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Chapter 9

Longer-Term Response to Phase III

So far it has been shown that Phase III episodes almost always result initially in a certain amount of liberalization, some rationalization, and a reduction in both the bias and the variance of the trade and payments regime. Although liberalization is not inevitable (as in Colombia in 1957 and 1962), it normally occurs because premiums on import licenses are absorbed. This absorption may result from the exchange rate change, or from using foreign credits to permit import flows to increase, or from depressing the level of economic activity. The initial liberalization can be virtually complete, as in Turkey in 1970, or of relatively smaller magnitude, as in Ghana and India. Likewise, rationalization can be extensive, as multiple formalities, taxes, and administrative agencies are replaced with more-or-less streamlined procedures (as in Turkey in 1958), or simplification may be limited. Reduction in bias and variance results both from premium absorption and from the exchange rate change itself, which is usually greater for exports than for imports and greater for those imports previously most favored and exports most discriminated against.

In the longer run, whether these changes can be sustained depends largely on how foreign exchange receipts behave. Although imports can be liberalized in the short run by foreign borrowing or depressing the level of economic activity, their continued liberalization is contingent upon allowing them to increase at about the rate of growth of demand; that, in turn, depends upon the ability of the country to finance the import bill. Generally the behavior of foreign exchange receipts is closely associated with the behavior of export earnings, although other factors have been significant in particular circumstances.

The primary focus of this chapter is on the determinants of export earnings and other sources of foreign exchange in the intermediate and longer run.

The intermediate term is defined as a period sufficiently long for foreign exchange receipts to respond to altered real export EERs, even when those rates are not necessarily to continue indefinitely. Of particular importance in this regard is the relative influence of the various components of the Phase III packages. Those considerations are the subject of the first section of this chapter. In the second section the ten countries' policies and experience are weighed in order to assess the determinants of long-run growth of exports and other foreign exchange earnings.

I. INTERMEDIATE-TERM RESPONSES

As already indicated, receipts from exports have been the major source of growth in foreign exchange resources in almost all the countries covered by the project. The behavior of export earnings in the periods surrounding Phase III was the subject of careful analysis in each of the country studies, and these findings are summarized here. Tables 9-1 through 9-4 give data on PLD-EERs and dollar values of exports for traditional and nontraditional exports for each of the ten countries; these data are useful background for the findings of the individual authors. It should be borne in mind that concern here is focused on the behavior of exports in the period following devaluation. While no precise time interval covers all cases, it usually starts immediately after devaluation with inventory changes, continues into altered production patterns out of existing capacity in the six to eighteen months following devaluation, and may even entail some alterations in productive capacity over the first two or three years after devaluation.

Export Response in Individual Countries Following Phase III

BRAZIL

Fishlow believes that the 1957 Phase III did not initially generate any change in exports because bias against exports was really unaltered. In 1958 and 1959, therefore, export earnings declined:

It was this precarious situation that led, for the first time in the post-war period, to attention to the export rate and the need for increased foreign exchange receipts.¹

The PLD-EER for traditional exports, which had been declining since 1950, increased 43 percent from 1958—its low point—to 1959, and the nontraditional export rate rose 22 percent.² This reduced bias resulted in an increase in the volume of exports and arrested the decline in export earnings that would otherwise have resulted. Nonetheless, as can be seen from Tables 9-3 and 9-4, the decline in export earnings, which had continued since 1955, was finally halted.

Following the 1961 Phase III the increase in the PLD-EER for both traditional and nontraditional exports was short-lived. Fishlow reported an immediate increase in both volume and value of exports from their 1960 levels, but it did not continue, and Brazilian inflation reached its maximum rate in the next several years. While there were periodic adjustments in the exchange rate, they were not sufficient to maintain the real EERs at their levels of 1959 and 1960.

The aftermath of the Brazilian 1964 Phase III was entirely different from the first two Phase III episodes, which were followed by only a relatively small and temporary increase in the volume of exports in response to reduced bias of the regime. Fishlow distinguishes between the events of 1964-1967, which can be regarded as the intermediate term, and the 1968-1974 growth of exports, which is considered a long-term response. From 1964 to 1966, nontraditional exports rose from \$500 million to \$815 million, falling back a bit to \$799 million in 1967. Traditional exports earnings remained stagnant, so that there was an overall increase of 24 percent from 1964 to 1966.

Fishlow attributes much of the export improvement to the incentives provided by the domestic recession, rather than to the change in the real exchange rates.³ While he regards the earlier reduction in bias as being a necessary condition for exporting, exports increased during the 1964-1967 period primarily because the productive capacity was there and domestic demand was inadequate to absorb it. In the intermediate run, therefore, productive capacity was shifted to supplying the export market, but entrepreneurs were not creating new capacity for that purpose and exports began declining when domestic demand picked up in 1967.

CHILE

The Chilean experience is one in which there was no long-term response: all periods of liberalization terminated within six years largely because the growth of foreign exchange earnings was insufficient to sustain the liberalization. Moreover, given Chilean experience with rapid inflation, it is unlikely

Table 9-1. Indexes of PLD-EERs for Traditional Exports, Nine Countries, 1950-1971 (1958 PLD-EER = 100)

Year	Brazil	Chile	Colombia	Ghana	India	Israel	South Korea	Philippines	Turkey
1950	183	101	77	n.a.	97	43	n.a.	104	n.a.
1951	157	92	81	n.a.	84	44	n.a.	93	n.a.
1952	139	94	86	n.a.	99	58	n.a.	102	n.a.
1953	150	98	83	n.a.	102	68	n.a.	103	113
1954	162	86	78	n.a.	107	86	n.a.	108	103
1955	160	76	82	119	117	90	93	111	94
1956	131	91	95	187	107	97	97	108	76
1957	114	93	104	140	101	103	92	103	63
1958	100	100	100	100	100	100	100	100	100
1959	143	89	94	127	97	98	116	98	111
1960	129	87	98	162	92	100	114	105	150
1961	138	80	97	118	90	94	103	121	147
1962	124	74	115	184	89	96	94	135	140
1963	122	77	92	139	87	91	98	138	133
1964	158	71	83	169	78	88	108	132	138
1965	123	79	87	64	73	83	108	143	130
1966	93	74	87	75	93	84	108	137	120
1967	110	66	99	132	80	89	106	131	111
1968	130	59	104	95	84	98	106	127	108
1969	132	53	103	77	83	100	105	126	106
1970	106	46	102	n.a.	79	102	109	139	129
1971	n.a.	n.a.	102	n.a.	76	104	n.a.	134	120

n.a. = not available.

A higher index number implies a higher price of foreign currency in real terms; i.e., a higher relative price is received by exporters for the same foreign price of the commodity. PLD-EERs are not given in Hansen and Nashashibi, and Egypt is therefore excluded from statistical results reported below.

Sources:

Brazil—The coffee export rate was taken from IMF, *International Financial Statistics*. It was deflated by the wholesale price index. That index, on a 1965-1967 base, was provided for the years 1954 to 1968 by Fishlow, and it was linked to the other years, where Line 63 of *International Financial Statistics* was used.

Chile—Data from Behrman. The mining PLD-EER, from Table A-8, Column 3-8 was used.

Colombia—The coffee export rate from *International Financial Statistics*, deflated by Line 63B, was used.

Ghana—The cocoa export rate from Leith, Table II.8, was used.

India—Bhagwati and Srinivasan, Table 2-1, Column 8.

South Korea—Frank, Kim, and Westphal, Table 6-6. There is no separate traditional export rate for South Korea.

Philippines—Baldwin, Table 5-2.

Turkey—Krueger, Tables A-1, A-4, and C-1.

Table 9-2. Indices of PLD-EERs for Nontraditional Exports, Nine Countries, 1950-1972 (1958 PLD-EER = 100)

<i>Year</i>	<i>Brazil</i>	<i>Chile</i>	<i>Colombia</i>	<i>Ghana</i>	<i>India</i>	<i>Israel</i>	<i>South Korea</i>	<i>Philippines</i>	<i>Turkey</i>
1950	104	119	87	n.a.	97	43	n.a.	100	n.a.
1951	88	123	73	n.a.	84	44	n.a.	89	n.a.
1952	79	135	84	n.a.	99	58	n.a.	98	n.a.
1953	82	122	92	n.a.	102	68	n.a.	100	91
1954	79	89	87	n.a.	107	86	n.a.	108	93
1955	101	96	95	109	117	90	93	111	83
1956	90	117	113	109	107	97	97	108	75
1957	93	123	108	107	101	103	92	103	62
1958	100	100	100	100	100	100	100	100	100
1959	122	114	113	102	97	98	116	98	84
1960	130	107	100	102	92	100	114	102	85
1961	142	94	122	99	90	94	103	114	84
1962	143	93	140	97	93	96	94	124	80
1963	121	100	122	91	90	91	98	125	76
1964	147	94	108	83	85	88	108	120	83
1965	148	106	140	71	84	83	108	130	80
1966	123	115	116	64	101	84	108	130	77
1967	119	104	120	94	82	89	106	120	68
1968	121	103	131	82	86	98	106	117	70
1969	122	107	136	74	88	100	105	116	67
1970	112	n.a.	139	n.a.	83	102	109	152	92
1971	107	n.a.	143	n.a.	84	104	n.a.	146	79
1972	102	n.a.	146	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.

n.a. = not available.

