THE IMPACT OF TRADE POLICY ON BRAZILIAN AGRICULTURE, 1947-1967

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Alberto Veiga

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ABSTRACT

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From the end of World War II to the early 1960's Brazil experienced industrial growth at a rate it had never attained before. This was in part the consequence of an economic policy directed toward offering incentives to investment in the industrial sector which focused on the substitution of domestic production for manufactured imports. This effort resulted in sizeable inter-sectoral resource transfers from agriculture, both directly by providing alternative employment for agricultural capital and labor, and indirectly by a reallocation of income flows through the Government intervention in the price system by means of commercial policy and domestic price controls.

The objective of the research reported in this thesis was to study the impact of trade policy on the agricultural sector of Brazil and to analyze some of the implications of these policies with respect to the contribution of the agricultural sector to the development of the total economy. The general procedure was based on an analysis of exchange policy and trends in relative prices, with the emphasis on inter-sectoral comparisons involving agricultural and manufactured products. The relevant period under study was 1946-67.

The analysis concerning the trade sector was based on the estimation of differentials among the prevailing exchange rates for imports and exports, and the resulting 1953-61 exchange retentions by the Government. With respect to the impact of policy on agriculture as a whole, the analysis was focused on the price system by means of estimates of the agriculture-industry internal price ratios and implicit exchange rates. The position of agriculture implied by the trade policy was studied through nominal rates of protection which involved an estimate of an "equilibrium" exchange rate.

The results obtained showed that during the period 1946-52, when there was an administered and clearly overvalued exchange rate, agriculture was able to provide a good start to the industrialization effort by producing a stable flow of low-cost foreign exchange for the importation of producer capital goods and industrial raw materials. The prevailing increases in world prices were only partially reflected in the domestic prices of agricultural products. Hence, the policy was facilitated by trends in world markets.

In 1953-61 multiple exchange rates for exports and imports prevailed. Even though exchange rates were adjusted upward from time to time they still were strongly overvalued especially for coffee and cocoa. Large differentials between import and export exchange rates permitted the collection by the Government of sizeable earnings which were largely used in the purchase of surplus coffee. During that period, agricultural prices were generally declining as compared to manufacturing prices, even after most exports had been liberated from exchange controls.

The period 1961-67 was characterized by a single export exchange rate. Exports of coffee and cocoa were taxed. Exchange overvaluation continued, industrial protection increased, and domestic price controls were stronger. The net result was a larger discrimination against agriculture than had prevailed in any of the previous periods.

A separate analysis dealing with imports of agricultural modern inputs showed that the Government at first stimulated their use through import subsidies. Then, during the 1960's barriers were gradually established in order to generate conditions for the growth of a national industry. The importance of the subsidy during the late 1940's and through the 1950's appears to be more of a political nature than of economic significance, and by no means off-set the discrimination against exports.

CHAPTER I

PROBLEM FORMULATION AND OBJECTIVES

From the end of World War II to the early 1960's, Brazil experienced industrial growth at a rate that it had never attained before. This was mainly the result of an economic policy directed toward offering incentives and motivation to investment in the industrial sector. The bulk of these incentives were provided for the importation of capital goods and raw materials necessary to the maintenance and acceleration of growth. Through policy measures such as the manipulation of exchange rates, persistent overvaluation of the currency, import and export licensing, discriminatory tariffs, export taxes, and other measures, a considerable amount of government-oriented resource allocation and pricing was introduced into the working of the Brazilian economic system. This was done under the assumption that eventually, as economics of scale were realized and efficiencies accumulated, the industrial sector could do away with protection against foreign competition and ultimately reach maturity.

Forced-draft industrialization in Brazil, induced largely by means of import substitution,appears to have come about largely as a result of sizeable inter-sectoral resource transfers from agriculture. These transfers were effected both directly by offering alternative employment to agricultural capital and labor, and indirectly by capturing income flows, largely by means of commercial policy tools. This study is

concerned with an analysis of the impact of trade policy on the agricultural sector of Brazil and with an analysis of some of the implications of these policies with respect to the contribution of the agricultural sector to the development of the total economy. By way of background the present chapter focuses first on the behavior of the Brazilian balance of payments during the period of study, 1946-67, and on the changes observed in trade performance. Then a review is made of the literature dealing with the Brazilian approach to import substitution. Finally, the research objectives and procedures are presented.

Brazil's Balance of Payments

The performance of the import and export sectors of any country is to a large extent the result of the commercial policy followed by its government. Such policy tends to be heavily influenced by the country's payments situation with the rest of the world.[1/] Therefore, as an introduction to the study of the structure of Brazil's foreign trade it will be useful to begin by examining its balance of payments and its main aggregates. In this context, the theoretical and technical implications that somewhat limit the use of a given balance of payments statement for purposes of economic analysis will be ignored.[2/] What matters for present purposes is that the relative payments situation of a country bears upon its decisions with respect to policies that may strongly affect

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1/ Other macroeconomic indicators are also influential on decisions connected with foreign trade. But as an independent accounting unit, the balance of payments can be seen as the convergence point of outside decisions, reflecting positive or negative influences emanating from the rest of the economy.

2/ A good discussion of these issues is given in Gray (ed.) (1967), especially the reading "Measurement of a Nation's Balance of Payments", by the Federal Reserve Bank of St. Louis. Also, see Kindleberger (1969).

its trade with the rest of the world as well as its export- and import-based economic sectors.

In the Brazilian case a generally positive trade balance was often not sufficient to offset a sizeable amount of remittances abroad. Evidence for this is shown in Table 1.1 where the main components of the Brazilian balance of payments for the period of 1946-68 are presented. Only in three instances--1952, 1960, and 1962--was the balance of trade adverse to Brazil; and these were the years when the higher overall deficits for the period took place. Curious as it may seem, the policy reactions related to these events were quite different. In 1953, after the high import levels of 1951 and 1952 that were stimulated by the Korean War, the reaction was the introduction of a complex system of exchange controls with multiple exchange rates, import priorities, and export taxation. In the early sixties the response to growing deficits was a simplification of the system and a gradual tendency to stimulate exports of primary products and manufactures.

The main items of the Brazilian balance of payments, other than imports and exports, are Services and Capital movements. The former is mostly made up of payments and receipts of services of capital (interest, profits, and dividends), and transportation.[3/] Services of capital paid abroad substantially increased in the 1960's as compared to the 1950's,

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3/ Freights and insurance are included as services and therefore are excluded from imports which are given in FOB terms.

Table 1.1. Brazilian Balance of Payments, Government Compensatory Financing Excepted,[a/] 1947-68.

Item	1947	1948	1949	1950	1951	1952	1953	1954
	US$ Millions							
1. Goods and Services	-146	- 37	-118	106	-468	-707	31	-230
Exports (FOB)	1157	1183	1100	1359	1771	1416	1540	1558
Imports (FOB)	-1027	-905	-947	-934	-1703	-1702	-1116	-1410
Trade Balance	130	278	153	425	68	-286	424	148
Services	-276	-315	-271	-319	-536	-421	-393	-378
2. Donations	- 24	- 7	- 3	- 2	- 2	- 2	- 14	- 5
3. Autonomous Capital Movement	31	- 9	- 35	- 29	56	120	97	22
Private Capital	47	80	32	28	70	118	109	75
Government Capital (excluding compensatory financing)	- 16	- 89	-67	- 57	- 14	2	- 12	- 53
4. Errors and Omissions	- 43	29	82	- 23	123	- 26	- 98	10
5. Balance (1+2+3+4)	-182	- 24	- 74	52	-291	-615	16	-203

(cont'd.)

Table 1.1. (Cont'd.)

Item	1955	1956	1957	1958	1959	1960	1961
	US$Millions						
1. Goods and Services	- 24	18	-286	-262	-335	-521	-276
Exports (FOB)	1419	1483	1392	1244	1282	1270	1405
Imports (FOB)	1099	-1046	-1285	-1179	-1210	-1293	-1292
Trade Balance	320	437	107	65	72	- 23	113
Services	-344	-419	-393	-327	-407	-498	-389
2. Donations	- 10	- 11	- 13	- 4	- 10	4	15
3. Autonomous Capital Movement	39	201	290	202	216	97	327
Private Capital	109	248	356	230	248	203	224
Government Capital (excluding compensatory financing)	- 70	- 47	- 66	- 28	- 32	-106	103
4. Errors and Omissions	12	- 14	-171	-189	- 25	10	49
5. Balance (1+2+3+4)	17	194	-180	-253	-154	-410	115

(cont'd.)

Table 1.1. (Cont'd.)

Item	1962	1963	1964	1965	1966	1967	1968[b/]
	US$Millions						
1. Goods and Services	-461	-186	39	198	- 24	-354	-503
Exports (FOB)	1215	1406	1430	1596	1741	1654	1890
Imports (FOB)	-1304	-1294	-1086	-941	-1303	-1441	-1856
Trade Balance	- 89	112	344	655	438	213	34
Services	-372	-298	-305	-457	-462	-567	-537
2. Donations	38	39	63	65	36	77	60
3. Autonomous Capital Movement	245	13	92	67	43	63	555
Private Capital	187	42	67	67	3	n.a.	n.a.
Government Capital (excluding compensatory financing)	58	- 29	25	-	40	n.a.	n.a.
4. Errors and Omissions	-140	-120	-126	32	18	- 27	- 73
5. Balance (1+2+3+4)	-318	-254	68	362	73	-241	39

Source: Galveas (1968), p. 20-22; Banco Central do Brasil (1967)(1968); APEC (1968).

a/ Item 5 (Balance) is, of course, offset by government compensatory financing, made up mostly of credit operations.

b/ Provisory data.

whereas transportation payments decreased throughout the 1950's and 1960's (Table 1.2). These trends have been explained as resulting from the heavy inflow of foreign investment during the 1950's, and from lower freight rates and increasing participation of Government-owned ships in maritime transportation (specially of petroleum).

The item Autonomous Capital Movement pictures the international flow of private and government capital. Its balance situation in Brazil comes from the interplay of foreign private loans and investment,and government-to-government loans, on the positive side, and debt amortizations on the negative side. In general, the former have surpassed the latter (Table 1.1). It can be seen that the inflow of private capital increased substantially

Table 1.2. Annual Averages of the Net Balance of the Services Component of the Balance of Payments, Brazil, 1947-67.

Item	Annual Average for the Period				
	1947-49	1950-54	1955-59	1960-64	1965-67
	US$ Million				
Returns to Capital	- 87	-138	-128	-182	-251
Transportation	-136	-173	-111	- 77	- 43
Other	- 64	- 98	-139	-113	-206
Services	-287	-409	-378	-372	-500

Source: Table 1.1. sources.

after 1950, and even more after 1956 when a more decided industrialization policy was started. But in 1963 this trend reversed itself, coincidental with an increase in capital remittances (Table 1.2) and with the Government

enactment of the Law of Profit Remittance, whose objective was to reduce the outflow of capital services.[4/] As a result, the positive balance of the item "Autonomous Capital Movement" was strongly reduced and only an increase in the Trade Balance could offset this effect.[5/]

The Brazilian balance of payments situation as of 1967 was summarized by an official government source as follows: "The foreign exchange gain from exports is, in the particular case of Brazil, the main source the country can rely upon in order to compensate for a rigid import structure and a highly negative composition of "Services", as well as to provide funds to attend the capital commitments abroad, very concentrated at medium term, derived from loans to cover previous balance of payments deficits and from financing, in currency and equipment, of specific development Projects. There are, therefore, visible the negative effects of reduced export receipts on the final results of our transactions with the rest of the world".[6/]

This statement also applies to most of the preceding period to describe the importance of the export sector, given the influential variables in Brazil's balance of payments. In the year it was made it was partly predicted on the failure of private capital to flow back to Brazil immediately after the change in policy stance of 1964 and 1965. It was what gave rise to explicit export promotion and export subsidy in the more recent period as a means of financing a higher rate of growth. This was in marked contrast to policy in much of the post-World War II period.

[4/] Law No. 4131 (9/3/62), and Decree 53451 (1/30/64).

[5/] It should be noted in passing that the inflow of capital in the late 1960's and early 1970's again increased substantially.

[6/] Banco Central do Brasil, (1967), p. 275 (translated by author).

Export Structure

The previous look at the Brazilian balance of payments showed that the role played by its export component has been of the utmost importance in the development of Brazil's import capacity. This point can be made with data presented in Table 1.1. Prior to 1953 the payments deficit was mainly the result of increases in imports that came as a consequence of the restrictions to trade imposed during World War II, an over-valued exchange rate,and the threat imposed by the Korean War. From 1948 to 1952 exports made up 92.5 percent of the credit side of the balance of payments. This position was maintained thanks to favorable coffee prices. However, after 1954, when coffee and cotton prices began to decline, the share of exports in the balance of payments' credit account was substantially reduced (average of 66.7 percent in 1956-60). This is also explained by the increase in credits from services and capital investments, but shows, at the same time, a relative stagnation in the export sector. The average for the 1961-66 period of 68.9 percent shows little improvement over the previous situation.

Agricultural exports made a decreasing contribution to total exports during the period 1948-67 (Table 1.3.). In terms of volume, whereas total exports increased almost five times,[7/] agricultural exports grew less than two-fold, the post-1964 period accounting for the most of this change. As a result the share of agricultural as a proportion of total exports declined from 70.6 percent to 26.8 percent in terms of volume.

In terms of value the impact was smaller, but the contribution of agriculture still declined. The share of agricultural export dollars of

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7/ This is largely explained by an increase in exports of iron ore and other minerals.

Table 1.3. Volume and Value of Total and Agricultural Exports, Annual Averages, Brazil, 1948-52 to 1965-67.

Year	Total Exports				Agricultural Exports				Ag/Total Exports	
	Volume		Value		Volume		Value		Volume	Value
	(1,000 t)	Index	(US$Mill)	Index	(1,000 t)	Index	(US$Mill)	Index	- - - -percent- - -	
1948-52	4,233	100.0	1,364	100.0	2,990	100.0	1,306	100.0	70.6	95.7
1953-57	5,664	133.8	1,480	108.5	2,838	94.9	1,404	107.5	50.1	94.9
1958-60	9,596	226.7	1,265	92.7	3,463	115.8	1,127	86.3	36.1	89.1
1961-64	13,450	317.7	1,363	99.9	3,903	130.5	1,189	91.0	29.0	87.3
1965-67	20,305	479.7	1,664	122.0	5,432	181.7	1,380	105.7	26.8	82.9

Sources: Appendices A and B.

the total export value declined only from 95.7 percent, in 1948-52, to 87.3 percent in 1961-64, and to 82.9 percent in 1965-67. The fact that agriculture was able to provide a stable supply of the foreign exchange needed to promote imports necessary for industrial growth was a major reason for the success of this policy. But the fact that agriculture was unable to increase, in absolute terms, its dollar contribution to Brazil during a 20-year period (Table 1.3) is suggestive of the problems it faced.

Additional evidence is shown in Table 1.4. The average annual value of agricultural and other exports is presented in dollars and deflated cruzeiros. By either measure the value of agricultural exports had decreased, or increased at comparatively low rates, throughout the 1950's, whereas the value of other exports had increased substantially. Another interesting aspect is the recovery of agricultural exports after 1961, particularly in the period 1965-67.

The reason for discrepancies between the dollar and the cruzeiro series is that while the dollar series reflects the international dollar price effectively paid by the importers times the quantity purchased, the cruzeiro series pictures the quantity sold times the price the exporter was paid for his dollar export proceeds. As a result, changes in the treatment given to the export exchange rate would be shown in the correlation or the lack thereof between the two series. In order to examine this possibility, the correlation coefficient between the deflated cruzeiro and the dollar time series for agricultural exports was computed for the periods 1953-60, 1957-64, and 1961-67, three periods of reasonably homogenous trade policy (see below). The results obtained were 0.75,

Table 1.4. Value and Change in the Dollar and Deflated Cruzeiro Values of Agricultural and Other Exports, Annual Averages, Brazil, 1948-52 to 1965-67.

