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Volume Title: Liberalization Attempts and Consequences

Volume Author/Editor: Anne O. Krueger

Volume Publisher: NBER

Volume ISBN: 0-884-10483-4

Volume URL: <http://www.nber.org/books/krue78-1>

Publication Date: 1978

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Chapter Author: Anne O. Krueger

Chapter URL: <http://www.nber.org/chapters/c3860>

Chapter pages in book: (p. 245 - 276)

**PART IV**

**Liberalized Trade Regimes  
and Economic Growth**

## *Chapter 11*

# **Impact of Phase IV and V Regimes on Growth**

Parts II and III address the question: What determines whether a devaluation is quickly followed by a return to a Phase I or II regime or, at least for a period of time, will Phases IV and V follow? It was seen that a number of factors influence the likelihood of moving to Phases IV and V, and that there are better and worse devaluation packages in this regard. Under all circumstances, however, there are bound to be costs associated with devaluation, as is true of any change in economic policy. The costs have already been investigated and, in addition to once-and-for-all costs of dislocation, there are costs centering on the output loss associated with measures taken to free resources and liberalize the regime for a period of time before a sustained response of foreign-exchange earnings can occur. There is a trade-off between: (1) resorting to foreign credits for financing additional imports; and (2) allowing domestic recession to reduce domestic demand for imports. Foreign borrowing is generally the better choice, but it too has a cost in that it represents a claim against future income; it can be defended only if output is higher later on than it would otherwise have been.

In this part, attention is on the benefits that can accrue to countries that devalue their currencies and succeed in attaining a sustained period of bias reduction and liberalization. For purposes of analysis, it is convenient to regard the benefits resulting from achieving Phases IV and V as being the sum of three parts: (1) the avoidance of costs that would have resulted because the restrictiveness of the regime would otherwise have had to increase;<sup>1</sup> (2) the differential in the growth rate resulting from higher export earnings when the exchange rate is more realistic; and (3) the effect on growth and resource allocation of the shift in the bias of the regime.

The costs of QR regimes are analyzed in detail by Bhagwati in his compa-

nion volume. In general they center on the inefficiencies involved in licensing and the resource misallocation emanating from high variance in implicit EERs. Those costs are not discussed further here, and the reader should refer to Bhagwati.

The second category of benefits—the effects of a higher real export EER and the export response to it—seems amenable to identification and, to a considerable extent, to quantification. That is the topic of this chapter. The results of a sustained shift in bias toward export promotion are the subject of Chapter 12.

This chapter focuses on the growth effects experienced by all countries during periods when they were in Phases IV and V, including the effects that follow simply from success in achieving Phases IV and V in the intermediate term. Success is defined in terms of the categorization of export performance in Chapter 9. There are two basic approaches that can be employed to identify the effects on growth of intermediate-term success with liberalization and bias reduction. First, the conclusions and impressions of the country authors can be evaluated to see what features seem common to the various countries' experience with Phases IV and V. Second, the parameters that affect the growth rate can be investigated statistically to find whether they are significantly altered by changes in export performance and whether they are significantly different in Phases IV and V from what they are in Phases I and II. Both of these approaches are employed in this chapter.

A number of hypotheses with respect to the microeconomic effects of bias reduction and liberalization are examined in light of the evidence from the country studies. They relate to the effects on such phenomena as the degree of capacity utilization, employment, factor substitution, and income distribution. Thereafter, some macroeconomic hypotheses are examined—that investment is more productive, that GNP grows more rapidly, that investment will be a higher fraction of GNP, and that savings are affected. It should be emphasized that focus here is on the effects of a more realistic real exchange rate for exports and of liberalization, even when import substitution remains the dominant strategy. Concern therefore is with the effects on countries such as Turkey, Chile, and the Philippines. In Chapter 12 the additional effects of an export-oriented strategy are examined.

## I. MICROECONOMIC EFFECTS

Microeconomic hypotheses concerning the effects of bias reduction and liberalization on growth are numerous, but many are stated in a form that cannot be directly tested. An important one, for example, is that under Phase IV and IV the greater uniformity in incentives among industries implies less wasteful allocation of resources (including, of course, the direction of new in-

vestment); that, in turn, implies that the growth rate will be higher, *ceteris paribus*. Variance is reduced in Phases IV and V, but it is not obvious that it is reduced variance—rather than other changes which accompany Phase III—that affects growth. The hypothesis cannot be distinguished from others that attempt to associate a specific change resulting from Phase III with altered growth performance. Although the growth rate in Phases IV and V may be differentiated from that in Phases I and II, this does not really distinguish between the separate contributions of bias reduction, liberalization, rationalization, and altered variance which result from devaluation and related policy measures.

This section identifies the key parameters believed to be significantly affected by the nature of the trade and payments regime. It is possible from this to gain at least some impression of the impact of the regime on the variable in question. Differences in growth rates are tested in the second section of this chapter. To the extent that export-oriented growth strategies succeed in improving growth performance above and beyond the amount predicted by the estimates developed, it may well be that reduced variance (and rationalization of the regime) is an important explanatory variable.

### Factor Markets

Many of the hypotheses pertaining to the microeconomic effects of alternative trade and payments regime relate to the impact of those regimes on factor markets. Among those hypotheses are: (1) a higher degree of capacity utilization usually accompanies Phases IV and V; (2) techniques tend to be more labor intensive in Phases IV and V; (3) Phase IV and V regimes encourage a mix of industries that generates more employment opportunities; and (4) liberalized trade regimes result in increased competition for domestic firms, leading to more rapid growth of total factor productivity.

There are close interrelations among the various hypotheses, and each hypothesis raises a broad range of issues over and above those relating to trade and payments regimes. For example, hypotheses 2 and 3 would, if valid, imply a more rapid growth of employment under Phases IV and V, *ceteris paribus*. That is both because techniques would presumably become more labor intensive in each industry *and* because the industry mix would alter. However, many other aspects of factor markets would have to be investigated in order to evaluate the total employment impact; in particular, the mechanism of wage rate determination could, in some instances, offset a substantial portion of the increased demand for labor that is implied by these two hypotheses.<sup>2</sup>

For purposes of analyzing the effects on growth of alternative trade and payments regimes, it is necessary to limit the questions to the range of issues covered by the individual country studies. These results can be regarded, in a

sense, as "partial equilibrium" estimates of the effects of the trade regimes on factor markets. They can be interpreted as the total effect only if it is assumed that there are no other factors in the system that would offset any direct effects the regime might otherwise have.

#### CAPACITY UTILIZATION

There are two main ways in which the transition from Phase II to Phase IV might affect the level of capacity utilization. Both relate to the presumed detrimental effects of the QR regime on capacity utilization, which the transition to Phases IV and V would be expected to remove. One way is that the removal of exchange control regimes ends incentives to build excess capacity that results from use of capacity as a criterion for import licensing. When allocation of licenses for intermediate goods is based on the criterion of existing capacity, and premiums accrue to those who receive import licenses for the intermediate goods, there is bound to be an incentive to try to obtain additional capacity.<sup>3</sup> For that reason, as demonstrated in some of the country studies, firms may deliberately build capacity they do not expect they will be able to utilize fully. A second way is that removal of exchange controls ends the problem that firms dependent on imported intermediate inputs find their production levels constrained by their inability to obtain the necessary inputs. Thus, existing capacity, which might initially have been utilized, can be idled if imports are cut back during the course of Phase II.

Both of these hypotheses imply that one ought to observe lower levels of idle capacity during Phases IV and V than during I and II, although the precise reasons differ. In the first situation, one would not expect transition to Phase IV necessarily to result immediately in increased utilization of existing capacity, but rather that chronic excess capacity would gradually be reduced.<sup>4</sup> In the second situation an increased flow of imports might result in an immediate increase in output levels and thus reduce the degree of underutilization of capacity as soon as imports started flowing.

There is one consideration that suggests capacity might be overutilized under exchange controls, however. Firms might wish to expand capacity during Phase II but be unable to obtain needed capital goods imports. In such a case, actual capacity might be below desired capacity, and capacity utilization rates would be uneconomically high. After transition to Phases IV and V, imports of capital goods would increase, and utilization rates might fall as capacity expanded.

A further point should be noted: many times the authorities are aware of the incentives the regime creates and try to take steps to regulate the undesired response to those incentives. For example, although the government of India provided strong incentives for excess capacity creation, there was a partial offset because capital goods import licenses were required. They were supposed to

be granted only when there was no excess capacity in the industry. However, the authorities also wanted to be equitable; given a limitation on capital goods imports, they were often confronted with situations in which equal treatment of the license applications of the large number of applicants meant that all plants would be well below economic size, yet equity considerations dictated licensing more smaller plants rather than fewer ones of a more economic size. Thereafter it was difficult to refuse permission to expand. Also, firms tended to build their initial capacity in ways enabling them later to claim that only some "balancing equipment" was necessary for expansion and that it could be obtained at a very low marginal cost. Thus, the authorities' efforts to contain construction of excess capacity were, at best, only partially successful.

