F$, refers bond sales.

Therefore, the increase in the base, ΔH, is given by

$$\Delta H = \Delta FX + [\Delta K^G - \Delta W^G] - \Delta B \quad (12)$$

Equivalently, the increase in the base is stated as

$$\Delta H = \Delta FX - BuD - \text{Net bond sales} \quad (13)$$

or

$$\Delta H = \Delta FX + \Delta DC$$

where,

ΔDC = Increase in the domestic credit = [(G-T) - Net bond sales]

Net bond sales = Total net borrowing of the Philippine government.

Therefore, the money supply identity can be expressed as:

$$\Delta M = [\Delta FX + \Delta DC] + \Delta CC \quad (14)$$

Or simply, the increase in the money supply is the sum of the increase in the base [$\Delta FX + \Delta DC$] plus the increase in credit created by banks, ΔCC.

APPENDIX B: NOTES TO CHAPTER 6

3 THE RELATIONSHIP BETWEEN GDP DEFLATORS AND PRICES OF FINAL OUTPUT

Let us consider the following:

$$\begin{bmatrix} Y_n \\ Y_t \end{bmatrix} = \begin{bmatrix} (1-a_{nn}) & -a_{nt} \\ -a_{tn} & (1-a_{tt}) \end{bmatrix} \begin{bmatrix} X_n \\ X_t \end{bmatrix} \tag{1}$$

Net Outputs = Gross Outputs

$$\begin{bmatrix} P_n & P_t \end{bmatrix} = \begin{bmatrix} b_n & b_t \end{bmatrix} W + \begin{bmatrix} P_n & P_t \end{bmatrix} \begin{bmatrix} a_{nn} & a_{nt} \\ a_{tn} & a_{tt} \end{bmatrix} \tag{2}$$

$$\begin{bmatrix} V_n & V_t \end{bmatrix} = \begin{bmatrix} P_n & P_t \end{bmatrix} \begin{bmatrix} (1-a_{nn}) & -a_{nt} \\ -a_{tn} & (1-a_{tt}) \end{bmatrix} \tag{3}$$

where,

V_n, V_t = GDP deflators of the tradeable (t) and the non-tradeable (n) sectors.

P_n, P_t = Prices of final output of non-tradeable sector and tradeable sector.

$$\begin{bmatrix} V_n & V_t \end{bmatrix} \begin{bmatrix} (1-a_{nn}) & -a_{nt} \\ -a_{tn} & (1-a_{tt}) \end{bmatrix}^{-1} = \begin{bmatrix} P_n & P_t \end{bmatrix} \tag{4}$$

Therefore,

$$\begin{bmatrix} V_n & V_t \end{bmatrix} \begin{bmatrix} (1-a_{nn}) & -a_{nt} \\ -a_{tn} & (1-a_{tt}) \end{bmatrix}^{-1} \begin{bmatrix} (1-a_{nn}) & -a_{nt} \\ -a_{tn} & (1-a_{tt}) \end{bmatrix} \begin{bmatrix} X_n \\ X_t \end{bmatrix} = \begin{bmatrix} P_n & P_t \end{bmatrix} \begin{bmatrix} Y_n \\ Y_t \end{bmatrix} \tag{5}$$

$$V_n X_n + V_t X_t = P_n Y_n + P_t Y_t \tag{6}$$

Gross output estimate of GDP = Net output estimate of GDP

$$V_n X_n = \begin{bmatrix} P_n & P_t \end{bmatrix} \begin{bmatrix} 1 - a_{nn} \\ - a_{tn} \end{bmatrix} X_n \tag{7}$$

$$V_n X_n = P_n X_n - \left[P_n X_n a_{nn} + P_t X_n a_{tn} \right] \tag{8}$$

Value added in sector n = Gross Output - Expenditure in n on intermediate inputs

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Dividing eq(8) thrrough by X_n and consider small increases in P_n, P_t, and V_n with a_{ij}'s constant.

$$V_n + dV_n = P_n + dP_n - a_{nn} (P_n + dP_n) - a_{tn} (P_t + dP_t) \tag{9}$$

$$V_n = P_n - a_{nn} P_n - a_{tn} P_t \tag{10}$$

Therefore,

$$dV_n = dP_n - a_{nn}\, dP_n - a_{tn}\, dP_t$$

$$dV_n = (1 - a_{nn})\, dP_n - a_{tn}\, dP_t$$

$$\frac{dV_n}{V_n} = \frac{P_n (1 - a_{nn})}{V_n} \frac{dP_n}{P_n} - \frac{a_{tn} P_t}{V_n} \frac{dP_t}{P_t} \qquad (11)$$

Similarly,

$$dV_t = dP_t - a_{nt}\, dP_n - a_{tt}\, dP_t$$

$$dV_t = -a_{nt}\, dP_n + (1 - a_{tt})\, dP_t$$

$$\frac{dV_t}{V_t} = -\frac{a_{nt} P_n}{V_t} \frac{dP_n}{P_n} + \frac{(1 - a_{tt}) P_t}{V_t} \frac{dP_t}{P_t} \qquad (12)$$

Consider the following notation:

$$P_n = \underbrace{V_n}_{\substack{\text{Primary factor} \\ (1^{o})}} + \underbrace{a_{nn} P_n + a_{tn} P_t}_{\text{Intermediate Inputs}} = \text{Unit cost in production of non-tradeable} \qquad (13)$$

Divide through by P_n,

$$\frac{V_n}{P_n} + a_{nn} + a_{tn} \frac{P_t}{P_n} = 1 \qquad (14)$$

$$\alpha_{on} + \alpha_{nn} + \alpha_{tn} = 1 \qquad (15)$$

where

$$\alpha_{on} = \frac{V_n}{P_n}$$

$$\alpha_{tn} = a_{tn}\frac{P_t}{P_n}$$

$$\alpha_{nn} = a_{nn}$$

} Shares of primary and intermediate inputs in the cost of non-tradeables.

$$P_t = \underbrace{V_t}_{\text{Primary factor}} + \underbrace{a_{nt}P_n + a_{tt}P_t}_{\text{Intermediate inputs}} = \text{Unit cost in the production of tradeables.} \qquad (16)$$

Divide through by P_t,

$$\frac{V_t}{P_t} + \frac{a_{nt}P_n}{P_t} + a_{tt} = 1 \qquad (17)$$

$$\alpha_{ot} + \alpha_{nt} + \alpha_{tt} = 1 \qquad (18)$$

where

$$\alpha_{ot} = \frac{V_t}{P_t}$$

$$\alpha_{nt} = \frac{a_{nt}P_n}{P_t}$$

$$\alpha_{tt} = a_{tt}$$

} Shares of primary and intermediate inputs in the cost of tradeables.

We can therefore, re-express equations (11) and (12) as follows:

$$\frac{dV_n}{V_n} = \frac{P_n}{V_n}(1 - a_{nn})\frac{dP_n}{P_n} - \frac{a_{tn}P_t}{P_n}\frac{P_n}{V_n}\frac{dP_t}{P_t}$$

$$\frac{dV_n}{V_n} = \frac{(1 - \alpha_{nn})}{\alpha_{on}}\frac{dP_n}{P_n} - \frac{\alpha_{tn}}{\alpha_{on}}\frac{dP_t}{P_t} \qquad (19a)$$

Similarly,

$$\frac{dV_t}{V_t} = -\frac{a_{nt}P_n}{P_t}\frac{P_t}{V_t}\frac{dP_n}{P_n} + (1 - a_{tt})\frac{P_t}{V_t}\frac{dP_t}{P_t}$$

$$\frac{dV_t}{V_t} = -\frac{\alpha_{nt}}{\alpha_{ot}}\frac{dP_n}{P_n} + \frac{(1 - \alpha_{tt})}{\alpha_{ot}}\frac{dP_t}{P_t} \qquad (19b)$$

We can relate equations (19a) and (19b) in the context of Corden's (1971, pages 35-40) effective protection formulas as follows:

$$g_j = \frac{t_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}} \qquad (20)$$

where

g_j = effective protective rate for activity j; in other words, the proportional increase in the effective price resulting from tariffs

t_j = nominal tariff rate on j

t_i = nominal tariff rate on i

a_{ij} = share of i in cost of j at free trade prices

We know that the nominal price of a unit of j in free trade is as follows:

$$P_j = P_j^w (1 + t_j) \tag{21}$$

where

P_j^w = world price of a unit of j

The change in price after the tariff is imposed is obtained as follows:

$$\frac{dP_j}{P_j} = \frac{P_j^w (1 + t_j) - P_j^w}{P_j^w}$$

$$\frac{dP_j}{P_j} = \frac{P_j^w + P_j^w t_j - P_j^w}{P_j^w}$$

$$\frac{dP_j}{P_j} = t_j \tag{22}$$

The change in the price of j is equal to the tariff itself. We substitute the changes in prices of good j, for j = t (tradeable) and for j = n (non-tradeable).

$$g_j = \frac{dP_j - \sum_i a_{ij} t_i}{1 - \sum_i a_{ij}} \tag{23}$$

For j = n

$$g_n = \frac{\frac{dP_n}{P_n} - \left[a_{nn} \frac{dP_n}{P_n} + a_{tn} \frac{dP_t}{P_t} \right]}{(1 - a_{nn} - a_{tn})} \tag{24}$$

For j = t

$$g_t = \frac{\frac{dP_t}{P_t} - \left[a_{nt} \frac{dP_n}{P_n} + a_{tt} \frac{dP_t}{P_t} \right]}{(1 - a_{nt} - a_{tt})} \qquad (25)$$

Consider now the following:

$$\text{Value added in n in year 0} = \left[P_n^0 - P_n^0 a_{nn} - P_t a_{tn} \right] X_n^0 \qquad (26)$$

$$\text{Value added in n in year 1, current prices} = \left[P_n^1 - P_n^1 a_{nn} - P_t^1 a_{tn} \right] X_n^I \qquad (27)$$

$$\text{Value added in n in year 1, base year prices} = \left[P_n^0 - P_n^0 a_{nn} - P_t^0 a_{tn} \right] X_n^1 \qquad (28)$$

Let us define g_n as GDP deflator in n

$$g_n^0 \; X_n^0 = \left[P_n^0 - P_n^0 a_{nn} - P_t^0 a_{tn} \right] X_n^0 \qquad (29)$$

$$g_n^1 \; X_n^1 = \left[P_n^1 - P_n^1 a_{nn} - P_t^1 a_{tn} \right] X_n^1 \qquad (30)$$

$$g_n^0 \; X_n^1 = \left[P_n^0 - P_n^0 a_{nn} - P_t^0 a_{tn} \right] X_n^1 \qquad (31)$$

$$\frac{g_n^1 - g_n^0}{g_n^0} = \frac{dV_n}{V_n} \; (= g_n) \qquad (32)$$

where $V_n = g_n^0$ and $V_n + dV_n = g_n^1$

Similarly,

$$\frac{g_t^1 - g_t^0}{g_t^0} = \frac{dV_t}{V_t} \quad (= g_t) \tag{33}$$

where $V_t = g_t^0$ and $V_t + dV_t = g_t^1$

We have already obtained equations for $\frac{dV_n}{V_n}$ and for $\frac{dV_t}{V_t}$ as in equations (19a) and (19b).

In terms of the shares of primary and internediate inputs in the cost of non-tradeables, n, and in the cost of treadeables, t, we then come up with a relationship between GDP deflators and prices of final output as follows:

$$g_n = \frac{dV_n}{V_n} = \frac{\frac{dP_n}{P_n} - \left(\alpha_{nn} \frac{dP_n}{P_n} + \alpha_{tn} \frac{dP_t}{P_t} \right)}{1 - (\alpha_{nn} + \alpha_{tn})} \tag{34}$$

Similarly,

$$g_t = \frac{dV_t}{V_t} = \frac{\frac{dP_t}{P_t} - \left(\alpha_{nt} \frac{dP_n}{P_n} + \alpha_{tt} \frac{dP_t}{P_t} \right)}{1 - (\alpha_{nt} + \alpha_{tt})} \tag{35}$$

On the left hand side of equations (34) and (35) are GDP deflators; and on the right hand side are the changes in prices of final outputs.

Therefore, the change in GDP deflators of the tradeable sector relative to non-tradeable sector, $\left(\frac{dV_t}{V_t} - \frac{dV_n}{V_n} \right)$ is related to the change in the price of the final output of tradeables relative to non-tradeables, $\left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n} \right)$ as follows:

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = \frac{(1 - \alpha_{nn} - \alpha_{tn})(1 - \alpha_{tt}) + \alpha_{tn}(1 - \alpha_{nt} - \alpha_{tt})}{(1 - \alpha_{nn} - \alpha_{tn})(1 - \alpha_{nt} - \alpha_{tt})} \frac{dP_t}{P_t}$$

$$- \frac{dP_n}{P_n} \frac{\alpha_{nt}(1 - \alpha_{nn} - \alpha_{tn}) + (1 - \alpha_{nn})(1 - \alpha_{nt} - \alpha_{tt})}{(1 - \alpha_{nn} - \alpha_{tn})(1 - \alpha_{nt} - \alpha_{tt})}$$

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = \frac{dP_t}{P_t} \frac{(1 - \alpha_{nn})(1 - \alpha_{tt}) - \alpha_{tn}\alpha_{nt}}{\alpha_{on}\alpha_{ot}}$$

$$- \frac{dP_n}{P_n} \frac{(1 - \alpha_{nn})(1 - \alpha_{tt}) - \alpha_{tn}\alpha_{nt}}{\alpha_{on}\alpha_{ot}} \tag{36}$$

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = \left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n}\right) \frac{(\alpha_{on} + \alpha_{tn})(\alpha_{ot} + \alpha_{nt}) - \alpha_{tn}\alpha_{nt}}{\alpha_{on}\alpha_{ot}}$$

$$= \left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n}\right) \frac{(\alpha_{on} + \alpha_{ot} + \alpha_{on}\alpha_{nt} + \alpha_{ot}\alpha_{tn})}{\alpha_{on}\alpha_{ot}}$$

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = \left(1 + \frac{\alpha_{nt}}{\alpha_{ot}} \frac{\alpha_{tn}}{\alpha_{on}}\right) \left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n}\right) \tag{37}$$

$$\frac{dV_t}{V_t} - \frac{dV_n}{V_n} = k \left(\frac{dP_t}{P_t} - \frac{dP_n}{P_n}\right) \tag{38}$$

where $k = 1 + \frac{\alpha_{nt}}{\alpha_{ot}} + \frac{\alpha_{tn}}{\alpha_{on}}$

On the left hand side of equations (37) and (38) are the changes in GDP deflators of the tradeable sector relative to the non-tradeable sector. On the right hand side are the changes in the prices of the final output of the tradeable sector relative to the non-tradeable sector. When the value of k approaches 1, the GDP deflator approximately equals the prices of final output.

APPENDIX C: DATA INPUT REQUIREMENTS FOR CHAPTER 2

Table 5: CENTRAL GOVERNMENT BUDGET BALANCE

YEAR	(1) SURPLUS/ DEFICIT(-)	(2) GROSS NATIONAL PRODUCT	(3) AS PERCENT OF GNP
	In Million Pesos (At Current Prices)		
1966	- 153	25740	- 0.59
1967	- 236	28730	- 0.82
1968	- 262	31790	- 0.82
1969	- 996	35010	- 2.84
1970	59	41751	0.14
1971	- 183	49600	- 0.37
1972	- 1011	55530	- 1.82
1973	2090	71620	2.92
1974	2442	99950	2.44
1975	- 948	114265	- 0.83
1976	- 2229	132710	- 1.68
1977	- 2852	154280	- 1.85
1978	- 2167	178067	- 1.22
1979	- 342	220957	- 0.15
1980	- 3387	265078	- 1.28
1981	-12146	303644	- 4.00
1982	-14405	335423	- 4.29
1983	- 6626	379170	- 1.75
1984	- 8345	537363	- 1.55

Source: For both columns (1) and (2), data for 1966-1976 were obtained from the IMF International Financial Statistics, 1981 issue, pages 352-353. Data for 1977-1984 were obtained from the Philippine Statistical Yearbook published by the National Economic and Development Authority (NEDA), 1985 issue, Table 15.1, page 591 for colum. (1) and Table 3.6, pages 176-177 for column (2).

Table 6: NATIONAL GOVERNMENT SPENDING BY SECTORAL CLASSIFICATION

	1965 *	1970 *	1975	1980	1984
	In Million Pesos				
1. Total Government Spending	1894 **	4053	19049	36935	60403
2. Economic Services	317	1283	8672	15721	16160
2.1. Agriculture, fishery & forestry	134	260	1022	2475	3958
2.2. Industry, trade, labor & tourism	122	782	1478	1424	1227
2.3. Utilities & infra-structure	61	241	6172	11822	10975
3. Social Services	838	1413	3615	7577	16169
3.1. Education & Manpower	692	1133	2212	4204	9880
3.2. Housing, Population and Public Health	117	226	785	2664	4163
3.3. Social Welfare & Other Community Services	29	54	618	709	2126
4. National Defense	317	615	3982	4760	5586
5. General Public Services	422	742	2780	8877	22488
5.1 Debt Service Payments	104	243	955	3991	12081
6. Gross National Product	23382	41751	114265	265078	537363

Source of Data: Philippine Statistical Yearbook, 1985 issue: for rows 1 to 5, Table 15.3, pages 594-595; for row 5.1, Table 15.4, pages 596-597 and for row 6, Table 3.6, pages 176-177.

* Data for 1965 and 1970 are for fiscal years ending June 30 while figures for 1975 to 1985 refer to calendar years.

