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PART II
Phase III Policies

Chapter 4

Devaluation and Related Policy Measures

The feature that distinguishes Phase III from a straightforward alteration in the exchange rate is the fact that the prior existence of quantitative restrictions inevitably influences the way the change affects economic behavior. This happens both because devaluation alters the economic impact of existing quantitative restrictions and because devaluation is often accompanied by policy changes that intentionally or otherwise affect the operation of the QR regime.

To be sure, a country using QRs to maintain its desired balance-of-payments position could anticipate a future payments imbalance and adjust its exchange rate just enough to offset that imbalance, leaving the economic impact of its QR system unchanged. That was the case with Brazil, Chile, and Colombia during the periods when each was frequently making small exchange rate changes in order to maintain the real rate. Those exchange rate adjustments did not constitute Phase III episodes, since the QR regime did not significantly affect the response to the exchange rate alteration. When a larger exchange rate change occurs in a Phase II context, however, interaction of the change with the QR regime is virtually inevitable.[1] Moreover, in many instances the desire to alter the QR regime—at least to the extent of simplifying it—has often been a motivating factor in the decision to devalue.

When QRs are an important restriction on the private market, price changes cannot have the same effect as they would if desired and actual transactions had been coincident. For that reason alone, exchange rate changes under QRs cannot be analyzed in exactly the same manner as would a devaluation undertaken from an initial position of currency convertibility. In general, however, a devaluation developing from a Phase II situation is usually accompanied by changes in other policy instruments. Some of those changes alter the

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QR system, and others affect other aspects of economic policy. For empirical purposes the effects of each component of the policy package must be interpreted in light of the QR regime prevailing at the time of the devaluation.

Sorting out these Phase III policy components is the task of this and the next three chapters. In this chapter the policy changes that comprised the shift to Phase III in each of the ten countries are reviewed, and a framework within which those components can be analyzed is introduced. The following three chapters analyze those components in depth and examine the twenty-two Phase III episodes in that context.

I. DEVALUATION PACKAGES

The sets of possible policies that can accompany devaluation are highly varied. In general the packages that were adopted in the twenty-two Phase III episodes covered in this project included five broad categories of measures. First, there were the devaluations with their associated price changes. Second, domestic macroeconomic policy was altered in attempts to reduce the level, or rate of increase, of aggregate demand. Third, there were changes in supply brought about—usually—by additional foreign borrowing, debt rescheduling, or receipt of additional foreign aid. Fourth, the operation of the QR regime was often modified. Finally, there were measures, undertaken simultaneously with devaluation, that were not directly related to the objectives of devaluation.

Price Changes

Obviously a devaluation is in itself a major price change unless other, offsetting measures are simultaneously undertaken. In most instances the devaluation represents the largest single alteration in price in the set of policies that constitute the move to Phase III.

However, additional measures are often implemented. Some have a direct bearing on the magnitude of the "true" devaluation, while others can have important effects that must be taken into account when analyzing the response to the devaluation. Any changes in the charges on foreign exchange transactions are in the first category. The second category includes such measures as interest rate reforms, price increases for public sector outputs, and changes in price control measures.

It will be recalled that one characteristic of Phase II is the tendency to proliferate both price and quantity controls in an effort to contain demand for foreign exchange, to provide incentives for foreign exchange earnings, and to direct the flow of foreign exchange through legal channels. Many devaluation packages have included a variety of measures designed to eliminate some of those special charges and incentives.

Special exchange rates for such categories of transactions as repatriation of overseas earnings, minor exports, and tourism are often abolished at the time of devaluation. In India, for example, a variety of export subsidies, including exemption from indirect taxes, direct tax concessions, rail freight concessions, and import entitlement schemes, were used during the period from 1962 to 1966. In addition, the National Defense Remittance scheme, initiated in October 1965, gave resalable import licenses, valued at about 60 percent of face value, to Indian nationals residing abroad in exchange for their remittances.[2] These measures were all rescinded at the time of India's devaluation in June 1966. This had significant offsetting effects on the impact devaluation would otherwise have had on the relevant categories of transactions.