In addition to the attempt on the part of government to avoid the creation of excess capacity, there are other mechanisms that offset some of the adverse effect of QRs on capacity use. Individual firms, conscious of the profit opportunities if they can expand production (while other firms are constrained), devote resources to avoiding bottlenecks. By appropriate stocking of inventories, resort to the black market, and other measures, some of the idle capacity that might otherwise result from licensing is avoided. Of course this entails costs to firms, and thus the effects of dismantling the QR regime may be felt in increased efficiency in the use of other noncapital inputs, rather than in higher capacity utilization.

There is therefore nothing that implies that the QR regime's effects would all be in one direction. Indeed, one might observe some sectors that had excess capacity during Phase II increasing utilization in Phase IV, while other sectors, unable to expand capacity during Phase II, might expand it when imports are liberalized and thus reduce their utilization rate to a more economic level. Indeed, both phenomena were reported in the country studies.

In Turkey before devaluation in 1958 and in Ghana prior to 1967, current production levels seem to have been seriously cut back during Phase II because of reduced imports of intermediate goods—the second type of capacity underutilization. Both countries experienced relatively severe across-the-board output reductions because imports were insufficient to maintain the level of economic activity. In the Turkish case there was not yet a large manufacturing sector dependent upon imported materials, but the supply of many commodities was provided almost entirely by imports. When gasoline imports ceased, for example, tractors were unable to continue with the harvest and truck transportation became severely underutilized; construction projects lay partially completed for lack of additional imports. In Ghana the production impact was likewise across-the-board, but there was a larger import-substitution sector. Leith describes curtailment of production resulting from shortages of spare parts and raw materials in the 1964-1966 period. The available data suggest that, in 1964, manufacturing capacity utilization was 60 percent of single-shift capacity, and apparently underutilization increased further in the following two years.<sup>5</sup>

Other countries also experienced disruptions of production due to import shortages in the predevaluation period, although they were not as severe as those in Ghana and Turkey. It seems evident that if a flow of intermediate goods is abruptly and sharply reduced, there will be some resulting reduction in the rate of capacity utilization. If the flow of imports increases following devaluation, there can be a once-and-for-all increase in the level of industrial production and economic activity when these bottlenecks are removed.

The other type of excess capacity—chronic sectoral underutilization—was apparently present in a significant number of Phase II regimes, including Chile, Colombia, Israel until 1952-1955, India, the Philippines, and—to a lesser extent—Turkey in the 1960s. In those countries, capacity in the modern import-substitution manufacturing sector was chronically underutilized. This underutilization persisted over a substantial time period and was not simply associated with the last part of Phase II. It was, rather, a consequence of the bias of the regime.

Bhagwati and Srinivasan show average rates of underutilization of capacity in India for 1961-64 more than 40 percent: capacity in the leather and rubber products industry was 57 percent underutilized; chemicals and chemical products, 56 percent; metal products, 54 percent; electrical machinery, 43 percent; and transport equipment, 42 percent.<sup>6</sup> These sectors were the focal point of the import-substitution drive during that period. Baldwin found underutilization rates of more than 50 percent in twenty out of thirty-one Philippine industries in 1970, and he noted that the phenomenon appears to have started in the late 1950s.<sup>7</sup> In Egypt, capacity utilization in the auto industry was very low due to shortages of imported parts and components.<sup>8</sup> In contrast, capacity utilization in the Egyptian textile industry was uneconomically high due to a shortage of machinery.<sup>9</sup> QR regimes can evidently result in both excess capacity and capacity shortfall.

In Turkey there was some evidence that a few heavily import-dependent industries may have been constrained in their capacity utilization levels, but there was no indication of any systematic trend toward underutilization. What there was appears to have been concentrated in industries with very high domestic resource costs. In this regard it is important to note that idle capacity is not always economically undesirable, but if it is chronic it is presumptive evidence of earlier wasted investment.

In most of these instances it was the bias of the regime that led to the establishment of the import-substitution industries. That excess capacity was chronic in these industries is apparent from the fact that the situation did not significantly improve with devaluation. In India there was some capacity absorption after 1966, but it was only partial and came about because some import-substitution firms were provided with incentives sufficient to enable them to export. In Chile, Ghana, and the Philippines, it is not apparent that excess capacity was significantly reduced after devaluation.

The only cases in which the country authors appeared to believe that the



sectoral excess capacity that developed during the QR period was ended with Phase IV are Israel and Colombia. Michaely reported that accounts of underutilization of capacity were widespread throughout the QR years and that this phenomenon disappeared after about 1955.<sup>10</sup> He was, however, unable to find a direct measure to test the extent to which liberalization of the regime was itself responsible for the change. He therefore investigated the change in total factor productivity after liberalization and found a significant difference in its rate of growth between Phases II and IV. That evidence, however, covers the total change between a QR and a liberalized regime and cannot be taken as evidence of the effect of altered capacity utilization rates alone.<sup>11</sup>

In the Colombian Case, Diaz reported a significant reduction in idle capacity after Colombia's move to Phase IV in 1967, but he found the reason for it to be different from that in the other countries. He attributed the change to the altered trade and payments regime but thought that excess capacity in Phase II resulted from low levels of domestic demand. In his judgment, much of Colombia's preexisting excess capacity had come about because of Colombia's use of restrictive monetary and fiscal policies in Phase II to contain the demand for imports. Those policies also cut back demand for domestically produced goods. After 1967, Diaz believes, monetary and fiscal policy were used for internal balance, thus permitting fuller capacity utilization than had occurred in Phase II.<sup>12</sup>

Overall, then, it would appear that the tendency toward underutilization of capacity in Phase II is more prevalent than uneconomically high utilization rates. There is little doubt that, in a few countries, production was temporarily below desired levels in predevaluation periods. For a large number of countries caught in Phase II regimes, there appears to have been chronic excess capacity, but devaluation and liberalization efforts did little to increase utilization rates. That was either because domestic demand was inadequate to warrant higher production levels or because the large foreign exchange expenditures required to satisfy it—as in the case of Egyptian autos—would have been inconsistent with the government's objectives. The fact that excess capacity was generally greatest in import-substitution industries strongly suggests that it is the bias of the regime toward import substitution that accounts for the phenomenon; as in the Indian case, however, the nature of the licensing system itself gave rise to additional incentives to overbuild capacity.

#### FACTOR PROPORTIONS

There are a number of reasons why the price of imported capital goods relative to labor and domestic capital goods tends to be lower in Phase I and II than in Phase IV and V. It is widely thought that the relative cheapness of imported capital goods induces firms that are able to get import licenses to

choose more capital-intensive techniques in Phase II than they do in Phases IV and V. That phenomenon would imply that the incremental capital output ratio would be higher in Phases I and II than in IV and V. An offsetting tendency, of course, might occur when firms wanting to expand were unable to import capital goods.

The factors tending to make the price of imported capital goods relatively low in Phase II are well understood. As Phase II regimes become increasingly selective, policymakers are reluctant to impose duties or surcharges on the importation of capital goods for fear that they will lower the investment rate. One aspect of the variance in EERs in Phase II arises from this discriminatory treatment in favor of imports of investment goods. Its result is that those entrepreneurs who can get permission to expand their plants or to build new factories have an incentive to substitute relatively cheap imported capital goods for labor and domestically produced capital goods.

The evidence in the country studies does not provide any basis for believing that substitution between domestic and imported capital goods is significant.<sup>13</sup> It would appear that the important effects of alternative trade regimes on factor use are felt primarily through: (1) the impact of the relatively cheap price of imports of capital goods on the capital-labor ratio; and (2) the choice of industries. This latter is reflected in the capital intensity of expanding industries and is therefore discussed below under employment.

There are two questions related to the first effect—capital/labor substitution: (1) To what extent is capital relatively cheaper in Phase II than in Phases IV and V? (2) To what extent does substitution of capital for labor alter the capital/labor ratio in each industry?