Period	Agricultural Exports				Other Exports			
	Value		Change		Value		Change	
	(1)	(2)	(1)	(2)	(3)	(4)	(3)	(4)
	(US$1,000)	(Mill. Cr$)	(percent)	(percent)	(US$1,000)	(Mill. Cr$)	(percent)	(percent)
1948-52	1,306,416	34,460	-	-	57,487	1,587	-	-
1953-57	1,403,580	31,067	7.4	- 9.8	76,026	1,849	32.2	16.5
1958-60	1,126,800	26,224	-19.7	-15.6	137,786	4,406	81.2	138.3
1961-64	1,188,529	29,586	5.5	12.8	174,827	6,404	26.9	45.3
1965-67	1,379,682	42,925	16.1	45.1	283,971	9,865	62.4	54.0

Source: Appendices A and B, and F.G.V., Conjuntura Economica, index 45.

0.42, and 0.91, respectively. This shows a smaller correlation in the period when exports were gradually liberated from differential exchange rates. The largest correlation was for the period 1961-67, when most exports were already liberated,and when coffee--still subject to a differential treatment--was taxed at a relatively constant share of its export proceeds throughout the period.

To complement this analysis, the same procedure was also carried out for non-agricultural exports. The correlations found between the cruzeiro and the dollar series were 0.97, 0.97, and 0.93, for 1953-60, 1957-64, and 1961-67, respectively. This result is completely consistent with the hypothesis of agricultural exports having suffered discrimination from trade policies during part of the period as compared to non-agricultural exports.

Data which permit a more detailed consideration of agricultural exports are given in Tables 1.5 and 1.6. Table 1.5 shows that in the second period, 1953-57, raw materials from the agricultural sector decreased more in real export value than exports of foodstuffs. From 1958-60 to 1961-64 this situation was reversed. Table 1.6 shows the reasons for this difference in performance. The instability of coffee and cotton exports largely account for the difference. These products, especially coffee, played a very important role in Brazilian commercial policy throughout the industrialization period.

Imports of Agricultural Products

The importance of considering imports of agricultural products is restricted to the understanding of some policy measures adopted in connection with the export and industrialization policies. These were

Table 1.5. Value and Change in the Deflated Cruzeiro Value of Brazilian Exports of Foodstuffs and Raw Materials Originated in the Agricultural Sector, Annual Averages, 1948-52 to 1965-67.

Period	Foodstuffs		Raw Materials	
	Value	Change	Value	Change
	(Mill. Cr$)	(percent)	(Mill. Cr$)	(percent)
1948-52	25,657	-	8,803	-
1953-57	24,219	- 5.6	6,849	-21.2
1958-60	19,944	-17.7	6,281	- 8.3
1961-64	18,730	- 7.1	10,856	72.8
1965-67	31,238	67.3	11,688	7.7

Source: Table B-2, and F.G.V., Conjuntura Economica, index 45.

Table 1.6. Change in the Deflated Cruzeiro Value of Brazilian Exports of Coffee and Other Foodstuffs, and Cotton and Other Raw Materials, Annual Averages, 1948-52 to 1965-67.

Period	Foodstuffs		Raw Materials	
	Coffee	Other	Coffee	Other
	- - - - - - - - - - - - - - - - percent - - - - - - - - - - - - - - - -			
1948-52	-	-	-	-
1953-57	- 8.3	1.3	-28.7	-15.9
1958-60	-33.1	54.4	-49.8	20.4
1961-64	- 7.8	-2.9	202.5	34.2
1965-67	71.5	58.3	-15.7	23.4

Source: Table B-2, and F.G.V., Conjuntura Economica, index 45.

largely measures directed against inflation and consisted primarily of facilitating the entry of items of limited production or eventual scarce supply in the country. Specific references to these are found in Chapter II and Appendix E.

With respect to the importance of agricultural imports it should be noted that, except for wheat and a few minor items like codfish and temperate fruits, Brazil was to a large extent self-sufficient in its food needs. Table 1.7 shows the dollar value of wheat and total food imports as a share of total imports. This share was maintained within stable limits throughout the period. Total food imports stood between 12 and 24 percent of total imports, while wheat imports remained from 55 to 73 percent of total food imports.

Brazil's import substitution policy included a desire to reduce the dependence on wheat imports. Incentives for an increasing domestic production of wheat through mandatory purchases of domestic wheat by mills were established in Brazil starting in 1951. At the same time, special facilities were extended for its importation. This was possible through a strong and costly subsidized price policy. It has been estimated that the average subsidy to wheat consumption as a percent of the opportunity cost to Brazil was 23.3 percent in 1949-53, 54.1 percent in 1954-56, 10.4 percent in 1957-63 and -3.8 percent in 1964-67.[8/]

Imports of Agricultural Inputs

As compared to the standards of the developed countries in Brazil does not use modern agricultural inputs in significant proportions. This

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8/ Knight, (1971), p. 94. This is a good reference on wheat policy in Brazil after World War II, especially Chapter 4. The negative subsidy of -3.8 percent (which actually appears to be for 1965-67 and not as reported) resulted from greater subsidies to producers in 1965-67.

Table 1.7. Value of Brazilian Imports of Wheat and Total Foodstuffs as a Share of Total Imports, 1948-67.

Year	Foodstuffs				Total Imports
	Wheat		Total		
	(US$Mill)	(Percent)	(US$Mill)	(Percent)	(US$Mill)
1948	133.3	11.9	208.3	18.6	1,121.0
1949	123.8	11.2	192.6	17.5	1,103.0
1950	109.4	10.1	185.4	17.1	1,085.1
1951	138.5	7.0	245.6	12.4	1,987.1
1952	146.8	7.4	256.3	12.9	1,986.0
1953	164.7	12.5	284.1	21.5	1,318.7
1954	152.5	9.3	247.8	15.2	1,633.5
1955	161.7	12.4	247.5	18.9	1,306.8
1956	115.3	9.3	191.9	15.6	1,233.9
1957	107.6	7.2	192.8	13.0	1,488.8
1958	116.2	8.6	163.6	12.1	1,352.9
1959	131.9	9.6	179.7	13.1	1,374.5
1960	142.7	9.8	198.7	13.6	1,462.1
1961	139.5	9.6	199.4	13.7	1,460.1
1962	161.6	11.0	238.9	16.2	1,475.0
1963	164.9	11.1	250.7	16.9	1,486.8
1964	210.7	16.7	297.6	23.6	1,263.5
1965	137.0	12.5	213.2	19.4	1,096.4
1966	172.2	11.5	276.1	18.5	1,496.2
1967	184.7	11.1	326.5	19.6	1,667.4

Source: Knight (1971), p. 97, and Appendix A.

was even truer in the 1940's and 1950's, when the bulk of the industrialization effort took place. During that period almost all fertilizers, pesticides and agricultural machinery used in Brazil were imported.

From 1946 to 1967, imports of agricultural inputs comprised in value, about 5 percent of total imports. Table 1.8 shows the evolution of these imports during the relevant period. The increasing importance of fertilizers in the total imports of inputs can be noted. It climbed to a 90.5 percent mark in terms of volume in 1965-67, and to 51.7 percent in terms of value.. On the other hand, non-fertilizer inputs declined in absolute terms, both in volume and value.

These trends are consistent with the directions followed by Brazilian trade policy. The fact that, in general, these imports received special subsidized exchange rates and preferential licensing is indicative of the willingness of the government to reciprocate to agriculture, given the negative effects of its exchange policy on exports. For this reason, attention will be given below to an analysis of the import policy concerning modern agricultural inputs (Chapter V).

Review of Literature

The literature dealing with Brazilian industrialization and its implications for economic development includes a good coverage of the political and economic facts underlying the process, as well as considerable analysis of its effects. The emphasis for the most part has been on import substitution.

The present review will first elaborate on the conceptual background which set the guidelines for industrializtion in Brazil, and on the political and economic framework which made it possible. A second part

Table 1.8. Volume and Value of Fertilizer and Other Input Imports, Annual Averages, Brazil, 1948-52 to 1965-67.

Year	Fertilizers				Other Inputs				Fertilizer/total input imports	
	Volume		Value		Volume		Value		Volume	Value
	(1000 t)	(Index)	(US$Mill)	(Index)	(1000 t)	(Index)	(US$Mill)	(Index)	- - percent- -	
1948-52	220	100.0	12.8	100.0	107	100.0	47.8	100.0	67.3	21.1
1953-57	426	193.6	23.3	182.0	105	98.1	49.4	103.3	80.2	32.0
1958-60	521	236.8	26.0	203.1	70	65.4	45.5	95.2	88.2	36.4
1961-64	555	252.3	24.6	192.2	101	94.4	39.6	82.8	84.6	38.3
1965-67	772	350.9	34.4	268.8	81	75.7	32.1	67.2	90.5	51.7

Source: Appendix B.

will deal with the impact of commercial policy on the agricultural sector and its measurement. For detailed analysis of import substitution industrialization and its results the reader is referred to the relevant literature.[9] [10]

The General Situation

The extent to which Brazilian industrialization was motivated by a formal political approach or by eventual economic facts is open to discussion. A review of the related literature would suggest that there was a conceptual framework, but that it could only be put to work under the particular economic setting that emerged in Brazil after World War II. This conceptual framework can be taken more as justification for the move rather than as its origin. A good quotation on this point is the following:

> "With very few exceptions, the Latin American countries cannot be said to apply a protectionist policy, if by this is to be understood a systematic body of measures deliberately designed to permit and encourage the development of certain industries rationally selected within an over-all framework of objectives established under a given economic development policy. What did and still does exist is protectionism, but as the largely indirect result of ad hoc measures, often adopted, at least initially or during a first stage, as emergency procedures, either in order to solve balance-of-payments problems, or under the pressure of other exogenous factors."[11]

A similar view is taken by Bergsman:

> "The imposition of the licensing system was principally a response to a foreign exchange crisis; total imports were

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[9] Two of the most complete background studies of the early process of Brazilian industrialization are Luz (1961) and Dean (1971). See also Loeb (1957) and Simonsen (1939). For a cross-sectional analysis for the state of Sao Paulo, see Pereira (1957). More general treatments are given by Furtado (1972), and Prado, Jr. (1965).

[10] The main studies dealing with import-substituting industrialization and its economic impact are United Nations (1964), Baer (1965), Leff (1968), and Bergsman (1970). Other studies of interest are Lakos (1962), Huddle (1964), Clark and Weisskoff (1967), Gudin (1969), and Knight (1970). See also Kafka (1956), Gudin (1956), Gradin (1958), and Morley (1969).

[11] Macario (1964), p. 61.

> to be reduced, and restrictions on existing domestic production were to be kept to a minimum. Protection of existing consumer goods industries was a secondary goal, and growth of new industries was not an intended result."12/

Similarly, the persistent exchange overvaluation of the late-1940's, can be attributed to the desire to facilitate imports right after World War II in order to accommodate the large accumulated demand for producer and consumer goods. Other reasons in the immediate period were the fear that a rise in exchange rates would contribute to a greater inflation, and the policy of "defending" coffee prices by forcing world prices up through an overvalued exchange rate.13/

Bergsman holds the view that "policies which promoted industrialization did not have significant negative effects on agriculture. The one great exception is the discouraging of agricultural exports by exchange rate policy".14/ His point is that the concern with inflation led to policies to keep agricultural prices down. "The over-valued exchange rate probably owed its existence at least as much to a desire to keep food prices down, as to a desire to industrialize."15/

12/ Bergsman, (1970), p. 29.

13/ These points are made by Bergsman (1970) and Leff (1970).

14/ Bergsman (1970), p. 152.

15/ Ibid.

The theoretical framework to legitimize industrialization on conceptual grounds was developed parallel to early policy decisions, but was only completely accepted and adopted in Brazil by the mid-1950's. Previous to this, protection was mostly extended to industries already established before and during World War II, and implemented by means of controls on imports of products classified as non-essential or luxury goods, and also in response to requests presented by the private sector in favor of new lines of production. After the mid-1950's a more deliberate import-substitution policy was implemented leading to a consistent tariff policy and incentives to specific preferential industrial branches.[16/]

The Conceptual Framework

The main body of the economic thought related to industrialization in South America was put forward by the Economic Commission for Latin America (ECLA) of the United Nations, based on principles developed by Raul Prebisch in the 1930's and 1940's, and complemented by Hans Singer.[17/] What is known as the Prebisch-Singer thesis supports industrialization in underdeveloped countries as a means to strengthen their economies and to become less dependent on the foreign trade sector. This dependence

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16/ This position is shared by Bergsman (1970) and Baer (1965). In this respect, however, Leff (1970) holds a different view. He contends that "in allocating...resources, the government had substantial political autonomy, and could make large allotments to the projects which were believed most likely to promote development, to the neglect of 'vested interest' in industry or agriculture" (p. 57-8). While this might have been true in some instances, his own analysis does not substantiate a more decided trend before the mid-1950's.

17/ The basic references are United Nations (1950), and Singer (May 1950). A major reference on ECLA's position in the early-1960's and an analysis of the import-substitution process is United Nations (March 1964).

is taken as a major reason for these countries being unable to overcome some typical problems of underdevelopment, such as a skewed income distribution and maintenance of a large subsistence agricultural sector.

The external sector is taken as the dynamic sector of the economy with a large share of GNP generated from exports and a large share of domestic demand based upon imports. The development of the export sector resulted in urbanization and in the development of some consumer goods industries (textiles, clothing, shoes, furniture, etc.) under low productivity standards.

The Prebisch-Singer thesis considers this as a typical model of growth "from outside" resulting from an international division of labor imposed by the developed economies, and with very limited possibilities of achieving development as such. Various reasons for this are suggested. One is that since the control of the most productive resources is in the hands of the dynamic, but relatively small, export sector, income distribution is necessarily highly skewed. In addition, this export sector, which is in general specialized in a few primary products, will not be able to attain high rates of growth in the long run because of the unfavorable trend in the terms of trade of primary products as compared to industrial commodities. This trend is largely blamed on the inelasticity of demand with respect to income, which conditions the absorption of primary products by developed countries.[18/]

18/ A detailed review of the Prebisch-Singer writings can be found in Appendix F.

The combination of the anti-cyclical measures taken to cope with a shortage of foreign reserves and rising prices, together with a line of political thought oriented toward industrialization, and essentially discriminative against exports, can easily explain the reason why agriculture had to pay a substantial price for Brazil's economic growth.[19/]

Industrialization and Its Impact on Agriculture

The question of whether industrial growth is a desirable development target for underdeveloped countries was answered affirmatively by both Prebisch and Singer. Even in opposition to most Prebisch-Singer arguments, almost any author who studied the Brazilian case also agrees that Brazil had the potential to strive for industrial growth.

The next question is what kind of policies should be implemented to provide the resources needed for industrial growth. It is obvious that the existing resource base was largely in the agricultural sector, and it was only natural that some kind of inter-sectoral resource transfer had to be effected. Therefore, the contention that agriculture was discriminated against by industrial policy is a relevant one only as it is concerned with the extent to which discrimination took place. The question is how resource allocation could have been made as to minimize the burden on agriculture, and still get industrial development, or more properly, how large was the contribution of agriculture to industrial growth and how was it used.

19/ The nature of Brazilian agricultural policy on a broader framework is examined by Smith (1969) and Schuh (1970). They point to the strong emphasis on short-term policies as a typical and negative aspect of Brazil's policy-making.

This question has been dealt with by a number of authors, but usually in superficial terms, since their main interests were the policy and results of the industrialization drive itself, rather than its repercussions. While some authors could only suggest the existence of a resource drain from agriculture,[20] others attempted to produce some empirical evidence.[21]

Bergsman estimates that the maximum devaluation to the free trade situation would have averaged 40 percent for the period 1954-67, and this would have increased non-coffee exports by the same percentage, or US$250 million per year. But this would have raised domestic prices of agricultural products, and the resulting gain in producers' surplus would have been offset at least in part by a loss in consumers' surplus. "Whether the net effect of this would have been good or bad...is a complex question".[22]

The internal terms of trade between industry and agriculture were also analyzed by Bergsman for the period 1944-67. He found that:

> "the internal terms of trade turned against industry in the period 1944-48, and remained more or less the same thereafter. This is just the opposite of what one would expect. The structure of scarcities during and immediately after the war (1944-45) was such that industrial prices were unusually high relative to agricultural prices. Unlimited imports at an over-valued exchange rate in 1946 should have caused industrial prices to drop sharply relative to agricultural prices. Either this did not happen, or the indices did not pick it up. In 1947-48, with the imposition

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[20] See Baer (1966), pp. 161-2, and Leff (1968), Chapter 5.