Note: See notes to Table 9-1.

Sources: Sources are the same as Table 9-1 with the following exceptions: Brazil—"Export rate except for coffee" data supplied by Fishlow; Chile—Behrman, export EER, Table A-8, Column 31; Colombia—Díaz, Tables 2-9 for 1950 to 1952 and 2-10 for later years (data are PPP-PLD-EERs); India—Bhagwati and Srinivasan, Table 2-1, using the columns recommended by them in note 1 to that table (varying with the height of subsidy).

that expectations ever shifted enough so that a longer-term response might have developed. Chile is one of the countries, therefore, where there was an intermediate-term response but where nothing can be inferred about the long-term responsiveness of exports to altered incentives.

While part of the reason for the behavior of foreign exchange earnings was the fluctuation in copper prices on world markets, Behrman's analysis points to the strong bias against exports as a major factor. It did not change significantly during Phase III episodes, and Behrman concluded:

Table 9-3. Value of Traditional Exports, Nine Countries, 1954-1972
(millions of U.S. dollars)

Year	Brazil	Chile	Colombia	Egypt	Ghana	India	Israel	Philippines	Turkey
1954	1306	n.a.	626	324	237	529	49	305	246
1955	1066	n.a.	546	307	183	510	52	300	210
1956	1183	n.a.	545	283	144	531	69	325	190
1957	960	n.a.	463	355	142	478	87	301	247
1958	802	n.a.	420	314	175	481	86	367	165
1959	828	n.a.	437	315	193	472	99	377	217
1960	828	370	414	386	185	495	114	403	164
1961	866	373	376	299	193	537	119	349	198
1962	779	393	392	219	188	576	145	399	223
1963	897	402	380	278	190	589	200	541	191
1964	903	429	465	268	190	590	201	538	235
1965	832	511	432	336	188	551	238	561	257
1966	926	717	399	330	144	515	284	618	299
1967	855	732	383	280	166	546	303	569	339
1968	952	747	388	276	182	480	344	597	315
1969	1114	991	401	301	216	428	378	538	322
1970	1171	925	525	340	294	420	368	653	261
1971	972	n.a.	451	402	196	536	461	693	385
1972	1237	n.a.	461	373	n.a.	537	558	611	401

n.a. = not available.

Note: *International Financial Statistics* gives the export value for individual commodities in local currency units for Egypt, Ghana, India, Israel, and Turkey (after 1965). For years in which the exchange rate was unchanged, conversion to dollars was simple, as the exchange rate at which the transactions were recorded was the same for all commodities. The local currency value of traditional exports was therefore calculated as a fraction of the total local currency value of exports, and the resulting fraction was then multiplied by the dollar value of exports. Only if the exchange rates at which dollar proceeds were recorded differed between commodities would there be any resulting error in the estimate.

Sources: The data were taken from IMF, *International Financial Statistics*. In order to obtain estimates on a comparable basis across countries, commodities listed separately in the export statistics on the country pages were taken as traditional. The commodities so listed for each country are as follows: Brazil—cacao, coffee, and cotton; Chile—copper and nitrate; Columbia—coffee and petroleum; Egypt—cotton; Ghana—cacao; India—jute textiles and tea; Israel—diamonds and citrus fruit; South Korea—none; Philippines—coconut products, sugar, and wood; Turkey—chrome, cotton, hazelnuts, and tobacco.

It is important to emphasize again that this lackluster export performance in part reflects the bias against exports in the trade regimes. Export pessimism, thus, somewhat ironically led to policies that resulted in lower exports than otherwise would have occurred.⁴

Nontraditional exports were much more sensitive to real exchange rates than were traditional exports. Behrman noted that the export promotion schemes

Table 9-4. Value of Nontraditional Exports, Ten Countries, 1954-1972
(millions of U.S. dollars)

Year	Brazil	Chile	Colombia	Egypt	Ghana	India	Israel	South Korea	Philippines	Turkey
1954	256	n.a.	31	88	56	652	40	24	95	89
1955	357	n.a.	34	110	60	766	40	18	100	103
1956	299	n.a.	55	124	78	769	39	25	128	115
1957	432	n.a.	49	136	86	901	55	22	130	98
1958	441	n.a.	41	161	88	740	55	17	126	82
1959	454	n.a.	38	144	93	836	80	20	151	137
1960	441	118	52	181	109	836	103	33	157	156
1961	537	133	59	184	99	850	127	41	151	149
1962	435	137	71	194	103	827	134	55	157	158
1963	509	138	67	243	83	1041	152	87	186	177
1964	500	195	79	271	102	1159	171	119	204	175
1965	763	174	107	269	103	1131	191	175	206	202
1966	815	161	109	275	95	1061	220	250	211	192
1967	799	178	127	286	117	1065	252	320	253	183
1968	929	189	171	345	124	1280	295	455	261	182
1969	1197	78	207	444	85	1407	352	623	316	215
1970	1568	322	210	421	139	1606	410	835	409	328
1971	1932	n.a.	235	387	130	1525	498	1068	435	292
1972	2754	n.a.	282	456	n.a.	1863	590	1624	494	481

n.a. = not available.

Source: IMF, *International Financial Statistics*. Nontraditional exports are total exports less traditional exports as given in Table 9-3.

adopted for nontraditional exports really only partially offset the bias against them.⁵ Because of this, dependence on traditional exports increased over the post-World War II period, despite the fact that an avowed objective of the regime was to reduce dependence on that class of commodities.⁶

Behrman estimated response functions for exports with respect to both real exchange rates and also the standard deviation of those real rates, which he took as a proxy for the uncertainty surrounding the real return to exporting. He found significant export responses both to price changes and to reducing uncertainty. For example, the elasticity of exports with respect to the exchange rate was estimated to be 2.9 for industry, 0.8 for small- and medium-scale mining, 0.5 for agriculture, and 0.3 for large-scale mining.⁷ He calculated that "the foregoing elasticities and the 63 per cent drop in the overall PLD-EER between 1947 and 1972, for example, imply complete elimination of exports from industry; and drops of 50 per cent from small- and medium-scale mining; 32 per cent from agriculture; and 19 per cent from large-scale mining."⁸ Every

export sector except small- and medium-scale mining also responded to reducing the standard deviation of the real exchange rate. In general, however, the magnitude of those responses was somewhat smaller than that for the exchange rate itself.⁹

All three Chilean liberalizations failed because of the lack of increased foreign exchange earnings. Behrman attributed this outcome largely to the fact that liberalization efforts were undertaken with a "below-equilibrium and often declining PLD-EER."¹⁰ While exogenous events might have influenced foreign exchange earnings adversely anyway, there was no chance for sustained liberalization in Chile because of the bias against exports that resulted from the low real export exchange rates.

COLOMBIA

Coffee has historically dominated Colombia's exports. Any analysis of the behavior of exports in the postwar period must separate the behavior of traditional exports (coffee and petroleum) from that of "minor exports," which are themselves divided into two groups: "BCST" (bananas, cotton, sugar and tobacco) and others. Díaz took the behavior of traditional exports as given and did not analyze it in detail. Fluctuations in the world price of coffee and domestic political considerations which determined producer prices are of such great importance that completely separate analyses would have been required.

Over the period 1954-1956, minor exports averaged \$40 million, while traditional exports averaged \$572 million; for the 1969-1971 period, minor exports averaged \$217 million and traditional exports, \$459 million. Thus, total export earnings had increased barely by 10 percent, but that was accomplished by a rapid expansion of the minor exports, which was more than sufficient to offset the decline in traditional exports.