In many countries during Phase II, special export incentives, at least for minor exports, buffered the effects of domestic inflation (at a fixed exchange rate) on export earnings. Those incentives often were abolished at the time of devaluation. That was especially significant in South Korea and Israel. Similar alterations occurred on the import side. In Turkey, for example, an across-the-board surcharge of 40 percent on imports was rescinded within six months after the 1958 devaluation. Many countries that imposed guarantee deposit requirements against imports during Phase II either lowered or eliminated those requirements with the devaluation. Since there is a cost-equivalent to such deposit requirements, their elimination can be interpreted as a reduction in the price of foreign exchange for the relevant categories of transactions.

In Chapter 5, the changes in the price of foreign exchange in each of the twenty-two Phase III episodes are reviewed. Changes in special charges and incentives often made a significant difference in the impact the devaluation had on domestic prices. Empirical estimates of the magnitude of devaluation must take these changes into account in measuring the relevant economic variables.

The second sort of price change accompanies devaluation and may modify its effects, but it is directed at other aspects of the economy. Analysis of the impact of devaluation and related measures must recognize the role of the other measures undertaken in the same time interval. In some instances these changes must be taken into account simply because their magnitude is sufficient to affect the working of the economy. Such was the case in the South Korean interest rate and financial reforms that accompanied the 1964/65 Phase III episode.

Part of the price level behavior following devaluation seems attributable to other price change measures rather than to devaluation. The removal of price controls has been important on occasion, as in Israel in 1952 and Turkey in 1958. In other instances price changes undertaken at the same time as devaluation have affected the government budget significantly, with consequences for domestic inflation. In Turkey, for example, public enterprises—which account for about 50 percent of industrial production—had been selling their output well below cost, borrowing from the central bank to cover their losses. At the time of devaluation in 1958, prices of outputs of the

State Economic Enterprises were increased, with the result that the rate of central bank lending was slowed substantially. The role of public sector pricing in the process of money creation was a significant aspect of the Turkish economy's response to Phase III and of the behavior of the price level.

Domestic Macroeconomic Policy

In many countries domestic monetary and fiscal policies were altered as part of the Phase III package. Often the entire package was labeled a "stabilization program," an indication of the importance attached to macroeconomic measures. Sometimes the Phase III experience was motivated by an effort to control domestic demand, and adjusting the exchange rate was only one of a series of policy changes designed to result in a reduced domestic rate of inflation. Such was the case in Chile in 1956, where the intent of the entire program was to reduce the rate of inflation, which had averaged 72 percent in 1954 and 1955.[3]

In the majority of cases, however, the primary motive for Phase III policies was to rectify an unsustainable current or prospective payments position. Imports were judged to be intolerably low or scheduled debt-service obligations could not be met without inflicting unacceptable losses on the domestic economy by reducing imports to a level that could be sustained by prospective foreign exchange earnings. Macroeconomic policy changes in these instances were geared to supporting the devaluation. That was clearly the case in Colombia in 1956, in Ghana in 1966/67, in India in 1966, in South Korea in 1961 and 1964, in the Philippines in 1970, and in Turkey in 1958. In a few cases, such as Brazil's devaluation of 1964 and its aftermath, reducing domestic inflation and altering the external imbalance seem to have been twin goals of policy. There were, of course, instances where domestic macroeconomic policy was unaltered, or even unduly expansionary, following devaluation. That happened in Israel in 1962 and in Turkey in 1970.

Important questions arise as to the appropriate macroeconomic policy to accompany devaluation. According to extremely simple neoclassical models, it does not matter whether one raises the price of foreign exchange or deflates the domestic economy. The presence of downward price rigidities, cost-push mechanisms, and related phenomena obviously limits the applicability of that analysis. Moreover, the presence of quantitative restrictions also changes the impact of devaluation from what it would have been if undertaken from an initial open-deficit situation.[4] Plainly the analysis of devaluation cannot be undertaken without consideration of the shifts in monetary and fiscal policy that accompany it.

Short-Run Supply of Foreign Exchange

A devaluation, if successful, will result in increased foreign exchange earnings. Whether that increase is simply a once-and-for-all shift in the level of earnings or whether it represents a change in the growth rate of earnings is an important question, which will be addressed in Chapter 9.[5] Either way, increased foreign exchange earnings represent a response to the devaluation and are not a part of the policy package. Such a response cannot, in general, be expected immediately, although counterspeculative flows could provide an additional source of foreign exchange during the period before the export response is felt. There will usually be a period of time during which export earnings have not yet responded sufficiently to finance the flow of imports that—in the longer run—will be sustainable. If the flow of imports does not increase during this period, premiums on import licenses will continue, and the shift in relative domestic prices of exportables and import substitutes that would bring about the export response will be greatly reduced, if not eliminated.[6]