[21] Bergsman (1970), and Knight (1961).

[22] Bergsman (1970), p. 152.

> of strict rationing on imports of all manufactured consumer goods, industrial prices should have risen relative to agricultural prices; the index shows the opposite. As import substitution in industry proceeded throughout the period up to the early 1960's,...one would expect a deterioration of agricultural prices relative to industrial prices; the index shows constant or slowly rising prices of agriculture relative to industry".23/

A similar result was found by Bergsman when he equated internal to external terms to trade:

> "relative to world prices, the internal terms of trade of Brazilian agriculture were unusually high in the late 1940's. Subsequently they have been fluctuating around an average slightly below the level of 1945-47. These results indicate that, while there may well have been discrimination against agriculture in the domestic market, that discrimination remained at a more or less constant level throughout the 1950's and early 1960's".24/

As to agricultural inputs, Bergsman pointed out that "fertilizers and tractors were heavily subsidized."25/ His data show that negative protection to fertilizers averaged -43 percent during 1955-64, and was -10 percent in 1967.

The same author also made estimates of average exchange rates prevailing for noncoffee exports in the period 1946-67. During 12 out of the 14 years from 1954 to 1967 the import rate was 2 to 3 times greater than the noncoffee export rate. He also measured the net nominal or product protection for noncoffee exports and found an implicit export tax ranging from 24 percent to 37 percent in the period 1954-65, and

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23/ Ibid., p. 153-5.

24/ Ibid., p. 156.

25/ Ibid., p. 153. The point that the fertilizer subsidy was to the long-run advantage of agriculture is contested by Schuh (1970): "Had the subsidy taken a different form, there might have been a greater investment in the local fertilizer industry, and the real price of fertilizer in Brazil today might well be much lower". (p. 295).

decreasing to 13 percent in 1967.[26/]

Knight[27/] made similar estimates for four agricultural products: beef, rice, soybeans and corn. He used two estimates of a free exchange rate: one was Bergsman's, and the other his own (parity criterion), calculated by inflating the 1938 exchange rate of Cr$17.62/US$ to a 1947-67 series. His estimates of an implicit export tax (parity criterion) show, in general, an increasing trend from 1947 to 1953, a declining one from 1954 to 1961, an increase in 1963 and an unstable situation thereafter. Also,according to domestic and international market conditions, he selected favorable and unfavorable years from the exporters viewpoint.

Knight also made an estimate of the exchange subsidy extended to fertilizers during 1955-1967.[28/] He found a subsidy ranging from 30 percent to 46 percent in 1955-61, a sharp drop in 1962 and variable subsidies in the remaining years, with the lowest level in 1965.

Objectives

The general objective of the research reported in this thesis is to study the role of trade policy in the process of Brazilian industrialization and its consequences for agricultural development. This general objective is attained through analysis of the following points:

a. The structure and changes in Brazilian exports of agricultural products.

[26/] Bergsman, (1970), Chapter 3.

[27/] Knight, (1971), Chapter 3.

[28/] Knight, (1961), pp. 177-80.

b. The mechanism and implications of Brazil's exchange policy as it concerns agricultural exports.

c. Points (a) and (b) above, as they relate to imports of agricultural inputs.

d. The amounts of, and destinations given to, government income, generated by the sale of export proceeds in exchange auctions.

e. The movements of effective exchange rates for agricultural exports and selected import groups.

f. The relationships between domestic and world price changes for manufactured and agricultural products.

g. The relative domestic protection given to manufactures as compared to agricultural products.

General Procedures

Previous sections have stressed the fact that in the Brazilian case the success of an industry-oriented policy founded on import substitution was directly related to the performance of the agriculture-based export sector. An understanding of the particular economic setting that made possible and effective the participation of agriculture in the industrialization process is, therefore, of prime importance. Considerable attention will therefore be given to presenting a comprehensive description of the evolution of agricultural exports as related to commercial policies. The description will cover a period of two decades starting in the years immediately following World War II. Similarly, attention will be given to the policies directed to the importation of modern agricultural inputs, which are important assets fostering Brazil's agricultural development.

The analytical framework will be developed around intersectoral comparisons which involve exports and imports as well as agricultural products and manufactures. For this purpose, parameters will be established which show the relative position of these commodity groups as a result of the impact of Brazilian trade policies for different time periods. The tools to be used will include effective and implicit exchange rates, price indices, and the concepts of nominal and effective protection.

A major part of the research involved the collation of data from diverse sources and its synthesis into meaningful series that could be used for an analysis of the agricultural sector. The sources of these data are described in Appendix D, together with a description of the procedures used in putting it together for analytical purposes.

An important contribution of the study is believed to be the considerable amount of data that has been assembled. For this reason it is included in the various appendices.

The time period under study was divided for analytical purposes into five phases which correspond to significant changes in Brazil's trade policy. These five phases are: 1947-53, 1953-57, 1957-61, 1961-64, and 1964-67.

The year 1947 is considered to be the starting point for more stringent controls on imports after the liberal action pursued in 1946 with the exchange reserves accumulated during World War II. But the licensing system for most imports and exports was only introduced in February 1948. This is the reason why the year 1948 is often used as a point of departure for analyses of Brazil's commercial policy. The years 1947

and 1946 are also used for the purpose of showing the situation previous to the 1948 policy changes.

The period 1948-57 was characterized by a more dispersive protection policy, often motivated by balance of payments and inflation problems. There was not a comprehensive tariff system and the exchange policy and licensing were the major tools for import and export control. This period, however, had two distinct phases: one, up to 1953, under a single fixed exchange rate that was overvalued and a strong licensing system; the second, from 1953-57, with multiple exchange rates used to define import and export priorities. The first phase was mostly under the Dutra Government (1946-50) and the second under Getulio Vargas and Cafe Filho (1951-55).

The period 1957-61 is considered by most analysts to be the apogee of the industrialization drive under a more deliberate guidance. The exchange controls were partly replaced by a new tariff system and special incentives were given to investments of foreign capital. Exports were put under a more liberal exchange system. During most of this third phase of the industrialization process Brazil was under the Kubitschek Government (1956-60).

The fourth phase, 1961-64, was characterized by an unstable political situation, with President Janio Quadros' resignation in 1961, the introduction of a short-lived parliamentary system, and the Goulart Government (1963-64). The exchange system was substantially modified, towards further liberalization. The importance of exchange auctions was reduced. Most exports were freed from exchange controls. The unstable political environment coincided with a seriously deteriorating economic situation.

Lagging industrial activity, continuous exchange overvaluation, payments problems, spiraling inflation, and other symptoms of economic depression led to the military take-over of April 1964.

The last period, 1964-67, was the beginning of a new phase of political stability. However, only in 1968 was a decided exchange devaluation policy inaugurated. In 1966, the remaining exchange auctions were abolished, and substantial changes were introduced in the tariff system. The year 1967 is taken as the turning point, immediately before significant changes in Brazil's trade policy took place, and new export incentives were introduced.[29/]

[29/] A brief review of trade policy since 1967 is presented in Appen

CHAPTER II

BRAZILIAN EXCHANGE POLICY IN THE POST-WORLD WAR II PERIOD

In this chapter an attempt is made to present a rather detailed description of the exchange policy followed by Brazil during the period 1947-67, with emphasis on the export sector. For purposes of a systematic presentation, the whole period was divided into its five main phases as described in Chapter I. This is preceded by a short description of policy measures immediately after World War II.[1/] The final sections deal with major departures from the general trade policy.

Previous Developments

The period immediately following the end of World War II and up until 1947 was one of adjustments in the Brazilian economy as a result of the restrictions imposed on international trade during the war. At the time, Brazil was more dependent on agricultural exports than in later years. In 1947-48 agricultural exports were over 10 percent of its domestic income, whereas in 1950-60 this share was less than 6 percent.[2/]

1/ A brief treatment of trade controls in Brazil during World War II is provided in Appendix E.

2/ Baer (1965), p. 37.

The balance of trade was quite favorable during the war years and those immediately following. The evidence, together with data showing the substantial growth in the average unit value of Brazilian exports in 1939-47, is presented in Table 2.1.[3/]

Given the accumulation of exchange reserves which resulted, the Brazilian Government in 1946 reduced its controls on exchange transactions,[4/] abolished the existing official rate, and unified all exchange transactions under a"free" rate,[5/] which was actually controlled by the Government and

Table 2.1. Balance of Trade and Unit Value of Exports and Imports, Brazil, 1939-47.

Year	Exports less imports	Unit value	
		Exports	Imports
	(million Cr $)	- - - - - - - Cr$/t - - - - - - -	
1939	622	1342	1043
1940	-3	1532	1145
1941	1201	1902	1363
1942	2805	2819	1558
1943	2500	3237	1886
1944	2599	4015	2115
1945	3451	4083	2038
1946	5201	4977	2574
1947	-1610	5601	3183

Source: Banco Central da Republica, Div. Balanco de Pagamentos.

3/ It is of interest to note that during the World War II period the trend of export as compared to import prices was, in general, favorable to developing countries. The case of Brazil and other developing countries is examined by Alfred Maizels (1963), Chapter 5.

4/ Decree-Law No. 9025 (2/27/46). Other steps contributing to the liberalization of the exchange system were taken through Instructions 13 (2/28/46) and 17 (7/20/46) of the Superintendency of Money and Credit (hereafter called SUMOC). This date is erroneously taken as being February 1945 by Werner Baer (1965), p. 46.

5/ The Brazilian literature refers to this as a "free rate" (taxa livre) despite the fact that there were controls in the market. For this reason we have placed the word "free" in quotation marks.

maintained fixed at Cr$18.38/US$ and Cr$18.72/US$ for purchase and sale, respectively.[6/]

However, this policy of supporting the exchange rate without strongly restricting foreign trade could not be sustained for long. The normalization of international trade relations after World War II resulted in a substantial increase in Brazil's imports due to the need to re-equip the industrial sector and to the import incentives offered by a stationary exchange rate in the presence of an inflationary domestic situation.

In 1946-47 the import quantum index increased by 40 percent and the dollar value of imports by 80 percent. At the same time, exports decreased by 5 percent and the value of exports increased by 17 percent.[7/]

First Phase (1947-1953)

These factors led to the enactment of SUMOC Instruction No. 25 (6/13/74) which decreed the compulsory transfer to the Bank of Brazil of 30 percent of the foreign exchange purchased by all banks. This percentage was soon raised to 75 percent (Instruction 26 - 1/8/48). Thus, the Export-Import Department (CEXIM) of the Bank of Brazil began to exercise a more complete control on all exchange operations. Instruction 25 also established five priority classes for imports: "imports of goods essential and of national interest" were given first priority. In 1947 the tax on exchange transactions was also re-established at a 5 percent level.[8/]

6/ This corresponded to the rate of Cr$18.50/US$ declared to the International Monetary Fund. Before this change there was an official rate (about Cr$16.50/US$) and a free rate (about Cr$19.50/US$). (See Appendix D). The move to make currencies convertible was part of the Bretton-Woods Agreement of 1944.

7/ Baer (1965), p. 47.

8/ Law No. 156 (11/27/47). This tax was first enacted in 1937 (Decree Law No. 97) at a level of 3 percent. It was abolished in 1946 (Decree Law No. 9025) as a part of the liberalization policy adopted at that time. In 1951 this tax was raised to 8 percent (Law No. 1383), and in 1954 to 10 percent (Law No. 2308).

These steps toward an increase in the official control on foreign trade were finally crystallized by the enactment of Law No. 262 (2/23/48), which introduced a licensing system for most imports and exports. Exports were restricted to the excess of the quantity consumed and processed in the country during the previous year, increased by 7 percent. In addition, prices at which exports were sold had to be equivalent to prices obtained in the internal market.[9/] Licensing could be denied if it were necessary to accumulate stocks in order to guarantee the regular supply of the internal market.[10/] At the same time, "essential food items" were excluded from import licensing, making their entry into the country easier.[11/]

A commission was created to pass judgment on the desirability and necessity of requested imports and exports.[12/] This Commission was made up of a number of institutions connected with different aspects of foreign

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9/ Law No. 262, art. 3.

10/ Art. 6 of the Rules specified by Decree 24697 "A" (3/23/48). However, export prohibition was not a new activity (see Appendix E).

11/ Law No. 262, art. 1. Those items were garlic, rice, sugar, poultry, oats, potatoes, beef, onions, barley, cassava flour, beans, fresh vegetables, butter, corn, eggs, cheese, bacon, wheat, and vinegar. Previously, import tax exemptions had been granted to a number of food and cloth items (see Decree Laws 9598 (8/16/46), 9650 (8/23/46), and Ministry of Treasury Communique ("Portaria") 487 (8/21/46)).

12/ This was the Consulting Commission on Foreign Commercial Trade (Comissao Consultiva de Intercambio Comercial com o Exterior) created by Decree 24697 "A", art. 7.

trade: Ministry of Treasury, Ministry of Foreign Relations, Bank of Brazil, etc.[13/]

It was originally intended that the licensing system would only last until mid-1949. However, it was continuously extended until 1953 and, with some changes, continued even after that year.[14/] Prior to February 21, 1953, the exchange system consisted of single official buying and selling rates (plus the 5 percent and then 8 percent, tax on most exchange remittances). These were 18.38 and 18.72 cruzeiros per US dollar. The official rates were used for all export and non-trade exchange proceeds, for designated essential imports, for service of debt and of private capital, and for consular and diplomatic remittances. All other remittances were made at the official rate, but subject to the 5 percent (or 8 percent) tax. This resulted in an effective rate for such transactions of Cr$19.66/US$ (or Cr$20.22/US$).

Between 1949 and 1953 some small changes were made in the licensing system, most of them affecting exports. Instruction 28, in March 1949, abolished the compulsory transfer of foreign exchange to the Bank of Brazil, which was established by Instruction 25, but gave to this Bank the whole power to distribute foreign exchange for remittance purposes. This Instruction also established one Preferential Category and First, Second, Third and Fourth import Categories for purposes of quantitative exchange controls.

In October 1949, Law No. 842 made exportation easier for a number of products by excluding them from the licensing system. The main products

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13/ The composition of the Commission was later changed (see Laws No. 1991 (9/26/53) and 2145 (12/29/53), art. 2 and 5, respectively).

14/ See Laws No. 752 (6/30/49), 842 (10/4/49), 1389 (6/28/51), 1991 (9/26/53), and 2145 (12/29/53).

excluded from licensing were coffee, cotton, sisal, cocoa, corn, timber, tobacco, carnauba wax, vegetable oils, hides and skins, fruits, thread and fabrics, precious stones, ores, manufactures, machinery, etc. (Law No. 842, art. 6).

Law 842 seems to have come about as an attempt to counter the continuous balance of payments deficit, which existed in spite of the rigid government controls on all foreign transactions. The surplus of the balance of trade was not enough to cover the services of other debts. Table 2.2 presents the evidence. A balance of payments surplus was obtained in 1950, due primarily to an increase in the value of exports. In 1951 and 1952 the value of exports increased even more, but not enough to offset the sharp increase in imports which took place in response to the prospects of a new world war raised by the Korean War.

One should not conclude from these data, however, that Law 842 and others following it (see below) were important factors in the trend observed on the export side. All one can say is that in spite of the disincentive to exports, and of the high rate of inflation (the general price level, excluding coffee, increased by 55 percent from 1947 to 1952), Brazilian exports grew significantly from 1947 to 1952. This was in large part due to an increase in coffee prices (see Chapter IV).

The year 1953 witnessed a number of changes in Brazilian foreign trade policy as a result of the increasing pressure exerted during the previous years by the deficits in the balance of payments. The first step in this direction was represented by Law 1807 (1/7/53). This Law excluded financial transactions from the official market, as well as those exports

Table 2.2. Brazilian Balance of Trade and its Effect on the Balance of Payments, 1947-52.