Minor exports were generally encouraged throughout the period, and the Phase IIIs were an occasion for exchange rate unification. Unlike devaluations in most countries, Phase III episodes in Colombia have resulted in declines in the real export rate for minor exports. Prior to 1967 the real exchange rate applicable to minor exports declined from the preceding year in every year following a devaluation.¹¹

Although it was not possible to evaluate the export response to Phase III episodes per se, Díaz did estimate supply functions for total minor exports, and for BCST and non-BCST exports separately. His results are reproduced in Table 9-5. His dependent variable and first independent variable—the change in the real exchange rate—are both measured in percentages. The coefficients of the exchange rate change variables can therefore be interpreted as supply elasticities;¹² their values range from 0.59 to 1.13. Díaz's estimates yield more significant results for total minor exports than for the two subcategories

Table 9-5. Regression Estimates for Annual Percentage Changes in Minor Exports, Colombia

Regression Number	Constant	Independent Variables			R ² ^b	F-Statistic	Durbin-Watson Statistic
		Change in Exchange Rate	Instability of Exchange Rate	Lagged Change in BCST ^a Output			
Total Dollar Value of Recorded Minor Exports, 1955-1972:							
(1)	19.92 (3.34)	0.81 (2.50)	-1.85 (2.16)		0.36	4.20	2.04
(2)	14.40 (6.44)	0.87 (2.84)	-1.48 (1.78)	0.53 (1.73)	0.47	4.18	2.01
Dollar Value of BCST Exports, 1955-1970:							
(3)	-9.25 (0.74)	1.13 (2.54)	0.70 (0.49)	1.91 (3.63)	0.61	6.23	2.74
Dollar Value of NonBCST Recorded Minor Exports, 1955-1970:							
(4)	25.48 (2.82)	0.59 (1.38)	2.37 (1.93)		0.25	2.19	1.73

Note: For method, see Díaz, pp. 33 ff. The first two regressions have 18 observations, the last two only 16, owing to lack of up-to-date customs data. Except for the instability index, all values are expressed as year-to-year percentage changes. Numbers in parentheses are *t*-statistics.

Source: Díaz, Table 2-13.

^aBCST = bananas, cotton, sugar, and tobacco.

^bR² = coefficient of multiple determination.

separately. It is interesting that he, like Behrman, finds the variance of the exchange rate to be negatively related to minor export earnings. This finding was reinforced when Díaz ran the same sort of regression on quarterly data, in which variance was much larger.¹³ As is evident from Díaz's results, not all of the increases in minor exports could be attributed to exchange rate changes, and he considers that other policies promoting these exports were of great long-term importance.

EGYPT

Because of the nationalization of Egyptian trade, few inferences can be drawn about the results of Phase III from the Egyptian experience. Hansen and Nashashibi believe that Egyptian exports of agricultural commodities were competitive both before and after the Egyptian devaluation in 1962, and they regard the exchange rate as far too overvalued to have encouraged manufactured exports in either period.¹⁴

GHANA

Receipts from cocoa, which account for roughly 60 percent of Ghana's total export earnings, rose in the several years after the 1967 devaluation, but the rise was attributable to favorable world prices rather than to a supply response. Indeed, Leith notes that estimates of the long-run elasticity of supply range from 0.71 to 1.0, and that the PLD-EER for cocoa, after holding relatively stable for a time, fell sharply with the inflation in 1965. It stabilized after 1967 at a rate above that of 1966 but below earlier years. New plantings of cocoa stopped in 1964/65 and had not been resumed at the time Leith was writing.¹⁵

Leith estimated the responsiveness of the noncocoa exports to fluctuations in the real EER. He had only six observations and yet found a very close relationship, with an estimated elasticity of export earnings from noncocoa exports of 0.43. He concluded that the decline in the real exchange rate resulted in "a serious deterioration" of export earnings.¹⁶ Although his estimating equation predicts well the response to the 1967 devaluation, there is a lag. Leith attributes this to the time taken to alter expectations and notes that the real exchange rate had, by 1969, fallen to a lower level than in 1964. So Ghana's poor export performance is apparently largely the result of overvaluation of the exchange rate.¹⁷

INDIA

Bhagwati and Srinivasan examined the various factors that, *a priori*, would have been expected to affect exports in the intermediate run after devaluation. There were both positive and negative effects, and their relative importance differed among commodities. Factors tending to increase exports were: (1) the devaluation presumably encouraged new exports that had not earlier benefited from export subsidy schemes; (2) liberalization improved availability of imports to new industries that were dependent on imported inputs, thus allowing the use of excess capacity and inducing a shift in the supply of exports; and (3) export subsidies were reintroduced within six months following the devaluation. Factors tending to reduce export earnings included: (1) the fact that net devaluation was very small for traditional commodities on which export duties were imposed at the time of devaluation; (2) the initial removal of export subsidies; and (3) the increased cost of imports, which might have raised the cost to potential new export industries. One might also expect that *recorded* exports would have fallen because the removal of subsidies reduced the incentive for faked invoicing.

The authors conclude that, on balance, there was no reason to expect any improvement in the export performance of traditional commodities but that there could have been some improvement in newer export items. The Indian recession of 1966/67 also reinforced this prospect; the drought cut agricultural

output sharply and thus should have adversely affected traditional exports, while excess capacity resulting from slack domestic demand would have improved the relative profitability of exporting nontraditional items. Detailed analysis of the actual performance of individual export commodities fairly well confirms the *a priori* expectations: there was a significant response for steel, engineering goods, and, to a lesser extent, chemicals,¹⁸ while traditional exports declined after 1967. India had reverted to Phase II by 1968/69, with PLD-EERs declining thereafter. Thus the Indian case represents yet another where there was no opportunity for a longer-term response.

ISRAEL

Israel's exports grew at a higher annual rate in the three years after the 1952 devaluation than in any period of comparable duration since. Michaely believes that this rapid growth was the result of the sharp increase in the real export exchange rate. This substantial increase was accompanied by liberalization of the regime and a reduction in bias, both contributing to the growth in exports.

In contrast, the 1962 devaluation was preceded by a 6 percent decline in the PPP-PLD-EER in 1961; the rate then rose 2.7 percent in 1962, only to fall by 4.9 percent in 1963, with further drops in each of the subsequent two years.¹⁹ While exports grew at a rapid rate in the years following the 1962 devaluation, their average growth was no higher than in earlier or later years. The chief lesson from that episode seems to be that devaluation does not necessarily increase the incentive to export, especially when net devaluation of the export exchange rate is less than gross and when the devaluation is followed by inflation.

Michaely relied upon a study by Halevi to estimate the importance of the real export exchange rate in affecting exports. His conclusions, based on the Halevi study, were that:

. . . It appears that the supply elasticity of exports is substantial, and probably even high. This impression is strengthened by the realization that these estimates must, for a number of reasons, be biased downward. It should be noted, first, that the estimates exclude the first half of the 1950's, when the exchange-rate changes were not only at their strongest but appear from my data to have had relatively the strongest impact: as has been argued before, slight variations in the exchange rate would result in lower estimates of elasticities (of supply or demand) than major price changes, because of errors of measurement. . . . No less important is the time lag involved in the response of quantity to price. . . . Thus, Halevi finds a very high elasticity of supply (roughly, 2) of industrial exports in relation to the change in the capital stock. It may be assumed that the bias toward exports in the process of growth of capital stock, which is indicated by this elasticity, is

itself at least partly a reaction to earlier changes in relative prices in favor of exports. . . .²⁰

SOUTH KOREA

South Korea's rapid export growth began early in the 1960s, and the real export EER was sustained by subsidies between devaluations. Frank, Kim, and Westphal found, however, a significant difference in the responsiveness of exports when there were changes in the exchange rate itself and when there were changes in subsidies.²¹ Their estimate of the elasticity of manufactured exports with respect to the exchange rate was 2.14, while that with respect to subsidies was 0.95. This result suggests that exchange rate changes themselves had more effect than did comparable increases in the export EER achieved through export subsidies.

The authors also noted that reduced risk associated with exporting may have spurred export growth after 1963, and that the responsiveness of exports "changed sharply" after this date. However, in both cases the period was too short for separate estimation. This shift, like others in Brazil and Colombia, probably represents the longer-term response that may be explained by a number of factors; an adequate real export exchange rate is a necessary, but not a sufficient, condition for sustained long-term export growth.

THE PHILIPPINES

Philippine exports rose from an annual average of about \$550 million in 1959-1962 to about \$850 million in 1963-1966. After making adjustments for over- and underreporting and for changes in sugar exports (which depended on American quotas), Baldwin estimated that this represented a 53 percent increase in export earnings in response to the 1960-1962 liberalization. The most significant shift in production was that in the agricultural sector, in which land was shifted to commercial export crops from food crops for domestic consumption. However, the rate of growth of manufactured exports also rose sharply—from 8.5 percent in the late 1950s to 14.6 percent in the mid-1960s (exclusive of coconut products).²²

Despite these apparently impressive results, Baldwin did not pronounce the 1960-1962 Phase III an unqualified success:

In a sense, the decontrol episode was partly successful in changing the production incentives built into the economy during the 1950s despite the intentions of the government. But the resulting situation was not very satisfactory from an economic standpoint, since a significant liberalization effort that could have established the basis for a new type of export-oriented growth was not achieved. . . .²³

The Philippine experience is one of the strong pieces of evidence that will be used in evaluating the long-run determinants of trend rates of growth of exports. The fact that liberalization occurred without bias reduction permits some inferences to be drawn as to the relative importance of these factors in stimulating export growth.