** It has to be noted that there is an inconsistency between the figure for total government spending in 1965 shown in this table and that which can be obtained from Table 7 by adding current and capital outlays. An inquiry with the Office of Budget and Management was done on 28 March 1988, and I was told that the person(s) who prepared those tables were no longer there. Some possible explanations, however, were offered: (1)that the 1965 figure for Table 7 was for another ending period (not June 30), (2) that there might be two separate departments which prepared those tables in 1965 in which case some of the items/accounts were not considered by another party (these accounts which were excluded were not identified), and (3) that the 1965 figure in Table 6 was computed on cash basis while in Table 7 , the 1965 figure was computed on obligation basis.

Table 7: NATIONAL GOVERNMENT SPENDING BY ECONOMIC CLASSIFICATION

	1965	1970	1975	1980	1983
	In Million Pesos				
1. CURRENT EXPENDITURES	1775	3277	11685	24327	40665
1.1 Personal Services	1159	1895	4486	9687	14282
1.2 Maintenance and other Operating Costs	348	681	4219	6955	10136
1.3 Debt Service Payments	104	244	955	3991	11249
1.4 Transfer Payments	164	457	2025	3694	4998
2. CAPITAL OUTLAYS	303	777	7364	12608	15483

Expenditures on personal services include salaries and wages of government employees, life and retirement benefits provided by the Government Service Insurance System, contractual services, overtime pay and other benefits. Maintenance and other operating costs include expenditures on travelling, communications, repairs and maintenance of government facilities, transportation services, supplies and materials. Debt service payments include interest payments and loan repayments. Transfer payments include grants, subsidies and contributions awards and indemnities, benefits provided by the Social Security System and other claims. Capital outlays include land and land improvement, building and structure outlay, furniture and equipment outlay, investment outlay and loans outlay.
Source of data: Philippine Statistical Yearbook, 1985 issue, Table 15.4, pages 596-597.

Table 8: NARROW MONEY SUPPLY CHANGES AND ITS COMPONENTS, in %

YEAR	Δ M1/M1 (1)	Δ H/ΔM1 (2)	ΔDC/ΔH (3)	ΔFX/ΔH (4)	Δ CC/ΔM1 (5)
1966	9.90	48.03	48.05	- 0.02	51.95
1967	12.19	48.71	53.38	- 4.67	51.28
1968	5.37	53.30	65.55	- 12.25	46.70
1969	19.38	59.19	76.64	- 17.45	40.82
1970	4.55	58.39	71.70	- 13.31	41.60
1971	10.27	52.75	62.02	- 9.27	47.24
1972	24.91	29.47	41.50	- 12.03	70.53
1973	12.33	67.48	24.92	42.56	32.52
1974	23.95	43.14	0.10	43.04	56.85
1975	14.51	41.74	43.55	- 1.81	58.25
1976	17.06	54.82	66.78	- 11.96	45.18
1977	23.71	75.62	76.19	- 0.57	24.37
1978	13.43	66.13	69.65	- 3.52	33.87
1979	11.20	30.06	56.96	- 26.90	69.94
1980	19.60	21.77	53.34	- 31.57	78.23
1981	3.52	22.76	70.10	- 47.34	77.24
1982	0.82	20.44	129.75	-109.31	79.56
1983	38.11	-21.64	207.64	-229.29	121.64
1984	3.52	47.18	344.57	-297.39	52.82

Column (1) denotes percentage changes in narrow money, ΔM1/M1 = columns (2) + (5). Column (2) denotes share of changes in money base to changes in total money, (3) + (4). Column (3) denotes share of domestic credit by the Central Bank to changes in the money base, ΔDC/ΔH. Column (4) denotes share of changes in foreign exchange reserves to changes in the money base, ΔFX/ΔH. Column (5) denotes share of credit creation by by banks to changes in total money, ΔCC/ΔM1. All ratios are multiplied by 100.
Source of basic data: Central Bank of the Philippines.

APPENDIX D: DATA INPUT REQUIREMENTS FOR CHAPTER 3

Table 9: PESOS PER US DOLLAR RATE, PERIOD AVERAGES

YEAR	(1) BUYING RATE	(2) SELLING RATE	(3) INTERBANK GUIDING RATE (IBR)	(4) ANNUAL PERCENTAGE CHANGE OF IBR
1970	5.9946	6.0689	6.0246	-
1971	6.3995	6.4799	6.4317	6.75
1972	6.6414	6.7249	6.6748	3.78
1973	6.7224	6.8068	6.7562	1.22
1974	6.7540	6.8388	6.7879	0.47
1975	7.2117	7.3022	7.2479	6.78
1976	7.4029	7.4960	7.4402	2.65
1977	7.3658	7.4583	7.4028	-0.50
1978	7.3290	7.4210	7.3658	-0.50
1979	7.3406	7.4329	7.3776	0.16
1980	7.4738	7.5677	7.5114	1.81
1981	7.8601	7.9589	7.8997	5.17
1982	8.4973	8.6041	8.5400	8.23
1983	11.0795	11.1895	11.1127	30.12
1984	16.6412	16.8482	16.6984	50.26

Source: Department of Economic Research, Central Bank of the Philippines.

APPENDIX E: DATA INPUT REQUIREMENTS FOR CHAPTER 6

Table 10. DOMESTIC PRICES OF TRADEABLES AND NON-TRADEABLES

YEAR	PRICE INDICES (1972=100)					
	CLASSIFICATION I		CLASSIFICATION II		CLASSIFICATION III	
	PT	PN	PT	PN	PT	PN
1967	66.06	65.67	63.80	66.52	60.20	70.02
1968	68.74	69.00	66.23	70.03	64.10	72.71
1969	72.36	72.27	69.11	73.25	68.95	74.83
1970	85.71	82.37	82.79	83.14	83.11	83.11
1971	92.66	95.11	91.61	94.37	93.84	93.27
1972	100.00	100.00	100.00	100.00	100.00	100.00
1973	118.29	118.18	119.71	118.17	125.00	111.82
1974	161.91	153.09	161.53	152.57	164.50	147.55
1975	174.18	165.66	173.34	165.36	177.00	159.93
1976	185.69	178.75	184.53	178.87	187.70	174.68
1977	204.47	195.43	202.41	195.52	202.02	193.76
1978	237.49	199.28	220.03	211.29	216.42	210.09
1979	272.73	237.61	252.62	241.51	248.79	241.35
1980	330.56	266.82	301.35	270.52	279.95	278.89
1981	345.89	298.94	317.23	302.72	299.62	314.63
1982	373.50	325.18	348.79	328.50	322.35	343.25
1983	418.74	361.46	390.03	365.35	365.27	377.51
1984	653.53	531.16	612.64	531.09	590.31	523.03

We will denote P_T and P_N simply as PT and PN, respectively. Domestic prices of tradeables (PT) are obtained by multiplying the weights (w_t denoted as wt) and the price indices (P_t denoted as Pt) of the different sub-sectors comprising the tradeable sector. Domestic prices of non-tradeables (PN) are obtained by multiplying the weights (w_n denoted as wn) and the price indices (P_n denoted as Pn) comprising the non-tradeable sector. We have three sets of estimates based on the three classifications.
Source of basic data: For classification I, see Tables 12-23; for classification II, see Tables 24-35; and for classification III, see Tables 36-47.

TABLE 11. REAL EXCHANGE RATE ESTIMATES AND THE CURRENT ACCOUNT

Year	REAL EXCHANGE RATE ESTIMATES (PT/PN) (1972 = 100)			GROSS NATIONAL PRODUCT	CURRENT ACCOUNT BALANCE	As % of GNP
	(I)	(II)	(III)	In Million Pesos		
1967	100.59	95.91	85.97	26962	- 141	-0.52
1968	99.62	94.57	88.16	29902	- 1033	-3.45
1969	100.12	94.35	92.14	33505	- 966	-2.88
1970	104.05	99.58	100.00	41751	- 136	-0.32
1971	97.42	97.08	100.61	49599	49	0.10
1972	100.00	100.00	100.00	55526	244	0.44
1973	100.01	101.30	111.78	71616	3950	5.51
1974	105.76	105.87	111.49	99948	- 957	-0.96
1975	105.14	104.82	110.67	114265	- 5836	-5.10
1976	103.88	103.16	107.45	132712	- 7820	-5.89
1977	104.62	103.52	104.26	154280	- 4810	-3.12
1978	119.17	104.13	103.01	178067	- 8375	-4.70
1979	114.78	104.60	103.08	220957	- 9760	-4.42
1980	123.89	111.40	100.38	265078	-13533	-5.10
1981	115.70	104.79	95.23	303644	-15338	-5.05
1982	114.86	106.18	93.91	335423	-25339	-7.55
1983	115.84	106.75	96.75	379170	-26394	-6.96
1984	123.04	115.35	112.86	537363	-14756	-2.75

Real exchange rate estimates are obtained by getting the ratios of the domestic price of tradeables to non-tradeables (PT/PN) and multiplied by 100. We have three alternative estimates which are based on the narrower definition of the tradeable sector (Classification I), on the intermediate definition (Classification II) and on the broader definition (Classification III).
Source of basic data: For the real exchange rate estimates, see Table 10. The current account surplus/deficit(-) in million pesos are taken from the external transactions account of the Philippine Statistical Yearbook: 1976 issue, Table 4-5, page 113 for the 1966-69 data; 1981 issue, Table 3-4, pages 150-151 for 1970-74; and 1985 issue, Table 3-4, pages 172-73 for 1975-84 data.

TABLE 12. CLASSIFICATION I: TRADEABLES AND NON-TRADEABLES PRICES

YEAR	PT	PN
1967	66.06	65.67
1968	68.74	69.00
1969	72.36	72.27
1970	85.71	82.37
1971	92.66	95.11
1972	100.00	100.00
1973	118.29	118.18
1974	161.91	153.09
1975	174.18	165.66
1976	185.69	178.75
1977	204.47	195.43
1978	237.49	199.28
1979	272.73	237.61
1980	330.56	266.82
1981	345.89	298.94
1982	373.50	325.18
1983	418.74	361.46
1984	653.53	531.16

The domestic price of tradeables (PT) for each year is obtained as the sum of the weighted prices (wtPt); ie. summing up columns 3, 6, and 9 from Table 13. The domestic price of non-tradeables (PN) for each year is obtained as the sum of the weighted prices (wnPn); summing up columns 3, 6, 9, 12, 15, 18, 21, 24, 27 and 30 from Tables 20 to 23.

TABLE 13. CLASSIFICATION I: DOMESTIC PRICE OF TRADEABLES

YEAR	TRADEABLE SECTOR								
	FORESTRY			MINING AND QUARRYING			OTHER MANUFACTURES		
	wt (1)	Pt (2)	wtPt (3)	wt (4)	Pt (5)	wtPt (6)	wt (7)	Pt (8)	wtPt (9)
1967	.1950	70.7	13.79	.0705	65.7	4.63	.7345		47.64
1968	.1954	77.7	15.18	.0794	67.2	5.33	.7252		48.23
1969	.2028	80.2	16.26	.0867	78.7	6.82	.7105		49.28
1970	.1748	82.6	14.44	.0964	108.1	10.42	.7288		60.85
1971	.1600	97.9	15.66	.1055	92.6	9.77	.7347		67.23
1972	.1533	100.0	15.33	.1026	100.0	10.26	.7441		74.34
1973	.1578	110.0	17.36	.0922	171.9	15.85	.7501		85.08
1974	.1172	185.1	21.69	.0934	220.7	20.61	.7893		119.61
1975	.0843	224.0	18.88	.0963	138.4	13.33	.8195		141.97
1976	.0996	207.3	20.64	.0932	142.7	13.30	.8077		151.75
1977	.0883	236.3	20.86	.0971	142.8	13.85	.8148		169.76
1978	.0986	302.9	29.86	.1140	184.2	21.00	.7874		186.63
1979	.0800	356.7	28.54	.1190	272.3	32.40	.8015		211.79
1980	.0754	486.5	36.68	.1216	362.0	44.00	.8026		249.88
1981	.0635	523.5	33.24	.1175	314.9	37.00	.8190		275.65
1982	.0533	748.8	39.91	.1093	302.9	33.17	.8369		300.42
1983	.0439	920.8	40.42	.1054	358.2	37.75	.8508		340.57
1984	.0409	1690.8	69.15	.1070	553.5	59.22	.8523		525.16

Column 9 is obtained by summing up the weighted prices of the different sub-sectors comprising other manufactures,ie. by adding columns 12, 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60 and 63 from Tables 14 to 19.

Sources of basic data: The weights wt are computed from Tables 48, 49, and 50, using the weighting procedure discussed in chapter 6, section 6.2.1. The data for Pt were taken from the Philippine Statistical Year book: 1979 issue for 1967-74 data, Table 4-18, pages 188-89 for column 2 and Table 4-11, pages 162-63 for column 5; and 1985 issue for 1975-84 data, Table 3-15, pages 194-95 for column 2, and Table 3-11, pages 186-87 for column 5. Data for column 8 are listed for each of the 18 sub-sectors comprising other manufactures from Tables 14 to 19. See columns 11, 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56, 59, and 62.

TABLE 14.CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	BEVERAGE INDUSTRIES			TEXTILE MANUFACTURES			FOOTWEAR, WEARING APPAREL		
	wt (10)	Pt (11)	wtPt (12)	wt (13)	Pt (14)	wtPt (15)	wt (16)	Pt (17)	wtPt (18)
1967	.0469	76.0	3.56	.0725	70.9	5.14	.0635	60.7	3.85
1968	.0468	75.3	3.52	.0710	77.5	5.50	.0631	68.0	4.29
1969	.0501	76.3	3.82	.0703	83.0	5.83	.0552	70.3	3.88
1970	.0537	84.7	4.54	.0691	91.1	6.29	.0613	79.6	4.87
1971	.0545	92.0	5.01	.0673	87.3	5.87	.0618	89.6	5.53
1972	.0551	100.0	5.51	.0724	100.0	7.24	.0608	100.0	6.08
1973	.0499	105.0	5.23	.0851	111.1	9.45	.0561	122.9	6.89
1974	.0524	141.2	7.39	.0970	118.3	11.47	.0599	163.5	9.79
1975	.0539	156.4	8.42	.1028	121.6	12.50	.0615	182.8	11.24
1976	.0536	166.4	8.91	.0972	133.9	13.01	.0685	196.4	13.45
1977	.0646	194.6	12.57	.0887	194.6	17.26	.0752	238.6	17.94
1978	.0432	270.1	11.66	.0276	270.1	7.45	.0764	356.8	27.25
1979	.0394	320.3	12.61	.0579	320.3	18.54	.0597	398.5	23.79
1980	.0398	366.7	14.59	.0565	366.7	20.71	.0570	440.6	25.11
1981	.0394	386.0	15.20	.0594	386.0	22.92	.0592	471.3	27.90
1982	.0405	412 7	16.71	0604	412.7	24.92	.0571	499.6	28.52
1983	.0409	454 9	18.60	.0599	454.9	27.24	.0563	551.8	31.06
1984	.0491	564 5	27.71	.0542	564.5	30.59	.0792	799.4	63.31

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 15. CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	WOOD AND CORK PRODUCTS			FURNITURE AND FIXTURES			PAPER AND PAPER PRODUCTS		
	wt (19)	Pt (20)	wtPt (21)	wt (22)	Pt (23)	wtPt (24)	wt (25)	Pt (26)	wtPt (27)
1967	.0571	80.5	4.59	.0076	80.6	0.61	.0282	47.4	1.33
1968	.0540	78.0	4.21	.0077	80.8	0.62	.0284	58.9	1.67
1969	.0453	81.8	3.70	.0076	84.0	0.63	.0256	62.0	1.58
1970	.0438	92.6	4.05	.0078	87.5	0.68	.0300	76.5	2.29
1971	.0468	89.8	4.20	.0081	94.9	0.76	.0238	91.7	2.18
1972	.0443	100.0	4.43	.0065	100.0	0.65	.0262	100.0	2.62
1973	.0413	123.8	5.11	.0059	110.0	0.64	.0277	105.2	2.91
1974	.0424	169.0	7.16	.0058	159.1	0.92	.0319	151.9	4.84
1975	.0314	184.9	5.80	.0049	177.0	0.86	.0324	170.0	5.50
1976	.0349	205.7	7.17	.0049	197.5	0.96	.0336	187.5	6.30
1977	.0328	194.6	6.38	.0050	247.8	1.24	.0290	198.1	5.74
1978	.0327	301.4	9.85	.0099	207.0	2.04	.0123	321.5	3.95
1979	.0382	373.2	14.25	.0063	221.0	1.39	.0112	388.1	4.34
1980	.0362	364.8	13.20	.0072	247.7	1.78	.0104	481.2	5.00
1981	.0382	407.6	15.57	.0075	269.8	2.02	.0101	514.4	5.19
1982	.0381	432.1	16.46	.0076	288.6	2.19	.0093	535.5	4.98
1983	.0384	479.2	18 40	.0076	306.3	2.32	.0151	568.9	8.59
1984	.0358	667.2	23.88	.0086	421.8	3.62	.0111	1024.7	11.37