Thus there is a strong argument for increasing imports during the interval before export earnings have responded.[7] This may only be done by obtaining additional foreign aid or foreign credits, or by rescheduling debt. Such financing has been a significant component of devaluation packages in a surprisingly large number of instances, although it was not always employed to increase the flow of imports. Brazil, for example, obtained a net inflow of $486 million on government account and $276 million from private sector inflows over the years 1964 to 1966.[8] Egypt, in her devaluation, received credits equal to £E 20 million from the International Monetary Fund.[9]

When external financing permits an immediate increase in the flow of imports, there can be significant effects both on domestic prices and on inflationary pressures. When imports increase, the domestic price of imported goods is likely to fall, and—depending on the nature of the commodities involved—cost-price relationships can change in consequence. Israel's 1952-1955 Phase III, for example, was accompanied by a virtually complete liberalization of imports of raw materials and intermediate goods.[10] Turkey's 1958 devaluation was accompanied by an increased flow of imports, equivalent to about 2 percent of GNP. That increase, naturally, had a significant impact both on the price level and on inflationary pressures.

An increased import flow financed by foreign credits will affect the outcome of a devaluation. It also raises other important questions: What is the productivity of an increased flow of imports? Do the benefits resulting from that increased flow warrant international borrowing? These questions will be addressed in Chapter 7, where the macroeconomic and other effects of Phase III episodes are reviewed.

Changes in the QR Regime

A motive that seems to have been important in a number of Phase III experiences was the desire to alter the nature of the QR system. In some instances the goal seems to have been to simplify existing regulations. In other cases the wish to shift from reliance on the QRs to using prices to govern the foreign sector was apparently a dominant reason.

The Philippines' Phase III of 1960-1962 and the Israeli 1952-1955 period are probably the two episodes largely motivated by the desire to shift to a pricing system. In many other instances, however, there was clearly an intention to alter QRs in order to reduce significantly the value attaching to import licenses. That was the case in Turkey in both 1958 and 1970, in India in 1966, and in Ghana in 1966/67.

There are a number of ways to reduce the restrictiveness of the import licensing system. For example, some countries in Phase II employ import licensing systems under which only commodities on an eligible import list may be imported. Liberalization can come about by shifting to a system under which the only items that cannot be imported are those specifically banned. South Korea shifted from a positive list to a negative list following her Phase III episode in 1964. Another means of liberalizing is by establishing a procedure under which import licenses are granted virtually automatically for specified commodities. This change was effected in Turkey in 1958 and in India in 1966, and it represented a distinct change in the QR system in both countries. In still other cases the formal licensing system was left intact, but the value of licenses issued was increased massively; that happened in Turkey in 1970, with the result that premiums on licenses virtually disappeared.

Experience with these changes in the QR system is important for a variety of reasons. First, such changes affect the total devaluation package and its consequences. Second, it may be possible to rank instruments of QRs by their desirability as mechanisms, by their influence on the export response to devaluation, and by other related criteria.

Domestic Policy Changes

There were more than a few instances where the set of policy changes affecting the outcome of a Phase III episode included major changes in domestic policies. In some cases, such as the interest rate reforms of Brazil and South Korea, those changes were clearly and intentionally part of the overall policy package. In other instances, however, the government used the occasion of devaluation to make changes in domestic policies that would have been politically unpopular had public attention focused on them. In the Israeli ex-

perience of 1952-1955, for example, a shift of emphasis from QRs to pricing incentives in the foreign trade sector was only a small part of the broader shift from QR to price mechanisms within the domestic economy. In several cases devaluation was the occasion for raising the prices of public sector outputs, especially electricity, gas, and related services. This occurred in both Turkish devaluations, in Colombia in 1962, and in Chile in 1956 and 1959.