Baldwin examined export supply functions for a number of Philippine exports and then used the resulting elasticity estimates to ask what would have happened to export earnings had realistic exchange rates been applicable to exports throughout the period. His estimates omitted sugar, which is strongly influenced by U.S. quotas, and coconut products, which are apparently insensitive to exchange rate changes and were thus assumed to remain constant. The results indicate that, had the essential producer-goods exchange rate been applicable to exports, exports would have averaged \$116 million (or 20 percent) more annually than they in fact did over the 1950-1969 period. If, instead, exports had been accorded the EER for semi-essential consumer goods, the estimated average annual increase would have been \$188 million (or 33 percent). Making the qualifications that must always surround such estimates, Baldwin concluded that "not only has export growth been retarded by effective exchange rates that discriminated against the export sector, but export expansion has been hampered by the import-substitution program, since this has artificially inflated the prices of some inputs used by the export sector."²⁴

TURKEY

After the 1958 Turkish devaluation, export earnings jumped from their low of \$247 million to \$363 million in 1959. They remained at that level until 1961 and then began growing, fairly steadily until about 1967, at an average annual rate of 7 percent. This contrasts sharply with their negative rate of growth in the predevaluation period. After the 1970 devaluation, exports once again boomed, rising from \$537 million in 1969 to \$588 million in 1970 and \$677 million in 1971. Rapid growth, especially of nontraditional exports, continued over the next several years. That growth, however, contributed far less to foreign exchange earnings than did the rapid growth of workers' remittances.

Estimates of the response of Turkish exports to changes in real EERs indicated that responsiveness varied from commodity to commodity; the significance of the estimates also varied among commodities. The estimated supply elasticity was 5 for olive oil, 3 for mohair, just about unity for cotton, and 0.81 for minor exports. For tobacco, chrome, and copper, the estimated response was zero or slightly negative, although the estimates were statistically insignificant. Interestingly enough, commodities having positive supply responses were those for which changes in the EER were passed on to pro-

ducers; the commodities with apparent zero or negative supply elasticities were those for which real EER changes did not necessarily get reflected in domestic prices because of domestic price intervention policies. That finding again reinforces the dictum that knowledge of internal policies and conditions is important in predicting the effect of exchange rate changes.

Generalizations from the Country Studies

Several characteristics of the individual country findings stand out sharply.²⁵ Perhaps most striking is the fact that virtually all authors believed there were significant responses to changes in real EERs. While the usual qualifications were made about the estimates, there is not one instance where doubt was expressed about the responsiveness of exports to real EERs. Of course, account must be taken of the difference between nominal and effective exchange rates and also of export subsidies and incentives for exports, including the effect of domestic policies.

The intermediate-term response of exports seems to have been forthcoming fairly quickly. If an expectations model of producer behavior were postulated, it is not at all obvious why exports should respond in a country such as Chile, where the virtual certainty was that the real export rate would quickly become less attractive. Yet even in those environments the response was there, and it was fairly sizable. The intermediate-term response seems to have enabled export earnings to increase within a period of six to eighteen months after devaluation—probably a shorter period than *a priori* expectations might have suggested. The supply of exports for such relatively quick reactions must have been largely diverted from existing productive capacity or stocks to the export market; it is doubtful that significant shifts in crop patterns or in manufacturing capacity could have occurred within that short a time period.

The responses of nontraditional exports to Phase III changes were usually stronger than those of traditional exports. But with the exceptions of coffee in Brazil and Columbia and coconut products and sugar in the Philippines, authors of country studies believed that the real export rate has been a significant deterrent to traditional exports. Behrman and Leith believe that the treatment accorded Chilean copper and Ghanaian cocoa by the trade and payments regime did adversely affect earnings. There are so many exogenous factors affecting export earnings from traditional commodities that systematic analysis of the role of the real exchange rate was seldom possible, but it is noteworthy that, by and large, earnings from traditional exports generally increased in the period of several years following devaluations.

In many instances the evidence strongly indicates that "exports did not respond" because there was nothing to respond to. The lack of improved incentives to export characterized a large number of episodes: the first Brazilian devaluation did not improve export incentives, and the second did so only temporarily; Chilean and Ghanaian real EERs quickly returned to their former levels; Colombian minor exports were generally treated less favorably after devaluations than before; the change in incentives to Indian exports was really of doubtful direction and magnitude; Israel's second devaluation saw lower real EERs for exports a year afterward than had prevailed a year before; and South Korea's formal exchange rate changes tended to raise import EERs toward the export rate because the latter was maintained by export subsidies between devaluations.

The evidence that "exchange rates matter," at least when devaluation follows exchange controls, therefore seems fairly strong. The probable order of magnitude of the losses from inappropriate (and fluctuating) real export rates is certainly significant, as estimates provided by Baldwin and others indicate. Yet those estimates pertain primarily to the intermediate run. While gains from maintaining appropriate real exchange rates might have been substantial, the evidence also strongly suggests that such a policy—by itself—would generally not have resulted in rapid and sustained export growth of the sort that was experienced over the longer run by Brazil, Israel, South Korea, as well as by Colombian minor exports.

The Separate Effects of the Components of Phase III

From the evidence presented in the country studies, it is clear that in most cases there was significant responsiveness to Phase III changes in the real exchange rate for exports in the several following years. This seems to have been so regardless of whether there was a sustained period of export growth and further liberalization in the longer run or whether Phase II again emerged because export earnings were inadequate to sustain liberalization or export PLD-EERs returned to their former levels.

What is not immediately evident is the separate role played by reduced bias and by liberalization in bringing about the increase in export earnings that usually followed Phase III. A model designed to identify the individual effects of these factors has been constructed.²⁶ The basic approach is to regard each country's dollar value of exports as growing over time at a trend rate specific to that country; changes in the real export rate and the phases are then treated as cross-section observations to explain deviations from the trend.²⁷

THE MODEL

Apparently the long-term rate of growth of exports is a function of a number of variables. The determinants of that rate are discussed in the final section of this chapter. Here, concern is with the deviations of export earnings from their trend. The trend rate of growth of export earnings in each country is taken simply as a function of time. Alternative hypotheses can then be tested with respect to the influence of various phenomena surrounding Phase III. These hypotheses are: (1) in addition to the effect of the real export EER, export earnings are affected by the extent of liberalization; (2) export earnings are greater in Phases IV and V than in I and II (with or without adjustment for real EER behavior); and (3) export earnings grow faster in Phases IV and V than in I and II.

The model can most easily be regarded as having two parts. First, it is assumed that each country's exports grow at a particular rate, r_i , and that this trend rate is determined by factors outside the model. Then deviations from the trend rate are treated as functions of the country's real export rate and of the phases of the trade and payments regime. However, it proves simplest to estimate the entire model in a single step, as in the following equation:²⁸

$$\log X_i(t) = a_{0i} + g \log XEER_i(t) + r_i t + a_1 d_1 t + a_2 d_2 t + a_3 d_3 + a_4 d_4 + u_i(t) \quad (9.1)$$

where $X_i(t)$ = the i th country's dollar export earnings of traditional or non-traditional exports at time t ; and d_j , and d_j , $j = 1, \dots, 4$ denote dummy ($u_i(t)$) variables. These variables assume the following values:

a. on the trend:

$$d_1 = \begin{cases} 1, & \text{in Phases I and II} \\ 0, & \text{in all other phases} \end{cases}$$

$$d_2 = \begin{cases} 1, & \text{in Phases IV and V} \\ 0, & \text{in all other phases} \end{cases}$$

b. on the constant:

$$d_3 = \begin{cases} 1, & \text{in Phases I and II} \\ 0, & \text{in all other phases} \end{cases}$$

$$d_4 = \begin{cases} 1, & \text{in Phases IV and V} \\ 0, & \text{in all other phases} \end{cases}$$

$XEER_i(t)$ = the PLD-EER for exports (of traditional and nontraditional commodities separately) for the i th country; r_i = the trend rate of growth of the i th country; t = time; $u_i(t)$ denotes a random disturbance term, which it is assumed to be uncorrelated, with zero mean and constant variance. The terms a_{oi} , a_1 , a_2 , a_3 , and a_4 , $i = 1, \dots, 10$ are parameters to be estimated; note that a_{oi} , having the subscript i , is different for every country.

The hypothesis that exports depend on *both* the real exchange rate and the phase of the trade and payments regime has two alternative interpretations. In one, exports might fall below their trend level during Phases I and II and rise above it in Phases IV and V. In the other, exports might grow at a slower rate than their long-term trend during Phases I and II, and at a faster rate during IV and V. The signs and significance of the parameters, a_1 , a_2 , a_3 and a_4 , test this hypothesis; if growth rates are affected, a_1 and a_2 should be significantly different from zero.²⁹

In this model the real export rate is taken as a proxy for the bias of the trade and payments regime: a higher real export rate is taken to mean lower bias. Such an association is not perfect but is the best that can be made. Moreover, the evidence strongly suggests that, within a particular country, changes in the real export rate are strongly correlated with the regime's changing bias toward exports.