Table 11-1 gives the estimates of the PLD-EERs for imports of capital goods for the countries for which time series are presented in the country studies. In Turkey, the Philippines, and Colombia, there was a pronounced tendency for the real prices of imported capital goods to increase after Phase III and to decline during Phase II episodes. The Turkish devaluation of 1958 resulted in a virtual doubling of the real price of capital goods; if data were available for the period following the 1970 Phase III episode, the same phenomenon would appear, although the percentage increase would be smaller. The Philippines' 1960-1962 episode prompted an increase from 1.91 to 3.25 1955 pesos per dollar for imported capital goods, and a 25 percent increase was again recorded with the Phase III of 1970. For Colombia the rise in the real price of imported capital equipment was dramatic in 1957/58, but it was also significant for 1965 and 1967. The Chilean data show something of the same phenomenon, although the magnitude of change is smaller; the real price of imported capital goods increased after the 1956 and 1959 Phase III episodes, but it did not do so in 1965. In Israel there appears to have been the same general experience until the devaluation of 1962: the real price of im-

**Table 11-1. Indicators of Imported Capital Goods, Prices, Five Countries, 1954-1971 (index of PLD-EERs for capital goods, 1958 = 100)**

<i>Year</i>	<i>Chile</i>	<i>Colombia</i>	<i>Israel</i>	<i>Philippines</i>	<i>Turkey</i>
1954	99	51	n.a.	98	51
1955	86	53	125	102	53
1956	87	52	113	102	51
1957	101	71	107	100	57
1958	100	100	100	100	100
1959	<i>105</i>	92	101	98	97
1960	93	88	97	97	82
1961	93	82	93	129	84
1962	89	<i>84</i>	<i>138</i>	146	80
1963	93	85	127	150	78
1964	97	74	121	144	81
1965	<i>91</i>	<i>81</i>	113	144	91
1966	93	91	104	141	85
1967	85	99	105	135	80
1968	83	110	112	135	60
1969	76	106	114	139	59
1970	n.a.	n.a.	110	<i>183</i>	n.a.
1971	n.a.	n.a.	126	177	n.a.

Note: Data for the years in which devaluation took place are in italics. Comparison of real rates cannot be made between countries; only changes in level within countries are meaningful.

Sources: Chile—Berhman, Table A-8, PLD-EER for investment goods; Colombia—Index of price of imported capital goods, provided by Díaz, deflated by the wholesale price index; Israel—EER for investment goods from Table 4-12 deflated by the GNP deflator; Philippines—Table 5-3, PPP-PLD-EER for essential producer goods, new and necessary industries; Turkey—PLD-EER for capital goods imports from Tables II-3, III-3, VI-10.

ported capital goods was declining continuously from 1955 to 1961, and again after 1962 until 1966. After that time the tendency for the relative price of imported capital goods to fall between devaluations seems to have been offset by compensating adjustments to maintain the real rate.

Although systematic data are not available for other countries, the same general tendency appears to have been fairly widespread. Leith, for example, reports that in Ghana favored sectors were given access to cheap imported capital goods.<sup>14</sup> Fishlow's estimates indicate that in Brazil subsidies to investment in the industrial sector were equal to 19.1 percent of income originating in manufacturing in 1959.<sup>15</sup>

Evidence on the real wage is far less uniform. As already reported, real wages in manufacturing fell about 20 percent in Brazil in the 1964-1968 period. Behrman found that Chilean devaluations tended to reduce real wages but that increased flows of imports tended to increase real wages.<sup>16</sup> Part of the

reason for the positive effect of liberalization is that Chile imports many consumer goods; when imports of these commodities increase, their price falls—or at least fails to rise as fast as it otherwise would—and that tends to raise the real wage. In Colombia the real wage appears to have remained approximately constant in 1957/58, compared with rapid increases in earlier and later years. Its rise does not appear to have been affected by the 1962 devaluation, and after 1965 the real wage was relatively constant through 1969, the last year for which Diaz provided data.<sup>17</sup>

Ghanaian real wages in manufacturing appear to have fallen from 1961—the first year for which data are available—until 1965, when they were 23 percent below their 1961 level. Therefore, they were falling throughout Phases I and II, but they rose in each of the following three years by an average of about 5 percent, leaving real wages still 9 percent below their 1961 level in 1968.<sup>18</sup> In South Korea, monthly earnings of production workers in manufacturing deflated by the Seoul consumer price index reached a peak of 8,900 won (in 1970 prices) in 1959 and then fell to a low of 7,540 won in 1964. Thereafter they rose rapidly, exceeding their 1959 level by 1967 and reaching 14,561 won in 1970. It would thus appear that in the years when the shift toward export promotion was starting, real wages were falling. After 1964, however, real wages were rising rapidly.<sup>19</sup> In the Philippines there was a similar decline in real wages from 1959 to 1965. Indeed, for unskilled workers it was not until 1969 that the 1955 real wage level was reattained. In the case of the Philippines, however, the declining real wage appears to have represented something of a long-term trend and does not seem to have been associated with changes in the phases of the trade and payments regime.<sup>20</sup>

Theory of course predicts that it is neither the real wage nor the real price of capital alone that determines factor proportions—it is the mix of the two. For the countries where the ratio is available, there is fairly striking evidence that the ratio of the wage to the price of capital goods alters significantly, with the relative price of labor falling, from Phases I and II to Phases IV and V. Data provided by Diaz indicate that the ratio of wages to prices of imported capital goods fell from 2.30 in 1956 to 1.25 in 1958, reached 2.40 again in 1964, and began falling after that, reaching 1.73 by 1969. For Ghana, Roemer estimates that between 1966 and 1967 the wage/rental ratio fell about 25 percent. By 1969 half of the decrease had already been offset by rising costs of labor and falling prices of capital goods.<sup>21</sup> The Turkish wage/rental ratio also fluctuated with the state of the trade and payments regime; it was 2.15 in 1955, fell to 1.72 in 1960, and rose continuously thereafter until 1970. This came about both because of rising wage rates and because of implicit subsidization of capital goods imports.

There thus seems to be a reasonable uniformity of experience with relative changes in the prices of labor and capital goods during the phases. The question, therefore, is the impact of those changes on factor proportions and on

employment. Evidence of substitution of capital for labor was reported in the Chilean, Ghanaian, and Turkish studies.

Behrman's estimates of sectoral elasticities of substitution between labor and capital are all significantly nonzero for Chile. Behrman concludes that the foreign trade regime provided important incentives to substitute capital for labor. In mining, for example, the estimated elasticity of substitution was 0.51. Behrman used that and his other results to calculate the employment impact. He concluded:

... The long-run demand for labor in large-scale mining would have been 44 percent larger had exchange-rate discrimination not affected the dollar cost of labor. . . . With the option of increasing output, the demand for labor would have been even greater. Such calculations should not be taken literally, but they do suggest that the employment effects of the discriminatory NER policy may have been quite considerable.<sup>22</sup>

Leith estimated production functions for a sample of Ghanaian industries and found them to have elasticities of substitution not significantly different from unity. He was unable, however, to quantify precisely the nature of implicit and explicit subsidies to the use of imported capital goods:

If these magnitudes are anywhere nearly representative of the Ghanaian situation, we now have a major clue explaining the response of the industrial sector to the control regime. Cheap and virtually unlimited supplies of foreign exchange and capital for the favored ones stimulated output, but the use of imported materials accelerated and the output/capital ratio plummeted. . . .

The growth consequences of the set of policies which permitted large relative subsidies on capital and imported materials were serious. Favored sectors flourished. Other sectors suffered seriously: access to capital and foreign exchange was, for most, blocked and little or no growth occurred. The overall effect was one of stagnation accompanied by apparently worse capital and foreign exchange "gaps" for the economy as a whole.<sup>23</sup>

For Turkey the evidence suggested that techniques were more capital intensive than they would have been had prices of capital goods been higher relative to the price of labor. While it appeared that substitution in the main production processes was occasionally possible, the important possibilities for substitution of capital for labor lay in the areas of moving goods through the plant, packaging, and other peripheral processes. In addition there was an interesting example of the way subsidies to capital can be misused. In the early 1950s, large tractor imports, which were sold cheaply, were permitted. Peasants in the Anatolian plateau were thereby induced to convert their land from forests and pastures to cropland. It is estimated that the total value of agricultural output fell, if international prices are used and the change in the

livestock herd is valued appropriately. For several years, however, large increases in wheat production obscured the underlying reduction in the productive capacity of the Anatolian plateau's agricultural sector.<sup>24</sup>

#### EMPLOYMENT

The net impact of the trade and payments regime on employment can be regarded as the result of the factor substitution induced by the regime, changes in the mix of outputs, and also any differences in the overall rate of growth of output. All of these factors proved to have important effects on employment in the countries covered by the project. While there appeared to be considerable differences in the relative importance of each factor, the evidence from the country studies provides a great deal of support for the view that employment growth is more rapid under Phase IV and V regimes.