Year	Exports		Imports		Bal. Trade	Bal. Pay.
	(Mill. US$)	(Index)	(Mill. US$)	(Index)	- - - Million US$- - -	
1947	1157	100	1027	100	130	-182
1948	1183	102	905	88	278	- 24
1949	1100	95	947	92	153	- 74
1950	1359	117	934	91	425	52
1951	1771	153	1703	166	68	-291
1952	1416	122	1702	166	-286	-615

Source: Table 1.1.

that, based on the average of the three previous years, had not made up more than 4 percent of the value of annual exports, and that could not be exported at prices consistent with the official exchange rate due to their cost structure. Such exports were,however, still under the licensing system.15/

To implement this Law, Instruction 48, in February 1953, allowed the sale at the free market rate of part of the proceeds from certain exports. These shares and the respective exports were as follows:

a) 15 percent for mentol and sassafras oil;

b) 30 percent for 26 products, including rice, potatoes, bananas, Brazil nuts, hides, tobacco, oranges, cotton linter, pine lumber, sisal, and some cocoa products;

15/ On the import side, the use of the official exchange rate was limited to commodities considered essential for the country's economy (see SUMOC Instructions 49 (2/25/53) and 54 (4/27/53)).

c) 50 percent for wool and other cocoa products.

Other Instructions (53, 58, 64, 65, and 69) enacted from April to September 1953 introduced new commodities into the above groups, as well as transferred existing commodities between groups. The final result was that the percentage of 50 percent was extended to all the commodities listed above, plus a large number of other exports that could be included under the requirements of Law 1807.

Due to Law 1807 the free exchange market turned effective as of January 1953. In that very month the American dollar reached an average quotation of Cr$40.16 in the open market.

The official exchange rates for exports in mid-1953 were as follows:[16/]

Rate	Use
18.38	Official buying rate used for total proceeds of major exports (coffee, cocoa, minerals, cotton) and for 50 percent of the proceeds of designated products whose prices were not competitive at the official rate and whose export was being encouraged. This rate was also used for incoming private capital and for government purposes.
18.72	Official selling rate used for imports of designated essentials, for governmental services, and for designated invisibles.
20.22	Official selling rate plus 8 percent used for all other imports and designated invisibles.
Free rate	Used for that portion of export proceeds not sold at the official rate and for most private invisibles.

On August 1 , 1953, the non-free rates above were changed to 18.36, 18.82, and 20.33 cruzeiros per U.S. dollar. In addition, starting in August exports were subject to minimum price regulations under which

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16/ See I.M.F., International Financial Statistics.

foreign exchange proceeds of exports were surrendered at the official rate of exchange on the basis of official price valuations (Instruction 66). To the extent that market prices for given exports exceeded the official valuations, exporters had at their free disposal a portion of their foreign exchange proceeds. This procedure resulted in innumerable variable effective rates at levels above the official rate. At that time approximately 5 to 15 percent of the proceeds from coffee were at the free disposal of exporters.

These steps seemed to be closer and closer to a growing liberalization of exports. During the first nine months of 1953 the rate of exchange in the free market went up to Cr$47.73/US$, well above twice the official rate at which most exports were paid. In spite of this, still only a very minor share of the proceeds of total exports were sold at the free rate. If one also considers that the general price index (excluding coffee) increased by 77 percent from 1947 to 1953, one can understand the rigorous treatment given to the major export products by Brazilian exchange policy. At the same time, it becomes clear that a large subsidy was given to the imports deemed necessary to development policies.

The exchange policy carried out during this phase considered exports as residuals of internal consumption.[17/] Its immediate objective appears to have been to keep internal prices at low levels as a means of fighting inflation. However, in the longer run it became an important part of the import substitution and industrialization objective. It is argued by some that this policy may have severely limited the possibilities of

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17/ This is the so-called "exportable surplus" theory of trade mentioned by N. H. Leff (1970), p. 81.

expansion of Brazilian exports.[18/] Even though freer trade might have contributed to an increase in internal prices, it could also have provided incentive to a growth in production and to better resource allocation. In terms of income generation and balanced growth, this might have been a more desirable objective.

Second Phase (1953-1957)

SUMOC Instruction No. 70 (10/9/53), together with Law No. 2145 (12/24/53), will be considered the starting point of this phase. The licensing of foreign transactions continued as before, but the exchange system underlying it was substantially changed. Except for certain preferential products (petroleum, newsprint, etc.), imports were divided into five categories, according to their importance for Brazil's development policy. The first categories included machinery and equipment not manufactured in Brazil and considered to be essential to development, together with raw materials. The last categories included commodities considered non-essential (in general, finished products and consumer goods).

All transactions were to be effected at the official exchange rate agreed upon with the International Monetary Fund. However, in order to obtain this exchange the importer was required to first buy a certificate called "promise of exchange sale" (PVC) which was offered at official auctions. The amount paid for a PVC was called the "agio" or premium. The authorities allocated foreign exchange to the 5 categories in such a way as to sell PVC's in the first categories at lower prices. This point is illustrated in Table 2.3, where the distribution of exchange

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18/ See, for example, N. H. Leff (1970), Chapter 5.

to the five categories in different time periods is presented.

Table 2.3. Distribution of the Exchange Sold in Auctions to Importers in the Different Categories and in Different Periods.

Period	Category				
	I	II	III	IV	V
	- - - - - - - - - - - - percent - - - - - - - - - - - -				
Oct/Dec 53	36	38	17	7	2
Jan/Mar 54	36	34	21	7	2
Apr/Jun 54	38	27	26	7	2
Jul/Sep 54	36	25	31	8	1
Oct/Dec 54	31	28	30	9	1
Jan 55	32	27	27	12	1

Sources: I.M.F., International Financial Statistics.

In addition, shortly after Instruction 70, minimum premiums were established in each category (Instruction 74, 10/30/53). These were:

1st category - Cr$ 10.00

2nd category - Cr$ 12.00

3rd category - Cr$ 16.00

4th category - Cr$ 20.00

5th category - Cr$ 50.00

These premiums were later raised (1954 and 1955), reaching levels twice as high as those indicated above. In 1957 they became flexible. (See footnote 20, last sentence.)

In addition to the common auctions, which corresponded to the five import categories, there were special auctions for certain imports such as fruits, fertilizers, insecticides, Christmas items, etc. These special auctions (which should not be confused with the special auctions established

after 1957) were subject to favored minimum premiums. There were still other imports that could be made independently of the PVC's. These included government imports, and imports of newsprint, wheat, films, books, magazines, petroleum products, coal, etc. These non-auction imports will be discussed in more detail below.

In accordance with Instruction 70, exports were also paid at the official exchange rate. However, in addition they were to be paid an extra amount according to the specific category in which they were included. In the beginning there were two export categories:

First category: Included coffee,with a fixed bonus of Cr$ 5.00/US$ above the official buying rate of Cr$ 18.36. This corresponded to an exchange rate of Cr$ 23.36.

Second category: Included all other exports, with a fixed bonus of Cr$10.00/US$. This corresponded to an exchange rate of Cr$28.36.

These fixed bonuses were paid with part of the proceeds from the exchange auctions. The allocation of these proceeds will be examined at a later point in this thesis. At this point suffice it to say that from the beginning the proceeds of the exchange auctions were to be used to pay fixed bonuses to exporters, to build a fund to regulate exchange operations, and to make long-term loans, at low interest, with the objectives of modernizing the methods of agricultural production, and for the acquisition of modern agricultural inputs.[19/]

From 1953 to 1957 the grouping of exports and the amount of the fixed premiums were constantly being changed. In what follows, these

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19/ SUMOC Instruction 70, item no. XIII. See also Law 2145 (12/29/53), art. 9, §2, and Decree 34893 (1/5/54), art. 16).

changes are outlined one by one.

a) Instructions 99, 100, and 104 (August to September 1954) set the following bonus payment system:

- 80 percent of the coffee proceeds from exports were to be paid at Cr$5.00/US$.
- 80 percent of the proceeds from other exports were to be paid at Cr$10.00/US$.
- 20 percent of the proceeds from all exports were to be paid at free market rate.

b) In November 1954, Instruction 109 fixed the bonus to be paid for coffee exports at Cr$13.14. In January 1955 all bonuses became fixed, with the exports divided into four categories (Instruction 112). These are presented in Table 2.4.

c) In February 1955, Instruction 114 extended to coffee the bonus paid to exports in the second category.

d) In May 1955, Instruction 115 moved cotton from the second to the third category.

e) In June 1955, Instruction 117 moved cocoa beans to the third category, and sisal and Brazil nuts to the fourth category.

f) In July 1955, Instruction 121 moved leaf tobacco and sawed pine wood to the third category, and other pine lumber, carnauba wax, cocoa cake, hides and skins, and ores to the fourth category. After these changes, the four export categories were actually reduced to three (Table 2.5).

Table 2.4. Bonuses and Exchange Rate for the Export Categories Following Instruction 112 (1/17/55).

Category	Export	Fixed bonus		Exchange rate [a]	
		Currency group I [b]	Currency group II [c]	Currency group I [b]	Currency group II
		Cr$/US$			
1st	Coffee	13.14	11.86	31.50	30.22
2nd	Cotton, pine lumber, cocoa, carnauba wax, Brazil nuts, leaf tobacco, bananas, iron ore, and other minerals	18.70	17.19	37.06	35.55
3rd	Hides and skins, piassava, castor seeds, soybeans, sisal, cocoa cake, and some minerals	24.70	22.95	43.06	41.31
4th	All other exports	31.70	29.67	50.06	48.03

Source: I.M.F., International Financial Statistics.

[a] Effective rate = Cr$18.36 + fixed bonus.

[b] Currency group I includes convertible currencies and pounds sterling.

[c] Currency group II includes all other currencies.

Table 2.5. Bonuses and Exchange Rates for the Export Categories Following Instruction 121 (7/26/55).

Category	Export	Fixed bonus		Exchange rate[a]	
		Currency group I[b]	Currency group II[c]	Currency group I[b]	Currency group II[c]
		Cr$/US$			
1st		13.14	11.86	31.50	30.22
2nd	Coffee and bananas	18.70	17.19	37.06	35.55
3rd	Cocoa, cotton, piassava, castor seeds, soybeans, leaf tobacco, and sawn pine wood	24.70	22.95	43.06	41.31
4th	All other exports	31.70	29.67	50.06	48.03

Source: I.M.F., International Financial Statistics.

[a] Effective rate = Cr$18.36 + fixed bonus.

[b] Currency group I includes convertible currencies and pounds sterling.

[c] Currency group II includes all other currencies.

g) This situation prevailed until April 1956, when Instruction 130 moved bananas to the third category. In May 1956, Instruction 131 introduced higher bonuses for some exports in the fourth category (Table 2.6). Instruction 131 was also concerned with keeping exports from being prejudicial to internal consumption,and decreed that in order to obtain licenses for exporting, exporters of manufactures should be able to prove that national labor and raw materials made up at least 70 percent of production costs.

h) The currency groups were also changed from time to time. In July 1955, Deutsche-marks were included in the group of convertible currencies

Table 2.6. Bonuses and Exchange Rates for the Export Categories Following Instruction 131 (5/17/56).

Category	Export	Fixed bonus		Exchange rate[a]	
		Currency group I[b]	Currency group II[c]	Currency group I[b]	Currency group II[c]
		Cr$/US$			
1st	Coffee	18.70	17.19	37.06	35.55
2nd	Cotton, cocoa cocoa cake and paste, and hides	24.70	22.95	43.06	41.31
3rd	Cotton linter, and residues, peanuts, potatoes, bananas and other fruit, Brazil nuts, carnauba wax, tea, mate, cassava flour, lumber, tobacco, dry beans, wool, cocoa butter, castor seeds, sawn pine wood, skins, and some minerals	36.64	34.41	55.00	52.77
4th	All other exports	48.64	45.92	67.00	64.28

Source: I.M.F., International Financial Statistics.

Notes: [a] Effective rate = Cr$18.38 + fixed bonus.

[b] Currency group I includes convertible currencies and pounds sterling.

[c] Currency group II includes all other currencies.

together with pounds sterling (Instruction 120). At the end of 1955 currency group I already included as convertible currencies pounds sterling, Deutsche-marks, Netherland guilders, and Belgian francs. In May 1956 Italian lire were also included in group I, followed, at the end of 1956, by Austrian schillings and French francs. Finally, during 1957 clearing dollars on Argentina were added to currency group I.[20/]

i) In June 1957 the Brazilian Coffee Institute (IBC) introduced a variable premium for all coffee from the 1957/58 crop which was sold above a given price limit.

20/ The existence of two currency groups and the changes performed on each can be explained as follows. Up to mid-1955 the price of dollar certificates, in all import categories, was considerably above the level of prices for certificates in other currencies. At that time a multilateral trade and payment agreement between Brazil, the United Kingdom, Germany, and Netherlands (the so-called Hague Club) became effective. Under this agreement the ACL dollar(area of limited convertibility) was created as a special accounting unit. It was auctioned in the same way as other currencies, to be used by Brazilian importers in payment of goods from the United Kingdom, Germany, and Netherlands. At the beginning, ACL dollars received substantial premiums, at the auctions, over the U.S. dollar. With the passage of time, however, the prices for the U.S. dollar and ACL dollar certificates became approximately equal, although both were above the level of prices for certificates in other currencies. By 1957 the ACL agreement had been extended to Belgium-Luxembourg, Austria, France, and Italy. After 1957, 80 percent of the average of U.S. and ACL dollar quotations of the previous week were used as the minimum acceptable prices for certificates (PVC's).

Law No. 2145 was continuously extended[21/] until it was replaced by Law No. 3244 (8/14/57). This latter Law marks the end of the second phase of Brazilian foreign trade policy in the present context. During the period exports continued to be penalized, but not so much as before 1953, when the exchange rate at which they were paid was absolutely fixed. The rate of domestic inflation was substantial during the period 1947-57, with the result that producers' income from exports in real terms declined. Table 2.7 presents the change in the rate of exchange for exports compared to the change in the general price index for this period.

Table 2.7. Changes in the Rate of Exchange for Exports and in the General Price Level, 1947 and 1957.

Item	1947	1957	Change 1947-57
	- - - - Cr$/US$- - - -		(percent)
1st category	18.38	37.06	102
2nd category		43.06	134
3rd category		55.00	199
4th category		67.00	265
General price index	49	197	302

Source: Banco Central, Div. Balanco de Pagamentos.

Table 2.7. shows that the increase in the exchange rate was in all cases smaller than the increase in the general price index. Over a ten-year period, per dollar returns to exporters did not catch up with the general price increase. Since prices of major agricultural exports

21/ Laws No. 2410 (1/29/55), 2807 (6/28/56), 3053 (12/22/56), 3187 (6/28/57), and 3227 (7/27/57).

increased substantially from 1947 to 1954-55 it was easier for the government to maintain this situation. On the negative side, however, it should be remembered that the export exchange rate was already considered to be overvalued in 1947, and remained fixed up to 1953. At the same time it can be argued that the possible gains from upward changes in the exchange rate after 1953 did not always reach agricultural producers, since often their crops had already been sold to exporters when those changes took place.[22/]

Similar results are obtained even when one considers individual exports and the shorter periods, 1953-57 (Table 2.8). In most cases exports lag behind the general price index. However; in this case differences are not so striking as those observed in Table 2.7. This was to be expected since export exchange rate began to move up only in 1953. But some other aspects can be noted. The so-called free exchange rate increased at the same rate as the rate for major exports. This is an additional proof of the dependency of this market on the official exchange rate.[23/]

Another point to be noted is the "equilibrium" between major export rates and the general price index in 1954 and 1955. These were the years when exchange rate adjustments were made for major exports. From

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22/ April-September can be considered as the period when most farmers sell their crops. The first semester of the year can therefore be taken as the relevant period for exchange adjustments from the farmer's standpoint. Instruction 70 was enacted in October 1953, which means that the effect of higher rates was extended to farmers only in 1954. The next major change was made in August-September, 1954. All exchange adjustments in 1955 were, however, made from February to July. Unfortunately, starting that year world prices for major exports (coffee, cotton, and cocoa) began to decline.

23/ The nature and role of the free market exchange rate will be discussed later in this chapter.

that time on adjustments were discontinued and exchange rates for major exports lagged behind the price index. An interesting finding, however, is that during the first years under the new exchange system, when world prices enjoyed a favorable trend, the government tried to pass this price incentive on to the export sector.