The separate significance of liberalization and bias reduction can then be tested in this model. If the bias of the regime is all that counts, the dummy variables should not be significant. If liberalization, and not bias, affects exports, the dummies should be significant and the coefficient on the real EER should not be. There are degrees of liberalization, of course, and the fact that only three possible states are allowed for (Phases I and II, Phases IV and V, and the no-dummy state-Phase III) makes the dummy measure highly imperfect.³⁰ In the absence of better data, however, dummy variables are all that is available to reflect the state of liberalization. And, while there can be more or less liberalization within a phase in a particular country, or in one country than another, it nonetheless seems likely that the changes in liberalization between periods in Phases I and II, on one hand, and IV and V on the other, should be large enough so that dummy variables ought to be sufficient to test for the significance of liberalization, if not necessarily for the magnitude of its impact.

THE DATA

The regression equation was estimated separately for traditional and non-traditional exports. The data requirements, therefore, were: (1) the PLD-EERs for traditional and nontraditional exports; (2) the dollar value of traditional and nontraditional exports; and (3) the timing of the phases. The first

two data sets were given in Tables 9-1 through 9-4, and the last was itemized in Chapter 2.

Inspection of the data in Tables 9-1 and 9-2 points up an omission from the model which is probably significant: the magnitude of fluctuations in export PLD-EERs has varied widely from country to country and from time to time. Both Behrman and Díaz found the variance in the real exchange rate to be an important explanatory variable for the behavior of exports. A second feature unaccounted for in the model is that, for the most part, nontraditional exports have been exposed to smaller fluctuations in the real exchange rate than have traditional exports. The reason, of course, is that export subsidies and incentives have been applied much more quickly to nontraditional than to traditional exports during Phase II. Thus, between devaluations the real exchange rate for traditional exports has eroded much more, on average, than that for nontraditional exports.

The dollar values of exports of traditional and nontraditional exports are given for each country in Tables 9-3 and 9-4.³¹ It should be noted that South Korea has an insignificant amount of exports that can be classified as traditional, so total South Korean exports are given only in Table 9-4. Using export earnings as a dependent variable is a theoretically valid procedure only when the countries under consideration are sufficiently small so that their behavior does not affect the prices at which they sell their exports.³² Whenever a country has monopoly power in trade, that assumption is not appropriate, and the determinants of export earnings are properly estimated by means of simultaneous equations in which the domestic supply of exportables and foreign demand jointly determine price and quantity in each market. Failure to use that procedure results in a downward bias in the estimate of export responsiveness to altered real EERs.

For nontraditional exports, the "small country" assumption is surely appropriate for the countries covered, with the possible exceptions of Brazil, Israel, and South Korea in the late 1960s. Even in these cases, monopoly power must have been very small, so the resulting bias in the estimates presented here is negligible. For traditional exports, however, the problem may be more significant: Chilean copper, Brazilian and Colombian coffee, Egyptian cotton (if data for Egypt were available), and Ghanaian cocoa are the main cases where it is difficult to believe that there is not some monopoly power in trade.³³ For that reason it is likely that the true "supply" response of traditional exports to altered EERs may be greater than is estimated here.

There is yet another factor which may qualify this model's results: the dollar prices for some of the commodities exported fluctuated significantly over the period. This factor was highly significant for Brazil, Chile, Colombia, and Ghana, and it affects the estimates for traditional, more than nontraditional, exports. However, except insofar as fluctuations in export prices were correlated with changes in real export exchange rates, there is no reason why

coefficients of the variables should be affected—it would simply increase the unexplained variance. Of course, if a reduced foreign price resulted in a lower volume being supplied for export, or forced a devaluation and a higher real export rate, estimates would be biased downward.

All the qualifications, therefore, suggest that the estimates must be interpreted with care and may be subject to some bias—probably downward. It would appear that the bias is likely to be greater for traditional than for non-traditional exports.

RESULTS

Table 9-6 gives estimates of the basic trend coefficients. Little needs to be said about them, except perhaps to note that Chilean export data are not available before 1960 and the high growth rate for traditional exports for that country reflects the rising price of minerals from the low 1960 base; the Egyptian rate of growth of traditional exports is also largely a price phenomenon. Otherwise the rates reflect what was already known: Brazil, Israel, and South

Table 9-6. Estimated Coefficients for Export Earnings Model, Ten Countries

Country	Period	Traditional Exports		Nontraditional Exports	
		Constant (a_{0j})	Trend (r_j)	Constant (a_{0j})	Trend (r_j)
Brazil	1954-72	6.92	-.00	5.40	0.11
		(107.0)	(-1.1)	(51.1)	(11.6)
Chile	1960-72	5.00	.11	4.59	.04
		(27.0)	(7.4)	(9.4)	(1.0)
Colombia	1954-72	6.20	-.01	4.03	.05
		(96.3)	(-1.9)	(23.6)	(2.8)
Egypt	1954-72	5.70	.01	5.30	.08
		(82.0)	(1.0)	(18.6)	(2.2)
Ghana	1954-71	5.18	.01	4.64	.00
		(61.1)	(1.0)	(27.4)	(0.1)
India	1954-72	6.27	-.00	6.8	.02
		(97.6)	(1.0)	(39.7)	(1.0)
Israel	1954-72	3.79	.13	3.39	.16
		(49.5)	(19.9)	(16.7)	(8.7)
South Korea	1955-72	-	-	1.99	.26
		-	-	(10.1)	(15.4)
Philippines	1954-72	5.77	.04	4.80	.05
		(83.8)	(6.0)	(26.3)	(3.0)
Turkey	1954-72	5.15	.03	4.43	.06
		(69.1)	(5.4)	(21.7)	(3.5)

Numbers in parentheses are *t*-statistics.

Korea enjoyed remarkably rapid growth of exports, with the Brazilian growth being concentrated in nontraditional commodities in the late 1960s. Colombia, Ghana, and India had extremely slow growth, although Colombia's growth of nontraditional exports is more impressive; and the other countries fall somewhere in between the two extremes.

The purpose of estimating trends was to use deviations from them for investigating the influence of real EERs and the extent of liberalization in accordance with Equation (9.1). The results are reported in Table 9-7. The export PLD-EER turned out to be a highly significant explanatory variable for nontraditional exports, despite the fact that it is deviations around the trend that are at issue and also despite the downward bias inherent in the estimates.³⁴ In contrast with the relatively large response of nontraditional exports, traditional exports do not appear to have responded systematically to changes in their real exchange rate. This probably reflects: (1) the downward bias in the estimating procedure; (2) the influence of price fluctuations in determining the dollar value of export earnings for traditional exports; and (3) the greater tendency of governments to intervene in the market to prevent changes in the PLD-EER for traditional exports from being passed on to producers.

The response of nontraditional export earnings to increases in the PLD-EER for exports is sizable. It would imply, for example, that a devaluation that increases the export EER by 50 percent and is followed by a 20 percent increase in domestic prices should result in an increase of approximately 36 percent in earnings from nontraditional exports in addition to whatever trend rate of increase is being experienced. This tends to reconfirm the results reported in the Colombian, South Korean, Turkish, and other studies: nontraditional exports seem to have been remarkably responsive to exchange rate changes.

The phases do not appear to be a significant variable except for traditional exports, and then only for Phases IV and V when the dummy variable is on the constant term. Despite the significance of that term, the implied magnitude of the export response is very small: exports would be expected to be about 0.11 percent above the level predicted using time as the only variable during Phases IV and V. However, even in that estimate, the sign associated with the dummy for Phases I and II is different from that hypothesized, so the prediction that there is any significant difference in exports, either traditional or nontraditional, between Phases I and II and IV and V is not supported by this test, once account is taken of real EERs.

To the extent that reliance can be placed upon these results, it would appear that it is the bias of the regime, more than QRs, which retards the growth of exports. If QRs retarded exports, other than through an overvalued real EER, it should show up in a difference in the behavior of exports between Phases I and II and Phases IV and V. While the test is rather crude, the fact that the results are insignificant in all but one case, and are very small even then, suggests that it is factors other than the phases themselves that determine exports.

Table 9-7. Estimated Coefficients of Response of Export Earnings to Real Exchange Rates and Phases

	<i>PLD-EER</i>	<i>Phases I and II</i>	<i>Phases IV and V</i>	<i>F- Statistic</i>	<i>R²</i>	<i>Durbin- Watson Statistic</i>
<i>Traditional Exports</i>						
Dummy on constant ^a	-0.07 (-.9)	0.06 (1.9)	0.11 (3.2)	16153	0.999	1.46
Dummy on trend ^b	-.10 (-1.2)	.00 (.4)	.01 (.0)	16332	.999	1.48
<i>Nontraditional Exports</i>						
Dummy on constant ^a	1.32 (98.8)	-.04 (-.7)	.08 (1.2)	3863	.998	1.31
Dummy on trend ^b	1.31 (106.6)	.003 (.5)	.015 (2.91)	4195	.998	1.34

Numbers in parentheses are *t*-statistics.