Baldwin found that employment increased very little in Philippine manufacturing. He attributed most of the sluggish performance to increased capital intensity resulting from the bias of the regime:

... Between 1950 and 1959 both the output-capital and output-labor ratios rose. However, the latter ratio increased considerably faster than the former, with the result that the capital-labor ratio rose 74 percent between these years. After 1959 the output-labor ratio continued to rise, although much less rapidly, but the output-capital ratio fell. Thus, both of these changes operated to increase the capital-labor ratio. Since by 1968 the output-capital ratio had declined to its 1950 level, the more than doubling of the capital-labor ratio in manufacturing between these years can be attributed entirely to the increase in the output labor ratio, i.e., to the failure of employment in manufacturing to rise commensurately with production.<sup>25</sup>

Baldwin further found that only a small part of the increase in the capital/labor ratio was due to changes in the composition of the industrialization program (at least through 1960) and noted that "the use of capital-intensive methods of production was also . . . encouraged in any given industry."<sup>26</sup>

Similar results were found for Turkey, with evidence based upon the existing factor proportions in each industry. The demand for factors of production that would have resulted—given initial-period, industry-specific factor proportions—from the manufacturing output increases programmed under each plan was compared with the factor utilization that would have resulted from a more "neutral" expansion. Two alternative "neutral" paths were assumed: in one, all manufacturing industries would have expanded in proportion to their initial output levels; in the other, each industry's allocation of new investment was in proportion to its initial capital assets. The latter path would have enabled import substitution to continue (partly by maintaining the

assumed rate of investment in all of the manufacturing industries) but at a rate less rapid than in fact occurred. The results indicated that capital goods imports could have been reduced by 24 and 12 percent, respectively, in the first two plans, with newly created jobs rising from 197,000 to 335,000 in the first plan period and from 428,000 to 640,000 in the second plan period, under the hypothetical expansion-in-proportion-to-output strategy. There thus seemed little doubt that industry-mix changes could have resulted in significant differences in the manufacturing capital/output and labor/output ratios.<sup>27</sup>

South Korea's employment growth was remarkably rapid. Frank, Kim, and Westphal attributed this both to appropriate factor prices and to industry mix:

Growth in employment opportunities in manufacturing was rapid mainly because of large increases in investment and output which created a demand for workers. The growth in output was achieved through labor-intensive methods. In many other countries rapid growth in manufacturing output is accompanied by a rapid increase in labor productivity because of a trend toward more capital-intensive methods. In Korea, by contrast, manufacturing employment grew very rapidly between 1957 and 1967, at 9.6 per cent per annum, while labor productivity lagged behind at an average annual rate of increase of about 2.6 per cent. . . .

Even though manufacturing employment grew less rapidly after 1967, the rate of growth from 1957 to 1972 averaged 8.8 per cent per annum. Meanwhile, total nonagricultural employment increased by 7.3 per cent per annum. One reason for this good performance was the government's willingness to allow wage rates to be set by competitive forces. . . . Furthermore, by permitting the South Korean price structure to remain largely consistent with world prices, the government provided incentives to concentrate production in labor-intensive exports and home goods and to import capital-intensive goods rather than to substitute for imports. Labor absorption was very rapid, at least until the very late 1960s when labor shortages began to appear and wages started to rise very rapidly.<sup>28</sup>

Díaz was hampered by a lack of data for Colombia in his analysis of employment under alternative trade regimes. He concluded that the Phase IV regime after 1967 increased urban employment opportunities simply as a function of more rapid growth of output. The impact on rural employment was more questionable; different agricultural activities have different labor-land requirements, and which commodities are exported is a function of the available land resources, as well as of labor supply and other variables.<sup>29</sup>

In addition Díaz pointed to another consideration that may be of importance: there can be a significant difference between the factor intensity of exports in the period immediately following devaluation and the longer-run factor intensity of exports. This is particularly the case if import-substitution firms with excess capacity before devaluation are able to export in the postdevaluation period; they may well be firms employing capital-intensive techniques, and the net short-run impact on employment may be small. In the

longer run it is possible that the firms basing their capacity expansion on export prospects are those with factor requirements more nearly approximating those predicted by the Heckscher-Ohlin model.<sup>30</sup> This tends once again to reinforce the notion put forth in Chapter 9 that the intermediate-term export response can be quite different in nature from the longer-term results when bias of the regime is shifted significantly away from import substitution and toward exports.

### COMPETITION

An additional hypothesis about the determinants of factor productivity suggests that the efficiency with which all factors are employed improves with liberalization of the trade and payments regime. The argument is that, in tight exchange control situations, the authorities inevitably tend to conserve "scarce" foreign exchange by prohibiting the importation of goods available from domestic sources. This provides protected markets for domestic producers. In the absence of competition from abroad, there is only a weak mechanism to drive inefficient firms out of business (or to increase their efficiency) and overall factor productivity will tend to be lower.

The only possible test of this hypothesis would be an examination of the behavior of total factor productivity in Phase II relative to that in liberalized trade and payments regimes. Michaely evaluated the behavior of total factor productivity growth in the Israeli economy, excluding the housing and public sectors (for which such data are not meaningful), and for the manufacturing sector alone:

. . . The impression gained is indeed in conformity with the postulated effect of QRs; namely, the rate of increase of productivity rose markedly from 1951-52, the period of rapid transition to the price mechanism as a means of regulating imports as well as other activities in the economy. . . . It should be recalled, moreover, that in the transitional period, 1953-55, the level of imports evidenced only a slight rise; in fact, there was a rather substantial decline in the ratio of imports to output. The rapid increase in productivity in those years thus *cannot* be explained by the removal of bottlenecks through an increased supply of imports. . . .<sup>31</sup>

Bhagwati and Srinivasan attempted to deal with the same hypothesis using Indian data, but unfortunately their estimates cover only the period up to 1964 and therefore cannot be used to test the effects of liberalization, which—insofar as it happened—took place after 1966. Even if their data series could be extended, it would be difficult to reach a firm conclusion as to what happened to Indian productivity; estimates for the period up to 1964 range from a decline at an annual rate of—1.6 percent to an increase at an annual rate of 2.8 percent.<sup>32</sup>

Other country authors mentioned increased competition from interna-



tional markets as a major benefit of Phases IV and V.<sup>33</sup> They were unable, however, to estimate its separate impact. It will be argued in Chapter 12 that the performances of South Korea, Brazil, Israel, and Colombia may be accounted for partly by the competition their export biases engendered for domestic firms.

### Goods Markets

It was seen in Chapter 9 that a more rapid export growth rate is associated with the higher export real EER that tends to accompany Phases IV and V. The resource pulls between import-substitution and export-oriented industries are undoubtedly the most important phenomenon distinguishing Phases I and II from Phases IV and V in the goods market. Most of the evidence on that subject has been presented above, but a few additional considerations are pertinent and warrant discussion.

#### IMPORT SUBSTITUTION VERSUS EXPORT INDUSTRIES

The growth of exports, both traditional and nontraditional, is more rapid during Phases IV and V because of reduced bias in the regime and because of the higher real EER confronting exports. Two related phenomena are worthy of note: (1) devaluation and its accompanying measures are associated with a considerable reduction in the pull toward import substitution; and (2) the variance in domestic resource costs (DRCs) seems lower in Phases IV and V than in Phases I and II. Bhagwati has already documented the extent of variance in DRCs and in the effective tariff equivalents of quantitative restrictions in Phase II. That the pull toward high-cost industries is substantially reduced in Phases IV and V was seen in a number of studies. Even though incentives to export can still be of varying heights for different industries, the range of variation among export-oriented firms and import-substitution firms is nonetheless considerably smaller in a liberalized regime.

The Brazilian experience perhaps best illustrates the mechanisms involved. The inducements to export in Brazil centered on exempting exports from excise and other taxes paid on production for the domestic market. Therefore, the subsidy equivalent of these exemptions increased with the height of the domestic excise tax. The level of this tax was set for reasons independent of the efficiency of exporting, so there was sizable variation in export DRCs, which led to inefficiencies in exporting. Fishlow found a significant relationship between the height of DRC and the size of subsidy by sectors. However, he noted:

A second observation partially counters this first. *Actual* exports are positively related to comparative advantage. . . . It does not appear that the incentive system has induced inefficient exports. Accepting the shadow price of foreign ex-

change as 20 per cent above its market level, and counting the two labor-intensive sectors as more efficient than that critical dividing point, 80 per cent of industrial exports, and 90 per cent of total exports respond to Brazil's comparative advantage. The problem of diversion of resources to inefficient production does not appear to be serious, therefore.<sup>34</sup>

It would thus appear that, in the case of export promotion, subsidization does not go far enough to offset comparative advantage. The inefficiencies associated with variance in the regime tend therefore to be reduced.<sup>35</sup>

The first phenomenon—the extent of resource pulls toward import substitution in Phase II and the magnitude of the export response in Phases IV and V—is perhaps more surprising. Even in regimes where there was no serious intention of reducing the bias toward import substitution, devaluation generated a greater-than-anticipated response. Perhaps most striking is the Philippines' experience. The authorities had no intention of adversely affecting import-substitution industries and intended to replace QRs with tariffs, but despite the shift to tariffs the import-substitution industries were injured to a far greater degree than anticipated.