Table 2.8. Changes in the Exchange Rate Index for Main Exports, in the Free Market Exchange Rate Index, and in the General Price Index, 1953-57.

Item	1954	1955	1956	1957
	- - - Oct-Dec 1953 = 100 - - - -			
Coffee	135	159	159	159
Cocoa	122	152	152	152
Cotton	122	152	152	152
Sugar	122	177	236	236
Pine lumber	122	152	194	194
Free rate	124	147	147	151
General price index	130	147	175	197

Source: Previous tables and SAESP, Agricultura em Sao Paulo, Jan. 60, p. 22.

Third Phase (1957-1961)

Law 3244 (8/14/57) introduced a new ad-valorem tariff system which was considered to be more realistic than the existing specific tariff. This move was followed by a substantial simplification in the multiple exchange rate system that had been adopted in 1953. The imported commodities were grouped into two categories, "general" and "special", which replaced the five previous categories. The general category included approximately those commodities previously included in categories I, II, III, and part

After 1958 exports were continuously transferred to higher categories and, finally, to the free market. The successive moves in this direction were as follows:

a) In October 1958, Instruction 167 allowed the sale in the free market of the proceeds of exports classified in the fourth category. A number of exceptions were posted, though: sugar, cotton, peanuts, meat, babassu, Brazil nuts, hides and skins, dry beans, soybeans, tobacco, sisal, jute, wool, vegetable and mineral oils, oil cakes, iron ore, pig iron, non-pine wood, and a few other minor products.

b) In November 1958, Instruction 170 included roasted and ground coffee in the fourth category. However, in December these products were transferred back to the second category (Instruction 173).

c) Beginning in January 1959 the official exchange rates which had prevailed since August 1953, Cr$18.36 - Cr$18.82, were changed to Cr$18.36 and Cr$18.92/US$.

d) In January 1959, Instruction 174 reduced the four categories to three, transferring to the free market all exports not included in the categories listed (Table 2.10). This Instruction also abolished the bonuses that were paid to coffee during the 1957-58 crop year.

e) In April 1959, Instruction 180 transferred the proceeds from exports of sugar and raw cotton to the free rate, and cocoa butter to the third category.

f) In June 1959, Instruction 185 raised the bonuses and reduced the number of categories to two (Table 2.11).

Table 2.10. Bonuses and Exchange Rates for Export Categories Following Instruction 174 (1/10/1959).

Category	Export	Bonus	Exchange Rate
		- - - - Cr$/US$ - - - -	
1st	Coffee (all types)	41.64	60.00
2nd	Cocoa and its products, and castor seeds	51.64	70.00
3rd	Sugar, cotton, peanuts, babassu, Brazil nuts, hides and skins, beans, tobacco, lumber, sisal, and other non-free rate fourth category exports under Instruction 167	81.64	100.00
	All other exports	Free rate	

Source: I.M.F., International Financial Statistics.

Table 2.11. Bonuses and Exchange Rates for Export Categories Following Instruction 185 (6/29/1959).

Category	Export	Bonus	Exchange Rate
		- - - - Cr$/US$ - - - -	
1st	Coffee (all types), cocoa and cocoa cake	57.64	76.00
2nd	Equal to third category, Table 2.10	81.64	100.00
	All other exports	Free rate	

Source: SUMOC, Instruction 185.

g) In July 1959, Instruction 186 transferred the proceeds of exports of lamb meat, wool, Brazil nuts, and cotton linters to the free rate.

h) On January 1, 1960, the free market rate was made applicable to all exports except coffee, crude mineral oil, cocoa, and castor seeds (Instruction 192). Exports of coffee and cocoa beans were made at the fixed rate of Cr$76.00/US$. Castor seeds and cocoa products were exported at the fixed rate of Cr$100.00/US$. Proceeds from all other exports could be converted at the free rate according to the following rule: (1) payment to the exporter of Cr$130.00/US$; (2) payment of the difference between the current free rate and Cr$130.00 in Bank of Brazil bills of six months maturity bearing interest of 6 percent per annum.

i) In July 1960, Instruction 196 raised the bonus in the first category to Cr$71.64/US$, for an effective rate of Cr$90.00/US$.

j) Finally, Instruction 204, in March 1961, eliminated the auction system for imports in the general category.

During the period 1957-60 there was a gradual liberalization of the export market, even though the effective exchange rate for categorized exports was at a comparatively low level (Table 2.12). The gradual transfer of export proceeds to the free market substantially improved the situation as compared to the second phase. But important exports like coffee and cocoa were continuously penalized, even after 1961. As a means of comparison, Table 2.13 shows the 1947-60 trend of the exchange rates compared to the general price index.

Table 2.12. Exchange Rates for Export Categories and Free Market Rate in 1957 and 1960.

Item	1957	1960
	- - - - - Cr$/US$ - - - -	
1st category	37.06	76.00
2nd category	43.06	100.00
3rd category	55.00	-
4th category	67.00	-
Free rate	75.67	189.90

Source: Export rates: Tables 2.7 and 2.11.
Free rate: Bolsa de Valores, Rio de Janeiro.

Table 2.13. Changes in the Exchange Rates for Exports and in the General Price Index, 1947 and 1960.

Item	1947	1960	Change 1947-60
	- - - - Cr$/US$ - - - -		(percent)
Exchange rates			
1st category	18.38	76.00	313
2nd category		100.00	444
General Price Index (1953=100)	49	399	714

Source: Export rates: Tables 2.7 and 2.12.
General Price Index: F.G.V., Conjuntura Economica.

However, a close examination of the period 1957-60 will show that the rate of increase in the exchange rate for the main agricultural exports was generally superior to the rate of increase in Brazil's general price index and free market exchange rate. The evidence is shown in Table 2.14.

Table 2.14. Changes in the Exchange Rate Index for Main Exports and in the Free Market and General Price Index, 1953-57. 7-60

Item	1957	1958	1959	1960
	- - - - Oct-Dec 1953 = 100 - - - - - -			
Coffee	159	a/	325	382
Cocoa	152	152	268	317
Cotton	152	324	564	670
Sugar	236	324	564	670
Pine lumber	194	247	564	670
Free rate	151	260	320	380
General price index	197	221	305	399

Sources: Tables 2.8 to 2.12.

a/ Variable exchange rate depending on coffee price.

These results well deserve some comments. Except for coffee, cocoa and castor seeds all other exports were freed from exchange controls during the period. As a result their exchange rates had to increase throughout the period at a rate greater than that of the free market which was, in turn, greater than the rate of increase of the general price index. This is, therefore, a perfectly normal result. In the cases of coffee and cocoa,25/ exchange rates, from 1957 to 1960, also increased at a rate

25/ Castor seeds are not mentioned since exports of this product were abolished by the government starting in 1960.

higher than the general price index. This can be explained by the fact that from 1955 to 1958 no adjustment was made in the exchange rate for export products. Thus, if one takes the indices of exchange rates for coffee and cocoa in 1956 (see Table 2.8) it can be verified that they were slightly higher than the general price index for that year. Therefore, if 1955 is compared to 1960 one can still find that exchange rates for coffee and cocoa actually increased at a smaller rate than the general price index.

Another point that substantially reduces the advantages of a higher exchange rate for exports other than coffee and cocoa results from the procedure adopted to convert their export proceeds at the free rate (see item "h", p. 54). The export was paid at the rate of Cr$130.00/US$; the difference from the free rate (free rate of Cr$189.90/US$, in 1960), was to be paid after 6 months bearing 3 percent interest. This interest, in 1960, when the general price index rose by 30 pereent, was actually negative; about -12 percent. Therefore, the real exchange rate paid to exporters was about Cr$167.00/US$, and not Cr$189.90/US$. This would reduce to 590 the 1960 index of exchange rates of 670 shown in Table 2.14.

Fourth Phase (1961-1964)

The exchange system was substantially modified in 1961. A large step towards further liberalization was taken by Instruction 204 (3/13/61). It transferred all exchange operations to the free market, with only a few exceptions. The exchange rate of certain invisibles and preferential imports (newsprint, wheat, fertilizers, pesticides, petroleum and derivatives, and imports for the petroleum and printing industries) was increased from

Cr$100.00 to Cr$200.00/US$.[26/] Imports in the special category were still dependent on the acquisition of certificates and subject to licensing. Imports included in the general category were made at the free rate. The par value of Cr$18.50/US$ which was introduced in 1946, was abolished.

Auctions for the special category continued to take place after Instruction 204. These auctions sold foreign exchange at prices higher than those of the free market (Table 2.15).

Table 2.15. Weighted Average Premiums Resulting from Auctions for the Special Category and Free Market Exchange Rates, 1961-65.

Year	Weighted average premiums	Free rate
	Cr$/US$	
1961[a/]	697.98	261.39-310.79
1962	728.35	318.00-475.02
1963	1,083.10	475.01-610.10
1964	2,979,11	620.03-1,697.97
1965	3,440.00	1,850.00-2,200.00

Source: Banco Central do Brasil, Div. Balanco de Pagamentos.

a/ June to December.

At the end of 1965 and in early-1966 the first steps were taken to eliminate this category by shifting a larger number of products from the special to the general category. The special category was abolished in March, 1967.

On the export side, coffee exports continued to be made at the fixed rate of Cr$90.00/US$, but a rate of Cr$100.00/US$ applied to cocoa

26/ In March 1961, the average exchange rate in the free market was Cr$ 249.54/US$.

exports. The net income obtained from the sale of coffee proceeds was to be used in "expenditures with the execution of the policy of defense of export prices, with the expansion of consumption and matters related to the improvement of coffee production and its partial replacement by other more advisable crops" (Instruction 204). In the case of cocoa, the purposes were about the same, except for crop substitution. The proceeds from all other exports were surrendered at the free market rate. However, up to May 1961, Cr$100.00/US$ of these export proceeds were settled in 120-day bills of the Bank of Brazil at 6 percent interest. After May 1961, this amount was reduced to Cr$80.00/US$,and then further reduced by Cr$20.00/US$ per month beginning July 1961 (Instruction 206). As a result, this arrangement was ended in October 1961.

In April 1961 the exchange rate for cocoa exports was raised to Cr$210.00/US$, and in May 1961 (Instruction 205) a new arrangement was applied to the conversion of exchange earnings from the sale of coffee. Coffee exporters were required to deliver to the Bank of Brazil, without compensation, US$22.00 (or its equivalent in other currencies) per 60 kg bag, the remainder being negotiated in the free market. These US$22.00 were subject to adjustments if the free rate moved outside specified lower and upper limits.[27/] This amount, which represented an export tax,

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27/ These limits initially were Cr$265.00 and Cr$275.00/US$ for high-grade coffee and Cr$270.00 and Cr$275.00/US$ for low-grade coffee produced in the 1961-62 crop year, and Cr$257.00 and Cr$262.00/US$ for coffee from 1960/61 or earlier crop years. The fixed amount to be kept by the Bank of Brazil was larger for coffee of the 1960/61 and earlier crop year (US$24.00 and US$26.00 per bag, respectively).

was to be used for the same purposes as those indicated by Instruction 204.

From 1961 to 1964 the general pattern of exchange policy directed to the export sector was quite unstable. Though less discriminatory than during the previous period, there were two months of tighter control mixed with liberalizing measures. This was largely due to the changes in Brazilian political life that took place during this period. The following is a description of the major changes in exchange policy which followed the first liberalizing measures and President Janio Quadro's resignation in August 1961.

In October 1961, Instruction 219 (10/26/61) resulted in dividing the exchange market into two parts: the "commercial exchange market" for imports and exports, and the "financial exchange market" for service and capital transactions. The objective of this Instruction was to prevent the proceeds from exports from being used for purposes other than commercial imports. However, this distinction brought into existence a third active exchange market, the "parallel market", in which a large amount of commercial (through exports underdrawing or imports overdrawing) and financial transactions were made.[28/] This problem led to the unification of the two markets (commercial and financial) in December 1961 (Instruction 222). During this period, quotations were given for transactions in the three markets.

On the other hand, Instruction 222 was to some extent a return to the pre-1953 exchange policy, with a single and fixed rate of exchange.

28/ Instruction 219 forced private banks engaged in exchange operations to deposit in the Bank of Brazil 50 percent of the value of the exchange sold for purposes other than general category imports.

This also resulted in a return to a system of exchange transfer similar to the "operacoes vinculadas" (tied operations) of the late 1940's and early 1950's, this time called "boneco". The parallel market remained in existence. Its activity even increased after Instruction 222, since exporters found their way into this market. They could sell their exchange at Cr$310.00/US$ to the Bank of Brazil, and at the same time make a remittance of the same amount abroad at Cr$318.00/US$. As a result, they had exchange available that could be sold in the parallel market at higher rates. This increased supply of exchange even resulted in a decrease in the quotations in the parallel market in 1962.[29/]

This pressure on exports was only partially alleviated in May 1962, with a devaluation to Cr$350.00 and Cr$359.30/US$ (buying and selling rates, respectively). Successive changes then took place. These levels were raised to Cr$355.00 and Cr$365.00/US$ on June 2nd, and to Cr$357.00 and Cr$367.00/US$ on June 9th. On July 7th the Government exchange monopoly was reestablished at the above levels (Instruction 228), and on August 15th it was abolished (Instruction 229).

After August the Government turned to a controlled "free" exchange system where, presumably, the cruzeiro would be quoted according to its relative position in the exchange market. The first effect of this move was a decrease in the importance of the "parallel" market and the "boneco". However, since the Government was unable to adjust its quotations, maintaining the cruzeiro permanently overvalued (the exchange rate Cr$460.00-475.00/US$ introduced in September 1962 was only adjusted to Cr$600.00-

29/ For more information on the effects of Instruction 222, see FGV, Conjuntura Economica, Vol. 16, No. 3, pp. 24-28; also Vol. 16, No. 4, pp. 24-25.

620.00/US$ in April 1963), the "boneco" became a permanent part of the market.

It should be pointed out, however, that the Bank of Brazil, and a few private banks that were responsible for more than 60 percent of the exchange transactions, did not comply with the use of the "boneco". The final result of the cruzeiro overvaluation was therefore a strong disincentive to exportation. Certain imports, on the other hand, were favored in spite of credit difficulties imposed by the Government.

The rate of exchange, which was fixed at Cr$600.00-620.00/US$, was only liberated in February 1964 by Instruction 263. This Instruction established a fixed exchange rate for exports of coffee, sugar and petroleum and for imports of petroleum, wheat, newsprint, and equipment for Petrobras (Cr$600.00-620.00/US$). Other exports and imports were to be effected at a rate freely established. This was a system similar to that existing before Instruction 204.

With respect to exports the period 1961-64 was not as favorable as it could have been if under a more stable economic policy. The following are the main changes observed during the period not mentioned in the previous description:

a) Instruction 217 (10/4/61) allowed the proceeds from the exports of cocoa to be converted at the free market rate. However, cocoa exports in the form of beans and paste were subject to a payment of 15 percent of the export proceeds to the Bank of Brazil. In addition the 1960-61 coffee "contribution quota" was reduced by US$2.00.

b) Instruction 220 (11/18/61) allowed the proceeds from coffee exports to be converted at the free market rate, except for the US$ 22.00 "contribution quota" on coffee from the 1961/62 and earlier crop year.

c) Instruction 222 (12/29/61) allowed the proceeds from coffee and cocoa exports to be sold to banks authorized to deal in foreign exchange. These banks were required, however, to transfer to the Bank of Brazil the so-called "contribution quota" -- US$22.00 for coffee and 15 percent of the sales value for cocoa -- plus 80 percent of the remaining exchange purchased. This percentage was changed to 60 percent by Instruction 227 (5/18/62),[30] which also raised the "contribution quota" to US$23.00. The main effect of Instruction 222, however, was to reunify the exchange rate as it existed before 1953. The rate of exchange was fixed at the levels of Cr$310.00 and Cr$318.00/US$ until May 1962.

d) Instruction 228 (7/7/62), which reintroduced the exchange monopoly by the Government, maintained the exceptions for coffee and cocoa under Instructions 222 and 227.

e) On September 6th, 1962, Instruction 230 established "contribution quotas" of US$26.00 for coffee produced in the 1962/63 and 1961/62 crop years, respectively.[31] Premiums were also offered for coffee sold at prices above a level established by the Brazilian Coffee Institute (IBC). In addition, the percentage of coffee and cocoa proceeds to be sold to the Bank of Brazil could be reduced or eliminated by the Director of

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30/ This percentage was later raised to 100 percent (Instruction 228 - 7/7/62), and then restored to 60 percent (Instruction 229 - 8/15/62).