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 16. CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	PUBLISHING AND PRINTING			LEATHER AND LEATHER PRODUCTS			RUBBER PRODUCTS		
	wt (28)	Pt (29)	wtPt (30)	wt (31)	Pt (32)	wtPt (33)	wt (34)	Pt (35)	wtPt (36)
1967	.0228	74.4	1.69	.0041	43.6	0.17	.0141	63.9	0.90
1968	.0228	70.4	1.60	.0042	41.9	0.17	.0141	59.4	0.83
1969	.0223	75.2	1.67	.0045	37.5	0.16	.0119	66.4	0.79
1970	.0231	77.1	1.78	.0026	56.7	0.14	.0142	77.0	1.09
1971	.0212	93.4	1.98	.0020	83.3	0.16	.0172	93.3	1.60
1972	.0202	100.0	2.02	.0016	100.0	0.16	.0167	100.0	1.67
1973	.0223	104.7	2.33	.0016	104.0	0.16	.0157	112.2	1.76
1974	.0286	110.0	3.14	.0017	138.5	0.23	.0171	143.6	2.45
1975	.0298	124.6	3.71	.0020	140.0	0.28	.0175	152.1	2.66
1976	.0284	133.6	3.79	.0019	161.3	0.30	.0145	171.6	2.48
1977	.0265	145.5	3.85	.0019	179.4	0.34	.0162	197.9	3.20
1978	.0178	159.0	2.83	.0016	196.2	0.31	.0184	191.1	3.51
1979	.0168	178.5	2.99	.0027	241.4	0.65	.0174	220.4	3.83
1980	.0176	195.1	3.43	.0037	252.9	0.93	.0164	258.3	4.23
1981	.0186	217.2	4.03	.0038	272.9	1.03	.0168	289.4	4.86
1982	.0194	230.4	4.46	.0038	283.1	1.07	.0175	317.6	5.55
1983	.0197	254.4	5.01	.0035	315.2	1.10	.0170	356.0	6.05
1984	.0225	406.8	9.15	.0038	533.2	2.02	.0203	528.7	10.73

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 17. CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	CHEMICALS AND CHEMICAL PRODUCTS			PETROLEUM PRODUCTS AND COAL			NON-METALLIC MINERAL PRODUCTS		
	wt (37)	Pt (38)	wtPt (39)	wt (40)	Pt (41)	wtPt (42)	wt (43)	Pt (44)	wtPt (45)
1967	.0727	60.0	4.36	.0790	52.7	4.16	.0477	65.9	3.14
1968	.0729	68.5	4.99	.0764	48.4	3.69	.0464	67.0	3.10
1969	.0805	63.8	5.13	.0776	64,1	4.97	.0433	69.8	3.02
1970	.0824	87.0	7.16	.0757	86.0	6.51	.0436	78.4	3.41
1971	.1116	91.2	10.17	.0773	97.9	7.56	.0374	91.0	3.40
1972	.1381	100.0	13.81	.0798	100.0	7.98	.0339	100.0	3.39
1973	.1314	111.5	14.65	.0895	126.1.	11.28	.0393	105.9	4.16
1974	.1382	147.2	20.34	.0812	223.4	18.14	.0360	140.8	5.06
1975	.1443	163.0	23.52	.0820	286.7	23.50	.0398	159.8	6.36
1976	.1539	172.8	26.59	.0709	319.7	22.66	.0383	177.3	6.79
1977	.1554	187.4	29.12	.0637	364.8	23.23	.0364	195.0	7.09
1978	.1363	196.1	26.72	.1045	354.3	37.02	.0328	222.9	7.31
1979	.1294	229.5	29.69	.0779	443.7	34.56	.0298	265.4	7.90
1980	.1286	250.2	32.17	.0747	694.5	51.87	.0312	318.5	9.93
1981	.1252	258.2	32.32	.0695	827.6	57.51	.0292	366.3	10.69
1982	.1232	268.6	33.09	.0712	884.8	62.99	.0308	402.3	12.39
1983	.1242	312.2	38.77	.0724	962.3	69.67	.0315	426.9	13.44
1984	.1095	575.1	62.97	.0768	1523.8	117.02	.0293	614.6	18.00

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 18. CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	BASIC METAL INDUSTRIES			METAL PRODUCTS			MACHINERY EXCEPT ELECTRICAL		
	wt (46)	Pt (47)	wtPt (48)	wt (49)	Pt (50)	wtPt (51)	wt (52)	Pt (53)	wtPt (54)
1967	.0271	65.9	1.78	.0344	63.3	2.17	.0153	74.5	1.13
1968	.0283	69.2	1.95	.0336	63.2	2.12	.0181	61.7	1.11
1969	.0328	76.6	2.51	.0333	60.4	2.01	.0131	81.4	1.06
1970	.0441	93.0	4.10	.0328	82.0	2.68	.0157	86.5	1.35
1971	.0322	94.1	3.03	.0323	91.6	2.95	.0139	91.7	1.27
1972	.0311	100.0	3.11	.0308	100.0	3.05	.0140	100.0	1.40
1973	.0346	123.4	4.26	.0273	115.0	3.13	.0136	106.3	1.44
1974	.0336	174.8	5.87	.0282	154.7	4.36	.0128	144.6	1.85
1975	.0391	233.9	9.14	.0265	170.4	4.51	.0127	159.5	2.02
1976	.0394	258.2	10.17	.0243	187.4	4.55	.0122	172.3	2.10
1977	.0439	207.2	9.09	.0259	230.3	5.96	.0130	278.6	3.62
1978	.0468	194.6	9.10	.0588	136.5	8.02	.0390	149.2	5.81
1979	.0482	239.6	11.54	.0580	160.4	9.30	.0373	169.2	6.31
1980	.0464	262.3	12.17	.0566	184.3	10.43	.0395	189.7	7.49
1981	.0427	280.3	11.96	.0528	199.1	10.51	.0413	210.7	8.70
1982	.0464	305.4	14.17	.0570	217.4	12.36	.0427	231.8	9.89
1983	.0507	330.1	16.73	.0585	241.9	14.15	.0427	256.3	10.94
1984	.0683	452.1	30.87	.0451	374.1	16.87	.0269	433.5	11.66

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 19. CLASSIFICATION I: DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	ELECTRICAL MACHINERY			TRANSPORT EQUIPMENT			MISCELLANEOUS MANUFACTURES		
	wt (55)	Pt (56)	wtPt (57)	wt (58)	Pt (59)	wtPt (60)	wt (61)	Pt (62)	wtPt (63)
1967	.0285	68.0	1.93	.0532	51.3	2.72	.0127	55.0	0.69
1968	.0285	63.5	1.80	.0511	51.9	2.65	.0132	53.0	0.69
1969	.0287	60.9	1.74	.0509	47.6	2.42	.0133	54.9	0.73
1970	.0316	74.9	2.36	.0434	70.9	3.07	.0148	67.9	1.00
1971	.0304	94.6	2.87	.0426	87.1	3.71	.0135	79.3	1.07
1972	.0270	100.0	2.70	.0393	100.0	3.93	.0131	100.0	1.31
1973	.0248	114.6	2.84	.0370	106.1	3.92	.0116	117.6	1.36
1974	.0272	160.0	4.35	.0458	125.6	5.75	.0128	132.6	1.69
1975	.0395	169.5	5.00	.0561	171.9	9.64	.0137	128.8	1.76
1976	.0246	184.5	4.53	.0534	185.7	9.91	.0136	143.6	1.95
1977	.0337	226.0	7.61	.0519	159.7	8.28	.0128	150.7	1.92
1978	.0518	141.4	7.32	.0489	144.5	7.06	.0069	211.0	1.45
1979	.0560	150.9	8.45	.0500	154.0	7.70	.0128	232.6	2.97
1980	.0627	174.0	10.90	.0481	172.9	8.31	.0144	322.3	4.64
1981	.0757	203.0	15.36	.0492	193.1	9.50	.0160	357.4	5.71
1982	.0800	229.4	18.35	.0479	208.5	9.98	.0173	395.0	6.83
1983	.0921	260.4	23.98	.0398	224.7	8.94	.0173	437.4	7.56
1984	.1198	326.1	39.06	.0075	372.6	2.79	.0259	758.4	19.64

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's, Table 4-24, pages 196-97; and 1985 issue for 1975-84 data for Pt's, Table 3-21, pages 206-07.

TABLE 20. CLASSIFICATION I: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	AGRICULTURAL CROPS			LIVESTOCK			POULTRY		
	wn (1)	Pn (2)	wnPn (3)	wn (4)	Pn (5)	wnPn (6)	wn (7)	Pn (8)	wnPn (9).
1967	.1984	54.0	10.71	.0511	61.4	3.13	.0181	63.9	1.15
1968	.1981	60.5	11.98	.0475	67.8	3.22	.0172	70.3	1.20
1969	.1922	67.5	12.97	.0461	75.8	3.49	.0182	72.6	1.32
1970	.1962	83.4	16.36	.0444	75.9	3.36	.0154	72.5	1.11
1971	.2141	98.5	21.08	.0425	86.1	3.65	.0175	93.0	1.62
1972	.2062	100.0	20.62	.0410	100.0	4.10	.0168	100.0	1.68
1973	.1969	137.2	27.01	.0435	109.4	4.75	.0164	111.6	1.83
1974	.2000	170.6	34.12	.0419	153.2	6.41	.0155	137.9	2.13
1975	.2098	183.7	38.54	.0319	160.1	5.10	.0162	149.7	2.42
1976	.2119	193.3	40.96	.0305	164.4	5.01	.0152	153.0	2.32
1977	.2115	201.6	42.63	.0301	168.8	5.08	.0176	168.4	2.96
1978	.1984	215.3	42.71	.0285	177.6	5.06	.0180	176.8	3.18
1979	.2009	242.2	48.65	.0278	197.1	5.47	.0197	197.0	3.88
1980	.2018	242.3	48.89	.0248	208.5	5.17	.0220	223.5	4.91
1981	.1984	261.9	51.96	.0248	217.9	5.40	.0252	247.1	6.22
1982	.1978	277.4	54.86	.0250	228.9	5.72	.0272	263.6	7.16
1983	.1838	319.2	58.66	.0266	245.6	6.53	.0304	286.5	8.70
1984	.1971	558.9	110.15	.0273	436.4	11.91	.0327	441.9	14.45

We denote weights of the sub-sectors comprising the non-tradeable sector (w_n) as wn, sub-sectoral price indices (P_n) as Pn and sub-sectoral products (w_nP_n) as wnPn.
Source of basic data: The weights (wn) are computed from Tables 48, 49 and 50, based on the weighting procedure discussed in chapter 6, section 6.2.1. Data for Pn's were taken from the Philippine Statistical Yearbook, 1979 issue for 1967-74 data, Table 4-18, pages 188-89 for columns 2, 5, and 8; and 1985 issue for 1975-84 data, Table 3-15, pages 194-95.

TABLE 21. CLASSIFICATION I: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	FISHERIES			FOOD MANUFACTURES			CONSTRUCTION		
	wn (10)	Pn (11)	wnPn (12)	wn (13)	Pn (14)	wnPn (15)	wn (16)	Pn (17)	wnPn (18)
1967	.0558	53.6	2.99	.0843	56.6	4.77	.0570	68.0	3.87
1968	.0665	60.4	4.01	.0865	58.3	5.04	.0493	75.2	3.70
1969	.0648	63.6	4.12	.0868	62.0	5.38	.0509	78.8	4.01
1970	.0652	72.0	4.69	.0895	74.9	6.70	.0438	87.2	3.81
1971	.0652	92.4	6.02	.0891	87.8	7.82	.0456	94.3	4.30
1972	.0624	100.0	6.24	.0843	100.0	8.43	.0521	100.0	5.21
1973	.0628	106.4	6.68	.0845	123.7	10.45	.0531	113.2	6.01
1974	.0615	168.8	10.38	.0840	160.5	13.48	.0559	171.5	9.58
1975	.0597	175.0	10.44	.0795	170.3	13.53	.0768	172.2	13.22
1976	.0579	193.0	11.17	.0800	180.8	14.46	.0922	186.2	17.16
1977	.0581	214.1	12.43	.0819	195.1	15.97	.0927	204.0	18.91
1978	.0546	231.8	12.65	.1289	180.1	23.21	.0883	211.8	18.70
1979	.0521	260.2	13.55	.1117	206.8	23.09	.1011	249.6	25.23
1980	.0521	288.9	15.05	.1132	237.9	26.93	.0960	298.5	28.65
1981	.0531	334.5	17.76	.1132	269.2	30.47	.1008	335.5	33.81
1982	.0528	347.4	18.34	.1129	298.8	33.73	.1003	362.7	36.37
1983	.0541	381.0	20.61	.1135	339.5	37.62	.0944	399.7	37.73
1984	.0509	499.9	25.44	.1181	532.4	62.87	.0742	532.0	39.47

Data for Pn's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-18, pages 188-89 for column 11; Table 4-24, pages 196-97 for column 14; and Table 4-14, pages 180-81 for column 17; and 1985 issue for 1975-84 data, Table 3-15, pages 194-95 for column 11; Table 3-21, pages 206-07 for column 14; and Table 3-11, pages 186-87 for column 17.

TABLE 22. CLASSIFICATION I: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	UTILITIES			TRANSPORTATION			TRADE, BLDG., INSURANCE & REAL ESTATE		
	wn (19)	Pn (20)	wnPn (21)	wn (22)	Pn (23)	wnPn (24)	wn (25)	Pn (26)	wnPn (27)
1967	.0080	84.9	0.67	.0485	72.6	3.52	.3131	71.8	22.48
1968	.0088	84.7	0.74	.0490	78.2	3.83	.3085	72.6	22.39
1969	.0092	86.6	0.79	.0511	76.3	3.89	.3104	73.7	22.87
1970	.0099	78.9	0.78	.0518	86.7	4.49	.3099	85.5	26.49
1971	.0106	85.2	0.90	.0528	99.5	5.25	.3016	93.2	28.10
1972	.0109	100.0	1.09	.0563	100.0	5.63	.2953	100.0	29.53
1973	.0109	112.6	1.22	.0580	109.6	6.35	.3028	116.1	35.15
1974	.0118	161.1	1.90	.0597	124.9	7.45	.2921	156.5	45.71
1975	.0113	179.2	2.02	.0614	145.6	8.93	.2821	168.1	47.42
1976	.0119	181.6	2.16	.0680	156.7	10.65	.2617	182.8	47.83
1977	.0118	198.7	2.34	.0705	202.7	14.29	.2637	200.4	52.84
1978	.0115	221.2	2.54	.0672	219.8	14.77	.2519	220.3	55.49
1979	.0120	250.2	3.00	.0655	268.3	17.57	.2568	253.1	64.99
1980	.0124	300.0	3.72	.0649	340.7	22.11	.2603	288.0	74.96
1981	.0129	334.8	4.31	.0648	389.2	25.22	.2534	324.7	82.27
1982	.0134	371.8	4.98	.0641	413.9	26.53	.2526	360.5	91.06
1983	.0146	425.2	6.20	.0646	462.9	29.90	.2659	396.0	105.29
1984	.0153	516.7	7.90	.0635	672.5	42.70	.2716	568.8	154.48

Data for Pn's were taken from the Philippine Statistical Yearbook, 1979 issue for 1967-74 data, Table 4-14, pages 180-81; and 1985 issue for 1975-84 data, Table 3-11, pages 186-87 for columns 20, 21, and 22.

TABLE 23. CLASSIFICATION I: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR		
	OTHER SERVICES		
	wn (28)	Pn (29)	wnPn (30)
1967	.1653	74.9	12.38
1968	.1683	76.6	12.89
1969	.1700	79.0	13.43
1970	.1734	84.1	14.58
1971	.1735	94.4	16.37
1972	.1743	100.0	17.43
1973	.1764	106.2	18.73
1974	.1766	124.2	21.93
1975	.17z9	140.7	24.04
1976	.1670	161.9	27.03
1977	.1617	173.1	27.99
1978	.1526	189.9	28.97
1979	.1521	211.6	32.18
1980	.1524	239.1	36.43
1981	.1531	271.2	41.52
1982	.1537	302.1	46.43
1983	.1516	331.3	50.22
1984	.1490	414.7	61.79

Data for Pn were taken from the Philippine Statistical Yearbook, 1979 issue for 1967-74 data, Table 4-14, pages 180-81 for and 1985 issue for 1975-84 issue, Table 3-11, pages 186-87 for column 29.

TABLE 24. CLASSIFICATION II: TRADEABLES AND NON-TRADEABLES PRICES

YEAR	PRICE INDICES (1972=100) CLASSIFICATION II	
	PT	PN
1967	63.80	66.52
1968	66.23	70.03
1969	69.11	73.25
1970	82.79	83.14
1971	91.61	94.37
1972	100.00	100.00
1973	119.71	118.17
1974	161.53	152.57
1975	173.34	165.36
1976	184.53	178.87
1977	202.41	195.52
1978	220.03	211.29
1979	252.62	241.51
1980	301.35	270.52
1981	317.23	302.72
1982	348.79	328.50
1983	390.03	365.35
1984	612.64	531.09

The domestic price of tradeables (PT) for each year is obtained as the sum of the weighted prices (wtPt); ie. summing up columns 3, 6, 9 and 12 from Tables 25 and 26. The domestic price of non-tradeables (PN) for each year is obtained as the sum of the weighted prices (wnPn); ie. summing up columns 3, 6, 9, 12, 15, 18, 21, 24, and 27 from Tables 33 to 35.