The Israeli conversion from quantitative restrictions to tariffs appears to have followed similar lines. Michaely reported that a commission was established to provide protection for domestic industries to replace QRs; however, the growth of exports was far greater than had earlier been the case because the more realistic export EER reduced the bias of the regime. Accompanying that, a more rational allocation of resources (reduced variance) and slower growth of import-substitution industries emerged.<sup>36</sup> As in the Philippines the export response to the shift from quantitative controls to price incentives seems to have been greater than can be explained simply on the basis of the altered real export EER.

The fact that sizable responses to altered exchange rates were achieved in countries where extreme export pessimism prevailed further supports the view that Phase IV and V regimes tend to generate a larger shift in resources toward exportables and away from import substitutes than can be attributed to the exchange rate changes alone; the reduce bias of the regimes must play a major role. The Turkish devaluation of 1958, for example, was preceded by a period when the real export EER declined and there was a precipitous drop in export earnings. Despite the fact that stimulating export growth was not among the immediate objectives of the government when devaluation was undertaken, the period following was accompanied by rapid growth of export volumes and earnings and relatively stagnant performance by import-substitution industries. Indeed, export pessimism endured in Turkey throughout the 1960s despite all evidence to the contrary.

Overall, therefore, even in situations where the government's basic objectives are to maintain the bias of the regime, it would appear that the resource

pulls toward import substitution are significantly smaller in Phases IV and V than in Phase II. A major reason is that the liberalization and premium-absorption that accompany devaluation inevitably reduce the bias of the regime. In part, also, it results from the fact that government officials may be unaware of the extent of protection generated by quantitative restrictions and, therefore, cannot rationally use quantitative control instruments for the attainment of their objectives. It may be that the ability to monitor the economy better under Phase IV and V regimes is one of the benefits resulting from devaluation and a shift to price incentives, for—in all instances where the intention was to continue promoting import substitution—the resulting Phase IV regime nonetheless resulted in reduced bias toward import substitution and a reduction in the variance in incentives among sectors.

#### SERVICES

It is a well-known theorem that, in a static model of an open economy under a fixed exchange rate, an increase in the money supply will result in an increase in the relative price and output of home goods compared to tradable goods. If home goods consist predominantly of services, and if economic growth is taken into account, the proposition can be reformulated to imply that services will constitute a higher fraction of GNP with currency overvaluation than with an equilibrium exchange rate.

The theorem applies to an open economy and does not necessarily follow in an exchange control situation because resources might be pulled out of home goods and into import-substituting industries under exchange control, whereas that would not happen with a convertible currency (with a given tariff structure). Nonetheless it is possible that services output is significantly affected by the existence of quantitative restrictions. The theorem pertaining to an open economy might still be applicable if, in Phase II, resources were pulled out of exportable production toward both import-competing and home-goods industries. In addition, there is another consideration: if services are less import-intensive than other sectors, import-constrained production levels in other sectors might release resources that would then find employment in services.<sup>37</sup>

No evidence on this point emerged from the country studies, but it was possible to obtain estimates of services output as a fraction of GNP.<sup>38</sup> Using those data, services as a fraction of GNP were regressed as a function of time for each country, with common dummy variables for Phases I and II and for Phases IV and V. It was hypothesized that, if services as a fraction of GNP do vary significantly with the phases of the regime, the coefficient for the Phase I-II dummy variable should be positive (and significant), and negative for the Phase IV-V dummy variable.<sup>39</sup> For all countries except Chile, Egypt, and India, there was a slight upward trend in the share of service output in GNP, but

no particular insights emerge from that. Inclusion of the dummy variables indicated that the service share of GNP was 2.06 percent more in Phases I and II than on average, although the coefficient was not significant. These results accord with those of the country studies: there is no evidence of any systematic tendency for the service sectors to be a more important component of GNP under QR regimes than under liberalized regimes.

#### COMPOSITION OF INVESTMENT

The same reasoning that suggests that services might be larger in Phase II can also be used to generate the hypothesis that construction may constitute a higher fraction of investment in Phase II than in IV and V. In addition there may be a second reason to expect construction to be relatively more important in QR regimes: if plant and equipment investment has a higher import content than does construction, the foreign-exchange constraint limiting imports of capital goods may restrict the amount of investment in plant and equipment. Assuming that savings are affected relatively little by the type of trade and payments regime, loanable funds available to finance construction would be relatively greater in Phase II compared to Phases IV and V.

A possible offset is that the composition of investment is affected by sectoral rates of expansion. Suppose that investment in agriculture, for example, has a higher construction/machinery ratio than that in manufacturing, and agriculture expands more rapidly relative to manufacturing in Phases IV and V than it does in Phases I and II; then, the tendency on the supply side for a higher construction/machinery ratio in Phases I and II could be partially or entirely offset by the tendency on the demand side for a higher ratio in Phases IV and V.

To confound the issue still further, the real price of capital goods imports typically increases with devaluation. Nonetheless there is a little evidence from the country studies that tends to support the hypothesis that the supply side dominates. In Colombia, for example, Díaz found that construction was a more stable component of GNP than was plant and equipment investment. However, while the ratio of Gross Domestic Capital Formation to GNP rose in current terms after devaluations, it fell in real terms after the 1957/58 Phase III episode because of the rise in the relative prices of those capital goods (see Table 11-1). According to Díaz's analysis, the sharp drop in coffee prices represented a real deterioration in terms of trade between capital goods (imports) and exports. In the Colombian case, high EERs for nontraditional exports and for imports thus constituted a tax that enabled a high rate of capital formation to continue. Díaz also notes that the demand for investment goods was apparently inelastic in that the fraction of investment in GNP rose to accommodate the new, higher real exchange rate.<sup>40</sup>

The Turkish experience also tends to confirm the shift in composition of

investment in Phase IV. Construction rose from 69 to 76 percent of total investment from 1953 to 1957, and investment in machinery and equipment fell from 31 percent to 24 percent.<sup>41</sup> As in Colombia, there was heavy dependence on capital goods imports for machinery and equipment investment, while construction had a far smaller import content (23 percent for construction versus 87 percent for plant and equipment in 1953). Despite import substitution, this disparate foreign exchange content existed throughout the period, with the result that investment in plant and equipment was more severely constrained by the decline in foreign-exchange earnings than was construction investment.

No evidence on changes in the composition of investment was reported by the individual country authors for other countries. However, data from the U.N. *Yearbook of International Accounts* were employed to test the hypothesis that construction investment as a fraction of total investment is systematically higher in Phase II than in Phases IV and V. The methodology was the same as that for the service share of GNP. Using the ratio of construction investment to total investment as a dependent variable for each country, the independent variables were time and an index of export earnings; a common coefficient for all countries was estimated for this index. Finally, dummy variables for Phases I and II and for Phases IV and V were introduced.<sup>42</sup>

The coefficient for export earnings turned out to be insignificant. Yet the coefficient on the dummy variable for Phases I and II was 0.179 implying that construction investment was greater than its average level by 17.9 percent in Phases I and II. A country with a "normal" 40 percent of fixed capital formation in construction would under these estimates have 47 percent of fixed investment in construction in Phases I and II. The coefficient for the dummy variable for Phases IV and V was  $-0.08$ .<sup>43</sup> The probability that construction constitutes a higher fraction of investment in Phases I and II is above 90 percent. While there are important differences between countries, there is nonetheless some support for the notion that the nature of the trade and payments regime affects the composition of investment.

#### INVENTORY INVESTMENT

Incentives to hold inventories, especially of imported goods, are greater under exchange-control regimes than liberalized regimes. Uncertainties and delays surrounding the issuance of import licenses, the expectation of increased foreign exchange shortage, and the one-sided probability of exchange rate alteration all provide incentives to hedge against increased costs or supply disruptions. Insofar as domestic suppliers may also be dependent on imports, there may even be incentives for augmenting domestic inventories of goods competing with imports to guard against supply disruptions.

Thus the hypothesis that a higher fraction of investable resources is allocated to inventory investment under QR regimes than under liberalized regimes seems plausible. And, on *a priori* grounds it seems beyond dispute that

*desired* inventories for any level of output would be higher under QRs. But the existence of those same quantitative restrictions implies that desired inventory levels will exceed realized ones because one purpose of the QR regime is to frustrate speculative inventory behavior. Thus it is quite possible that there will simultaneously be inventory levels below and above the desired levels, with the situation varying from commodity to commodity and from firm to firm. Even for the same firm it is possible that some items might be well below the stock level that would be held in the absence of QRs, while other items would be well above this level.