In addition to policy changes extraneous to the devaluation itself, there are exogenous events that can affect the outcome of a Phase III episode. An important one, pointed out by Cooper,[11] is weather, with its consequent impact on the harvest. Given the importance of agricultural output for domestic prices and for export supply it is hardly surprising that a fortuitous event, such as weather changes, can affect the outcome of the devaluation package. Another occasionally significant factor has been an exogenous change in the prices received for a country's major export commodity. Fishlow, for example, shows that the Brazilian Phase III episode of 1957 generated significant increases in the quantity of exports of a number of primary commodities, but that export earnings failed to increase significantly because of deteriorating terms of trade.[12] An opposite circumstance surrounded the Chilean Phase III of 1965 and its aftermath; rising world copper prices obscured the fact that the Phase III changes had not been sufficient to generate any significant response of exports.[13]

Given the variety of measures that normally accompany Phase III episodes, the basic problem for empirical work is to find a framework within which meaningful quantification of both the impetus and response to devaluation and the accompanying policy changes can be undertaken. The remainder of this chapter sketches such a framework. The next three chapters employ that framework to provide a systematic description of the twenty-two Phase III episodes covered by the NBER project.

II. DEVALUATION IN AN EXCHANGE CONTROL CONTEXT

The Exchange Rate under Convertibility

In an open economy without quantitative restrictions on international trade, analysis of the role of the exchange rate lies largely within the domain of macro- and monetary economics—a deficit (or surplus) on current account is, by definition, an excess (or shortfall) of expenditures over income. If the private sector adjusts its net wealth position by buying or selling foreign assets, there will not be an overall balance-of-payments deficit or surplus. If, however, current and capital account balances are not offsetting, it is in-

dicative of an imbalance between desired and actual money holdings, given government fiscal policies.

While all agree that, under conditions of full convertibility, a balance-of-payments deficit or surplus is primarily a macro-economic phenomenon, there is considerable debate over the precise way the exchange rate affects economic activity. In all models, however, resource allocation effects will come about if altering the exchange rate affects one or more relative prices.[14]

In the extreme case of a small country where all goods and services are tradable,[15] the exchange rate may not play any role in resource allocation. It could do so only if it affects one or more relative prices in the economic system and that, in turn, would require specification of a neo-Keynesian model with price rigidities or other properties that provide a link to real variables. More generally, when some commodities are nontradable there is a presumption that exchange rate changes (or domestic monetary behavior) will alter the price of home goods relative to the price of tradables.[16]

When domestic inflation takes place under a fixed exchange rate, production of home goods becomes more attractive relative to production of tradables, while consumption of traded goods is less expensive compared to home goods. Given a particular set of monetary and fiscal policies (and instantaneous adjustment) it is apparent that as the price of foreign exchange increases, production of tradables would increase, and consumption of tradables would diminish. At some sufficiently low price of foreign exchange there would be a current account deficit; at some sufficiently high price there would be a current account surplus.[17]

A basic question is whether one can find empirically relevant meanings of the terms "overvalued," "equilibrium," and "undervalued." In theory these notions can be fairly precisely defined for a particular set of monetary and fiscal policies (and also a given level of capital inflows and structure of protection), although the rates in question might have to be described as paths over time. For analytical purposes, the crux is the empirical definition of an equilibrium exchange rate; given this, an undervalued rate is a price of foreign exchange higher than the equilibrium rate, and an overvalued exchange rate is below it. It is apparent that there would be a different equilibrium rate every time the world price level, or the prices of major export commodities, changed. Alterations in domestic monetary and fiscal policies would also alter the equilibrium rate. As Diaz noted for Colombia:

> There is probably no exchange rate observed in Colombia during 1925-72 which could not have been turned into an "equilibrium" one at some dollar coffee price, even if the possible choices were limited to the range of prices actually observed during the same period.[18]

Although attempts have been made to find ways to estimate equilibrium rates,[19] no widely accepted method has been found, and no country author in

the present project attempted to estimate equilibrium rates for his country. However, fluctuations in the "real" exchange rate—the price of foreign exchange deflated by the price index best approximating the price of home goods—were extremely wide. As inflation proceeded at a fixed exchange rate, most authors were willing to pronounce the exchange rate overvalued, despite an inability to name an exact equilibrium rate. That practice is followed in this book. An overvalued exchange rate will be understood to be one that requires the support of quantitative restrictions for balance-of-payments purposes or one that requires foreign borrowing to bolster or prevent the depletion of foreign exchange reserves. When overvaluation increases, either additional QRs are imposed (or the restrictiveness of existing QRs increases), or there is resort to net borrowing at a rate that is unsustainable over a longer period.

Such a definition is not conceptually satisfactory. As will be seen in subsequent chapters, however, it suffices for empirical analysis in most instances. Although pinpointing the equilibrium exchange rate eludes this analysis, major deviations from it are obvious. For example, all would certainly agree that Chile's currency was overvalued in 1955—the annual rate of inflation averaged about 48 percent for the 1952-1955 period, while a fixed nominal exchange rate was maintained.