TABLE 25. CLASSIFICATION II: DOMESTIC PRICE OF TRADEABLES

YEAR	TRADEABLE SECTOR								
	FORESTRY			MINING & QUARRYING			FOOD MANUFACTURES		
	wt (1)	Pt (2)	wtPt (3)	wt (4)	Pt (5)	wtPt (6)	wt (7)	Pt (8)	wtPt (9)
1967	.1488	70.7	10.52	.0538	65.7	3.53	.2370	56.6	13.41
1968	.1489	77.7	11.56	.0605	67.2	4.06	.2378	58.3	13.86
1969	.1549	80.2	12.42	.0662	78.7	5.20	.2364	62.0	14.65
1970	.1330	82.6	10.98	.0734	108.1	7.93	.2385	74.9	17.86
1971	.1229	97.9	12.03	.0811	92.6	7.50	.2332	87.8	20.47
1972	.1201	100.0	12.01	.0803	100.0	8.03	.2163	100.0	21.63
1973	.1258	110.0	13.83	.0735	171.9	12.63	.2033	123.7	25.14
1974	.0909	185.1	17.01	.0732	220.7	16.15	.2157	160.5	34.61
1975	.0657	224.0	14.71	.0750	138.4	10.38	.2206	170.3	37.56
1976	.0775	207.3	16.06	.0725	142.7	10.34	.2217	180.8	40.08
1977	.0693	236.3	16.37	.0763	142.8	10.89	.2154	195.1	42.02
1978	.0639	302.9	19.35	.0739	184.2	13.61	.3522	180.1	63.43
1979	.0556	356.7	19.83	.0827	272.3	22.51	.3048	206.8	63.03
1980	.0517	486.5	25.15	.0834	362.0	30.19	.3141	237.9	74.72
1981	.0430	523.5	22.51	.0796	314.9	25.06	.3224	269.2	86.79
1982	.0357	748 8	26.73	.0732	302.9	22.17	.3303	298.8	98.69
1983	.0293	920.8	26.97	.0705	358.2	25.25	.3315	339.5	111.88
1984	.0260	1690.8	43.96	.0682	553.5	37.74	.3630	532.4	193.26

Source of basic data: The weights (wt) are computed from Tables 48, 49, and 50 using the weighting procedure discussed in chapter 6, section 6.2.1 with the tradeable sector expanded to include food manufactures. Data for Pt's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-18, pages 188-89 for column 2; Table 4-14, pages 180-81 for column 5; and Table 4-24, pages 196-97 for column 8; and 1985 issue for 1975-84 data; Table 3-15, pages 194-95 for column 2; Table 3-11, pages 186-87 for column 5; and Table 3-20, pages 204-05 for column 8.

TABLE 26. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES			BEVERAGE INDUSTRIES			TOBACCO MANUFACTURES		
	wt (10)	Pt (11)	wtPt (12)	wt (13)	Pt (14)	wtPt (15)	wt (16)	Pt (17)	wtPt (18)
1967	.5606		36.34	.0358	76.0	2.72	.0553	70.9	3.92
1968	.5529		36.75	.0357	75.3	2.68	.0541	77.5	4.19
1969	.5424		36.84	.0382	76.3	2.91	.0536	83.0	4.44
1970	.5554		46.02	.0406	84.7	3.43	.0523	91.1	4.76
1971	.5642		51.61	.0418	92.0	3.84	.0517	87.3	4.51
1972	.5831		58.25	.0432	100.0	4.32	.0567	100.0	5.67
1973	.5976		68.11	.0398	105.0	4.17	.0678	111.1	7.53
1974	.6191		93.76	.0411	141.2	5.80	.0761	118.3	9.00
1975	.6388		110.69	.0420	156.4	6.56	.0801	121.6	9.74
1976	.6286		118.05	.0418	166.4	6.95	.0757	133.9	10.13
1977	.6393		133.13	.0507	194.6	9.86	.0696	194.6	13.54
1978	.5101		123.64	.0280	270.1	7.56	.0179	270.1	4.83
1979	.5571		147.25	.0274	320.3	8.77	.0402	320.3	12.87
1980	.5505		171.29	.0273	366.7	10.01	.0387	366.7	14.19
1981	.5551		182.87	.0267	386.0	10.30	.0403	386.0	15.55
1982	.5604		201.20	.0271	412.7	11.18	.0404	412.7	16.67
1983	.5688		225.93	.0273	454.9	12.41	.0400	454.9	18.19
1984	.5429		337.68	.0312	564.5	17.61	.0345	564.5	19.47

Column (12) is obtained by summing up the weighted prices of the different sub-sectors comprising other manufactures, ie. by adding columns 15, 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, and 69 from Tables 26 to 32.
Source of basic data: Pt for other manufactures, column 11, are listed for each of the different sub-sectors comprising other manufactures. See columns 14, 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56, 59, 62, 65, and 68 (ie. from beverage industries of Table 26 to miscellaneous manufactures of Table 32).

TABLE 27. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	TEXTILE MANUFACTURES			FOOTWEAR, WEARING APPAREL			WOOD & CORK PRODUCTS		
	wt (19)	Pt (20)	wtPt (21)	wt (22)	Pt (23)	wtPt (24)	wt (25)	Pt (26)	wtPt (27).
1967	.0484	60.7	2.94	.0358	79.4	2.84	.0436	80.5	3.50
1968	.0481	68.0	3.27	.0339	84.0	2.84	.0412	78.0	3.21
1969	.0421	70.3	2.95	.0334	82.9	2.76	.0346	81.8	2.83
1970	.0464	79.6	3.69	.0298	88.4	2.63	.0332	92.6	3.07
1971	.0475	89.6	4.25	.0310	96.9	3.00	.0359	89.8	3.22
1972	.0476	100.0	4.76	.0257	100.0	2.57	.0347	100.0	3.47
1973	.0447	122.9	5.85	.0280	101.5	2.84	.0329	123.8	4.07
1974	.0469	163.5	7.67	.0284	132.9	3.77	.0333	169.0	5.62
1975	.0479	182.8	8.76	.0307	141.1	4.33	.0245	184.9	4.53
1976	.0533	196.4	10.47	.0305	156.4	4.77	.0271	205.7	5.57
1977	.0590	238.6	14.07	.0257	162.3	4.17	.0257	194.6	5.00
1978	.0495	356.8	17.66	.0211	244.5	5.15	.0211	301.4	6.35
1979	.0415	398.5	16.54	.0266	287.5	7.64	.0266	373.2	9.92
1980	.0391	440.6	17.23	.0248	358.9	8.90	.0248	364.8	9.04
1981	.0401	471.3	18.90	.0259	384.1	9.94	.0251	407.6	10.23
1982	.0382	499.6	19.08	.0256	407.1	10.42	.0256	432.1	11.06
1983	.0376	551.8	20.75	.0256	469.3	12.01	.0257	479.2	12.31
1984	.0544	799.4	43.49	.0228	667.6	15.22	.0228	667.2	15.21

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 28. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	FURNITURE AND FIXTURES			PAPER AND PAPER PRODUCTS			PUBLISHING AND PRINTING		
	wt (28)	Pt (29)	wtPt (30)	wt (31)	Pt (32)	wtPt (33)	wt (34)	Pt (35)	wtPt (36)
1967	.0058	80.6	0.46	.0215	47.4	1.01	.0174	74.4	1.29
1968	.0059	80.8	0.47	.0217	58.9	1.27	.0173	70.4	1.21
1969	.0058	84.0	0.48	.0195	62.0	1.20	.0170	75.2	1.27
1970	.0059	87.5	0.51	.0028	76.5	1.74	.0175	77.1	1.34
1971	.0062	94.9	0.58	.0183	91.7	1.67	.0163	93.4	1.52
1972	.0051	100.0	0.51	.0206	100.0	2.06	.0158	100.0	1.58
1973	.0047	110.0	0.51	.0220	105.2	2.31	.0178	104.7	1.86
1974	.0045	159.1	0.71	.0250	151.9	3.79	.0224	110.0	2.46
1975	.0038	177.0	0.67	.0252	170.0	4.35	.0232	124.6	2.89
1976	.0038	197.5	0.75	.0261	187.5	4.89	.0221	133.6	2.95
1977	.0039	247.8	0.96	.0227	198.1	4.49	.0208	145.5	3.02
1978	.0064	207.0	1.32	.0080	321.5	2.57	.0115	159.0	1.82
1979	.0044	221.0	0.97	.0078	388.1	3.02	.0117	178.5	2.08
1980	.0049	247.7	1.21	.0071	481.2	3.41	.0121	195.1	2.36
1981	.0042	269.8	1.16	.0074	514.4	3.80	.0110	217.2	2.38
1982	.0051	288.6	1.47	.0062	535.5	3.32	.0130	230.4	2.99
1983	.0051	306.3	1.56	.0070	568.9	3.98	.0132	254.4	3.35
1984	.0055	421.8	2.31	.0071	1024.7	7.27	.0143	406.8	5.81

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 29. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	LEATHER AND LEATHER PRODUCTS			RUBBER PRODUCTS			CHEMICAL AND CHEMICAL PRODUCTS		
	wt (37)	Pt (38)	wtPt (39)	wt (40)	Pt (41)	wtPt (42)	wt (43)	Pt (44)	wtPt (45)
1967	.0031	43.6	0.13	.0108	63.9	0.69	.0054	60.0	3.32
1968	.0032	41.9	0.13	.0108	59.4	0.64	.0555	68.5	3.80
1969	.0034	37.5	0.12	.0091	66.4	0.60	.0615	63.8	3.92
1970	.0020	56.7	0.11	.0107	77.0	0.82	.0624	87.0	5.42
1971	.0015	83.3	0.12	.0132	93.3	1.23	.0857	91.2	7.81
1972	.0013	100.0	0.13	.0131	100.0	1.31	.1082	100.0	10.82
1973	.0013	104.0	0.13	.0125	112.2	1.40	.1047	111.5	11.67
1974	.0013	138.5	0.18	.0134	143.6	1.92	.1083	147.2	15.94
1975	.0015	140.0	0.21	.0136	152.1	2.06	.1125	163.0	18.33
1976	.0015	161.3	0.24	.0113	171.6	1.93	.1197	172.8	20.68
1977	.0015	179,4	0.26	.0127	197.9	2.51	.1219	187.4	22.84
1978	.0010	196.2	0.19	.0119	191.1	2.27	.0883	196.1	17.31
1979	.0019	241.4	0.45	.0121	220.4	2.66	.0900	229.5	20.65
1980	.0025	252.9	0.63	.0112	258.3	2.89	.0882	250.2	22.06
1981	.0025	272.9	0.68	.0114	289.4	3.29	.0848	258.2	21.89
1982	.0026	283.1	0.73	.0117	317.6	3.71	.0825	268.6	22.15
1983	.0023	315.2	0.72	.0113	356.0	4.02	.0830	312.2	25.91
1984	0024	533.2	1.27	.0130	528.7	6.87	.0698	575.1	40 14

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 30. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	PETROLEUM PRODUCTS AND COAL			NON-METALLIC MINERAL PRODUCTS			BASIC METAL INDUSTRIES		
	wt (46)	Pt (47)	wtPt (48)	wt (49)	Pt (50)	wtPt (51)	wt (52)	Pt (53)	wtPt (54)
1967	.0602	52.7	3.17	.0364	65.9	2.39	.0207	65.9	1.36
1968	.0582	48.4	2.81	.0354	67.0	2.37	.0216	69.2	1.49
1969	.0592	64.1	3.79	.0331	69.8	2.31	.0250	76.6	1.91
1970	.0572	86.0	4.91	.0330	78.4	2.58	.0333	93.0	3.09
1971	.0594	97.9	5.81	.0288	91.0	2.62	.0247	94.1	2.32
1972	.0625	100.0	6.25	.0265	100.0	2.65	.0244	100.0	2.44
1973	.0713	126.1	8.99	.0313	105.9	3.31	.0276	123.4	3.40
1974	.0637	223.4	14.23	.0282	140.8	3.97	.0264	174.8	4.61
1975	.0639	286.7	18.32	.0310	159.8	4.95	.0305	233.9	7.13
1976	.0551	319.7	17.61	.0298	177.3	5.28	.0307	258.2	7.92
1977	.0500	364.8	18.24	.0286	195.0	5.57	.0344	207.2	7.12
1978	.0677	354.3	23.98	.0212	222.9	4.72	.0303	194.6	5.89
1979	.0542	443.7	24.04	.0207	265.4	5.49	.0335	239.6	8.02
1980	.0512	694.5	35.55	.0214	318.5	6.81	.0318	262.3	8.34
1981	.0471	827.6	38.97	.0198	366.3	7.25	.0290	280.3	8.12
1982	.0477	884.8	42.20	.0206	402.3	8.28	.0310	305.4	9.46
1983	.0484	962.3	46.57	.0210	426.9	8.96	.0339	330.1	11.19
1984	.0489	1523.8	74.51	0187	614.6	11.49	.0435	452.1	19.66

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 31. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	METAL PRODUCTS			MACHINERY EXCEPT ELECTRICAL			ELECTRICAL MACHINERY		
	wt (55)	Pt (56)	wtPt (57)	wt (58)	Pt (59)	wtPt (60)	wt (61)	Pt (62)	wtPt (63)
1967	.0262	63.3	1.65	.0117	74.5	0.87	.0218	68.0	1.48
1968	.0256	63.2	1.61	.0138	61.7	0.85	.0217	63.5	1.37
1969	.0254	60.4	1.53	.0100	81.4	0.81	.0219	60.9	1.33
1970	.0248	82.0	2.03	.0119	86.5	1.02	.0239	74.9	1.79
1971	.0248	91.6	2.27	.0107	91.7	0.98	.0233	94.6	2.20
1972	.0239	100.0	2.39	.0110	100.0	1.10	.0212	100.0	2.12
1973	.0217	115.0	2.49	.0108	106.3	1.14	.0197	114.6	2.25
1974	.0221	154.7	3.41	.0101	144.6	1.46	.0213	160.0	3.40
1975	.0207	170.4	3.52	.0099	159.5	1.57	.0230	169.5	3.89
1976	.0189	187.4	3.54	.0095	172.3	1.63	.0191	184.5	3.52
1977	.0203	230.3	4.67	.0102	278.6	2.84	.0265	226.0	5.98
1978	.0381	136.5	5.20	.0252	149.2	3.75	.0410	141.4	5.79
1979	.0403	160.4	6.46	.0259	169.2	4.38	.0389	150.9	5.87
1980	.0388	184.3	7.15	.0271	189.7	5.14	.0430	174.0	7.48
1981	.0358	199.1	7.12	.0280	210.7	5.89	.0513	203.0	10.41
1982	.0382	217.0	8.28	.0286	231.8	6.62	.0535	229.4	12.27
1983	.0391	241.9	9.45	.0286	256.3	7.33	.0615	260.4	16.01
1984	.0287	374.1	10.73	.0172	433.5	7.45	.0763	326.1	24.88

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 32. CLASSIFICATION II:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES					
	TRANSPORT EQUIPMENT			MISCELLANEOUS MANUFACTURES		
	wt (64)	Pt (65)	wtPt (66)	wt (67)	Pt (68)	wtPt (69)
1967	.0405	51.3	2.07	.0097	55.0	0.53
1968	.0389	51.9	2.01	.0101	53.0	0.53
1969	.0389	47.6	1.85	.0101	54.9	0.55
1970	.0328	70.9	2.32	.0112	67.9	0.76
1971	.0327	87.1	2.84	.0104	79.3	0.82
1972	.0308	100.0	3.08	.0102	100.0	1.02
1973	.0294	106.1	3.11	.0092	117.6	1.08
1974	.0359	125.6	4.50	.0101	132.6	1.33
1975	.0438	171.9	7.52	.0106	128.8	1.36
1976	.0415	185.7	7.70	.0106	143.6	1.52
1977	.0407	159.7	6.49	.0100	150.7	1.50
1978	.0367	144.5	5.30	.0094	211.0	1.98
1979	.0348	154.0	5.35	.0089	232.6	2.07
1980	.0330	172.9	5.70	.0099	322.3	3.19
1981	.0333	193.1	6.43	.0108	357.4	3.85
1982	.0320	208.5	6.67	.0116	395.0	4.58
1983	.0266	224.7	5.97	.0120	437.4	5.24
1984	.0048	372.6	1.78	.0165	758.4	12.51

Source of basic data: Philippine Statistical Yearbook: 1979 issue for 1967-74 data for Pt's; Table 4-22, pages 192-93; and 1985 issue for 1975-84 data; Table 3-20, pages 204-05.

TABLE 33. CLASSIFICATION II: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	AGRICULTURAL CROPS			LIVESTOCK			POULTRY		
	wn (1)	Pn (2)	wnPn (3)	wn (4)	Pn (5)	wnPn (6)	wn (7)	Pn (8)	wnPn (9)
1967	.2167	54.0	11.70	.0558	61.4	3.42	.0198	63.9	1.26
1968	.2169	60.5	13.12	.0520	67.8	3.52	.0189	70.3	1.32
1969	.2105	67.5	14.20	.0505	75.8	3.82	.0200	72.6	1.45
1970	.2155	83.4	17.97	.0488	75.9	3.70	.0170	72.5	1.23
1971	.2174	98.5	21.41	.0499	86.1	4.29	.0194	93.0	1.80
1972	.2252	100.0	22.52	.0448	100.0	4.48	.0184	100.0	1.84
1973	.2151	137.2	29.51	.0475	109.4	5.19	.0180	111.6	2.00
1974	.2194	170.6	37.37	.0457	153.2	7.00	.0170	137.9	2.34
1975	.2280	183.7	41.88	.0347	160.1	5.55	.0176	149.7	2.63
1976	.2303	193.3	44.51	.0332	164.4	5.45	.0165	153.0	2.52
1977	.2304	201.6	46.44	.0328	168.8	5.53	.0192	168.4	3.23
1978	.2277	215.3	49.02	.0327	177.6	5.80	.0207	176.8	3.65
1979	.2262	242.2	54.78	.0313	197.1	6.16	.0222	197.0	4.37
1980	.2275	242.3	55.12	.0279	208.5	5.81	.0248	223.5	5.54
1981	.2237	261.9	58.58	.0279	217.9	6.07	.0284	247.1	7.01
1982	.2229	277.4	61.83	.0282	228.9	6.45	.0306	263.6	8.06
1983	.2073	319.2	66.17	.0300	245.6	7.36	.0343	286.5	9.82
1984	.2235	558.9	124.91	.0310	436.4	13.52	.0371	441.9	16.39

Source of basic data: The weights (wn) are computed from Tables 48, 49, and 50 using the weighting procedure discussed in chapter 6, section 6.2.1 where we exclude food manufactures from the non-tradeable sector. Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-18, pages 188-89; and 1985 issue for 1975-84 data, Table 3-15, pages 194-95.