31/ These "contribution quotas" were always subject to adjustments if the exchange rate exceeded certain limits (Cr$460.00/US$, in this case). See footnote (27).

the Bank of Brazil's Exchange Department.

f) In March 1963 the "contribution quota" of 15 percent that had been established for exports of cocoa beans and paste was reduced to 10 percent. In addition, Banks authorized to deal with foreing exchange were required to transfer to the Bank of Brazil only 20 percent of the remaining exchange instead of 60 percent (Instruction 236 - 3/13/63).

g) The rate of exchange at which export proceeds were paid by the Government were set in accordance with the free market. As expected, the Government would raise its rates only when the upward trends in the free market and the pressure on the Brazilian currency were mounting. To a large degree this policy also penalized exports. Instruction 239, of April 1963, is an illustration of this procedure. It raised the exchange rate at which the Bank of Brazil would buy dollars from Cr$500.00 to Cr$600.00/US$. However, the same Instruction also: (1) placed the coffee "contribution quota" at an even US$26.00 for any crop year; (2) increased the "contribution quota" on cocoa beans and paste from 10 percent to 20 percent; (3) introduced a "contribution quota" for other cocoa products of 8 percent,[32/] and (4) introduced a "contribution quota" for cotton of Cr$40.00/US$.[33/]

h) In June 1963 a "contribution quota" of US$19.00/bag was established for coffee produced in the 1963-64 crop year (Instruction 240). The contribution of US$26.00/bag for other crop years and the premiums introduced by Instruction 230 were maintained.

32/ Previously these exports had their whole proceeds converted at the free rate.

33/ This contribution was later abolished by Instruction 248 (9/3/63).

i) Instruction 241 (6/28/63) reduced the "contribution quota" for cocoa to 15 percent and 5 percent for beans and paste, and other cocoa products, respectively. In August the share of foreign exchange to be transferred by other banks to the Bank of Brazil from their purchases of coffee export proceeds was raised from 60 percent to 70 percent (Instruction 245). Later, in December, this percentage was raised to 80 percent (Instruction 262).

j) In February 1964, Instruction 263 introduced a new devaluation in the cruzeiro exchange rate (Cr$600.00-620.00/US$), and increased from 80 percent to 100 percent the coffee and cocoa export proceeds to be sold at the official rate. The same obligation was also extended to sugar and petroleum exports.

Fifth Phase (1964-1967)

In 1964, a new political change took place. The March military take-over brought to bear a new and steady economic policy. This policy was directed towards the gradual suppression of artificial exchange controls. Instruction 270, in May 1964, transferred to the free market all import transactions and exports of cocoa and sugar. And in June, Instruction 272 extended this treatment to coffee, although maintaining the "contribution quota".

At this point Brazil was emerging from two years of economic stagnation and turmoil and faced an unprecedented inflationary trend. The unstable economic policy carried out since 1961 resulted in an increasing external debt and large deficits in Brazil's balance of payments. Imports were restrained to a minimum, but the only short-run solution was to

renegotiate the debt in order to extend the repayment term. For the longer run, measures were undertaken to fight inflation and stimulate exports. This was actually done in a more decided manner starting in 1964. Table 2.16 presents the average monthly exchange rates during 1964 in both the official and parallel markets. It can be observed that starting with Instruction 263 (February 1964) more frequent exchange rate adjustments were made by the Bank of Brazil.

Table 2.16. Free Rates of Exchange Quoted by the Bank of Brazil and by the Rio de Janeiro Exchange Market, 1964.

Month	Bank of Brazil	Parallel Market
	Cr$/US$	
January	600.00	1,370.00
February	708.00	1,381.00
March	1,139.00	1,556.00
April	1,160.00	1,260.00
May	1,160.00	1,260.00
June	1,160.00	1,278.00
July	1,160.00	1,322.00
August	1,194.00	1,534.00
September	1,533.00	1,738.00
October	1,550.00	1,738.00
November	1,550.00	1,643.00
December	1,602.00	1,646.00

Source: FGV, Conjuntura Economica, Feb. 1966, p. 59.

In 1965 two devaluations were effected: to Cr$1,825.00-1,850.00/US$ in January, and to Cr$2,200.00-2,220.00/US$ in November. The average official rate for 1965 was Cr$1,874.00 and the average "parallel"rate was Cr$1,894.00 (buying rate). Later, further adjustments were made

(Cr$2,700.00 in February 1967, and Cr$3,200.00 in December 1967) according to the official evaluations of the relative position of the cruzeiro.

Starting in August 1968 these adjustments were made at shorter intervals (about every one or two months) in an attempt to eliminate the speculative demand for dollars that resulted from the previous system in devaluation. Table 2.17, presents the official adjustments compared to the increase in the wholesale price index for the period 1964-68.

Since mid-1964 the tendency in relation to exports has been one of gradual liberalization. The following is a description of the main official exchange regulations in this respect:

a) Instruction 272 (6/2/64) reduced the share of coffee proceeds to be exchanged at the Bank of Brazil from 100 percent to 90 percent. It also established the "contribution quotas" at a level of US$22.50 for the 1964/65 crop, and at US$28.00 for coffee from the previous crop years.

Instr. 275, 276, 279, 280

b) Instruction 282 (11/19/64) allowed cocoa products corresponding to the processing of 200,000 bags of cocoa (em amendoa) to be exempt from the 5 percent contribution quota.

c) Instruction 283 (12/1/64) left to the Brazilian Coffee Institute the power to establish the "contribution quota", with the basis on minimum registration prices. (equalizou as quotas de contribuição mantendo-se o repasse de 90%)

d) Instruction 290 (2/4/65) introduced a "contribution quota" for beef exports of 30 percent of the export proceeds. This step was taken in order to equalize the earnings from beef sold in the internal and foreign markets. This amount was allocated to credit funds to be used for beef production, marketing and processing. In March 1965, Instruction

Table 2.17. Official Adjustments of the Exchange Rates and Wholesale Price Index, Brazil, 1964-69.

Year/Month	Official exchange rate	Index	Rate of Growth	Wholesale price index (coffee excluded)	Rate of Growth
	(Cr$/US$)		(percent)		(percent)
1964					
April	1,160	100	-	100	-
1965					
January	1,825	157	57	154	54
November	2,200	190	21	188	22
1967					
February	2,700	233	23	291	55
December	3,200	276	18	333	14
1968					
Aug. 27	3,630	313	13	386	16
Sep. 23	3,675	317	1.2	396	2.6
Nov. 19	3,745	323	1.9	412	4.0
Dec. 9	3,805	328	1.6	413	0.2
1969					
Feb. 4	3,905	337	2.6	425	2.9
Mar. 19	3,975	343	1.8	422	-0.7
May 13	4,025	347	1.3	431	2.1

Source: FGV, Conjuntura Economica, Jan. 1969, p. 58, and other numbers.

292 set this quota at 20 percent for beef produced in the State of Rio Grande do Sul, and at 30 percent for beef produced in Central Brazil. Later, the 20 percent and 30 percent quotas were abolished (in February 1966 (Resolution 17) and May 1967 (Resolution 54), respectively).

e) Law 4770 (11/15/65) and Decree 57383 (12/3/69) created the Fund for the Stabilization of Exchange Earnings (Fundo de Estabilizacao da Receita Cambial), which had as its objectives the acquisition and financing of exportable production in order to contribute to a stabilization of prices and to help exports in temporary difficulties. This Fund was made up by the Government income from exchange operations and from the sale of Treasury bonds.

f) Central Bank Resolution 41 (11/22/66) established that, beginning March 1967, imports in the special category would be made under the same conditions governing imports in the general category.[34/]

g) Law 5025 (6/10/66) created the National Council of Foreign Trade (Conselho Nacional de Comercio Exterior - CONCEX) with the function of establishing the Brazilian foreign trade policy. This Council was made up of the Secretaries of State and directors of main financial and trade organizations.

h) Resolution 42 (12/7/66) introduced an ad-valorem tax of 20 percent for hide exports. This tax was abolished in March 1968 (Resolution 90).

i) Resolution 68 (9/21/67) reduced the share of coffee export proceeds to be negotiated with the Bank of Brazil from 90 percent to 70 percent.

34/ At the same time, Decrees-law No. 37 (11/18/66) and 63 (11/21/66) substantially altered the Brazilian import tariffs. This is taken by some authors as the end of the multiple exchange rate system which had been introduced in 1953.

j) During this and in the previous period (fourth phase) a number of steps were being taken to stimulate the exportation of manufactured goods (See Appendix E).

Preferential Imports

From 1953 to 1957 imports receiving special treatment were either included in "special auctions" (agricultural supplies, fertilizers, pesticides, fruits, codfish, Christmas fruits, etc.), or paid a fixed premium (petroleum and its products), or consisted of imports made by the government, together with imports of newsprint, wheat, films, books, magazines, etc., which did not require import licensing. These particular cases will be examined next.

The Special Auctions(1954-1957)

The "special auctions" were created by SUMOC Instruction 86 (3/11/54) with the objective of offering foreign exchange to be used "in the importation of producer goods to be employed exclusively in agriculture" (Instruction 86). A detailed explanation of the nature and development of these auctions will be provided in Chapter V.

The average exchange rate resulting from special auctions was generally below that of normal auctions. The overall (all auctions) average import exchange rate was therefore smaller than that determined at the normal auctions. Table 2.18 compares the free rate with the rates resulting from normal auctions and special auctions (before August 1957).

Table 2.18. Average Free Rate and Rates Resulting from "Normal Auctions" and "Special Auctions", 1953-57.

Item	1953[a]	1954	1955	1956	1957[b]
	- - - - - - - - - Cr$/US$ - - - - - - - - -				
Free rate	42.40-55.45	62.18	73.54	73.59	65.83-76.53
Rate from "normal auctions"	40.44	51.22	72.87	87.43	81.54
Rate from "special auctions"[c]	59.68	30.02	50.38	63.43	47.31
Rate from all auctions	40.85	44.45	64.20	-	-

Source: SUMOC, Boletim.

[a] October-December

[b] January-August

[c] Includes petroleum and its products.

Obs. Special auctions were introduced in 1954. This is why the average exchange rate for products later classified to participate in "special auctions" was high in 1953. The first list of these products is found in Communique No. 13 of CACEX (3/19/54).

Petroleum Imports

Starting in 1954 exports of petroleum and its products were made at special fixed rates (summation of the official rate plus a fixed premium). Petroleum products were divided into two categories and a different fixed premium applied to each.

	First Category	Second Category
1st semester	7.00	12.00
2nd semester	10.00	15.00

As an illustration, Table 2.19 shows these premiums in 1955.

Table 2.19. Premiums Paid on Imports of Petroleum Products, 1955.

Product	Premium
	(Cr$/US$)
Fuel oil	15.00
Diesel	15.00
Liquid gas	15.00
Aviation gasoline	25.00
Raw oil	35.00
Kerosene	35.00
Lubricants	35.00
Gasoline	70.00

Source: SUMOC, Boletim.

Other Preferential Imports

Other imports existed which were not subjected to the auction system and which paid a fixed premium or no premium at all. Table 2.20 presents these imports and the exchange rates at which they were imported.

Table 2.20. Special Rates for Designated Imports, 1953-55.

Import	1953[a/]	1954	1955
	- - - - - - - Cr$/US$ - - - - - - -		
Newsprint	18.82	18.82	18.82
Other printing material	18.82	18.82	43.82
Wheat	25.82	25.82	25.82
Films, books, magazines, etc.	25.82	40.82	43.82
Government imports[b/]	25.82	40.82	43.82
Other imports[b/]	25.82	40.82	43.82

Source: SUMOC, Boletim.

a/ October-December

b/ Estimates

Obs. Exchange rate = official selling rate (18.82/US$) + premium

Other Departures from the System

With respect to exports, there are some other aspects which deserve to be mentioned. One is the so-called symbolic sales which were sustained from 1954 to 1958. In order to decrease the negative impact of a low rate of exchange for certain exports such as cotton, rice, and sugar, the

government engaged in purchasing operations with producers at prices individually established. As an agent of the government, the producer would then proceed to export his production.

Another interesting situation is that the exchange rate in the free market was often below the average rate at which imports were made (Table 2.21 makes this point). In 1956, for instance, the weighted average premiums paid for imports in each of the five categories were Cr$54.94, Cr$62.47, Cr$84.33, Cr$96.64, and Cr$203.54 per US dollar, which corresponds to effective rates of exchange of Cr$73.76, Cr$81.29, Cr$103.15, Cr$115.46, and Cr$233.36. Thus, the effective rates in the upper categories were far above the existing free rate.

This is explained by the use of the free market to by-pass exchange restrictions. Importers in the upper categories would buy PVC's by declaring import prices at levels below those actually paid; the remaining dollars would be bought in the free market at lower prices. On the other hand, some exporters would profit by selling at declared prices below those actually arranged with the foreign importers. The foreign importer would make a dollar remittance on the amount declared and pay the remaining amount in such a way that it could be exchanged in the Brazilian free market.

A study of these "underdraw transactions"[35/] estimated at 10 percent the share of coffee exports in value terms made from Santos to the United States that was undervalued for purposes of illegal profiting.

35/ See S.A.E.S.P., Agricultura em Sao Paulo, "As Exportacoes Brasileiras de Cafe na Safra 1955/56 e a Sonegacao Cambial", July 1956, pp. 1-3.

If this share were extended to all coffee exports, the amount involved would be greater than the proceeds obtained from Brazilian cocoa exports alone, and almost equal to that corresponding to cotton exports in 1955.[36/]

Table 2.21. Average Premiums Paid in Auctions, Effective Exchange Rate, and Free Exchange Rate, 1953-57.

Year	Average Premium	Effective Rate[a/]	Free Rate		
			Low	Average	High
	- - - - - - - - - - -		Cr$/US$	- - - - - - - - - - - - - - -	
1953 (Oct/Dec)	22.08	40.90	38.38	-	58.07
1954	32.86	51.68	47.33	62.18	78.32
1955	54.51	73.33	66.54	73.54	92.64
1956	65.85	84.67	65.35	73.59	87.15
1957 (Jan/Aug)	63.18	82.00	65.15	-	78.98

Source: SUMOC, Boletim.

[a/] Effective rate = Cr$18.82 plus average premium.

Still another departure from the already complex Brazilian foreign commercial policy was the so-called "tied operations" (operacoes vinculadas) that took place for a number of years before 1953 (1948/51). In order to alleviate the pressure on the exporters of products under uncertain demand the government permitted a type of transaction by means of which the exporter would sell the proceeds from his exports directly to importers at a given premium. These transactions were closely

[36/] This is probably the reason for the premiums directly related to coffee prices offered for coffee produced in the 1957/58 crop year.

controlled by the government, and near the end of the period assumed large proportions.[37/]

A last remark should be made regarding imports made without exchange coverage. These were imports of machinery and equipment receiving preferential treatment from the government (established by Instruction 113 (1/17/55)). They were made either by obtaining a source of credit abroad or by owning abroad the machinery to be imported. But these imports will not be so relevant to the purposes of this study since they did not involve the use of export proceeds.

37/ For a complete description and analysis of the "operacoes vinculadas", see Banco do Brasil S A, (1952), pp. 41-55.

CHAPTER III

A FRAMEWORK OF ANALYSIS

The theory underlying the analytical framework of this study is the simple supply-demand static model which depicts the effects on prices, trade, and domestic production and consumption from the use of the tools of commercial policy. The present case deals with over-valued exchange rates and export quotas and taxes.

Figure 3.1 shows domestic supply and demand curves for exportable products. Exportation takes place at a price P_o, with the amount AB being exported and P_oA consumed domestically. The horizontal line from P_o implies an infinitely elastic world demand, which suggests that domestic production cannot influence world prices.