^a"Dummy on constant" coefficients are a_3 and a_4 in Equation (9.1).

^b"Dummy on trend" coefficients are a_1 and a_2 in Equation (9.1).

Given the crudeness of the data and the test, it is difficult to take the analysis further. For whatever it is worth, however, the results suggest that, even in situations where there is every reason to expect that the real export rate will revert to its former level, raising it generates a significant response in the intermediate run. The findings of the individual country studies are, of course, reflected in these results, so they cannot be treated as independent evidence. Nonetheless, the results of this analysis tend to reinforce the impressions that emerge from the individual country studies and, in addition, to suggest that it is bias reduction, to a considerably greater extent than it is liberalization, which brings about export response.

Foreign Exchange Receipts Other Than from Exports

Export earnings and their growth have provided the predominant source of changes in foreign exchange receipts for the countries included in the project in all but exceptional cases, such as South Korea in the mid-1950s, and Israel. Generally the intermediate-term changes in foreign exchange receipts resulting from devaluation and liberalization episodes have been changes in export earnings. There were instances, reported in Chapter 8, where reversals of earlier speculative flows resulted in a spurt of foreign exchange receipts in the short run. Likewise there are cases, such as in Brazil and South Korea, where private foreign capital flows began growing rapidly in response to the change in the

trade and payments regime. In the intermediate run, however, there are few nonexport sources of foreign exchange that appear to have changed systematically and significantly with the phases of the regime or the real exchange rate.

Even in the rare instances of responses by other foreign exchange sources, the total magnitudes are not large relative to the impact of devaluation and liberalization on export earnings. Behrman, for example, reports a significant price elasticity for service exports—such as tourism—and also that net direct investment flows were significantly greater in Phase IV periods than in restrictive periods.³⁵ Even then the absolute effect is small in comparison to the effect of altering export EERs by a like proportion. Tourism—the component of foreign exchange receipts that might be expected to be most responsive to the real exchange rate in the intermediate run—did not change dramatically, partly because the real rate was maintained between devaluations and partly because the countries covered by the project are not major tourist destinations.

The only exception to the relatively small magnitude of changes in other sources of foreign exchange occurred in Turkey; after the Turkish devaluation of 1970, workers' remittances emerged as a very large item in Turkey's balance of payments. From 1965 on there had been a large number of Turkish workers in Western Europe and their remittances had become a significant element in the Turkish balance of payments, rising from \$7 million in 1965 to \$141 million in 1969. These were partly induced by a special workers' remittance rate and by privileges accorded to returning workers in return for their earlier deposits of foreign currency in the central bank. Nonetheless, some workers' savings were held in marks and other Western European currencies, and some response after devaluation was anticipated. The magnitude of the initial response—\$273 million in 1970 alone, with devaluation taking place only in August of that year—was not surprising; it was regarded as a once-and-for-all transfer of accumulated workers' savings in response to the new exchange rate. The 1971 and 1972 net remittances, however, increased markedly: to \$471 million in 1971 and \$740 million in 1972. Growth continued during the next two years, and workers' remittances offset larger trade account deficits. Turkey's proximity to Europe makes the interdependence of many transactions greater than for developing countries that are more remote from the industrialized world, but there was certainly no expectation of such a large response of workers' remittances to devaluation. While the initial transfer of funds was anticipated, there was no basis upon which sustained growth of that account could have been forecast.

II. LONG-TERM RESPONSE TO PHASE III

There were twenty-two Phase III episodes covered by the ten country studies, but only four—in Brazil, Colombia, Israel, and South Korea—can be said to

have been followed by sustained liberalization. Merely counting Phase III episodes is deceptive. Successful liberalizations will, by definition, not be followed by further Phase IIIs, whereas the failures will likely be followed by other attempts to liberalize the regime at a later date. On the other hand, devaluation per se does not necessarily signify that a Phase III episode is occurring. Devaluing countries are not regarded as being in Phase III if they had not previously been using QRs to contain balance-of-payments deficits. Brazil devalued repeatedly after 1967, but alteration of QRs was not at issue. Colombia, too, has changed her exchange rate frequently since her last Phase III episode in 1967. Israel has had several devaluations since 1962, and South Korea has alternated between periods of floating rates and formal devaluations.

Rather than concluding that only four of the twenty-two Phase III episodes were successful, it is more meaningful to say that four of the ten countries succeeded in making a sustained transition to Phases IV and V.³⁶ Either way, there remains an important question: What led to the rapid export growth experienced by the four countries which abandoned QRs? In the preceding section, it was the intermediate-term response of exports that was the subject of inquiry; here the question focuses upon the contribution of the Phase III episodes to the longer-term rapid growth of exports in the four countries.

Contrasts in Long-Run Export Performance

The analysis of the country authors tells most of the story. It will be recalled that the change in the trade and payments regime in Brazil in 1964 was followed by several years of good export earnings, but that it was not until the policy shift of 1967 that exports started their sustained and rapid growth. In Colombia the rapid growth of minor exports was prolonged, and devaluations were an occasion to unify exchange rates and reduce the bias toward minor exports, which had been buffered from the declining real EER between devaluations. In Israel, export growth faltered in the mid-1960s until a policy of maintaining the real export rate was adopted. In South Korea, rapid export growth started before 1964; devaluations were used, as in Colombia, to unify exchange rates, and between devaluations export subsidies and special privileges to exporters maintained incentives.

By way of contrast, consider the experiences of some of the other countries: (1) Behrman considers that Chile's devaluations always left an (increasingly) overvalued rate; (2) India's devaluation was only large enough to absorb most of the premium on import licenses as long as the recession lasted; and (3) Baldwin considers that the Philippines only partly benefited from the 1960-1962 liberalization because there were insufficient incentives for an export-led expansion.

All the "success" stories involve not only a lack of bias toward import substitution but also positive incentives for export. In addition they involve a government commitment to sustaining the export drive, so that it is not only at times of formal exchange rate changes that incentives are attractive to exporters. All the evidence (and theory) points to the conclusion that maintaining a sufficiently high real exchange rate *and* providing an environment in which producers can expect this commitment to continue are necessary conditions for rapid export growth.

THE BRAZILIAN TRANSFORMATION

The best evidence is probably supplied by the Brazilian case. During the three years before the export push started, the real export EER was not much different from that in later years. Fishlow reported that, as late as 1967, "export pessimism" still pervaded official thinking:

The *Plano Decenal* published in 1967 was considered bold—and incorrect—for its assumption that exports would grow at a rate of 8.5 percent until 1970 (although only 3 percent thereafter). . . . Official optimism regarding Brazilian growth prospects is relatively recent, and *ex post*."

Starting late in 1967, however, incentives began changing. The crawling-peg exchange rate was introduced in 1968, and legislation was passed guaranteeing exporters "subsidy credits based on the industrial excise tax." Individual states began exempting agricultural exports from their sales taxes, which were levied at rates of 15 to 35 percent. Credit facilities for exporters were also significantly increased. Fishlow summarizes the net change in incentives by calculating the maximum price differential at which domestic and export sales would return the same rate of profit and by calculating the profit differential that would accrue for the same selling price. His results are reproduced in Table 9-8.

The first column of Table 9-8 gives the differential in price that would have been required to equalize the profit rates on foreign and on domestic sales. As can be seen, export-promotion measures began in 1964, but they did not begin providing large incentives for exporting until 1967 and 1968. By that time, exporters could earn the same profit in the foreign market as they could in the domestic market if their price abroad was 80 percent of their domestic price. The difference in profitability between selling abroad and at home was only 2 to 3 percent until 1968; thereafter, in 1970 and 1971, it rose to 25 percent.

Fishlow estimated export supply functions for periods before and after 1964. He concluded that

Table 9-8. Changes in Incentives to Brazilian Exporters, 1964-1971

<i>Year</i>	<i>Price Differential Yielding Same Profit (domestic price to foreign price ratio)</i>	<i>Profit Differential on Sales at Same Price (difference between foreign and domestic profits as a percent of price)</i>
1964	0.99	0
1965	.93	2
1966	.86	3
1967	.82	3
1968	.80	2
1969	.75	8
1970	.64	25
1971	.64	24

Source: Fishlow, Table XXI.

. . . in the case of manufactures, also, and despite the inclusion of substantial incentives in the exchange rate, price elasticities are only part of the story. The total context within which exchange rate changes occur is equally central. After 1964, but especially 1968, a new strategy of progressively opening the economy became apparent to all. Incentives were provided in sufficient magnitude to overcome initial inertia and lack of information. In such circumstances, production for sale abroad could become a regular and profitable activity. . . .