TABLE 34. CLASSIFICATION II: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	FISHERIES			CONSTRUCTION			UTILITIES		
	wn (10)	Pn (11)	wnPn (12)	wn (13)	Pn (14)	wnPn (15)	wn (16)	Pn (17)	wnPn (18)
1967	.0609	53.6	3.26	.0623	68.0	4.23	.0087	84.9	0.73
1968	.0728	60.4	4.39	.0540	75.2	4.06	.0096	84.7	0.81
1969	.0710	63.6	4.51	.0558	78.8	4.39	.0101	86.6	0.87
1970	.0717	72.0	5.16	.0481	87.2	4.19	.0109	78.9	0.86
1971	.0715	92.4	6.60	.0501	94.3	4.72	.0117	85.2	0.99
1972	.0682	100.0	6.82	.0569	100.0	5.69	.0119	100.0	1.19
1973	.0721	106.4	7.67	.0655	113.2	7.41	.0119	112.6	1.33
1974	.0672	168.8	11.34	.0610	171.5	10.46	.0129	161.1	2.07
1975	.0648	175.0	11.34	.0835	172.2	14.37	.0123	179.2	2.20
1976	.0629	193.0	12.13	.1002	186.2	18.65	.0129	181.6	2.34
1977	.0633	214.1	13.55	.1010	204.0	20.60	.0129	198.7	2.56
1978	.0627	231.8	14.53	.1014	211.8	21.47	.0132	221.2	2.91
1979	.0586	260.2	15.24	.1138	249.6	28.40	.0136	250.2	3.40
1980	.0588	288.9	16.98	.1083	298.5	32.32	.0140	300.0	4.20
1981	.0599	334.5	20.03	.1136	335.5	38.11	.0145	334.8	4.85
1982	.0595	347.4	20.67	.1130	362.7	40.98	.0151	371.8	5.61
1983	.0610	381.0	23.24	.1065	399.7	42.56	.0165	425.2	7.01
1984	.0578	499.9	28.89	.0841	532.0	44.74	.0173	516.7	8.93

Source of basic data: Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-18, pages 188-89 for column 11 and Table 4-14, pages 180-81 for columns 14 and 17; and 1985 issue for 1975-84 data, Table 3-15, pages 194-95 for column 11, and Table 3-11, pages 186-87 for columns 14 and 17.

TABLE 35. CLASSIFICATION II: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	TRANSPORTATION			TRADE, BUILDING INSURANCE & REAL ESTATE			OTHER SERVICES		
	wn (19)	Pn (20)	wnPn (21)	wn (22)	Pn (23)	wnPn (24)	wn (25)	Pn (26)	wnPn (27)
1967	.0530	72.6	3.84	.3420	71.8	24.55	.1805	74.9	13.51
1968	.0536	78.2	4.19	.3378	72.6	24.52	.1842	76.6	14.10
1969	.0559	76.3	4.26	.3400	73.7	25.05	.1861	79.0	14.70
1970	.0569	86.7	4.93	.3403	85.5	29.09	.1904	84.1	16.01
1971	.0579	99.5	5.76	.3310	93.2	30.84	.1903	94.4	17.96
1972	.0615	100.0	6.15	.3226	100.0	32.26	.1903	100.0	19.03
1973	.0634	109.6	6.94	.3244	116.1	37.66	.1927	106.2	20.46
1974	.0652	124.9	8.14	.3189	156.5	49.90	.1929	124.2	23.95
1975	.0671	145.6	9.76	.3065	168.1	51.52	.1856	140.7	26.11
1976	.0739	156.7	11.58	.2862	182.8	52.31	.1815	161.9	29.38
1977	.0768	202.2	15.56	.2872	200.4	57.55	.1762	173.1	30.50
1978	.0772	219.8	16.96	.2891	220.3	63.68	.1752	189.9	33.27
1979	.0737	268.3	19.77	.2891	253.1	73.17	.1712	211.6	36.22
1980	.0732	340.7	24.93	.2935	288.0	84.52	.1719	239.1	41.10
1981	.0731	389.2	28.45	.2858	324.7	92.79	.1727	271.2	46.83
1982	.0722	413.9	29.88	.2848	360.5	102.67	.1733	302.1	52.35
1983	.0729	462.9	33.74	.3000	396.0	118.80	.1710	331.3	56.65
1984	.0721	672.5	48.48	.3080	568.8	175.19	.1689	414.7	70.04

Source of basic data: Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-14, pages 180-81, and 1985 issue for 1975-84 data, Table 3-11, pages 186-87 for columns 20, 23, and 26.

TABLE 36. CLASSIFICATION III: TRADEABLE AND NON-TRADEABLE PRICES

YEAR	PT	PN
1967	60.20	70.02
1968	64.10	72.71
1969	68.95	74.83
1970	83.11	83.11
1971	93.84	93.27
1972	100.00	100.00
1973	125.00	111.82
1974	164.50	147.55
1975	177.00	159.93
1976	187.70	174.68
1977	202.02	193.76
1978	216.42	210.09
1979	248.79	241.35
1980	279.95	278.89
1981	299.62	314.63
1982	322.35	343.25
1983	365.27	377.51
1984	590.31	523.03

The domestic price of tradeables (PT) for each year is obtained as the sum of the weighted prices (wtPt); ie. summing up columns 3, 6, 9, 12 and 15 from Tables 37 and 38. The domestic price of non-tradeables (PN) for each year is obtained as the sum of the weighted prices (wnPn); ie. summing up columns 3, 6, 9, 12, 15, 18, 21, and 24 from Tables 45 to 47

TABLE 37. CLASSIFICATION III: DOMESTIC PRICE OF TRADEABLES

YEAR	TRADEABLE SECTOR								
	AGRICULTURAL CROPS			FORESTRY			MINING & QUARRYING		
	wt (1)	Pt (2)	wtPt (3)	wt (4)	Pt (5)	wtPt (6)	wt (7)	Pt (8)	wtPt (9)
1967	.3579	54.0	19.32	.0955	70.7	6.75	.0345	65.7	2.26
1968	.3527	60.5	21.33	.0964	77.7	7.49	.0392	67.2	2.63
1969	.3435	67.5	23.18	.1016	80.2	8.14	.0434	78.7	3.41
1970	.3433	83.4	28.63	.0874	82.6	7.21	.0482	108.1	5.21
1971	.3414	98.5	33.62	.0809	97.9	7.92	.0533	92.6	4.93
1972	.3460	100.0	34.60	.0786	100.0	7.86	.0525	100.0	5.25
1973	.3212	137.2	44.06	.0853	110.0	9.38	.0499	171.9	8.57
1974	.3399	170.6	57.98	.0607	185.1	11.23	.0484	220.7	10.68
1975	.3678	183.7	67.56	.0415	224.0	9.29	.0475	138.4	6.57
1976	.3699	193.3	71.50	.0488	207.3	10.11	.0457	142.7	6.52
1977	.3573	201.6	72.03	.0445	236.3	10.51	.0490	142.8	6.99
1978	.3517	215.3	75.72	.0414	302.9	12.54	.0479	184.2	8.82
1979	.3542	242.2	85.78	.0359	356.7	12.80	.0534	272.3	14.54
1980	.3588	242.3	86.93	.0331	486.5	16.10	.0534	362.0	19.33
1981	.3609	261.9	94.51	.0275	523.5	14.39	.0509	314.9	16.02
1982	.3664	277.4	101.63	.0226	748.8	16.92	.0464	302.9	14.05
1983	.3492	319.2	111.46	.0191	920.8	17.58	.0458	358.2	16.40
1984	.3772	558.9	210.80	.0162	1690.8	27.39	.0424	553.5	23.46

Source of basic data: The weights (wt) are computed from Tables 48, 49, and 50 based on the weighting procedure discussed in chapter 6, section 6.2.1 with tradeable sector of classification II expanded to include agricultural crops. Data for Pt's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-18, pages 188-89 for columns 2 and 5, and Table 4-14, pages 180-81 for column 8; and 1985 issue, Table 3-13, pages 190-91 for columns 2 and 5, and Table 3-11, pages 186-87 for column 8.

TABLE 38. CLASSIFICATION III: DOMESTIC PRICE OF TRADEABLES

YEAR	TRADEABLE SECTOR : OTHER MANUFACTURES								
	FOOD MANUFACTURES			OTHER MANUFACTURES			BEVERAGE INDUSTRIES		
	wt (10)	Pt (11)	wtPt (12)	wt (13)	Pt (14)	wtPt (15)	wt (16)	Pt (17)	wtPt (18)
1967	.1522	56.6	8.61	.3599		23.26	.0229	76.0	1.74
1968	.1539	58.3	8.97	.3679		23.72	.0231	75.3	1.73
1969	.1552	62.0	9.62	.3560		24.60	.0251	76.3	1.91
1970	.1566	74.9	11.72	.3647		30.34	.0268	84.7	2.26
1971	.1536	87.8	13.48	.3716		33.89	.0275	92.0	2.53
1972	.1415	100.0	14.15	.3813		38.09	.0283	100.0	2.83
1973	.1380	123.7	17.07	.4056		45.96	.0270	105.0	2.83
1974	.1423	160.5	22.83	.4087		61.81	.0271	141.2	3.82
1975	.1394	170.3	23.73	.4038		69.88	.0265	156.4	4.14
1976	.1397	180.8	25.25	.3960		74.34	.0263	166.4	4.37
1977	.1384	195.1	27.00	.4108		85.49	.0325	194.6	6.32
1978	.2283	180.1	41.11	.3307		78.23	.0181	270.1	4.88
1979	.1969	206.8	40.71	.3598		94.96	.0177	320.3	5.66
1980	.2014	237.9	47.91	.3530		109.68	.0175	366.7	6.41
1981	.2060	269.2	55.45	.3547		119.25	.0171	386.0	6.60
1982	.2093	298.8	62.53	.3550		127.22	.0171	412.7	7.05
1983	.2157	339.5	72.79	.3701		147.04	.0178	454.9	8.09
1984	.2261	532.4	120.37	.3381		208.28	.0195	564.9	11.00

Column (15) is obtained as the sum of the weighted prices of the different sub-sectors comprising this sector, namely, columns 18, 21, 24, 27, 30, 33, 36, 39, 42, 45, 48, 51, 54, 57, 60, 63, 66, 69, and 72 (from Tables 38 to 44). Pt data (column 14) are listed for the different sub-sectors comprising other manufactures; see columns 17, 20, 23, 26, 29, 32, 35, 38, 41, 44, 47, 50, 53, 56, 59, 62, 65, 68, and 71 (from Tables 38 to 44). For columns (11) and (17), data were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 39. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	TOBACCO MANUFACTURES			TEXTILE MANUFACTURES			FOOTWEAR, WEARING, APPAREL		
	wt (19)	Pt (20)	wtPt (21)	wt (22)	Pt (23)	wtPt (24)	wt (25)	Pt (26)	wtPt (27)
1967	.0355	70.9	2.51	.0311	60.7	1.88	.0230	79.4	1.82
1968	.0350	77.5	2.71	.0311	68.0	2.11	.0219	84.0	1.83
1969	.0351	83.0	2.91	.0276	70.3	1.94	.0219	82.9	1.81
1970	.0345	91.1	3.14	.0306	79.6	2.43	.0197	88.4	1.74
1971	.0340	87.3	2.96	.0312	89.6	2.79	.0204	96.9	1.97
1972	.0371	100.0	3.71	.0311	100.0	3.11	.0168	100.0	1.68
1973	.0460	111.1	5.11	.0303	122.9	3.72	.0190	101.5	1.92
1974	.0502	118.3	5.93	.0310	163.5	5.06	.0187	132.9	2.48
1975	.0506	121.6	6.15	.0303	182.8	5.53	.0194	141.1	2.73
1976	.0477	133.9	6.38	.0336	196.4	6.59	.0192	156.4	3.00
1977	.0447	194.6	8.69	.0379	238.6	9.04	.0165	162.3	2.67
1978	.0116	270.1	3.13	.0321	356.8	11.45	.0137	244.5	3.34
1979	.0260	320.3	8.32	.0268	398.5	10.67	.0172	287.5	4.94
1980	.0248	366.7	9.09	.0251	440.6	11.05	.0159	358.9	5.70
1981	.0257	386.0	9.92	.0256	471.3	12.06	.0165	384.1	6.33
1982	.0256	412.7	10.56	.0242	499.6	12.09	.0161	407.1	6.55
1983	.0261	454.9	11.87	.0245	551.8	13.51	.0167	469.3	7.83
1984	.0215	564.5	12.13	.0314	799.4	25.10	.0142	667.6	9.47

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 40. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	WOOD AND CORK PRODUCTS			FURNITURES AND FIXTURES			PAPER AND PAPER PRODUCTS		
	wt (28)	Pt (29)	wtPt (30)	wt (31)	Pt (32)	wtPt (33)	wt (34)	Pt (35)	wtPt (36)
1967	.0280	80.5	2.25	.0037	80.6	0.29	.0138	47.4	0.65
1968	.0267	78.0	2.08	.0038	80.8	0.30	.0140	58.9	0.82
1969	.0227	81.8	1.85	.0038	84.0	0.31	.0128	62.0	0.79
1970	.0219	92.6	2.02	.0038	87.5	0.33	.0150	76.5	1.14
1971	.0236	89.8	2.11	.0040	94.9	0.37	.0121	91.7	1.10
1972	.0227	100.0	2.27	.0033	100.0	0.33	.0134	100.0	1.34
1973	.0223	123.8	2.76	.0032	110.0	0.35	.0150	105.2	1.57
1974	.0220	169.0	3.71	.0030	159.1	0.47	.0165	151.9	2.50
1975	.0154	184.9	2.84	.0024	177.9	0.42	.0160	170.0	2.72
1976	.0171	205.7	3.51	.0024	197.5	0.47	.0165	187.5	3.09
1977	.0165	194.6	3.21	.0025	247.8	0.61	.0146	198.1	2.89
1978	.0137	301.4	4.12	.0041	207.0	0.85	.0051	321.5	1.63
1979	.0171	373.2	6.38	.0028	221.0	0.61	.0050	388.1	1.94
1980	.0159	364.8	5.80	.0031	247.7	0.76	.0045	481.2	2.16
1981	.0165	407.6	6.72	.0032	269.8	0.86	.0044	514.4	2.26
1982	.0161	432.1	6.95	.0032	288.6	0.92	.0039	535.5	2.08
1983	.0167	479.2	8.00	.0033	306.3	1.01	.0045	568.9	2.56
1984	.0142	667.2	9.47	.0034	421.8	1.43	.0044	1024.7	4.50

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 41. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	PUBLISHING AND PRINTING			LEATHER AND LEATHER PRODUCTS			RUBBER PRODUCTS		
	wt (37)	Pt (38)	wtPt (39)	wt (40)	Pt (41)	wtPt (42)	wt (43)	Pt (44)	wtPt (45)
1967	.0111	74.4	0.82	.0020	43.6	0.08	.0069	63.9	0.44
1968	.0112	70.4	0.78	.0021	41.9	0.08	.0070	59.4	0.41
1969	.0111	75.2	0.83	.0022	37.5	0.08	.0060	66.4	0.39
1970	.0115	77.1	0.88	.0013	56.7	0.07	.0071	77.0	0.54
1971	.0107	93.4	0.99	.0009	83.3	0.07	.0087	93.3	0.81
1972	.0103	100.0	1.03	.0008	100.0	0.08	.0085	100.0	0.85
1973	.0121	104.7	1.26	.0009	104.0	0.09	.0084	112.2	0.94
1974	.0148	110.0	1.62	.0009	138.5	0.12	.0089	143.6	1.27
1975	.0147	124.6	1.83	.0010	140.0	0.14	.0086	152.1	1.30
1976	.0139	133.6	1.85	.0009	161.3	0.14	.0071	171.6	1.21
1977	.0133	145.5	1.93	.0009	179.4	0.16	.0081	197.9	1.60
1978	.0075	159.0	1.19	.0007	196.2	0.13	.0077	191.1	1.47
1979	.0075	178.5	1.33	.0012	241.4	0.28	.0078	220.4	1.71
1980	.0077	195.1	1.50	.0016	252.9	0.40	.0072	258.3	1.85
1981	.0080	217.2	1.73	.0016	272.9	0.43	.0073	289.4	2.11
1982	.0082	230.4	1.88	.0016	283.1	0.45	.0074	317.6	2.35
1983	.0086	254.4	2.18	.0015	315.2	0.47	.0074	356.0	2.63
1984	.0089	406.8	3.63	.0015	533.2	0.79	.0081	528.7	4.28