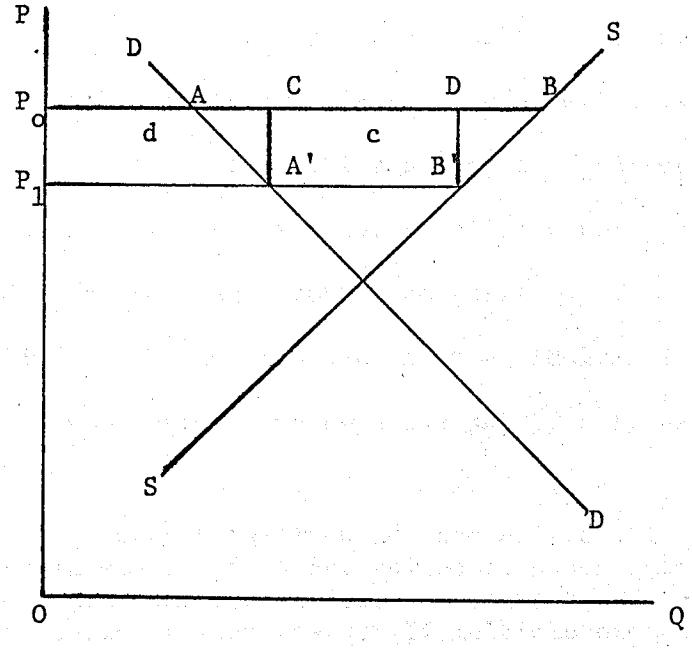

Figure 3.1. Domestic Supply and Demand for Exportables.

Overvalued exchange rates and export taxes have the same effect on domestic agriculture as a reduction in world prices. Accordingly, price P_o will shift to P_1 in the domestic economy. The effects are a decrease in exports to A'B' which comes about as a result of an increase in domestic consumption to P_1A' and a reduction in output from P_oB to P_1B'. Consequently, there is a decrease of exchange earnings from AB x OP_o to A'B' x OP_1, and of producer's income from P_0B x OP_o to P_1B' x OP_1.

The "protection" effect is negative and represented by BD. The "consumption" effect is positive and represented by AC. The size of the protection and consumption effects for a given price change will depend on the elasticities of supply and demand, respectively.

An overvalued exchange rate will result in increased earnings (revenue effect) for the government represented by area c.[1/] Finally, the redistribution effect, represented by area $P_oP_1B'B$, reflects the economic rent lost by producers; area d is the gain in consumers' surplus.

These effects are not easily measurable for the case of Brazil, primarily because Brazilian commercial policy did not use a single tool in isolation. Parallel to export taxation under quite different arrangements, as quotas, direct taxes, licensing, and over-valued exchange rates, which were combined and varying for specific export groups, there were administered import exchange rates and tariffs. The latter included varying subsidies for the importation of agricultural inputs, which may have offset to some extent the negative policy effects on exports.

[1/] If an explicit export tax is used, the area c will also represent the government revenue. If an overvalued exchange rate is used, the tax is implicit, and the area c represents the tax on exporters, which in turn is a subsidy to importers. If multiple exchange rates are used, the area c could in principle also be collected by the government.

In this context, protection measures are defined as those that will differentiate import (or export) prices from domestic prices. In the case of Brazil there were both "price" and "nonprice" protection measures. Price measures included tariffs, taxes, subsidies, drawbacks, differential exchange rates, advance deposits for imports, tax exemptions, etc. These could be accounted for by making the appropriate calculations. However, in the Brazilian case, protection through price measures was seldom used in isolation. Other than constant and/or provisory or partial changes in price-related measures, a number of nonprice measures were a constant in Brazil's commercial policy. These included import and export quotas and licensing, exchange controls, and special storage programs.

In addition, measures that were off-setting or additional to export and import controls were often extended, at the domestic level, by the Government in the form of tax and credit subsidies, and support or controlled prices. The effects of these would be reflected in domestic prices, and result in a related increase or decrease in the rate of protection.

These difficulties led to the use of relative measures of protection involving comparisons of agricultural and manufacturing prices, both at the domestic and world markets. These measures included the estimation of implicit exchange rates and of "gross" and "net" nominal rates of protection. Specific reference will also be made to effective rates of protection, considered under a simplifying assumption. In the following, such measures are defined and their computation and uses are explained.[2/]

[2/] Specific descriptions of the computation procedures and the data base are found in Appendix D.

Implicit exchange rates: The implicit exchange rate for a given commodity in a given country is the ratio between its domestic price, in local currency, and its world price, in an international currency.[3/] Under conditions of free trade and assumptions underlying factor-price equalization, the implicit exchange rates for all commodities will be the same, and equal to the equilibrium exchange rate. However, under conditions like those described above, one should expect implicit rates to be different between commodities as well as distinct from equilibrium rates. Thus, implicit exchange rates reflect the differential treatment given to commodities traded, and to those that compete for resources with commodities traded.

Protection on the import side and/or taxation on the export side are expected to result in higher implicit rates for manufactures as compared to agricultural goods. This is obviously obtained through an increase in domestic real prices for the protected manufactures and/or a decrease in domestic real prices for the taxed agricultural goods. For example, suppose that a rate of exchange of Cr$4.00/US$ would prevail under free trade conditions. If a 25 percent tariff is raised on manufactured imports in order to protect domestic production, the implicit exchange rate for manufactures may increase up to Cr$5.00/US$. An inverse effect would be obtained from a similar taxation on exports: the implicit rate for agricultural goods might decrease to Cr$3.00/US$.[4/] If each case is considered in isolation, or if both are put together, the result will be the same: an increase in the implicit rate for manufactures relative

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[3/] These prices are usually given in wholesale terms at the port of entry or exit for the commodity.

[4/] This example assumes no "redundant protection".

to the implicit rate for agricultural goods.

A major limitation in the use of implicit exchange rates is the underlying assumption that the given country's commercial policy cannot affect world prices: it faces an infinitely elastic demand curve. Therefore, the usefulness of an implicit exchange rate is limited to the extent that only its numerator is affected by the given country's policy. If the denominator has any bias from the same source, the rate will not fulfill its objectives of showing relative degrees of protection; this implies that the country faces an inelastic demand.[5/]

Implicit exchange rates therefore detect the effects of the whole set of policy influences over the country's price system which affect the commodities studied. On the other hand, the effective exchange rates by which commodities are imported or exported reflect only the international market forces plus the controls exerted by the country's Government on the price of its currency. Quantitative controls cannot be accounted for by effective exchange rates, but their effects become apparent as implicit exchange rates are computed.

Finally, it should be pointed out that implicit rates are essentially purchasing-power-parity ratios relating domestic and world prices. However, they are limited in scope to intersectoral comparisons for a single country's economic policies. Consequently, assumptions underlying its use do not necessarily have to be those applied to the purchasing-power-parity doctrine.

5/ This is in the case of coffee in Brazil. Accordingly, this product was analyzed separately.

Nominal protection: The nominal rate of protection, or the rate of product protection of a given commodity, is defined as the "percentage excess of the domestic price over the world market price, resulting from the application of protective measures".[6/] If an import tariff is the only protective measure being used, then domestic prices will be increased as compared to c.i.f. import prices (world prices) up to the amount of the tariff. If an export tax is levied, domestic price will be reduced by the amount of the tax; this is a case of negative protection.

The nominal rate of protection is a gross measure of the result of the combined effects of price and nonprice measures on domestic relative to world prices. Domestic prices are taken as automatically adjusted for all policy incentives and disincentives that bear upon comparative advantage for trade. Thus, even a commodity which has not been traded can be taken into account. Moreover, nominal rates measure the protection implied by the price system (implicit protection).

In order to obtain an estimate of the nominal rate of protection for a given commodity, the world price has to be multiplied by the market exchange rate before the ratio of domestic to world price is computed. That is,

$$N_p=[(P_d-P_wR)/P_wR]100 = [1-(P_wR/P_d)]100 = [(P_d/P_wR)-1]100$$

where,

P_d = domestic price

P_w = world price

R = exchange rate

6/ Balassa et. al. (1971), p. 4.

An important consideration here is the choice of the relevant exchange rate, R. In the Brazilian case there was no single exchange rate and any average rate could be substantially overvalued. The following different rates could be considered in the case of export commodities:

(a) The export effective exchange rate for the specific commodity under consideration, P_x/P_w. In this case, the nominal protection would be:

$$N_p = [1-(P_x/P_d)]\ 100 = [(P_d/P_x)-1]\ 100$$

since $R = P_x/P_w$

This is the percentage by which the domestic price of a specific commodity exceeds or falls short of its export price. This is a measure of domestic implicit protection, but does not take into account the extent to which the export price was distorted by an eventual discrimination as compared to other products. Also, in the case of non-traded products, P_x is not available.

(b) The export average effective exchange rate, $\bar{P}_x/\bar{P}_w$. The nominal rate of protection would be:

$$N_p = \left[1 - \frac{P_w(\bar{P}_x/\bar{P}_w)}{P_d}\right] 100 = \left[1 - \frac{\bar{P}_x/\bar{P}_w}{P_d/P_w}\right] 100 =$$

$$= \left[\frac{P_d/P_w - \bar{P}_x/\bar{P}_w}{\bar{P}_x/\bar{P}_w}\right] 100 = \left[\frac{P_d/P_w}{\bar{P}_x/\bar{P}_w} - 1\right] 100$$

This rate measures the extent to which the implicit exchange rate exceeds (or falls short of) the average effective exchange rate as a proportion of the implicit exchange rate. This is a measure of commodity protection in terms of average export protection; it is more inclusive than the previous definition but does not take into account policy measures that bear upon exports as a whole.

(c) The "equilibrium" exchange rate. This is a figure not available from ordinary sources. It must be computed under a set of assumptions and knowledge of the parameters of supply of and demand for imports and exports. In Chapter VII estimates of "equilibrium" exchange rates are made by using parameters proposed by Bergsman and Malan, and Balassa in their study of Brazilian trade policy.[7/]

From the type of export and domestic policies followed by Brazil, it can be hypothesized that the nominal rate of export protection will be negative, and if computed with the use of an effective exchange rate it will be greater than the nominal rate of protection computed with an "equilibrium" exchange rate. In this thesis the two latter measurements are made. Therefore, estimates using average effective exchange rates for noncoffee agricultural exports are taken as representing the existing basis for policy-making, and compared to estimates using "equilibrium" exchange rates; both include traded and non-traded commodities.

Effective protection: The effective rate of protection, or the rate of protection on value added, of a given commodity is defined as the "percentage excess of domestic value added, obtainable by reason of the imposition of tariffs and other protective measures on the product and its inputs, over foreign or world market value added".[8/] The effective rate of protection can be represented by

$$E_p = \frac{P_d - \Sigma P_{di}}{P_w R - \Sigma P_{wi} R} - 1$$

[7/] Balassa et. al. (1971), pp. 345-8.

[8/] Balassa et. al. (1971), p. 4.

where:

P_d = domestic product price, under protection

P_{di} = domestic value of tradable input i needed to produce one unit of product, with protection,

P_w = price of product, imported, CIF

P_{wi} = value of tradable input i needed to produce one unit of product, imported, CIF

R = exchange rate

The following considerations are relevant for the understanding of the above definition:

a) Taking

$$t = \frac{P_d}{P_w R} - 1$$

as the simplified expression defining the nominal rate of protection, one has

$$P_d = P_w R(1 + t).$$

Using a simplified notation, $P_w R = P$ and $P_{wi} R = P_i$, the effective exchange rate is:

$$E_p = \frac{P_d - \Sigma P_{di}}{P - \Sigma P_i} - 1 = \frac{P(1+t) - \Sigma P_i(1+t_i) - P + \Sigma P_i}{P - \Sigma P_i}$$

$$E_p = \frac{P + Pt - \Sigma P_i - \Sigma P_i t_i - P + \Sigma P_i}{P - \Sigma P_i} = \frac{Pt - \Sigma P_i t_i}{P - \Sigma P_i}$$

Thus, the effective rate of protection can be defined exclusively in terms of CIF prices, as the tariff on non-tradable value added per unit of non-tradable value added at world market prices. The same procedure can use free market prices by applying an "equilibrium" exchange rate.

The effective protection is higher the smaller the value added (e.g. "assembly-only" production process) and vice-versa, other things being equal.

b) If there are no tradable inputs

$$E_p = \frac{Pt - \Sigma P_i t_i}{P - \Sigma P_i} \quad \text{turns into} \quad E_p = \frac{Pt}{P} = t$$

or the effective rate of protection equals the product tariff (or the nominal rate of protection). This assumption can be made in the case of primary commodities like agricultural products which do not use, or which use in significant amounts of, modern inputs.

c) If there are no tariffs in any tradable input

$$E_p = \frac{Pt - \Sigma P_i t_i}{P - \Sigma P_i} = \frac{Pt}{P - \Sigma P_i}$$

or the effective rate of protection equals the tariff on the product per unit of non-tradable value added.

d) Effective protection may be negative if (i) the input tariff is greater than the product tariff, and (ii) if t is negative. The latter case is found when imports are subsidized or exports are taxed.

"Net" nominal and effective protection: Net nominal and effective rates of protection may be used as estimates of the extent of overvaluation as compared to a hypothetical free trade situation. Their computation implies the estimation of an "equilibrium" exchange rate.

The net nominal rate of protection (N_{np}) is defined as "the percentage excess of the domestic price under protection over that under free trade".[9/]

9/ Balassa et al. (1971), p. 324.

$$N_{np} = [(P_d - P_w R')/P_w R'] \, 100$$

P_d = domestic price

$P_w R'$ = world price (P_w) times the "equilibrium" exchange rate (R')

The net effective exchange rate (E_{np}) is accordingly defined as:

$$E_{np} = \frac{P_d - \Sigma P_{di}}{P_w R' - \Sigma P_{wi} R'} - 1$$

The computation of the "equilibrium" exchange rate will assume a balance of payments in equilibrium and that the removal of tariffs for imports and of subsidies for exports will increase the former and decrease the latter.[10/] The change in the value of imports (ΔM) under the assumption of an infinitely elastic supply of imports is given by:

$$\Delta M = \eta_m \frac{T}{1+T} M \quad [11/]$$

where:

η_m = import demand elasticity

T = import tariff

M = actual value of imports.

The import tariff added to the actual exchange rate, R, yields the effective exchange rate, $R(1+T)$. In absolute numbers, and in terms of the equilibrium exchange rate, R', the expression $T/(1+T)$ is equivalent to:

10/ An export tax can be taken as a negative subsidy.

11/ This expression comes from $\eta_m = (\Delta M/M) \, T/(1+T)$, where $\Delta M/M$ is the relative change in imports and $T/(1+T)$ is the relative change in prices.

$$\frac{R'-(R+RT)}{R+RT} = \frac{R'}{R(1+T)} - 1 \quad \underline{12/}$$

The change in exports (ΔX), under the assumption of an infinitely elastic demand for exports is given by: $\underline{13/}$

$$\Delta X = -\varepsilon_x \frac{S}{1+S} X$$

where:

ε_x = export supply elasticity

S = export subsidy

X = actual value of exports

As in the previous expression, $S/(1+S)$ is equivalent to,

$$\frac{R'-(R+RS)}{R+RS} = \frac{R'}{R(1+S)} - 1$$

Making $\Delta M - \Delta X = 0$, the ratio R'/R, and consequently the "equilibrium" rate, can be computed.

12/ If the actual exchange rate (R) is the equilibrium exchange rate (R'), then

$$\frac{R'-(R+RT)}{R+RT} = \frac{R'-(R'+R'T)}{R'+R'T} = \frac{R'T}{R'(1+T)} = \frac{T}{1+T}$$

13/ Assuming some slope to the export supply curve, the expression for ΔX turns into:

$$\Delta X = -\frac{\varepsilon_x(\eta_x - 1)}{\varepsilon_x + \eta_x} \cdot \frac{S}{1+S} X$$

$$\eta_m \left[\frac{R'}{R(1+T)} - 1 \right] M + \varepsilon_x \left[\frac{R'}{R(1+S)} - 1 \right] X = 0$$

$$\frac{R'}{R(1+T)} M \eta_m - M \eta_m + \frac{R'}{R(1+S)} X \varepsilon_x - X\varepsilon_x = 0$$

$$\frac{R'}{R} \left[\frac{M\eta_m}{1+T} + \frac{X\varepsilon_x}{(1+S)} \right] = M\eta_m + X\varepsilon_x$$

$$\frac{R'}{R} = \frac{M\eta_m + X\varepsilon_x}{\frac{M\eta_m}{1+T} + \frac{X\varepsilon_x}{1+S}}$$

R' can then be used to compute the net nominal and effective rates of protection.