Focusing on inflation and its effect on the real exchange rate underscores that aspect of macroeconomics that applies with equal force to analysis of all exchange rate changes, whether under free trade with convertibility or under QRs. Regardless of the system it is the real exchange rate that affects economic activity, and—at a given exchange rate—domestic inflation in excess of the world rate will lead to increasing overvaluation of the currency, all else equal.[20]

Impact of Exchange Control on Analysis of Devaluation

Although macroeconomic variables affect the real exchange rate under QRs in the same way they do under free trade, there are significant differences in the way devaluation affects the domestic economy. First, the devaluation package often includes price changes that enhance or diminish the magnitude of the devaluation. Analysis of this difference, which is really quantitative rather than qualitative, requires only the setting forth of appropriate concepts pertaining to the exchange rate. Second, devaluation is generally *not* aimed exclusively—or often even primarily—at reducing an existing or prospective payments deficit. This difference requires discussion primarily in order to emphasize that the usual "expenditure-absorption" approach to analysis of devaluation is not fully applicable in an exchange control context. Third, the fact that QRs are in force prior to devaluation implies that relative prices can be affected by devaluation; this applies not only to prices of traded goods in terms of home goods, but also the domestic price of importables generally can

be expected to decline relative to the price of exportables. This difference highlights one of the central questions of this work: the link between quantitative restrictions, the choice of trade strategies, and economic development.

EXCHANGE RATE CONCEPTS

Phase III is designed to simplify the trade and payments regime. Surcharges on purchases of foreign exchange and subsidies on foreign exchange earnings are often removed at the time of devaluation. It is useful, therefore, to distinguish between the "nominal" exchange rate (NER), which is the parity rate registered with the International Monetary Fund (IMF), and the "effective" exchange rate (EER), which is defined as the number of units of local currency paid or received per unit of foreign exchange.

Corresponding to these two definitions are the devaluation distinctions: "gross devaluation" refers to the increase in the NER, and "net devaluation" refers to the increase in the EER. Of course, EERs differ among different categories of transactions, and a single measure of "the" amount of devaluation under exchange control is usually an index number composed of the changes in different categories of rates.

The distinction between NER and EER changes is of great importance in analyzing the effects of Phase III episodes, and this is explored in detail in Chapter 5. In addition, attention should focus on the behavior of the "real" exchange rate as the concept relevant in theory. Price-level-deflated (PLD) measures can be obtained for both NERs and EERs, and it is generally changes in the PLD-EERs, by category of transaction, that are theoretically appropriate measures of the relative price impact of devaluation.[21]

DEFICIT ELIMINATION

When devaluation occurs in a country where QRs are unimportant for regulating the balance of payments, the purpose of devaluation is to reduce the deficit, or increase the surplus, in the country's current account.[22] It follows immediately that devaluation will succeed if, and only if, expenditures decrease relative to absorption. It is because of this fundamental proposition that analysis of devaluation is primarily a macroeconomic concern.

But when devaluation takes place from an initial position of exchange control, the sole objective no longer is to reduce an existing or prospective deficit. To the extent that devaluation is motivated by preventing QRs from becoming increasingly restrictive, analysis can proceed along lines identical to those for devaluation of a convertible currency. When QRs are in effect, however, the purposes of devaluation may also include the simplification of the exchange control regime, a shift from reliance upon quantitative restrictions to reliance upon prices, or the reallocation of resources to increase the

importance of the trade sector in production and consumption. To the extent that elimination of an existing or prospective deficit is not a primary purpose of the devaluation, the usual criteria for "success" of devaluation, based on the likelihood of improvement in the trade balance, are no longer relevant.

RELATIVE PRICE CHANGES

In countries with convertible currencies the major impact of devaluation on relative prices is likely to come about through a change in the price of tradables relative to nontradables. When exchange control and QRs are in force prior to devaluation, it is probable that devaluation will also lead to: (1) rationalization and simplification of the regime; (2) reduction of the premiums attached to quantitative restrictions; (3) an increase in the domestic price of exportables relative to that of importables and import substitutes, unless conscious offsetting action is taken by the government; and (4) a reduction in the variance in the total rates of effective protection implicitly and explicitly accorded to various industries by the trade and payments regime.