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 42. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	CHEMICALS & CHEMICAL PRODUCTS			PETROLEUM PRODUCTS & COAL			NON-METALLIC MINERAL PRODUCTS		
	wt (46)	Pt (47)	wtPt (48)	wt (49)	Pt (50)	wtPt (51)	wt (52)	Pt (53)	wtPt (54)
1967	.0356	60.0	2.13	.0387	52.7	2.03	.0233	65.9	1.53
1968	.0359	68.5	2.45	.0377	48.4	1.82	.0229	67.0	1.53
1969	.0403	63.8	2.57	.0389	64.1	2.49	.0217	69.8	1.51
1970	.0412	87.0	3.58	.0378	86.0	3.25	.0218	78.4	1.70
1971	.0564	91.2	5.14	.0391	97.9	3.82	.0189	91.0	1.71
1972	.0707	100.0	7.07	.0491	100.0	4.09	.0174	100.0	1.74
1973	.0710	111.5	7.91	.0484	126.1	6.10	.0213	105.9	2.25
1974	.0715	147.2	10.52	.0420	223.4	9.38	.0186	140.8	2.61
1975	.0711	163.0	11.58	.0404	286.7	11.58	.0196	159.8	3.13
1976	.0754	172.8	13.02	.0347	319.7	11.09	.0188	177.3	3.33
1977	.0784	187.4	14.69	.0321	364.8	11.71	.0184	195.0	3.58
1978	.0572	196.1	11.21	.0438	354.3	15.51	.0138	222.9	3.07
1979	.0581	229.5	13.33	.0350	443.7	15.52	.0134	265.4	3.55
1980	.0565	250.2	14.13	.0328	694.5	22.77	.0137	318.5	4.36
1981	.0542	258.2	13.99	.0301	827.6	24.91	.0126	366.3	4.61
1982	.0522	268.6	14.02	.0302	884.8	26.72	.0131	402.3	5.27
1983	.0540	312.2	16.85	.0315	962.3	30.31	.0137	426.9	5.84
1984	.0435	575.1	25.01	.0305	1523.8	46.47	.0116	614.6	7.12

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 43. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	BASIC METAL INDUSTRIES			METAL PRODUCTS			MACHINERY EXCEPT ELECTRICAL		
	wt (55)	Pt (56)	wtPt (57)	wt (58)	Pt (59)	wtPt (60)	wt (61)	Pt (62)	wtPt (63)
1967	.0132	65.9	0.86	.0168	63.3	1.06	.0075	74.5	0.55
1968	.0140	69.2	0.96	.0166	63.2	1.04	.0089	61.7	0.54
1969	.0164	76.6	1.25	.0167	60.4	1.00	.0065	81.4	0.52
1970	.0220	93.0	2.04	.0164	82.0	1.34	.0078	86.5	0.67
1971	.0163	94.1	1.53	.0164	91.6	1.50	.0070	91.7	0.64
1972	.0160	100.0	1.60	.0157	100.0	1.57	.0072	100.0	0.72
1973	.1087	123.4	2.30	.0147	115.0	1.69	.0073	106.3	0.77
1974	.0174	174.8	3.04	.0146	154.7	2.25	.0066	144.6	0.95
1975	.0193	233.9	4.51	.0131	170.4	2.23	.0062	159.5	0.98
1976	.0193	258.2	4.98	.0119	187.4	2.23	.0060	172.3	1.03
1977	.0221	207.2	4.57	.0131	230.3	3.01	.0066	278.6	1.83
1978	.0196	194.6	3.81	.0247	136.5	3.37	.0164	149.2	2.44
1979	.0216	239.6	5.17	.0260	160.4	4.17	.0168	169.2	2.84
1980	.0204	262.3	5.35	.0249	184.3	4.58	.0174	189.7	3.30
1981	.0185	280.3	5.18	.0229	199.1	4.55	.0179	210.7	3.77
1982	.0197	305.4	6.01	.0242	217.0	5.25	.0181	231.8	4.19
1983	.0221	330.1	7.29	.0254	241.9	6.14	.0186	256.3	4.76
1984	.0271	452.1	12.25	.0179	374.1	6.69	.0107	433.5	4.63

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 44. CLASSIFICATION III:DOMESTIC PRICE OF OTHER MANUFACTURES

YEAR	OTHER MANUFACTURES								
	ELECTRICAL MACHINERY			TRANSPORT EQUIPMENT			MISCELLANEOUS MANUFACTURES		
	wt (64)	Pt (65)	wtPt (66)	wt (67)	Pt (68)	wtPt (69)	wt (70)	Pt (71)	wtPt (72)
1967	.0140	68.0	0.95	.0260	51.3	1.33	.0062	55.0	0.34
1968	.0141	63.5	0.89	.0252	51.9	1.30	.0065	53.0	0.34
1969	.0144	60.9	0.87	.0255	47.6	1.21	.0066	54.9	0.36
1970	.0158	74.9	1.18	.0217	70.9	1.53	.0074	67.9	0.50
1971	.0153	94.6	1.44	.0216	87.1	1.88	.0068	79.3	0.53
1972	.0139	100.0	1.39	.0201	100.0	2.01	.0067	100.0	0.67
1973	.0134	114.6	1.53	.0200	106.1	2.12	.0063	117.6	0.74
1974	.0140	160.0	2.24	.0237	125.6	2.97	.0066	132.6	0.87
1975	.0145	169.5	2.45	.0277	171.9	4.76	.0067	128.8	0.86
1976	.0121	184.5	2.23	.0262	185.7	4.86	.0067	143.6	0.96
1977	.0170	226.0	3.84	.0262	159.7	4.18	.0064	150.7	0.96
1978	.0217	141.4	3.06	.0205	144.5	2.96	.0029	211.0	0.61
1979	.0251	150.9	3.78	.0224	154.0	3.44	.0057	232.6	1.32
1980	.0275	174.0	4.78	.0212	172.9	3.66	.0063	322.3	2.03
1981	.0328	203.0	6.65	.0213	193.1	4.11	.0069	357.4	2.46
1982	.0339	229.4	7.77	.0203	208.5	4.23	.0073	395.0	2.88
1983	.0400	260.4	10.41	.0173	224.7	3.88	.0078	437.4	3.41
1984	.0475	326.1	15.48	.0030	372.6	1.11	.0102	758.4	7 73

Source of basic data: Data for Pt's were taken from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data, Table 4-24, pages 196-97 and 1985 issue, Table 3-21,pages 206-07.

TABLE 45. CLASSIFICATION III: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	LIVESTOCK			POULTRY			FISHERIES		
	wn (1)	Pn (2)	wnPn (3)	wn (4)	Pn (5)	wnPn (6)	wn (7)	Pn (8)	wnPn (9)
1967	.0712	61.4	4.37	.0252	63.9	1.61	.0778	53.6	4.17
1968	.0664	67.8	4.50	.0241	70.3	1.69	.0930	60.4	5.62
1969	.0639	75.8	4.84	.0253	72.6	1.84	.0899	63.6	5.72
1970	.0621	75.9	4.71	.0217	72.5	1.57	.0914	72.0	6.58
1971	.0638	86.1	5.49	.0248	93.0	2.30	.0914	92.4	8.44
1972	.0578	100.0	5.78	.0238	100.0	2.38	.0880	100.0	8.80
1973	.0605	109.4	6.62	.0229	111.6	2.55	.0874	106.4	9.30
1974	.0586	153.2	8.98	.0218	137.9	3.00	.0860	168.8	14.52
1975	.0449	160.1	7.19	.0228	149.7	3.41	.0840	175.0	14.70
1976	.0431	164.4	7.09	.0215	153.0	3.29	.0818	193.0	15.79
1977	.0426	168.8	7.19	.0249	168.4	4.19	.0823	214.1	17.62
1978	.0424	177.6	7.53	.0268	176.8	4.74	.0811	231.8	18.80
1979	.0404	197.1	7.96	.0286	197.0	5.63	.0757	260.2	19.70
1980	.0361	208.5	7.52	.0321	223.5	7.17	.0761	288.9	21.98
1981	.0360	217.9	7.84	.0366	247.1	19.04	.0772	334.5	25.82
1982	.0363	228.9	8.31	.0395	263.6	10.41	.0766	347.4	26.61
1983	.0379	245.6	9.31	.0433	286.5	12.40	.0770	381.0	29.34
1984	.0399	436.4	17.41	.0478	441.9	21.12	.0744	499.9	37.19

Source of basic data: The weights (wn) are computed from Tables 48, 49 and 50 based on the weighting procedure discussed in chapter 6, section 6.2.1 with the agricultural crops excluded from the non-tradeable sector of classification II. Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-18, pages 188-89; and 1985 issue, Table 3-15, pages 194-95.

TABLE 46. CLASSIFICATION III: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR								
	CONSTRUCTION			UTILITIES			TRANSPORTATION		
	wn (10)	Pn (11)	wnPn (12)	wn (13)	Pn (14)	wnPn (15)	wn (16)	Pn (17)	wnPn (18)
1967	.0795	68.0	5.40	.0112	84.9	0.95	.0677	72.6	4.91
1968	.0689	75.2	5.18	.0123	84.7	1.04	.0684	78.2	5.35
1969	.0707	78.8	5.57	.0128	86.6	1.11	.0708	76.3	5.40
1970	.0613	87.2	5.34	.0139	78.9	1.10	.0725	86.7	6.29
1971	.0640	94.3	6.03	.0149	85.2	1.27	.0740	99.5	7.36
1972	.0735	100.0	7.35	.0153	100.0	1.53	.0793	100.0	7.93
1973	.0740	113.2	8.37	.0152	112.6	1.71	.0808	109.6	8.85
1974	.0781	171.5	13.39	.0165	161.1	2.66	.0834	124.9	10.41
1975	.1081	172.2	18.61	.0160	179.2	2.87	.0864	145.6	12.58
1976	.1302	186.2	24.24	.0168	181.6	3.05	.0961	156.7	15.05
1977	.1312	204.0	26.76	.0168	198.7	3.34	.0998	202.7	20.23
1978	.1312	211.8	27.78	.0170	221.2	3.76	.0999	219.8	21.95
1979	.1471	249.6	36.72	.0175	250.2	4.38	.0953	268.3	25.57
1980	.1402	298.5	41.85	.0181	300.0	5.43	.0948	340.7	32.30
1981	.1464	335.5	49.12	.0187	334.8	6.26	.0942	389.2	36.66
1982	.1455	362.7	52.77	.0195	371.8	7.25	.0930	413.9	38.49
1983	.1343	399.7	53.68	.0208	425.2	8.84	.0920	462.9	42.59
1984	.1083	532.0	57.61	.0223	516.7	11.52	.0928	672.5	62.41

Source of basic data: Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-14, pages 180-81; and 1985 issue, Table 3-11, pages 186-87.

TABLE 47. CLASSIFICATION III: DOMESTIC PRICE OF NON-TRADEABLES

YEAR	NON-TRADEABLE SECTOR					
	TRADE, BUILDING, INSURANCE AND REAL ESTATE			OTHER SERVICES		
	wn (19)	Pn (20)	wnPn (21)	wn (22)	Pn (23)	wnPn (24)
1967	.4366	71.8	31.35	.2305	74.9	17.26
1968	.4313	72.6	31.31	.2353	76.6	18.02
1969	.4306	73.7	31.73	.2358	79.0	18.62
1970	.4339	85.5	37.10	.2428	84.1	20.42
1971	.4230	93.2	39.42	.2432	94.4	22.96
1972	.4164	100.0	41.64	.2457	100.0	24.57
1973	.4133	116.1	48.35	.2455	106.2	26.07
1974	.4084	156.5	63.91	.2470	124.2	30.68
1975	.3970	168.1	66.73	.2405	140.7	33.84
1976	.3719	182.8	67.98	.2359	161.9	38.19
1977	.3732	200.4	74.79	.2290	173.1	39.64
1978	.3744	220.3	82.48	.2268	189.9	43.07
1979	.3736	253.1	94.56	.2213	211.6	46.83
1980	.3800	288.0	109.44	.2225	239.1	53.20
1981	.3682	324.7	119.55	.2225	271.2	60.34
1982	.3662	360.5	132.01	.2231	302.1	67.40
1983	.3785	396.0	149.89	.2157	331.3	71.46
1984	.3966	568.8	225.58	.2175	414.7	90.19

Source of basic data: Data for Pn's were obtained from the Philippine Statistical Yearbook: 1979 issue for 1967-74 data; Table 4-14, pages 180-81; and 1985 issue, Table 3-11, pages 186-87.

TABLE 48. SUB-SECTORAL OUTPUT

YEAR	In Million Pesos, At Constant Prices						
	G D P	AGRICULTURAL CROPS	LIVE STOCK	POULTRY	FISHERIES	FORESTRY	MINING & QUARRYING
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1967	44093	6881	1772	628	1934	1837	664
1968	46544	7221	1732	629	2425	1974	802
1969	48779	7323	1756	696	2470	2167	926
1970	51014	7787	1761	614	2590	1982	1093
1971	53526	8199	1884	732	2699	1943	1282
1972	56075	8860	1762	724	2682	2012	1346
1973	60931	9013	1992	753	2873	2395	1400
1974	64139	9858	2059	765	3023	1760	1403
1975	68361	11198	1704	865	3186	1265	1445
1976	72962	12069	1740	868	3300	1594	1491
1977	77990	12707	1808	1057	3491	1583	1742
1978	82797	13282	1912	1207	3655	1564	1809
1979	88346	14149	1957	1387	3667	1435	2134
1980	92706	14996	1841	1633	3876	1386	2236
1981	96207	15418	1925	1958	4132	1175	2175
1982	98999	15932	2017	2192	4254	983	2016
1983	100068	14968	2170	2481	4407	819	1966
1984	95490	15591	2162	2589	4032	671	1755

Column (1) is the sum of columns (2) to (14).
Source of data: Philippine Statistical Yearbook: 1979 issue,Table 4-13, pages 176-77 and 1985 issue, Table 3-10, pages 184-85.

TABLE 49. SUB-SECTORAL OUTPUT

YEAR	In Million Pesos, At Constant Prices						
	FOOD MANUFACTURES (8)	OTHER MANUFACTURES (9)	CONSTRUCTION (10)	UTILITIES (11)	TRANSPORTATION (12)	TRADE, BUILDING, INSURANCE, R. ESTATE (13)	OTHER SERVICES (14)
1967	2926	6920	1978	278	1684	10858	5733
1968	3151	7327	1797	320	1785	11246	6135
1969	3308	7589	1942	352	1946	11828	6476
1970	3552	8271	1738	394	2056	12295	6881
1971	3688	8923	1889	440	2184	12484	7179
1972	3623	9765	2240	468	2418	12688	7487
1973	3871	11381	2433	501	2657	13589	8073
1974	4129	11852	2745	581	2933	14351	8680
1975	4245	12292	4101	607	3277	15056	9120
1976	4558	12923	5254	678	3875	14999	9513
1977	4922	14610	5568	712	4235	15838	9717
1978	8622	12486	5913	768	4501	16861	10217
1979	7865	14374	7121	849	4613	18085	10710
1980	8419	14756	7139	921	4827	19345	11331
1981	8803	15156	7830	999	5040	19695	11901
1982	9099	15436	8079	1084	5165	20355	12386
1983	9246	15862	7689	1192	5266	21656	12346
1984	9344	13975	5866	1211	5029	21482	11783

Source of data: Philippine Statistical Yearbook: 1979 issue,Table 4-13, pages 176-77 and 1985 issue, Table 3-10, pages 184-85.

TABLE 50. TRADEABLE AND NON-TRADEABLE OUTPUT

IN Million Pesos, At Constant 1972 Prices

YEAR	GDP	CLASSIFICATION I		CLASSIFICATION II		CLASSIFICATION III	
		QT	QN	QT	QN	QT	QN
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
1967	44093	9418	34675	12344	31749	19225	24868
1968	46544	10100	36444	13251	33293	20472	26072
1969	48779	10683	38096	13991	34788	21314	27465
1970	51014	11340	39674	14892	36122	22679	28335
1971	53526	12145	41381	15813	37713	24012	29514
1972	56075	13122	42953	16745	39330	25605	30470
1973	60931	15172	45759	19043	41888	28056	32875
1974	64139	15015	49124	19144	44995	29002	35137
1975	68361	14998	53363	19243	49118	30441	37920
1976	72962	16000	56962	20558	52404	32627	40335
1977	77990	17930	60060	22852	55138	35559	42431
1978	82797	15856	66941	24478	58319	37760	45037
1979	88346	17934	70412	25799	62547	39948	48398
1980	92707	18384	74322	26803	65903	41799	50907
1981	96207	18501	77706	27304	68903	42722	53485
1982	98999	18444	80555	27543	71456	43475	55524
1983	100068	18643	81425	27889	72179	42857	57211
1984	95490	16396	79094	25740	69750	41331	54159

We denote gross domestic product as GDP. We denote output of the tradeable sector (Q_T) as QT which is the sum of the output of the sub-sectors comprising the tradeable sector for each classification. We denote output of the non-tradeable sector (Q_N) as QN, which is the sum of the output of the sub-sectors comprising the non-tradeable sector. For each classification, GDP = QT + QN.
Source of basic data: Tables 48 and 49.