Brazil's conversion to export status has thus required, and received, more than favorable manipulation of foreign prices relative to domestic. It has involved nothing less than a complete realignment of development strategy that has provided the same assurances of policy consistency that the import substitution impetus of the 1950's satisfied. One cannot stress such certainty and commitment too strongly.³⁸

SOUTH KOREA

Evidence from South Korea is surprisingly similar: it was not only that there was a favorable export rate but also that the government was committed to encourage exports. Frank, Kim, and Westphal found that South Korean exports were very responsive to exchange rate changes (although their statistical results were conditional because the degrees of freedom were too small). Their conclusions, however, stressed other factors as well as the exchange rate:

The rapid growth of South Korea's exports cannot be explained simply in terms of those incentives subject to quantitative measurement. Other very important factors, perhaps even more important, are the government's attitudes and

methods of operating. . . . With an atmosphere in which businessmen are certain that government will reward efforts to export, it is relatively easy to take the substantial risks of expanding production and capacity for export markets. A businessman cannot only expect tangible rewards for export performance, but knows that if he runs into financial difficulties, the government will provide some form of special treatment to help him out of his troubles.³⁹

ISRAEL

Israel's export growth was very rapid, although less so than that in Brazil and South Korea. Israel was omitted from the Table 6-2 summary of bias changes because it is one of the countries where no premium-inclusive estimates of the bias of the regime are available. Michaely did provide estimates of export and import EERs, however. Taking the ratio of the export EER to the premium-exclusive import EER is not conclusive, but—combined with the knowledge that Israel's reliance upon QRs was diminishing almost continuously after 1952—it is sufficient to be confident that a shift in bias occurred.

Israel had a regime rather heavily biased toward import substitution in the early 1950s, and that bias was substantially reduced, if not even slightly reversed, by the early 1970s. The export and import EERs, exclusive of import premiums,⁴⁰ were very close to the same level from 1951 to 1960, but that is the period when QRs were employed to provide protection to import-competing industries. Even in the 1950s, however, there were numerous devices through which the Israeli government promoted exports. While export-promotion measures were not as visible as in Brazil, the government does seem to have given exporters assurance that profitability would be maintained. From the devaluation of 1962 until 1969, the import EER was above that for exports, but that was the period when premiums were declining.

Michaely weighs the available evidence in some detail and believes that, on balance, there was some bias toward import substitution, although the situation varied from industry to industry because exports of textiles, leather products, and other light industries were protected by about the same amount as were the same products destined for the domestic market.⁴¹ From Michaely's discussion it is hard to believe that bias toward import substitution could have been very marked. Maintenance of the real exchange rate and the continuous reduction in bias toward import substitution undoubtedly played a substantial role in Israel's rapid export growth.

COLOMBIA

Colombia's success is somewhat different from that of Brazil, Israel, and South Korea. Rapid growth was confined to minor exports; their growth averaged 13 percent annually, really booming after 1967. Díaz's estimates of

the responsiveness of minor exports to alterations in the real export rate were reproduced in Table 9-5. He noted that the constant term was large and significant, implying that much of the growth rate was due to factors other than the exchange rate.⁴² He concluded that it was the export-promotion schemes that were significant. These schemes went well beyond maintaining the real exchange rate and involved an intangible element:

Especially since 1967, the many instruments of the Colombian government have been increasingly tilted in favor of exporters of products other than coffee or oil. Credit, besides that from PROEXPO or aimed at specific exportable crops, is channeled preferentially. . . . The encouragement given to exporters has also stimulated the granting of *foreign* credit to them. Entrepreneurs are notified both formally and informally that the fate of their requests regarding import licenses, release from price controls, or of any other request having to do with any field where public-sector action is important—and there are few where that action is not—will very much depend on their export record. The medals and banners regularly presented by the Colombian President to distinguished exporters, in other words, are not simply moral incentives, for they give the recipients some muscle when dealing with the numerous public agencies capable of making the life of businessmen either easy or miserable and profitable or unprofitable.⁴³

Díaz concluded that measurement of the impact of these programs is probably not feasible, but that they are of considerable importance.

THREE PROTOTYPES

While all generalizations are subject to debate, it seems possible to characterize three types of regime on the basis of their export-response experiences. On one hand, there are regimes with a realistic exchange rate *and* domestic policies designed to make exporting profitable. Second, there are regimes with a realistic exchange rate, in which most incentives within the economy are still geared toward the profitability of import substitution. Finally, there are the regimes in which the overvaluation of the exchange rate means that significantly less is exported than would be at a realistic exchange rate.

The countries that experienced sustained rapid growth of export earnings over the longer term seem to have had a number of things in common. First, they had a realistic exchange rate—a necessary condition for sustained and rapid export growth. The level of the exchange rate, and not its rate of change, appears to have been significant. In Brazil the real export rate seems to have been higher in the early and mid-1960s than it was later on; it was only after 1967 that the crawling peg provided relative certainty with regard to the future real exchange rate. In Colombia, likewise, the real rate for minor exports was relatively more constant than that for other classes of commodities, but the export boom, which started in 1967, was accompanied by a crawling peg and a

great reduction in the variation of the real exchange rate. South Korea, too, has maintained a realistic exchange rate and has altered the nominal rate according to changes in the domestic price level. Israel's PLD-EER for exports has also been relatively stable since the late 1950s.

But maintaining a realistic real exchange rate is clearly not enough to generate the sort of export performance that Brazil, Colombia, Israel, and South Korea have had. In all four cases, export-promotion policies have made expansion of export markets profitable and secure. The types of incentives given in other countries for import substitution were extended to exporters in the rapid-growth countries. Perhaps the clearest-cut case of a country maintaining a more-or-less realistic exchange rate but failing to provide sufficient incentives for export is the Philippines. There, as Baldwin reported, the exchange control apparatus was completely dismantled, but the profitability of producing for export was inadequate and a period of stagnation followed the devaluation. Turkey is another country whose experience appears to have conformed to this pattern, at least from 1958 to about the mid-1960s. The Turkish exchange rate was not significantly overvalued, and export earnings grew at a moderate rate. Few new resources went into export industries, however; they were pulled into import substitution by the bias of the regime and by the certainty and security that prohibition of competing imports provided. It would thus appear that even though countries have realistic exchange rates, a distinction must be made between those that are oriented toward export promotion and those that are not.

There is also a group of countries whose exchange rates are chronically overvalued and export earnings are falling or growing at best very slowly. In the NBER project, those countries include Chile, Ghana, India, and Turkey prior to 1958 (also Brazil in the 1950s). In those cases, overvaluation of the exchange rate appears to have been extreme and to have prevented any possibility of satisfactory export performance except under very fortuitous circumstances.⁴⁴ Export earnings depended almost entirely on the performance of traditional exports and the few import-substituting industries that were provided with some inducement to export.

The evidence from the country studies and the statistical analysis of the country authors both highlight the fact that exports, both traditional and non-traditional, have been much more adversely affected by overvalued exchange rates than has generally been recognized. It seems evident that countries which have maintained significantly overvalued exchange rates have incurred sizable losses, both because of the level of the real rate and also because of fluctuations in it. Baldwin's calculations for the Philippines, Behrman's estimates for Chile, and Leith's evidence for Ghana all point to the sizable gains that might have been made had exchange rates been set at realistic levels and maintained there.

Maintaining a highly overvalued exchange rate can be thought of as penalizing exports so much that either virtually all new resources are channeled

into import-substitution industries, or else there is relative stagnation and slow growth. When there is a strong bias toward import substitution and an enormous incentive to produce for the domestic market when imports are unavailable, it is useless to inquire whether import substitution results from the pull of the domestic market or the push away from exporting activities.

When a realistic exchange rate is set in a Phase III episode, there is a sizable intermediate-term export response. That response consists primarily of shifting output from existing productive capacity toward the export market, but no comparable shift of investment toward export-oriented industries occurs. Entrepreneurs and producers do not build capacity based on the export market to any significant extent, but unutilized capacity can be employed to produce for export, cropping patterns can be shifted, and some part of production may be diverted from domestic consumption to exporting. This "existing capacity" sort of exporting characterized Brazil between 1964 and 1967, and it seems to account for many of the spurts in minor exports that follow devaluations in other countries.

While rapid export growth does not result simply from setting a realistic exchange rate, the gains from "existing capacity" exporting (compared to permitting a highly overvalued exchange rate) should not be underestimated. The possibility of exporting may induce entrepreneurs to build larger size plants than they otherwise would with the expectation that they can export until the domestic market grows enough to absorb their output. The amount of such temporary excess-capacity exports can increase over time. In addition, there do appear to be some primary commodities whose supply is responsive to a realistic exchange rate, so that the total result can be a significant and sustained increase in the level of exports contrasted with what would happen with greater currency overvaluation.