The very fact that both phenomena can occur simultaneously suggests that, if inventories of imported materials were found to be at the same levels under restrictive regimes as they were under liberalized regimes, there would be a presumption that the composition of inventories was nonoptimal in the QR situation. Of necessity, empirical evidence on this is relatively scanty and—in light of the fact that the two tendencies are offsetting—difficult to interpret. Only for Turkey did there appear to be strong evidence that inventory holdings were considerably above average during the QR Phases, and even there the evidence was presumptive, based on a comparison of the share of inventory investment in total investment in various countries.

Thus, it may be that there are departures from optimal inventory holdings under QRs, which are corrected in liberalized trade regimes. If that is so, however, those departures are both positive and negative, and it seems difficult to draw any inferences about the overall level of inventory investment and its behavior with respect to the payments regime. Like so many other microeconomic effects, if such phenomenon is significant it is reflected in altered capital/output ratios and growth rates, but the separate influence of inventory holdings, as opposed to other microeconomic phenomena, cannot be discerned.

#### IMPORT INTENSITY OF PRODUCTION

It was already seen that, despite QRs, there is a tendency to substitute underpriced imported capital goods for domestic labor during Phase II. Liberalization of the regime generally entails a move toward more realistic relative factor prices. That same general phenomenon is found in the goods market; individuals who can get import licenses have more incentive to use import-intensive techniques in Phase II than they do under a liberalized trade and payments regime.<sup>44</sup> It was already mentioned that Turkish export industries used far fewer capital goods imports per TL of output than did import-competing industries, and they were also far less import intensive in daily operations. A shift in the composition of output toward export production was therefore associated with a decrease in import demand.<sup>45</sup>

For Ghana, Leith estimated an implicit subsidy rate of about 50 percent to imported inputs. Using Cobb-Douglas production functions he then attempt-

ted to estimate the percentage changes in outputs and imported materials inputs that resulted from subsidizing capital goods and intermediate goods imports. He estimated that the output response to subsidies was generally smaller, and often considerably so, than the input response. For an industry such as radio and television assembly, the subsidy on inputs generated an output increase only two-thirds as large as the increase in foreign inputs; this implies that domestic value added was reduced as imported raw materials were substituted for domestic factors.<sup>44</sup> In addition the increase in capital employed was about twice the increase in output.

There is thus something of an apparent anomaly: Phase II regimes, which are imposed because of perceived foreign exchange "shortages," appear to result in an upward shift in the demand for imports caused with that under liberalized trade and payments regimes. As with so many other factors, the QR regime itself may prevent the satisfaction of this demand, but—to the extent that such a shift is present—estimates of the actual excess demand at prevailing prices overstate the excess demand that would prevail in the absence of restrictions.

The magnitude of the upward shift in foreign-exchange demand naturally varies with the precise nature of the trade and payments regime and also with the extent to which the regime is biased toward import substitution. It is ironic that a trade and payments regime intended to allocate scarce foreign exchange apparently results in a more irrational, and less economic, allocation of foreign exchange than would have existed under a liberalized trade and payments regime. Even in the absence of an export response to liberalization, it may well be that the increased rationality with which foreign earnings can be allocated to competing uses is a considerable benefit to the domestic economy.

#### INCOME DISTRIBUTION

In the first half of the 1970s, some dissatisfaction was voiced with the goal of rapid economic growth for the developing countries, or at least with growth as it has so far been experienced. These misgivings have emanated largely from recognition that growth has not necessarily been fully shared with low-income groups in the country. It is widely believed that, in some instances, a high growth rate has even been associated with an absolute worsening of the real incomes of the poorest segments of the community.

An important issue, therefore, is the relationship between the choice of trade and payments regime and the effect on income distribution. The answer appears to be that the distribution of income is determined by variables other than the trade and payments regime.

Comparative studies of income distribution and its change over time across countries have revealed little relationship between trade regimes and the degree of income inequality. The World Bank classified countries by income distribution pattern into high-inequality (where the lowest 40 percent of the

population receives less than 12 percent of the income) and low-inequality countries (where the lowest 40 percent gets more than 17 percent of the income). Seven of the ten countries included in the project were covered by the bank study; data for Ghana, Israel, and Egypt were not available.

Examination of both cross-section and time-series data reveals the same lack of association. Brazil (1970), Colombia (1970), and the Philippines (1971) are all classified as high-inequality countries; Chile (1968), India (1964), and Turkey (1968) are all in the moderate-inequality group; while South Korea (1970) is a low-inequality country.<sup>47</sup> Evidence on changes in the distribution is somewhat scarcer, but what little there is does not show any systematic relationship either. South Korea's income distribution appears to have been increasingly equal, at least since 1966.<sup>48</sup> In contrast, India's appears to have become somewhat more unequal.

Virtually all of the country study authors examined the income distribution issue and concluded that there is no necessary connection between the nature of the trade and payments regime and the degree of inequality. Fishlow did not believe that the change in income distribution accompanying the Brazilian policy shift in the late 1960s was a necessary concomitant of it. Díaz reached the same conclusion for Colombia:

In earlier chapters, I argued that Colombian import controls and the protective system in general do appear to reinforce income inequality, regional disparities, and industrial concentration. The protective system has also encouraged a large number of capital-intensive projects. A policy package that eliminates import controls while encouraging exports could, however, generate new rents even as it destroys those associated with import substitution. Furthermore, the elimination of import controls would still leave a multitude of similar mechanisms through which the rich and powerful could take advantage of state power to buttress and further their position. . . . Thus, focusing just on the protective system can give a misleading impression of the true sources of inequality, confusing a symptom for the cause of the disease. . . . It is debatable whether the economic and political power such [privileged] minorities may lose from the abolition of import controls is greater than the power gains that would accrue to, say, cattle, cotton, and sugar landowners from their expanding exports. . . .<sup>49</sup>

Baldwin, likewise, appears to attribute the income-distribution effects of the Philippine trade and payments regime to specific policies adopted in pursuit of the import-substitution strategy, rather than to the nature of the regime itself. In Turkey the trade and payments regime affected income distribution among specific groups. For example, after devaluation, farmers in the regions growing export crops benefited as their incomes expanded, but they lost out during Phase II; incomes of those in regions where production was for domestic consumption reacted in the opposite direction. Within the Turkish industrial sector the major redistributive implications of the trade and



payments regime centered on importers relative to industrialists. The traders whose business was to import and resell consumer goods lost out to the industrialists who started factories to take advantage of import prohibitions. What often happened, of course, was that the importers themselves began to undertake manufacturing activities as the potential profits from direct importation of finished goods dwindled.<sup>50</sup>

In a number of studies, concern over the real incomes of growers of staple exports was a major factor in exchange rate policy. The severance of the staple export commodities from the world price via export taxes was politically difficult, if not impossible. In some countries, such as Brazil and Colombia, plantation agriculture was involved, so that maintaining the real exchange rate favored the large landowners and allowing it to appreciate was egalitarian, at least within agriculture. In other countries, such as Ghana and Turkey, export crops were generally grown on much smaller landholdings, and devaluation probably reduced inequality.

Restrictive trade and payments regimes persisted in part because of concern over the windfall gains that would result from increasing the real export rate. In part the reluctance to devalue resulted from confusion between the short-run impact of devaluation and its longer-run effect. It is important to distinguish between the impact of exchange rate changes during the time the economy is adjusting to altered incentives and the effects of a sustained transition to a liberalized regime. In the short run there may be windfall gains (although they can be taxed away when the political will is present, as happened in Turkey), and these do seem to accrue in the way theory would predict: in most countries, export industries have benefited from the devaluation. In the long run, resources move into the industries whose profitability has improved, and the quasi-rents disappear. In practice, as Diáz pointed out, no necessary connection between income distribution and the trade regime exists in the long run.

Overall it would appear that the choice of trade strategy instruments should be assigned to the targets of economic growth and resource allocation, while other instruments should be used to accomplish income distribution objectives. There is no clear-cut evidence that import substitution improves income distribution, but there is a great deal of evidence that QR regimes, like export-oriented regimes, can be administered in conformity with distributional objectives. Generally, however, a higher growth rate provides additional resources with which income distribution objectives, whatever they are, can be achieved.

## II. MACROECONOMIC EFFECTS

Most of the microeconomic effects of moving from Phase II to Phase IV or V appear to have been present in several of the countries covered by the project,

and some, such as the tendency to shift away from capital-intensive methods or lines of production, appear to have been close to universal. In some instances the quantitative importance of one factor could not be estimated separately from other interacting effects of quantitative restrictions; in other instances it appeared that the impact of one factor might be sizable.

In the last analysis the microeconomic evidence suggests that there are benefits to be had from liberalization, but it does not provide a feel for the impact of liberalization on economic growth. It proved impossible to quantify the impact of the regime on certain aspects of the economy—the degree of competition, for example—though there could be no doubt that such an effect was present. Other aspects, such as the extent of substitution of capital for labor, could be estimated, but those estimates are not helpful in judging the overall impact of an inappropriate capital/labor ratio on economic growth.