TABLE 51. SECTORAL SHARES TO GROSS DOMESTIC PRODUCT, IN PERCENT

YEAR	CLASSIFICATION I		CLASSIFICATION II		CLASSIFICATION III	
	QT/GDP (1)	QN/GDP (2)	QT/GDP (3)	QN/GDP (4)	QT/GDP (5)	QN/GDP (6)
1967	21.36	78.64	28.00	72.00	43.60	56.40
1968	21.70	78.30	28.47	71.50	43.98	56.01
1969	21.90	78.10	28.68	71.32	43.69	56.30
1970	22.23	77.77	29.19	70.81	44.45	55.54
1971	22.69	77.31	29.54	70.46	44.86	55.13
1972	23.40	76.60	29.38	70.13	45.66	54.34
1973	24.90	75.10	31.25	68.75	46.04	53.95
1974	23.41	76.59	29.85	70.15	45.22	54.78
1975	21.94	78.06	28.15	71.85	44.52	55.47
1976	21.93	78.07	28.17	71.82	44.72	55.28
1977	22.99	77.00	29.30	70.70	45.59	54.40
1978	19.15	80.85	29.56	70.43	45.60	54.39
1979	20.30	79.70	29.20	70.80	45.22	54.78
1980	19.83	80.17	28.01	71.09	45.08	54.91
1981	19.23	80.77	28.38	71.62	44.41	55.59
1982	18.63	81.37	27.82	72.17	43.91	56.08
1983	18.45	81.36	27.87	72.13	42.83	57.17
1984	17.17	82.83	26.95	73.04	43.28	56.71

For each classification, [(QT/GDP) + (QN/GDP)] = 100.
Source of basic data: Table 48.

TABLE 52. SUB-SECTORAL EMPLOYMENT, IN '000

YEAR	TOTAL EMPLOYMENT (1)	AGRICULTURE (2)	FISHERIES (3)	FORESTRY (4)	MINING AND Q'YING (5)	FOOD MANUFACTURES (6)
1967	11184	4262	888	843	52	395
1968	12482	4937	1248	1016	46	417
1969	11234	4292	1083	951	51	392
1970	11358	4210	1071	819	51	406
1971	12543	4424	1103	794	59	420
1972	12582	4855	1147	861	36	358
1973	13865	5365	1309	1092	51	354
1974	13824	5543	1354	787	47	368
1975	14517	5871	1358	539	54	424
1976	14238	5757	1284	618	81	417
1977	14334	5641	1261	572	52	382
1978	16101	6315	1481	607	61	712
1979	16434	6547	1371	535	94	641
1980	17452	6949	1457	522	80	656
1981	17371	6999	1495	425	75	640
1982	18117	7092	1499	348	131	690
1983	19212	7803	1751	326	102	694
1984	19673	7907	1566	260	141	777

Column 1 is the sum of the sub-sectoral employment, from column 2 of Table 52 to column 12 of Table 53.
Source of basic data: Philippine Statistical Yearbook: 1983 issue for 1967-69 data, Table 1.(A), page 7; and 1985 issue, Table 11-4, pages 478-79.

TABLE 53. SUB-SECTORAL EMPLOYMENT, IN '000

YEAR	OTHER MANU FAC TURES (7)	CONS TRUC TION (8)	UTILI TIES (9)	TRANS PORTA TION (10)	TRADE, BUILDING INSURANCE &R.ESTATE (11)	OTHER SERVICES (12)
1967	994	347	33	385	1352	1633
1968	970	378	27	380	1379	1684
1969	899	349	29	383	1109	1696
1970	948	438	33	498	838	2046
1971	1019	420	49	529	1559	2167
1972	965	432	44	467	1478	1939
1973	1042	350	37	504	1537	2224
1974	1055	403	36	491	1549	2191
1975	1227	456	46	492	1623	2427
1976	1181	429	51	600	1785	2035
1977	1133	484	42	681	1693	2393
1978	1031	516	50	696	1981	2651
1979	1173	588	58	732	1996	2699
1980	1151	592	66	734	2280	2965
1981	1101	604	53	758	2299	2922
1982	1172	698	69	807	2416	3194
1983	1193	697	78	831	2553	3184
1984	1163	743	75	891	2849	3301

Source of basic data: Philippine Statistical Yearbook: 1983 issue for 1967-69 data, Table 1.(A), page 7; and 1985 issue, Table 11-4, pages 478-79.

TABLE 54. SUB-SECTORAL SHARES TO TOTAL EMPLOYMENT, IN PERCENT

YEAR	TOTAL EMPLOY MENT (1)	AGRI CUL TURE (2)	FISHE RIES (3)	FORES TRY (4)	MINING AND Q'YING (5)	FOOD MANU FAC TURES (6)
1967	100.0	38.11	7.94	7.54	0.46	3.53
1968	100.0	39.55	10.00	8.14	0.37	3.34
1969	100.0	38.20	9.64	8.47	0.45	3.49
1970	100.0	37.07	9.43	7.21	0.45	3.57
1971	100.0	35.27	8.79	6.33	0.47	3.35
1972	100.0	38.59	9.12	6.84	0.29	2.84
1973	100.0	38.70	9.44	7.88	0.37	2.55
1974	100.0	40.10	9.80	5.69	0.34	2.66
1975	100.0	40.44	9.35	3.71	0.37	2.92
1976	100.0	40.43	9.02	4.34	0.57	2.93
1977	100.0	39.35	8.80	4.00	0.36	2.66
1978	100.0	39.22	9.21	3.77	0.38	4.42
1979	100.0	39.84	8.34	3.26	0.57	3.90
1980	100.0	39.82	8.35	2.99	0.46	3.76
1981	100.0	40.29	8.61	2.44	0.43	3.68
1982	100.0	39.15	8.27	1.92	0.72	3.82
1983	100.0	40.62	9.11	1.70	0.53	3.61
1984	100.0	40.19	7.96	1.32	0.72	3.95

Column 1 is the sum of the employment shares of the different sub-sectors to total employment, ie. from column 2 of Table 54 to column 12 of Table 55.
Source of basic data: Tables 52 and 53.

TABLE 55. SUB-SECTORAL SHARES TO TOTAL EMPLOYMENT, IN PERCENT

YEAR	OTHER MANU FAC TURES (7)	CONS TRUC TION (8)	UTILI TIES (9)	TRANS PORTA TION (10)	TRADE, BUILDING INSURANCE &R.ESTATE (11)	OTHER SERVICES (12)
1967	8.89	3.10	0.30	3.44	12.09	14.60
1968	7.77	3.03	0.22	3.04	11.05	13.49
1969	8.00	3.11	0.26	3.41	9.87	15.10
1970	8.34	3.85	0.29	4.38	7.38	18.01
1971	8.12	3.35	0.39	4.22	12.43	17.28
1972	7.67	3.43	0.35	3.71	11.75	15.41
1973	7.51	2.52	0.27	3.63	11.09	16.04
1974	7.63	2.91	0.26	3.55	11.21	15.85
1975	8.45	3.14	0.32	3.39	11.18	16.72
1976	8.29	3.01	0.36	4.21	12.54	14.30
1977	7.90	3.38	0.29	4.75	11.81	16.70
1978	6.40	3.21	0.31	4.32	12.30	16.46
1979	7.14	3.58	0.35	4.45	12.15	16.43
1980	6.59	3.39	0.38	4.21	13.06	16.99
1981	6.34	3.48	0.31	4.36	13.23	16.82
1982	6.47	3.85	0.38	4.46	13.33	17.63
1983	6.21	3.63	0.41	4.32	13.29	16.57
1984	5.91	3.78	0.38	4.53	14.48	16.78

Source of basic data: Tables 52 and 53.

TABLE 56. TRADEABLE AND NON-TRADEABLE EMPLOYMENT

YEAR	Shares to total employment, in %					
	CLASSIFICATION I		CLASSIFICATION II		CLASSIFICATION III	
	LT/L (1)	LN/L (2)	LT/L (3)	LN/L (4)	LT/L (5)	LN/L (6)
1967	16.89	83.11	20.42	79.58	58.53	41.47
1968	16.28	83.72	19.62	80.38	59.17	40.83
1969	16.92	83.08	20.41	79.59	58.60	41.40
1970	16.00	84.00	19.57	80.43	56.64	43.36
1971	14.92	85.08	18.27	81.73	53.54	46.46
1972	14.80	85.20	17.64	82.36	56.23	43.77
1973	15.76	84.24	18.31	81.69	57.01	42.99
1974	13.66	86.34	16.32	83.68	56.42	43.58
1975	12.54	87.46	15.46	84.54	55.90	44.10
1976	13.20	86.80	16.13	83.87	56.56	43.44
1977	12.26	87.74	14.92	85.08	53.27	46.73
1978	10.55	89.45	14.97	85.03	54.19	45.81
1979	10.97	89.03	14.87	85.13	54.71	45.29
1980	10.04	89.96	13.80	86.20	53.62	46.38
1981	9.21	90.78	12.89	87.10	53.19	46.81
1982	9.11	90.89	12.93	87.07	52.08	47.92
1983	8.44	91.56	12.05	87.85	52.67	47.33
1984	7.95	92.05	11.90	88.10	52.09	47.91

We denote share of employment of the tradeable sector to total employment (L_T/L) as LT/L and share of the non-tradeable sector to total employment (L_N/L) as LN/L. For each classification, [(LT/L) + (LN/L)] = 100. Column (1) is the sum of columns 4, 5 and 7 (Tables 54 and 55). Column (2) is the sum of columns (2, 3, 6, 8, 9, 10, 11, and 12) from Tables 54 and 55. Column (3) is equal to column 1 of Table 56 plus column 6 of Table 54. Column (4) is equal to column 2 of Table 56 less column 6 of Table 54. column (5) is equal to column 3 of Table 56 plus column 2 of Table 54. column (6) is equal to column 4 of Table 56 less column 2 of Table 54.

TABLE 57. TERMS OF TRADE AND ITS COMPONENTS

Year	(1) Terms of Trade (TOT)	(2) Domestic Price Index of Exportables (PX)	(3) Domestic Price Index of Importables (PM)	(4) Nominal Exchange Rate Index(e)	(5) Foreign Price Index of Exports (PX*)	(6) Foreign Price Index of Imports (PM*)
		In pesos		Pesos/US$	In US dollars	
1967	126.5	60.00	47.44	58.42	102.7	81.2
1968	123.1	63.74	51.76	58.42	109.1	88.6
1969	121.4	63.97	52.69	58.42	109.5	90.2
1970	118.8	100.27	84.38	90.25	111.1	93.5
1971	110.6	101.74	92.01	96.35	105.6	95.5
1972	100.0	100.00	100.00	100.00	100.0	100.0
1973	113.3	147.66	130.36	101.21	145.9	128.8
1974	114.5	246.39	215.18	101.69	242.3	211.6
1975	87.8	209.36	238.46	108.59	192.8	219.6
1976	77.7	188.16	242.11	111.47	168.8	217.2
1977	71.0	190.00	267.40	110.91	171.3	241.1
1978	78.8	213.75	271.24	110.35	193.7	245.8
1979	87.4	261.07	298.54	110.53	236.2	270.1
1980	68.6	276.82	403.52	112.53	246.0	358.6
1981	60.4	284.75	471.74	118.35	240.6	398.6
1982	58.7	255.75	435.63	127.94	199.9	340.5
1983	61.3	349.29	570.06	166.49	209.8	342.4
1984	59.8	578.90	967.65	250.17	231.4	386.8

Column (1) is obtained by dividing the domestic price of exportables (column 2) by the domestic price of importables (column 3) times 100. The domestic price of exportables is obtained as the product of the nominal peso-US dollar exchange rate index (column 4) by the foreign currency price of exportables (column 5) divided by 100. The domestic price of importables is obtained as the product of the nominal exchange rate index and the foreign currency price of importables (column 6) divided by 100.

Source of basic data: For column (4), see Table 63; for columns (5) & (6), Philippine Statistical Yearbook; 1979 issue, for 1967-74 data, Table 12-8, page 528; and 1985 issue for 1975-84 data, Table 7-8, page 387.

TABLE 58. RELATIVE EXCHANGE RATE ESTIMATES

YEAR	(1) DOMESTIC PRICE INDEX OF NON-TRADEABLES (PN) In pesos	(2) RELATIVE PRICE OF EXPORTABLES TO NON-TRADEABLES (PX/PN)	(3) RELATIVE PRICE OF IMPORTABLES TO NON-TRADEABLES (PM/PN)
1967	70.0	85.69	67.75
1968	72.7	87.66	71.18
1969	74.8	85.48	70.41
1970	83.1	120.64	101.52
1971	93.3	109.08	98.65
1972	100.0	100.00	100.00
1973	111.8	132.05	116.58
1974	147.6	166.98	145.83
1975	159.9	130.90	149.10
1976	174.7	107.71	138.60
1977	193.8	98.05	138.00
1978	210.1	101.74	129.10
1979	241.3	108.17	123.70
1980	278.9	99.26	144.69
1981	314.6	90.50	144.93
1982	343.2	74.50	126.91
1983	377.5	92.52	151.00
1984	523.0	110.68	185.00

Columns (2) and (3) are obtained by dividing columns (2) and (3) from Table 57, respectively, by column (1) from this table. Domestic prices of non-tradeables were obtained using classification III (see Table 10 or Table 36).

TABLE 59. DOMESTIC PRICES OF SELECTED COMMODITIES

YEAR	(1) DOMESTIC PRICE OF OIL (PO)	(2) DOMESTIC PRICE OF SUGAR (PS)	(3) DOMESTIC PRICE OF COPRA (PCP)	(4) DOMESTIC PRICE OF LUMBER (PL)	(5) DOMESTIC PRICE OF COPPER (PCO)	(6) DOMESTIC PRICE OF CONST'N (PC)	(7) DOMESTIC PRICE OF NON-TDBS (PN)
			1 9 7 2 = 1 0 0				
1967	69.07	51.5	93.5	64.5	51.8	68.0	70.02
1968	68.17	52.2	113.0	71.0	55.5	75.2	72.71
1969	66.87	54.3	100.0	72.6	71.6	78.8	74.83
1970	84.97	71.7	143.5	77.4	108.6	87.2	83.11
1971	93.94	84.8	130.4	93.5	95.1	94.3	93.27
1972	100.00	100.0	100.0	100.0	100.0	100.0	100.00
1973	120.50	110.8	273.9	110.0	161.2	113.2	111.82
1974	332.19	213.0	547.8	185.5	205.8	171.5	147.55
1975	328.30	217.4	217.4	161.3	123.4	172.2	159.93
1976	324.72	178.3	241.3	200.0	128.9	186.2	174.68
1977	326.23	130.4	369.5	267.7	127.8	204.0	193.76
1978	305.37	130.4	441.3	290.3	130.6	211.8	210.09
1979	370.04	130.4	586.9	359.7	200.0	249.6	241.35
1980	511.54	171.7	371.7	516.1	231.0	298.5	278.89
1981	536.30	189.1	337.0	580.6	192.1	335.5	314.63
1982	480.29	245.6	271.7	554.8	161.7	362.7	343.25
1983	515.12	265.2	510.9	562.9	218.5	399.7	377.51
1984	546.75	484.7	1341.0	856.4	270.4	532.0	523.03

These price indices were estimated from the wholesale prices in pesos. Source of basic data: For column (1), World Bank Report: Price Prospects for Major Commodities, page 77. For columns (2) to (6), see IMF International Financial Statistics: May 1976 issue for 1967-75, pages 310-11 with 1970 as base year; 1981 issue for 1967-80, pages 352-53 with 1975 as base year; and March 1985 issue for 1978 to 1984, pages 378-79 with 1980 as base year. Then we expressed the series in just one base year (1972=100). Column (7) was based on classification III (Table 10 or 36).

TABLE 60. RELATIVE PRICES OF OIL AND SUGAR

YEAR	RELATIVE PRICES (1972=100)			
	(1) OIL TO CONSTRUCTION (PO/PC)	(2) OIL TO NON-TRADEABLES (PO/PN)	(3) SUGAR TO CONSTRUCTION (PS/PC)	(4) SUGAR TO NON-TRADEABLES (PS/PN)
1967	58.78	57.08	75.70	73.55
1968	53.15	54.97	69.40	71.80
1969	50.72	53.41	68.90	72.56
1970	70.81	87.20	82.20	86.27
1971	91.40	92.42	89.90	90.92
1972	100.00	100.00	100.00	100.00
1973	127.05	128.62	97.90	99.09
1974	349.51	406.20	124.20	144.36
1975	361.77	389.52	126.20	135.93
1976	368.64	392.96	95.80	102.07
1977	366.25	385.62	63.90	67.30
1978	353.74	356.62	61.50	61.92
1979	433.50	448.32	52.20	54.03
1980	605.15	647.71	57.50	61.56
1981	636.82	679.06	56.40	60.10
1982	575.53	608.14	67.70	71.55
1983	616.04	652.25	66.30	70.25
1984	680.62	692.29	91.10	92.67

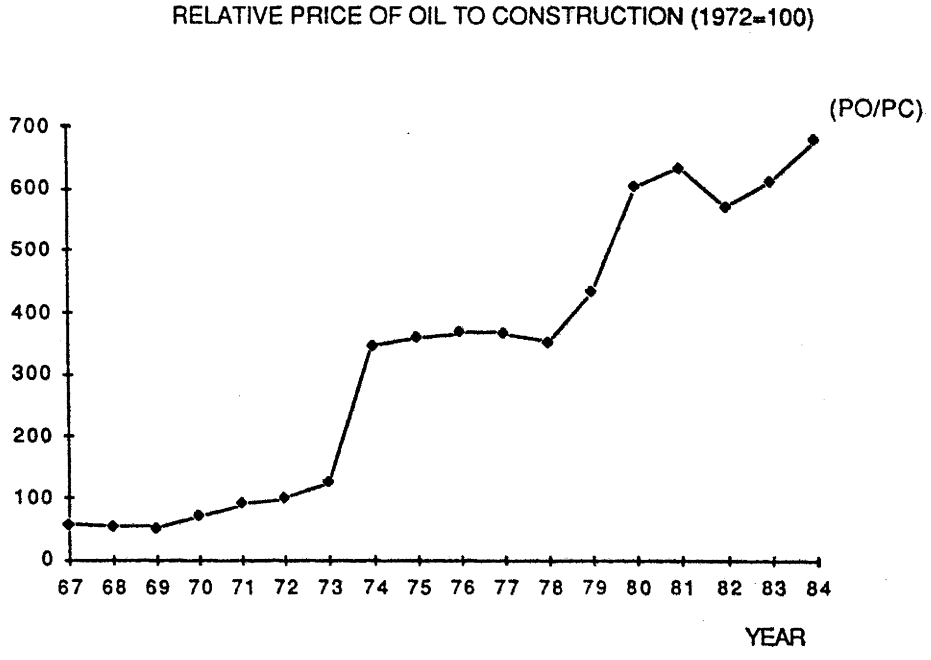
Source of basic data: Table 59.