These four effects are closely interrelated. The first—rationalization and simplification of the regime—occurs when the piecemeal measures of Phase II are replaced by an across-the-board change in the exchange rate. The second—premium reduction—follows from the liberalization of the regime through the replacement of QRs with pricing measures. As prices adjust to reflect real demand, the premiums that had attached to commodities restricted in supply (usually imports) are at least partially reduced. Even without formal devaluation it would be possible to remove all QRs and to replace them with tariffs and subsidies in such a way that domestic prices and international prices are unchanged; that is, the price adjustment would exactly match the former scarcity premium. This would represent complete liberalization of the regime, yet there would be no resource allocation effects other than those resulting from absorption of the premiums on QRs (as the domestic price was unaltered but the amount paid by the importer increased) and the freezing of resources involved in seeking licenses and administering the QR system.

The third effect—increasing the domestic price of exportables relative to importables and import substitutes—usually comes about because the increase in the price of foreign exchange absorbs part or all of the premium on import licenses for many commodities. While one could, in the extreme case, liberalize completely and leave the export-importable relative price unchanged by imposing sufficiently high tariffs or export taxes, that seldom happens in practice. Altering the domestic relative price of exportables and import substitutes will be referred to as changing the *bias* of the trade and payments regime.

The fourth effect—reduction in the variance of total effective rates of protection— usually results from devaluation since the effect of shifting from

QRs to pricing measures is generally to reduce the amount of protection accorded to the highly protected items, and to raise the domestic price of those commodities previously accorded negative protection. One can imagine, for example, a QR regime under which the *average* level of effective protection accorded to domestic import substitutes was, say, 50 percent.[23] If one then shifted to a system under which an across-the-board nominal tariff of 50 percent were imposed (with effective rates in all industries therefore equal to 50 percent as well), this would constitute a "pure" variance reduction. In general, devaluation increases the EER more for imports previously accorded "priority rates" than it does for highly protected commodities. In the extreme case of import prohibition, of course, it is not obvious that the relative price of the import substitute should increase with devaluation.

The four effects—rationalization, liberalization, bias alteration, and variance reduction—come about to different degrees depending on the nature of the prior QR regime and of the devaluation package. Since a basic question on which the NBER project focused was the impact of QRs, the question of the role of liberalization—that is, the pure substitution of price for quantitative measures—relative to rationalization, bias alteration, and variance reduction is central to the analysis of devaluation from a position of exchange control and distinguishes it from that under currency convertibility.

Additional analysis and careful examination of the experience of the ten countries is called for before any judgments can be made about the relative importance of these phenomena. Different regimes—QR or liberalized, with overvalued or undervalued exchange rates—affect growth differently. The basic problem is to identify the separate roles of each aspect of devaluation.

One hypothesis is that QRs are not inherently different from tariffs in their effects but that the administration of QR regimes inevitably results in greater variance in incentives than the comparably biased liberalized regime. It is a well-known theorem of international economics that, under a wide range of circumstances, the effects of a quantitative restriction can be estimated by calculating the tariff that would be required to restrict imports to the same level under the pricing mechanism; this permits the analysis of the effects of the tariff equivalent of a quota.[24] Under that hypothesis devaluation with QRs would have its major impact via variance reduction.

A second possible hypothesis is that QR regimes are inevitably more heavily biased toward import-substitution industrialization than are liberalized regimes, and that it is this difference in bias that is the major impact of devaluation. Yet another hypothesis would focus upon currency overvaluation under QR regimes and its impacts on foreign exchange earnings.

The interplay between liberalization, bias alteration, rationalization, and variance reduction under alternative policy packages is a major theme

throughout the rest of this work. All elements have a role to play in the response of the economy to devaluation, and the interaction between them may also be important. Chapter 6 defines the concepts of bias and variance more precisely and provides some evidence on the degree of liberalization and bias reduction accompanying each of the twenty-two Phase III episodes. Part III of this volume attempts to identify the separate role of each of the components in resource allocation and growth.

NOTES

1. The Israeli devaluations after 1962 do not constitute Phase III episodes since quantitative restrictions were not a factor affecting the impact of exchange rate changes. Similarly, the frequent adjustments of multiple exchange rates in countries such as Turkey and Brazil in the 1950s are not regarded as Phase III episodes. The intention was to absorb excess demand and thus to avoid intensifying quantitative restrictions; there was no significant interaction with QRs.