### **Growth Effects in Individual Countries**

In a number of instances the Phase III episode was so quickly followed by resumption of Phase II, or by other intervening and dominant events, that no inferences about the overall impact on growth can be drawn. Those include the first two Brazilian devaluations, the Colombian devaluations prior to 1967, Egypt's almost-zero net devaluation, India's devaluation with the crop failure following it, and South Korea's 1961 devaluation. Growth effects in some of the other situations—Brazil's 1964-1968 Phase III and its aftermath, Colombia's experience after 1967, Israel's growth since 1955, and South Korea's after 1964—were at least as much the result of the long-run alterations in the bias of the regime as of the shorter-term change in real export EERs and liberalization; these will be examined in Chapter 12. That leaves Chile, Ghana, the Philippines, and Turkey, where transition to Phases IV and V lasted long enough for some inferences to be drawn about growth but the bias of the regime remained heavily oriented toward import substitution.

#### **CHILE**

The evidence for Chile is very mixed, but the one conclusion that emerges is that there is no support for the view that periods of restriction led to higher growth, as some Chilean observers have claimed. Behrman points out that the 1956-1958 period, which was when the Klein-Saks liberalization program was in force, had the highest rate of growth of any period between World War II and 1962-1964.<sup>51</sup> Behrman also examined the relationship, often assumed to exist, between Chile's growth rate and the change in her terms of trade; again he found no evidence to support an association. Overall, Behrman believes that all three Chilean episodes were inaugurated with the currency still over-

valued and that, under those circumstances, the ensuing inflation left little hope of any positive and lasting effect from devaluation.

#### GHANA

Ghana's economic growth rate was exceptionally low throughout the 1960s. Leith believes that there is "a variety of evidence which links Ghana's control regime and its economic atrophy in the 1960's."

During this period both the savings rate and the productivity of investment declined significantly. The control regime was an important contributor to this poor performance. . . .

It is important, however, not to overdraw the negative contribution of the control regime. The case against controls is largely that controls permitted errors in policy to have adverse effects on economic growth. Elimination of the set of trade and exchange controls employed for most of the 1960's could thus be expected to alleviate adverse growth effects only indirectly and with a long lag. . . .<sup>22</sup>

He therefore attributed the failure of the devaluation and ensuing liberalization largely to the government's unwillingness to take other policy measures that could have resulted both in a sustained Phase IV or V regime *and* in better growth performance.

#### THE PHILIPPINES

As already seen, the Philippines enjoyed very rapid growth in the early 1950s, but later the growth rate decelerated. Baldwin pointed to the rising capital/labor ratio, constraints on imports due to lack of adequate foreign exchange growth, and other factors associated with the continuing bias of the regime, as the basic sources of the difficulty:

A more selective use of import-substituting and export-promoting policies might have resulted in faster growth in the past and almost certainly would set the basis for a higher development rate in the future than the inward-looking policy of import substitution. . . .<sup>23</sup>

#### TURKEY

The detrimental effects of cutbacks in imports went so far prior to the Turkish devaluation of 1958 that the rate of growth fell sharply. The reforms in the trade and payments regime instituted in the last 1950s accelerated the rate of economic growth. While the rate was much higher in the late 1960s than in the mid-1950s, devaluation and liberalization in 1970 once again triggered a spurt of growth in both foreign-exchange earnings and in real GNP. In

Turkey, therefore, the increase in export earnings and other factors associated with the devaluation enabled the growth rate to improve for two reasons: (1) the detrimental effects on the economy of import shortages and controls were partially removed, and (2) increased export production itself contributed somewhat to a higher growth rate.

### Pooling Experience across Countries

It is of interest, in view of all the particular circumstances that surround each change in phases, to examine common tendencies that can be seen from pooling all the data. One means of attempting to estimate the potential macroeconomic contribution of successful transition to Phase IV is to estimate statistically whether overall growth rates differ significantly with the rate of export growth or with the phase of the trade and payments regime.

For that purpose, all Phase IV and V regimes were compared with all Phase I and II regimes covered by the country studies. No distinction was made between a Chilean Phase IV—in which sustained resource reallocation was discouraged by the expectation that the real exchange rate would quickly appreciate—and a sustained Phase IV—such as Israel's experienced after 1962. Likewise, no attempt was made to distinguish between degrees of exchange control in Phase II, so that the Israeli Phase II of 1960 is treated as being of the same genre as the Indian Phase II of 1957-1965. In Chapter 12 the differences between sustained export-oriented regimes and intermittent moves to Phase IV within the context of a persistent bias toward import substitution are discussed, but that distinction is not made here.

Equation (11.1) below was used to estimate the contribution of exports to economic growth and to test for differences in growth rates between the phases. The regression was fitted from time series data for each country:

$$\log GNP_t = a_{0i} + b_{1t} + c(\log X_t) + eD_{1t} + fD_{2t} + u_{it} \quad (11.1)$$

where  $GNP_t$  is the constant-price estimate of GNP;  $t$  = time;  $X_t$  = an index of the dollar value of exports of country  $i$  relative to  $i$ 's average exports over the entire period.  $D_{1t} = 1$  in Phases I and II and zero otherwise, while  $D_{2t} = 1$  in Phases IV and V and zero otherwise. The estimates are given in Table 11-2.

Several comments about the form of the regression are in order. First, the level of exports responds to changes in the real exchange rate, and thus is presumably higher in Phases IV and V than in I and II. Therefore, any significance attaching to the export variable, and to differences between the dummies, can be interpreted as resulting partially from the trade and payments regime. Insofar as the estimates are reliable, the inclusion of exports provides

one means of separating Phase IV or V GNP increases into two components—that attributable to improved export performance and that resulting from other growth effects of liberalized regimes. Thus the coefficients of the phase dummies can be interpreted as reflecting the influence of all the elements—in both the commodity and the factor markets—that were considered in the first section of this chapter; the coefficients of the export variable can be interpreted as the contribution of an additional unit of exports to GNP growth.

It should be noted that the time coefficient was estimated separately for each country, while there is one coefficient for exports over all countries. The reason for estimating separate time coefficients was that each country's structure obviously has a strong impact on its growth rate, but data (and techniques) are unavailable for satisfactory estimation of a growth model for each country; time was used as a proxy for all structural and other factors affecting the growth rate. Once separate factors are taken into account for each country individually, the average contribution of export growth to the growth rate for all countries may be ascertained.

The multiplication of the phase dummies by the time variable implies that the coefficients of the dummies will indicate the average change in the growth rate associated with different phases.<sup>54</sup> For example, a coefficient of 1 on the dummy variable  $D_2$  implies that the growth rate of any given country during Phases IV and V exceeds its time-determined rate by 1 percentage point per annum; for example, a country predicted to grow at an average annual rate of 3 percent would be expected to grow at a rate of 4 percent during Phases IV and V.

Given all the factors that influence growth rates, it is hardly to be expected that as crude a specification of underlying determinants of growth rates as a time variable will yield entirely satisfactory results. Indeed, the coefficients of both the dummy variables and the export variable are probably biased downward because: (1) to the extent that liberalization progresses over time and results in higher growth, part of the impact of the liberalization may be reflected in the coefficient of the time variable; and (2) to the extent that the average rate of growth of the economy is a function of the restrictiveness of the regime, differences in growth rates among countries are in part the result of differences in the regime. Thus, South Korea's and Brazil's higher growth rates are almost certainly at least partly functions of their Phase IV regimes, whereas India's and Ghana's lower rates are partially the result of their QR regimes. That effect is missed in this estimation procedure, as differences in average rates among countries are taken as resulting from factors other than the nature of the trade and payments regime.

The effort here, however, was to estimate the effect of a move to Phases IV and V, with or without a commitment to a long-term sustained change in bias. Most of the differences in growth rates resulting from different trade and

payments regimes are probably a function of those longer-term variables rather than the shorter-term changes in phases under investigation here; therefore the downward bias in the estimates is probably not very great. The results of the estimation procedure are given in Table 11-2. The period covered was 1954 to 1971, except that shorter periods were used for Ghana and India due to lack of data.

The coefficients of the time variable and those of the dummy variables reflect the percentage growth per annum associated with the pure time variable and with the phases of the regime. For convenience the average annual growth rate for each country over the interval is included in the first column following the country name. The second column gives the time variable coefficient when the export variable and phase dummies are included. In South Korea, for example, the average rate of growth over the period 1954 to 1971 was 6.69 percent per annum. However, the coefficient of the time variable drops to 3.63 percent when export earnings and dummy variables are introduced; a great deal of the growth performance can be explained by the rapid growth of export earnings in the 1960s and the fact that South Korea was in Phases IV and V.