TABLE 61. RELATIVE PRICES OF COPRA, LUMBER AND COPPER

	RELATIVE PRICES (1972=100)					
YEAR	(1) COPRA TO CONSTRUCTION (PCP/PC)	(2) COPPER TO NON TRADEABLES (PCP/PN)	(3) LUMBER TO CONSTRUCTION (PL/PC)	(4) LUMBER TO NON-TRADEABLES (PL/PN)	(5) COPPER TO CONSTRUCTION (PCO/PC)	(6) COPPER TO NON-TRADEABLES (PCO/PN)
1967	137.50	133.53	94.85	92.11	76.18	73.98
1968	150.26	155.41	94.41	97.65	73.80	76.33
1969	126.90	133.63	92.13	97.02	90.86	95.68
1970	164.56	172.66	88.76	93.13	124.54	130.67
1971	138.28	139.81	99.15	100.24	100.84	101.96
1972	100.00	100.00	100.00	100.00	100.00	100.00
1973	241.96	244.95	97.17	98.37	142.40	144.16
1974	319.42	371.26	108.16	125.72	120.00	139.48
1975	126.25	135.93	93.67	100.85	71.66	77.16
1976	129.59	138.14	107.41	114.50	69.22	73.79
1977	181.13	190.70	131.22	138.16	62.65	65.96
1978	208.35	210.05	137.06	138.18	61.66	62.16
1979	235.13	243.17	144.11	149.03	80.13	82.87
1980	124.52	133.28	172.90	185.05	77.39	82.83
1981	100.45	107.11	173.05	184.53	57.26	61.05
1982	74.91	79.15	152.96	161.63	44.58	47.11
1983	127.82	135.33	140.83	149.11	54.67	57.88
1984	252.06	256.39	160.98	163.74	50.82	51.70

Source of basic data: Table 59.

Figure 1: RELATIVE PRICE OF OIL AND SUGAR TO CONSTRUCTION



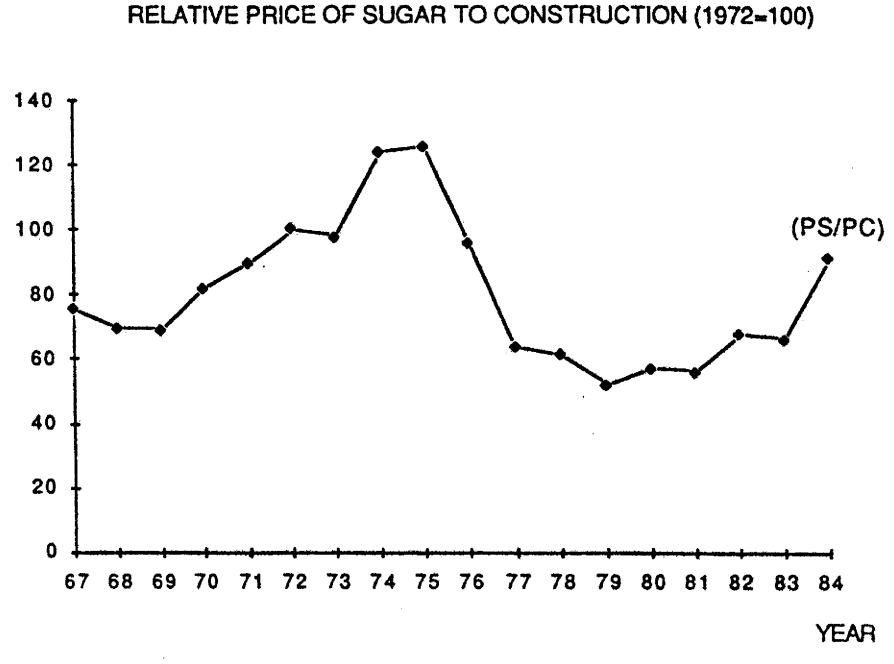
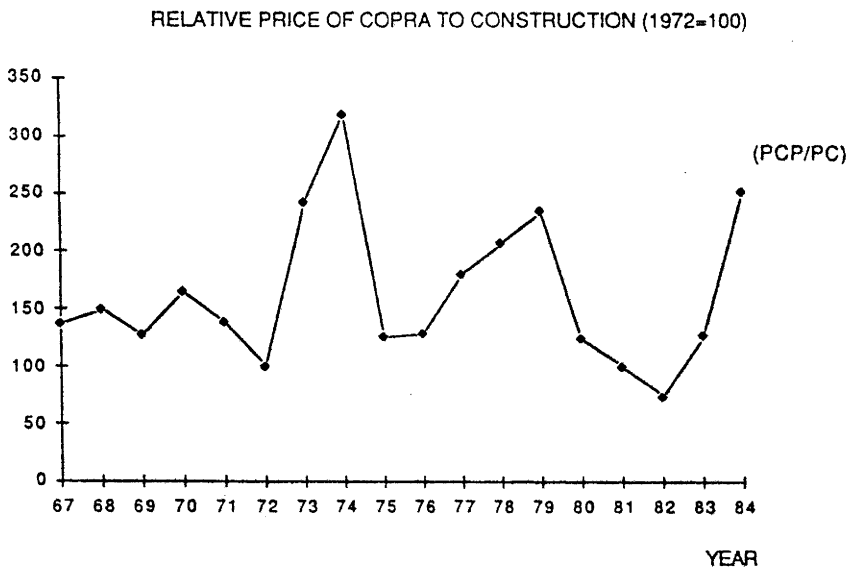
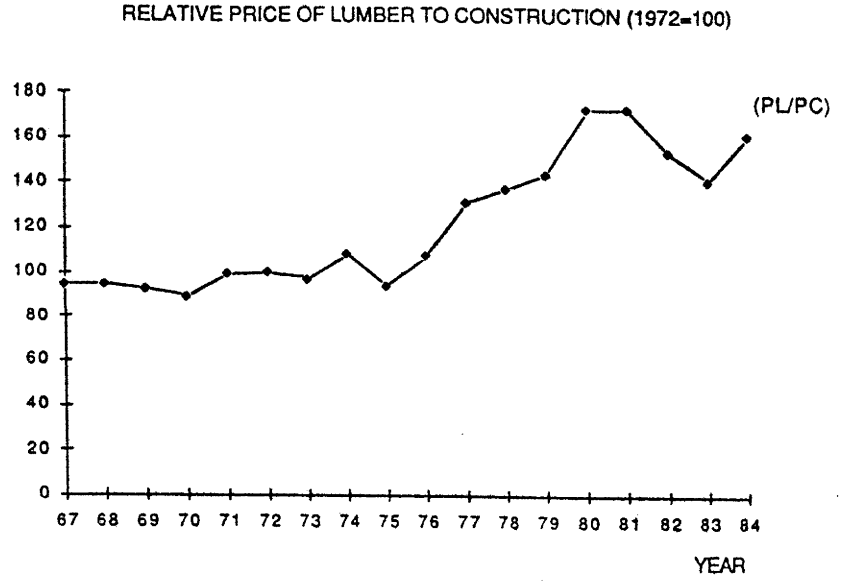
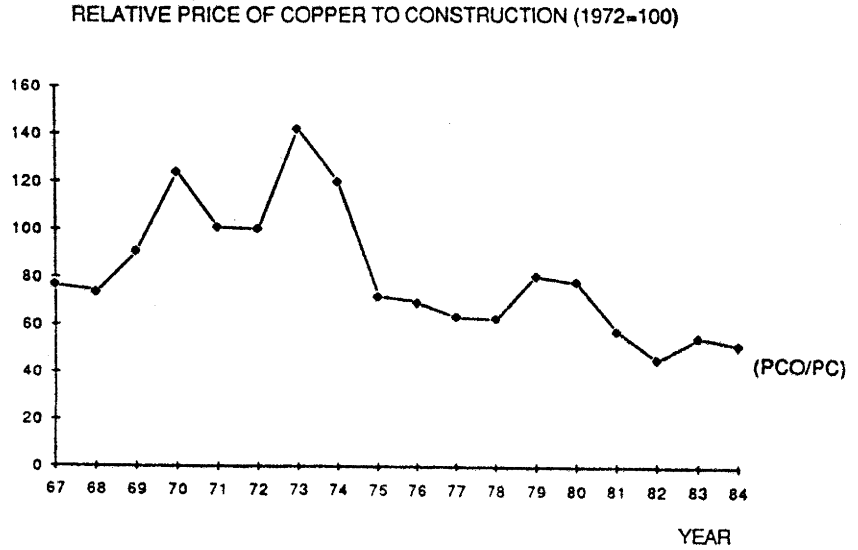


Figure 2:RELATIVE PRICE OF COPRA, LUMBER & COPPER TO CONSTRUCTION







APPENDIX F: DATA INPUT REQUIREMENTS FOR CHAPTER 7

TABLE 62. SAVINGS AND INVESTMENT

YEAR	GROSS NATIONAL PRODUCT (1)	CURRENT ACCOUNT SURPLUS (2)	GROSS DOMESTIC SAVINGS (3)	GROSS DOMESTIC INVEST-MENT (4)	SECTORAL SAVINGS-INVESTMENT GAP	
					PUBLIC SECTOR (5)	PRIVATE SECTOR (6)
	In Million Pesos, At Current Prices					
1970	41751	- 136	8856	8992	271	- 407
1971	49599	49	10503	10454	431	- 382
1972	55526	244	11817	11573	- 484	728
1973	71616	3950	19394	15444	2108	1842
1974	99948	- 957	25875	26832	- 740	- 217
1975	114265	- 5836	29869	35705	- 2059	- 3777
1976	132712	- 7820	33233	41053	- 4467	- 3353
1977	154280	- 4810	39441	44251	- 5893	1083
1978	178067	- 8375	43331	51706	- 5052	- 3323
1979	220957	- 9760	59080	68840	- 4972	- 4788
1980	265078	-13533	67615	81148	- 3876	- 9657
1981	303644	-15338	77923	93261	-10165	- 5173
1982	335423	-25339	71182	96521	-14024	-11315
1983	379170	-26394	78020	104414	- 6516	-19878
1984	537363	-14756	85229	99985	619	-15375

Column (2) is the difference between columns (3) and (4). This follows from the identity that the excess of savings over investment is the current account surplus. A negative sign indicates a current account deficit (investment exceeds savings). Column (3) and column (4) are equal to the sums of columns (7) and (8), and of columns (9) and (10), respectively, from Table 63. Column (5) is the difference between columns (7) and (9) from Table 63.Column (6) is the difference between columns (8) and (12) from Table 63. See section 7.3 for the discussion of the procedure in estimating sectoral savings and investment.
Source of basic data: For column (1), see Appendix C, Table 5. For column (2),see Appendix D, Table 11; and for column 4, data were taken from the Philippine Statistical Yearbook: 1982 issue for 1970-74 data, Table 3-6, pages 144-45, and 1985 issue for 1975-84 data, Table 3-1 pages 166-67.

TABLE 63. SECTORAL SAVINGS AND INVESTMENT

In Million Pesos, At Current Prices

YEAR	SAVINGS		INVESTMENT					
			PUBLIC			PRIVATE		
	PUBLIC	PRIVATE	TOTAL	FIXED INVESTMENT	INCREASES IN STOCK	TOTAL	FIXED INVESTMENT	INCREASES IN STOCK
	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
1970	1009	7847	738	417	321	8254	6284	1970
1971	1338	9165	907	585	322	9547	7569	1978
1972	934	10883	1418	1034	384	10155	7797	2358
1973	4121	15273	2013	1398	615	13431	9651	3780
1974	4898	20977	5638	2854	2784	21194	15791	5403
1975	4633	25236	6692	4368	2324	29013	23432	5581
1976	2562	30671	7029	6428	601	34024	26325	7699
1977	4928	34513	10821	8125	2696	33430	28197	5233
1978	7181	36150	12233	10260	1973	39473	32268	7205
1979	11627	47453	16599	16105	494	52241	41354	10887
1980	13265	54350	17141	16336	805	64007	51657	12350
1981	11377	66546	21542	20017	1525	71719	59268	12451
1982	10135	61047	24159	21993	2166	72362	64033	8329
1983	14123	63897	20639	19751	888	83775	75503	8272
1984	20394	64835	19775	20107	-332	80210	85483	-5273

Column (9) is the sum of columns (10) and (11) while column (12) is the sum of columns (13) and (14).
Source of basic data: Philippine Statistical Yearbook: 1982 issue for 1970-74 data, Table 3-6 pages 144-45; and 1985 issue for 1975-84 data, Table 3-1, pages 166-67 for columns (9), (10), (12) and (13). Given the total change in stock, sectoral increases(decreases), ie. columns (11) and (14), were estimated based on the weighting procedure discussed in chapter 7, section 7.3.

TABLE 64. ESTIMATION OF CAPITAL STOCK, 1967-1984

YEAR	In Million Pesos, At 1972 Prices					
	INVESTMENT (1)	DEPRECIATION (2)	CUMULATIVE INVESTMENT (3)	CUMULATIVE DEPRECIATION (4)	CAPITAL STOCK ESTIMATE (5)	(6)
1967	9706	248.87	108811	2789.99	106021	176124
1968	10691	274.12	119502	3064.11	116438	184699
1969	11231	287.97	130733	3352.08	127380	193571
1970	10835	277.82	141568	3629.90	137938	198531
1971	11226	287.84	152794	3917.74	148876	206430
1972	11573	296.74	164367	4214.48	160152	212818
1973	12540	321.54	176907	4536.02	172371	219139
1974	15651	401.31	192558	4937.33	187621	233367
1975	18984	486.77	211542	5424.10	206117	239930
1976	20225	518.59	231767	5942.69	225824	n.a.
1977	20828	534.05	252595	6476.74	246118	n.a.
1978	23089	592.02	275684	7068.76	268615	n.a.
1979	26336	675.28	302020	7744.04	294276	n.a.
1980	26609	682.28	328629	8426.32	320203	n.a.
1981	27220	697.95	355849	9124.27	346725	n.a.
1982	26267	673.51	382116	9797.78	372319	n.a.
1983	25029	641.77	407145	10439.55	396705	n.a.
1984	15556	398.87	422701	10838.42	411862	n.a.

Column 1 refers to the gross domestic capital formation data obtained from the NEDA Philippine Statistical Yearbook, 1979 & 1985 issues. We actually used the 1946-1984 data series for column 1 so that we have 39 years of observation. Column 2 refers to the estimated annual depreciation. The constant rate of depreciation is equal to (1/39)x100 = 2.56 % for each year Column 3 refers to the cumulative investment from 1946 to 1984. Column 4 refers to the cumulative depreciation from 1946 to 1984 Following Roemer and Stern (1980), we estimated capital stock (column 5) as the difference between cumulative investment (column 3) and cumulative depreciation (column 4). Column 5 estimates are then compared with estimates arrived at by Sanchez (1983, p. 139). For the discussion of procedure in estimating capital stock, see chapter 7, section 7 4. The notation n.a. means not available.
Source of basic data: Philippine Statistical Yearbok: 1979 issue for 1967-74 data, Table 4-7, pages 150-51;and 1985 issue, Table 3-7, pages 178-79.

TABLE 65. COMPONENTS OF NATIONAL WEALTH

Year	In Million US Dollars			(4)	(5)
	(1) Gross External Debt (D)	(2) Foreign Exchange Reserves (FX)	(3) Domestic holdings of foreign assets FA^d	Peso-US dollar rate (e)	Price level, (P) (1972=100)
1970	2297	251	128	6.0246	83.11
1971	2368	375	148	6.4317	93.55
1972	2663	549	186	6.6748	100.00
1973	2846	1037	379	6.7562	118.41
1974	3538	1502	475	6.7879	156.02
1975	4392	1360	718	7.2479	168.46
1976	6345	1642	564	7.4402	181.19
1977	8035	1525	738	7.4028	197.89
1978	10608	1883	1312	7.3658	213.25
1979	13192	2423	1308	7.3776	245.07
1980	17122	3155	1904	7.5114	279.42
1981	20291	2573	2297	7.8997	307.12
1982	23797	1711	2540	8.5400	332.80
1983	24972	864	1576	11.1127	371.39
1984	25418	886	1836	16.6984	556.67

Sources of basic data: For column (1), see the IMF report on Recent Economic Developments in the Philippines, June 1984, Table 12, page 72. Column (2) refers to the official reserves of the Central Bank consisting of gold, foreign exchange and SDRs. Column (3) refers to the foreign assets held by the domestic banks. Data for columns (2) and (3) were obtained from tables on International Liquidity in the Philippine Financial Statistics, several quarterly issues. Exchange rates (column 4) were obtained from Appendix D, Table 9. The price indices (column 5) were estimated as the weighted average of prices of tradeables and non-tradeables (based on classification III, see Table 10 or Table 36).