2. Bhagwati and Srinivasan, p. 78.

3. Behrman, p. 27.

4. On this point, see Richard N. Cooper, "Devaluation and Aggregate Demand in Aid-Receiving Countries," in J.N. Bhagwati, Ronald W. Jones, Robert A. Mundell, and Jaroslav Vanek, *Trade, Balance of Payments, and Growth* (Amsterdam: North-Holland, 1971), and also Chapter 7 of this volume. The statement obviously does not hold for the case where devaluation is just sufficient to offset expected inflation and leave the restrictionist impact of QRs unaltered, such as under a sliding-peg regime.

5. Strictly speaking it is possible for a devaluation to leave export earnings unaffected and yet result in some benefits via absorption of the prior premiums on import licenses.

6. The argument is spelled out in Chapter 6.

7. See Chapter 8. An alternative is to reduce domestic demand for imports via domestic recession.

8. Fishlow summary, p. 41.

9. Hansen and Nashashibi, p. 68. The official exchange rate after devaluation was U.S.$2.30 = £E 1.

10. See Michaely, pp. 49-51.

11. Richard N. Cooper, "Devaluation in Developing Countries," in Gustav Ranis, ed., *Government and Economic Development* (New Haven: Yale University Press, 1971).

12. Fishlow summary, p. 30. Export volume rose 30 percent, while export earnings did not change.

13. Behrman, p. 3.

14. It is possible, of course, that resource allocation effects might occur even without such price changes. For example, alteration of the exchange rate might affect the level of economic activity. For present purposes, what is important is that debates over the appropriate model for balance-of-payments analysis turn on whether any relative prices are affected and on the precise nature of the macroeconomic aspects of devaluation. All would agree that, when relative prices do change, significant effects can result and that QRs imply relative price changes in addition to those that might occur in a QR-free economy.

15. By tradable is meant a commodity whose transport costs are such that its price is closely linked to the world price. When transport costs are extremely high, it is likely that the domestic price of the commodity can change although the foreign price does not; such commodities are non-tradables or "home goods." For present purposes the terms "tradables" and "traded goods" are used interchangeably. Under QRs or prohibitive tariffs, it is possible that a tradable will not, in fact, be traded, and the distinction becomes important.

16. Strictly speaking, when one refers to the domestic price level in such models, one is referring to a price index for home goods. For a fuller discussion, see R. Dornbusch, "Devaluation, Money, and Nontraded Goods," *American Economic Review* 63 (December 1973): 871-80; and A.O. Krueger, "The Role of Home Goods and Money in Exchange Rate Adjustment," in W. Sellekaerts, ed., *International Trade and Finance* (New York: Macmillan, 1974).

17. Of course, one must specify what would happen to that imbalance. Presumably, in a surplus position, individuals would be accumulating assets (or reducing them in a deficit position), and domestic prices might well change over time as the altered asset position affects consumption behavior.

18. Diaz-Alejandro, p. 15.

19. E. Bacha and L. Taylor, "Foreign Exchange Shadow Prices: A Critical Review of Current Theories," *Quarterly Journal of Economics* 85 (May 1971): 197-224.

20. The country studies generally cover the period during which world prices were relatively stable (see note 2, Chapter 2). Therefore, unless otherwise indicated, changes in the world price level will be ignored in the following discussion. For those countries for which world price changes were a factor, the changes were more a matter of shifts in terms of trade than of price level variability.

21. As already noted, in a world of inflation it is really purchasing-power-parity PLD-EERs that are appropriate; those rates are the PLD-EERs deflated by the applicable index of the world price level.

22. It might be, of course, that the major objective was a shift in the capital account balance. This has not often been the case, however, and it simplifies the discussion to treat the capital account as given exogenously. In reality, if speculative flows are reversed, improvement in the capital account is likely after devaluation and the behavior of current and capital accounts may well be positively correlated.

23. Here and throughout it is assumed that the tariffs under discussion are not redundant. Otherwise it would be possible that part or all of the tariff alteration was not reflected in domestic prices.

24. See, for example, Jagdish Bhagwati, "On the Equivalence of Tariffs and Quotas," in Robert Baldwin et al., eds., *Trade, Growth, and the Balance of Payments* (Chicago: Rand McNally, 1965). There can, of course, be differences between imposing a tariff and a quota; if, for example, the foreign supplier of an import is a monopolist, his profit-maximizing price will differ under the two regimes even though the same quantity of imports is permitted.