The most interesting estimates are the coefficients for the exports and the phase dummy variables. The coefficient of the export variable is positive and significant at the 99 percent level. It implies that an increase in the rate of growth of exports of 1 percent will increase the rate of growth of GNP by just

**Table 11-2. Impact of Export Growth and Trade Regime upon GNP Growth Rates, Five Countries (1954-1971)**

<i>Country</i>	<i>Average Growth Rate</i>	<i>Time Coefficient</i>
Brazil	5.30	5.31
Chile	4.37	3.57
Colombia	4.67	4.57
Egypt	4.16	3.15
Ghana	3.38	2.98
India	3.13	2.91
Israel	8.76	7.13
South Korea	6.69	3.63
Philippines	5.26	4.52
Turkey	5.29	4.86

*General Coefficient for:*

Exports	0.11 (4.29)	$R^2 = 0.99$
Phases IV and V	0.16 (1.70)	$F = 395485$
Phases I and II	0.08 (0.85)	D.W. = 0.92

over 0.1 percent. Thus, when export earnings increased in Phase IV or for other reasons, growth was on average faster. For South Korea, for example, the 40 percent average annual rate of growth of exports during the late 1960s would, according to this estimate, have accounted for 4 percent faster growth in real GNP compared to the period of stagnant export earnings in the 1950s.

The dummy variables are not significant, and their magnitude is in any event very small when it is recalled that the dummies assume values of 1 and zero. The difference between them is negligible and not significant, also. This suggests that factors associated with better export performance explain whatever systematic differences there are in growth rates under different phases of the regime; the fact that the regime itself is liberalized (or restricted) does not seem to have any additional independent influence. It may be, of course, that the statistical estimation procedure is too crude to pick up the separate influence of liberalization relative to that of QRs on growth. Nonetheless the results accord with impressions from *a priori* reasoning and with the evidence presented earlier in this chapter: altering the exchange rate reduces the bias of the regime somewhat and therefore results in some improvement in export earnings.<sup>55</sup> That in itself leads to a more satisfactory rate of growth of GNP than would otherwise occur. Beyond that achievement, however, regimes oriented toward import-substitution could hardly be expected to experience significant improvement in their growth rates simply by virtue of altering the exchange rate, especially when expectations are either uncertain or for reversion to Phase II.

This is not to say that devaluation is unimportant. After all, the consequences of the drop in export earnings in Turkey in the mid-1950s and the relative stagnation of Ghana's and India's exports probably do account for a significant fraction of their poor performance during those periods. In that sense raising the real export EER may be a necessary condition for maintaining a satisfactory rate of growth and for preventing it from plummeting as a consequence of the "foreign exchange gap" and other aspects of QR regimes.

The chief benefit that can be expected from devaluation (and consequent reduction of bias) in a regime oriented toward import-substitution arises from the more satisfactory export performance associated with a realistic exchange rate. As was seen in Chapter 9, such an increase in export earnings can be sizable, although it is not likely to be sufficient to produce above-average growth in the export sector in the long run. To accomplish that requires a reversal of signals in the entire gamut of policy instruments, and the experience of countries trying that is subject of Chapter 12.

## NOTES

1. Two hypotheses about the beneficial effects of QR regimes have been put forth in the literature. They are: (1) that QR regimes encourage greater saving than would be realized under a

liberalized regime; and (2) that innovation and acquisition of technology will grow more rapidly under Phase II. Bhagwati examines both of these issues in great detail, so they will not be dealt with in this volume. Bhagwati finds no evidence confirming either of the two effects.

2. A higher rate of growth in Phases IV and V could by itself lead to increased growth of employment opportunities even if the two hypotheses were invalid. When real wages are fully flexible, of course, hypotheses about employment can be restated as hypotheses about the behavior of real wages.

3. In some cases, means of misrepresenting capacity are also employed.

4. It should be noted that firms individually might wish to expand output in Phase II but find it unprofitable to do so in Phase IV. If industry output expanded, the price of that output would decline, yet the reason for the increased output would be that imports of intermediate goods had been liberalized with an increased price paid for them. Desired output levels of individual firms would surely be smaller at the lower output prices and higher input prices than they are under QRs. The microeconomic aspirations of individual firms cannot therefore be used as a reliable indicator of the impact on capacity utilization of an alternative trade regime.

5. Leith, pp. 29-32. His estimate is based on research by Tony Killick.

6. Bhagwati and Srinivasan, Table 13-5. Data are based on the actual number of shifts worked, so that in many instances basing estimates on two shifts would increase the estimates of underutilization rates.

7. Baldwin, Table 6-9 and p. 142.

8. Hansen and Nashashibi, p. 30.

9. *Ibid.*, p. 223.

10. Michaely, p. 160.

11. *Ibid.*, p. 163.

12. Díaz, pp. 250-51.

13. A notable exception is the work of McCabe and Michalopoulos, reported in Krueger, pp. 236-39. Even there, focus is on the composition of investment (construction relative to machinery and equipment), rather than imported area domestic goods.

14. Leith, p. 104.

15. Fishlow, Table VIII. Not all of the subsidy was through the trade regime in the Brazilian case, but the exchange rate on imported capital equipment was relatively low, as was seen in Chapter 7.

16. Behrman, p. 259.

17. Díaz based his estimates on average hourly earnings, which were deflated by the consumer price index.

18. Data on wages in manufacturing were deflated by the cost of living index. The wage data are from Michael Roemer, "Relative Factor Prices in Ghanaian Manufacturing, 1960-1970," *Economic Bulletin of Ghana* 1:4 (1971).

19. Data from Frank, Kim, and Westphal, Table 11-3, p. 222.

20. Baldwin, pp. 61-62.

21. Roemer, *op. cit.*, p. 12.

22. Behrman, p. 260.

23. Leith, pp. 104-5.

24. See Eva Hirsch and Abraham Hirsch, "Changes in Agricultural Output Per Capita of Rural Population in Turkey, 1927-1960," *Economic Development and Cultural Change* 11 (July 1963):372-94.

25. Baldwin, pp. 128-29.



26. *Ibid.*, p. 132.
27. Krueger, Chapter IX.
28. Frank, Kim, and Westphal, p. 223.
29. Díaz, pp. 240 ff.
30. *Ibid.*, p. 244.
31. Michaely, p. 162.
32. Bhagwati and Srinivasan, pp. 216-17.
33. See Fishlow, p. 92, for one such case.
34. *Ibid.*, p. 91.
35. The fact that the very high-cost import-substitution industries appear to be the ones cut back further reinforces this conclusion.
36. Michaely, pp. 23-24 and pp. 49 ff.
37. If that were so, and if services had a lower-than-average incremental capital/output ratio, a QR regime might be accompanied by a higher capital/output ratio in manufacturing than a Phase IV regime; but there would be an offset in that the weight attached to the capital/output ratio in the service sector was larger in Phase II. The overall capital/output ratio could then be either higher or lower in Phases I and II than in IV and V. This illustrates once again that there are a variety of conflicting microeconomic factors at work in QR regimes and that inspection of aggregates alone will seldom permit satisfactory analysis.
38. Services were defined as the sum of outputs of SIC sectors 6 through 9. Data were taken from Table 4 of the United Nations *Yearbook of National Accounts Statistics*, 1971. The sectors are: wholesale and retail trade; transport and communications; finance, insurance, and real estate; and commercial, social, and personal services. Data were unavailable for Ghana.
39. There is, of course, a question as to the reliability of the data. Testing changes in the share in GNP requires only that the percentage error in reporting does not change systematically.
40. Díaz, p. 237.
41. Krueger, Table II-10.
42. Both Ghana and India were excluded from the test because data were not reported in the U.N. *Yearbook*.
43. *T*-statistics on the dummies were 1.31 for Phases I and II and  $-0.27$  for Phases IV and V.
44. If goods can be resold at low transactions costs, the argument does not apply. In many instances, however, actual user licenses make resale illegal and costly.
45. Krueger, Table IX-6.
46. Leith, p. 104.
47. Montek Ahluwalia, "Income Inequality: The Dimensions of the Problem," in Hollis Chenery et al., *Redistribution with Growth* (London: Oxford University Press, 1974), pp. 8-9. Taiwan and Japan are also low-inequality countries.
48. Frank, Kim, and Westphal, p. 224.
49. Díaz, p. 153.
50. Krueger, pp. 240-43.
51. Behrman, p. 27.
52. Leith, p. 108.
53. Baldwin, p. 150.
54. For ease of presentation, the coefficients on the time and dummy variables are multiplied by 100 to make them into percentages.
55. It also prevents further bias toward import substitution and the costs of further restrictiveness of the regime.