What apparently is necessary for rapid and sustained export growth is both a realistic exchange rate and profitability sufficient to induce new resources to enter export industries. That seems to require the same types of assurances to new export-oriented entrepreneurs as import prohibitions and similar measures provide under an import-substitution strategy. In economies where government interventions and permissions pervade virtually every aspect of economic activity, it would appear that the intangible kinds of changes in profit prospects that result from "commitment" on the part of the government can be substantial, and they may be necessary to provide sufficient incentives to pull new resources into exporting activities.

Relative Importance of the Various Components of Phase III

At the outset the task was to determine how bias reduction, liberalization, reductions in variance, and rationalization of the trade and payments regime

contribute to the longer-term outcome of a policy shift. Each of these changes has effects on export earnings and also on other aspects of economic activity. Here, focus is on their role in affecting foreign-exchange earnings; their impact on the domestic economy and related variables is discussed in Chapters 11 and 12.

All the evidence, both from the individual country studies and from the statistical analysis, points to the bias of the trade and payments regime as being the crucial determinant of the level of exports and of their growth. The three-way characterization of export performance described above really boils down to the extent and direction of bias of the regime. Countries with highly overvalued exchange rates will, in the absence of fortuitous circumstances, inevitably restrict imports to levels that result in extremely high domestic prices for import-substitution production, and the bias against exports will result both from the low relative price received for exports and from the high price for import substitutes. With a more realistic exchange rate, bias is not as great, although—as illustrated by both the Philippines and Turkey—it can still be sizable. Exporting becomes really attractive if the bias toward import substitution is eliminated and if producers of goods for export are assured of continued profitability comparable to that achievable in the domestic market.

This conclusion does not imply that liberalization is unimportant. On the contrary the experience of the countries in the project indicates that quantitative restrictions inevitably impart a very high degree of protection to domestic industries and thus are compatible only with a fairly strong bias toward import substitution. Whether that bias is simply a consequence of the premiums on import licenses, or whether it results also from the greater certainty attaching to domestic production when QRs regulate imports, seems unanswerable. What does seem clear, however, is that relying upon QRs to regulate imports is inconsistent with an export-oriented strategy and that, therefore, liberalization is a necessary condition for the removal of bias toward import substitution.

Reduction in the variance in incentives accorded to individual industries is important for domestic resource allocation, income distribution, and growth, but it does not appear to be a central determinant of export performance. In South Korea, for example, it would appear that there is a great deal of variance among export industries in the effective protection equivalents of the subsidies extended to them. In general there is variance in both export-oriented and import-substitution regimes. To be sure, if the incentives accorded to different activities are sufficiently chaotic, it is likely to result in a price-cost structure that is incompatible with achieving a competitive export status. It may well be that QRs result in greater variance in incentives, as well as greater bias, than occurs with pricing incentives. But while reduction in variance can yield significant payoffs, it is probably a less crucial factor than bias in affecting the behavior of exports.

Considering the role of rationalization of the regime raises somewhat greater imponderables. It seems evident that a sufficiently ad hoc trade and payments regime could discourage exports simply by hindering imports, especially the imported inputs needed for production for export. For that reason, and also to make producers competitive, it is likely that a minimum degree of assurance about the likelihood of receiving needed import licenses within reasonable periods is a necessary condition for satisfactory export performance. Here again, however, it is probably the commitment of the government to exporting that is crucial, rather than the precise nature of the regulations governing importing and exporting. If officials are committed to encouraging exports and making them profitable, it is likely that the regime will avoid obstructing them to any significant extent. Conversely, if the government is committed to fostering import substitution, it is highly unlikely that rationalization of the regime, by itself, will improve export prospects to any significant extent.

In Chapters 11 and 12, consideration will be given to the impact of the trade and payments regime on economic growth. There, it will be seen that variance reduction and rationalization can have sizable effects on real income, and thus may be of considerable importance. In terms of the behavior of exports, however, it would appear that, given some minimally acceptable level of rationality of the regime, it is the bias of the regime which is significant in determining exports. Liberalization is important largely because the intended or unintended incentives accorded to import substitution under a QR regime make it highly biased toward import substitution. Liberalization is therefore a necessary condition for reducing bias, but it is bias that ultimately determines resource pulls.

NOTES

1. Fishlow, p. 69.
2. The volume of exports increased more than 10 percent from 1958 to 1960, with a 30 percent increase in coffee and cocoa exports. See *ibid.*, p. 30.
3. *Ibid.*, pp. 45b and 45c. Fishlow's estimates of exports supply responses would suggest, however, that at least a fraction of the increase in exports of nontraditional commodities was attributable to the higher real exchange rate. See his supply equations, Table XXIII, p. 86a.
4. Behrman, p. 174.
5. *Ibid.*, p. 188.
6. *Ibid.*, p. 114.
7. *Ibid.*
8. *Ibid.*
9. Behrman's "general equilibrium" estimates of responsiveness show much smaller magnitudes of response than the "partial equilibrium" estimates reported on here; the reason is that the general equilibrium estimates take into account the inflation that resulted from devalua-

tions and an improved current account balance. They do not alter the estimate of export responsiveness *if* the real export rate had been maintained.

10. Behrman, p. 310.

11. Díaz, p. 57.

12. Díaz considers the problem of associating dollar earnings changes with supply changes to be relatively unimportant for the period under estimation.

13. See Díaz, Table 2-14, and the commentary in his text.

14. Hansen and Nashashibi, p. 102.

15. Leith, pp. 44-45. The Ghana manuscript covers events through 1971 and was completed early in 1973.

16. *Ibid.*, p. 43.

17. *Ibid.*, p. 150.

18. Bhagwati and Srinivasan, p. 135.

19. Michaely, p. 138.

20. *Ibid.*, pp. 140-41.

21. Frank, Kim, and Westphal, pp.84-86.

22. Baldwin, p. 60.

23. *Ibid.*, p. 62.

24. *Ibid.*, p. 138.

25. The often-expressed fear that devaluation adversely affects the terms of trade received no support from the country studies. In general, authors did not regard terms-of-trade changes as important enough to warrant discussion, although a few—such as Bhagwati and Srinivasan—explicitly noted the absence of any adverse impact. See their discussion of the issue on pp. 165-66 of their volume on India.

26. It is not clear how rationalization of the regime and reduced variance in incentives might affect export earnings directly. They might, however, significantly affect the growth of real income. That hypothesis is examined, with a similar methodology, in Chapter 11.

27. In many respects it would have been preferable to use "real" export earnings, which might be the dollar value of those earnings deflated by some world price level. In practice, data for that purpose were unavailable; however, during the period chosen, 1954-1972, the change in the world price level was fairly small.

28. Identical results would be obtained if one first estimated:

$$\log X_i(t) = a_i + r_i t + v_i(t)$$

and then used the estimated $v_i(t)$ as the dependent variable in the equation given.

29. In a variant of the same model, separate dummy variables were employed for each of the five years surrounding devaluation episodes. The procedure was deemed less satisfactory, partly because there were instances where one devaluation followed another by only two years, as in Colombia, and where two years after devaluation the country was in Phase II again. The results of the two versions were not dissimilar, however.

30. If changes in export EERs understate the reduction in bias associated with Phase IV, there is still a problem in interpreting the coefficients of the dummy variables because they might reflect the unmeasured change in bias.

31. It should be noted that Egyptian rice and onions are treated as nontraditional exports under the classification procedure followed (see the sources listed in Table 9-4). That is inappropriate, but it does not affect the results given in Table 9-7 because export PLD-EERs for Egypt were unavailable anyway.

32. This problem is different from the desirability of deflating export earnings by a world price index, which is probably not important for the period covered here.

33. There is also a question as to how great any monopoly power is.

34. In the absence of the PLD-EER variable from the estimating equation, phase dummies turned out to be significant for Phases IV and V (in raising exports above their trend levels, but not in affecting the growth rate). The estimated relations are:

	Coefficient of	
	a_3	a_4
Traditional exports	0.06 (1.6)	0.14 (3.4)
Nontraditional exports	-.09(-.9)	.30 (3.0)

35. He found a much higher price elasticity for service imports than for service exports, however. His estimates indicate a 12 percent reduction in service exports to have resulted from the 62 percent decline in the relevant PLD-EER over the 1956-1972 period. This contrasts with an estimated 50 percent increase in desired services over the same period. See Behrman, pp. 125 and 127.

36. Though the experience is dissimilar, the Philippines abandoned QRs after the 1960-1962 Phase III, and reemployed them only briefly before the 1970 devaluation.

37. Fishlow, p. 75.

38. *Ibid.*, p. 89.

39. Frank, Kim, and Westphal, p. 233.

40. There were no premiums on exports because no quantitative restrictions applied to them.

41. Michaely, p. 102.

42. Díaz, p. 69.

43. *Ibid.*, p. 62.

44. Chile is a case of extreme good fortune for several years after 1965; the increased price of copper resulted in relatively good export earnings despite the overvaluation of the exchange rate.