CHAPTER IV

EXPORTS OF AGRICULTURAL PRODUCTS

This chapter considers the structure of Brazilian agricultural exports and the exchange policy measures adopted with regard to major export items. The objective is to analyze main trends in export volume and value and to detect some relationships between these and changes in export policy.

The Structure of Agricultural Exports

Brazilian exports are mostly made up of primary commodities within which agricultural goods are a major item. The volume and value of such agricultural exports in the 1946-67 period are shown in Appendix B. These exports have been classified into foodstuffs and raw materials, of animal and vegetable origin, comprising a number of smaller groups.[1/] This is also shown in Tables 4.1 and 4.4 in the form of annual averages for time periods depicting the different phases of Brazilian exchange policy-making.

Table 4.1 presents data on export volume. There is a noticeable increase over time in the volume exported of most items. The total volume exported increased over 80 percent from 1948-52 to 1965-67; in 1965-67 foodstuff exports were twice as high and raw materials 50 percent higher than in 1948-52. The only export to actually experience a reduction in

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1/ The NBM code numbers that correspond to the commodities included in each group are shown in Appendix D, Table D-2.

Table 4.1. Volume of Brazilian Agricultural Exports, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67	1948-67
	t					
Foodstuffs	1 856 078	1 678 070	2 436 555	2 581 172	3 745 825	2 327 128
Animal origin	24 650	11 706	43 451	28 104	49 908	28 714
Vegetable origin	1 831 428	1 666 363	2 389 925	2 552 708	3 686 531	2 296 459
Fruits	250 238	269 262	379 745	389 526	368 965	320 087
Cereals	219 405	40 781	23 920	247 760	729 313	227 584
Sugar	97 545	286 700	715 395	507 120	979 315	451 692
Coffee	1 006 505	855 595	947 271	1 017 138	946 529	953 022
Cocoa	105 289	129 941	122 126	90 462	127 106	114 285
Other	152 446	84 084	201 468	300 702	535 303	229 789
Other foodstuffs	1	1	3 178	361	9 387	1 957
Raw Materials	1 134 063	1 160 349	1 026 277	1 321 902	1 686 628	1 244 920
Animal origin	61 461	34 722	44 977	28 644	69 316	46 919
Vegetable origin	1 072 602	1 125 627	981 300	1 293 258	1 617 312	1 198 001
Forest products	614 040	675 063	641 735	657 769	812 091	671 904
Cotton	175 792	198 637	80 507	240 028	227 546	187 821
Other	282 770	251 927	259 058	395 461	577 675	338 276
Total	2 990 141	2 838 419	3 462 831	3 903 074	5 432 453	3 572 048

Source: Table B-1.

its volume was coffee. Exports of some products actually increased sharply, like sugar, cereals, and the group of minor foodstuffs and raw materials. However, the period 1953-57 showed a particularly poor performance in this respect. Exports of foodstuffs recovered in 1958-60, but exports of raw materials--due to the cotton crisis--fell substantially throughout the 1950's.

Accordingly, a similar trend is verified with regard to the data on value of exports, which is shown in Tables 4.3 and 4.4. However, the real cruzeiro value of agricultural exports increased only 24 percent from 1948-52 to 1965-67, whereas the dollar value increased even less (5.7 percent. Both tables show troughs with their lower points in 1958-60 (total exports and raw materials) and 1961-62 (foodstuffs). The coffee and cotton crisis of the mid- and late-1950's are largely responsible for this. If these two exports are not considered, the points of lower export value are found earlier in time: 1953-57 for total exports; 1948-52 for foodstuff exports; and 1953-57 (cruzeiros) and 1958-60 (dollars) for raw material exports. This shows that the high coffee and cotton prices after World War II were instrumental in maintaining a stable exchange inflow during a crucial phase of industrial development.

The three major traditional Brazilian exports -- coffee, cocoa, and cotton -- have experienced decreases in their relative importance in total export value. Evidence to this effect is presented in Table 4.5. The coffee share in agricultural dollar exports decreased from around 65 percent to near 50 percent; cocoa decreased from 7 to 5 percent; cotton declined from 11 to 8 percent. At the same time, a number of other exports became more important, such as sugar (a 684 percent increase from 1948-52

Table 4.2. Value of Brazilian Agricultural Exports, Annual Averages, Cruzeiros Series, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67	1948-67
			Cr$1.000			
Foodstuffs	18 007 497	36 417 487	68 919 266	294 067 447	2 061 080 935	391 919 766
Animal origin	254 766	327 201	3 446 162	11 824 027	69 893 774	13 511 288
Vegetable origin	17 752 720	36 090 265	65 444 835	282 238 431	1 989 507 924	378 151 346
Fruits	379 957	1 097 024	3 358 145	13 884 987	69 554 049	14 083 072
Cereals	502 817	163 010	323 087	6 519 611	103 863 985	17 098 440
Sugar	198 310	1 239 188	6 630 564	26 564 918	167 043 099	31 723 407
Coffee	15 039 486	29 116 027	45 442 161	193 184 864	1 389 798 770	264 961 991
Cocoa	1 244 000	3 667 145	6 661 740	26 290 766	149 735 198	29 945 480
Other	388 150	807 871	3 029 138	15 793 285	109 512 823	20 338 956
Other foodstuffs	10	21	28 270	4 989	1 679 237	257 132
Raw Materials	5 959 337	10 294 482	22 309 697	170 421 996	736 850 913	152 021 945
Animal origin	630 463	893 502	2 397 191	13 679 594	97 619 174	18 119 365
Vegetable origin	5 328 874	9 400 979	19 912 505	156 742 403	639 231 739	133 902 580
Forest products	832 972	2 047 793	5 566 360	29 143 978	150 894 863	30 018 170
Cotton	2 718 809	4 054 451	5 353 190	66 105 926	231 726 808	50 476 500
Other	1 777 093	3 298 735	8 992 955	61 492 499	256 610 068	53 407 910
Total	23 966 835	46 711 969	91 228 963	464 489 443	2 797 931 849	543 941 711

Source: Table B-2.

Table 4.3 Deflated Cruzeiro Value of Brazilian Agricultural Exports, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67	1948-67
	Cr$1.000					
Foodstuffs	25 657 146	19 165 569	19 944 093	18 729 815	31 162 767	23 867 670
Animal origin	402 591	182 377	1 049 870	745 375	1 202 689	633 201
Vegetable origin	25 254 538	23 983 180	18 887 190	17 983 721	29 938 090	23 229 965
Fruits	549 113	686 375	977 567	887 153	1 103 267	798 428
Cereals	723 595	97 274	124 424	471 291	1 717 541	575 770
Sugar	317 724	753 972	1 907 536	1 905 841	2 546 913	1 317 260
Coffee	21 241 758	19 478 097	13 038 713	12 021 713	20 619 361	17 633 017
Cocoa	1 839 100	2 458 216	1 977 901	1 681 801	2 227 648	2 041 522
Other	583 247	509 244	861 048	1 015 922	1 723 360	863 968
Other foodstuffs	17	12	7 033	718	21 988	4 504
Raw Materials	8 803 011	6 831 696	6 280 446	10 855 968	11 687 438	8 775 053
Animal origin	957 003	603 625	683 837	672 362	1 533 947	857 297
Vegetable origin	7 846 008	6 228 071	5 596 608	10 183 605	10 153 491	7 917 756
Forest products	1 220 152	1 284 921	1 600 727	1 825 816	2 385 374	1 589 347
Cotton	4 028 025	2 870 704	1 442 310	4 361 495	3 676 642	3 364 824
Other	2 597 830	2 072 446	2 553 572	3 996 293	4 091 474	2 963 585
Total	34 460 157	30 997 265	26 224 540	29 585 784	42 850 206	32 642 724

Source: Table 4.2, and FGV, Conjuntura Economica, index 45.

Table 4.4 Value of Brazilian Agricultural Exports, Annual Averages, Dollar Series, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67	Average
			US$1.000			
Foodstuffs	979 409	1 131 787	947 253	900 116	1 041 326	1 006 109
Animal origin	13 861	5 889	27 399	19 197	33 501	17 911
Vegetable origin	965 547	1 125 897	919 693	880 902	1 007 155	988 069
Fruits	20 346	25 109	25 105	23 033	31 510	24 463
Cereals	27 357	3 201	2 388	13 155	48 186	17 857
Sugar	10 789	25 835	52 652	52 787	73 833	38 686
Coffee	818 253	951 126	714 882	715 403	737 966	803 353
Cocoa	67 682	102 168	98 181	49 642	65 734	76 978
Other	21 120	18 456	26 483	26 883	49 924	26 732
Other foodstuffs	1	1	161	17	671	129
Raw Materials	326 229	271 793	179 547	290 381	338 356	285 267
Animal origin	34 302	22 567	18 988	17 696	44 581	27 292
Vegetable origin	291 928	249 225	160 558	272 686	293 775	257 975
Forest products	47 320	51 317	48 116	48 530	68 918	51 920
Cotton	147 922	122 026	37 813	114 373	105 883	111 916
Other	96 686	75 882	74 630	109 783	118 974	94 139
Total	1 305 638	1 403 580	1 126 800	1 190 497	1 379 682	1 291 367

Source: Table B-3

Table 4.5. Dollar Value Shares of Brazilian Agricultural Exports, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67	Average
	%					
Foodstuffs	75.0	80.6	84.1	75.6	75.5	77.9
Animal origin	1.1	0.4	2.5	1.6	2.5	1.4
Vegetable origin	73.9	80.2	81.6	74.0	73.0	76.5
Fruits	1.6	1.8	2.2	1.9	2.3	1.9
Cereals	2.1	0.2	0.2	1.1	3.5	1.4
Sugar	0.8	1.8	4.7	4.4	5.3	3.0
Coffee	62.6	67.8	63.4	60.1	53.5	62.2
Cocoa	5.2	7.3	8.7	4.2	4.8	6.0
Other	1.6	1.3	2.4	2.3	3.6	2.0
Other foodstuffs	0.0	0.0	0.0	0.0	0.0	0.0
Raw Materials	25.0	19.4	15.9	24.4	24.5	22.1
Animal origin	2.6	1.6	1.7	1.5	3.2	2.1
Vegetable origin	22.4	17.8	14.2	22.9	21.3	20.0
Forest products	3.6	3.7	4.3	4.1	5.0	4.0
Cotton	11.3	8.7	3.3	9.6	7.7	8.7
Other	7.4	5.4	6.6	9.2	8.6	7.3
	100.0	100.0	100.0	100.0	100.0	100.0

Source: Table 4.4.

to 1965-67), meat (242 percent increase), and minor foodstuffs. Even so, coffee, cotton, and cocoa comprised, on the average, 77 percent of total agricultural exports in the period 1948-67.

Tables 4.1, 4.3, and 4.4 show that the increase in export volume has been greater than the increase in value. This suggests a decrease in the unit value of exports. This possibility is investigated in Table 4.6, where the Paasche price indices for exports of foodstuffs and agricultural raw materials are presented. The data indicate that the price decrease has been greater in dollar than in cruzeiro terms, a result of the exchange liberalization policy of the 1960's. In general, therefore, a decrease in the real price seems to have taken place. This may be understood on the basis of the demand-push price increase that took place right after World War II: the base period 1948-52 was characterized by high prices. Therefore, a consistent downward trend can be observed, somewhat checked at the end of the period.

Tables B-7 to B-17, Appendix B, present a detailed view of the different agricultural export groups under study. Those products that averaged over ten million dollars in annual exports in any of the five policy periods considered were selected and the annual averages of their dollar value are shown in Table 4.7 and 4.8. These are: meat (fresh, frozen or dried, and processed), fruits (bananas and edible nuts), cereals (rice and corn), sugar not refined, coffee beans, cocoa beans and butter, tea and mate, feedstuffs (meal and cake), hides and skins, wool, pine and other lumber, cotton fiber, oil (including wax) and oil seeds, tobacco, and sisal. These products comprise over 95 percent of total agricultural exports. Excluding coffee, cocoa and cotton, they have comprised a larger and

Table 4.6. Price Indices (Paasche Formula) for Brazilian Agricultural Exports of Foodstuffs and Raw Materials, Brazil, 1948-52 to 1965-67.

Time period	Foodstuffs		Raw materials		Total	
	Cruzeiro index	Dollar index	Cruzeiro index	Dollar index	Cruzeiro index	Dollar index
1948-52	100.0	100.0	100.0	100.0	100.0	100.0
1953-57	107.4	132.2	78.1	83.7	99.2	118.9
1958-60	74.3	93.2	101.3	77.8	79.3	90.3
1961-64	66.9	84.8	99.7	71.9	76.1	81.2
1965-67	99.0	87.5	88.4	69.0	95.9	82.1

Source: Tables 4.1, 4.3, and 4.4.

Table 4.7. Dollar Value of Major Brazilian Foodstuff Exports, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67
	US$1,000				
Fresh, frozen or dried meat	6 355	3 532	11 282	9 242	20 024
Processed meat	7 493	2 298	16 008	9 880	12 935
Bananas	8 968	11 295	6 610	3 942	6 033
Edible nuts	3 306	7 256	11 799	11 912	13 739
Rice	20 416	2 120	2 245	4 692	20 634
Corn	6 864	1 032	136	8 153	27 257
Sugar not refined	10 524	25 797	52 651	52 628	72 564
Coffee beans	818 253	951 119	711 090	715 261	725 098
Cocoa beans	60 001	87 727	72 681	34 999	45 860
Cocoa butter	6 873	11 577	25 214	14 527	19 729
Tea and Maté	8 688	13 001	12 717	9 126	8 245
Feedstuffs	5 316	2 682	8 746	12 069	28 319
Total	963 057	1 119 436	931 179	886 431	1 000 437
Total (coffee and cocoa excluded)	77 930	69 013	122 194	121 644	209 750

Source: Tables B-7 to B-13.

Table 4.8. Dollar Value of Major Brazilian Agricultural Raw Material Exports, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-69
			US$1 000		
Hides and skins	28 545	8 952	12 202	7 833	19 459
Wool	2 807	11 280	3 965	6 684	20 101
Pine lumber	40 524	46 530	44 216	43 359	54 018
Other lumber	6 796	4 787	3 900	5 171	14 900
Cotton fiber	128 188	117 278	35 298	111 087	99 166
Oil and oil seeds	61 727	43 522	36 065	45 709	61 481
Tobacco	18 022	18 276	16 551	25 867	23 058
Sisal	12 632	10 086	14 753	28 400	20 079
Total	299 241	260 711	166 950	274 110	312 262
Total cotton excluded)	171 053	143 433	131 652	163 023	213 096

Source: Tables B-14 to B-17.

larger share of total agricultural exports, increasing from 15 percent in 1953-57 to 31 percent in 1965-67. These were also the exports that carried the main burden of Brazilian exchange policy.

In the following section, agricultural exports will be studied with regard to the 1953-67 exchange policy. It is important to recognize, however, that the analysis will still be restricted to relative discrimination within the export sector, and will not take into account that even the most favored exports were paid at overvalued exchange rates. A comparison with exchange rates paid by importers, and with "equilibrium" exchange rates which show the evidence and extent of overvaluation will be made in Chapter VI.

Exchange Policy and Agricultural Exports

Chapter II contained a description of the changes in exchange policy that took place during the period 1946 to 1967. Until 1953 this policy was based on a fixed exchange rate with quantitative controls on imports and exports. In 1953 a multiple exchange rate system was introduced as a means to make resources from the export sector available to the Government, which was engaged in stimulating industrialization based on import substitution. Thus, lower effective exchange rates were maintained for major exports that could more advantageously be taxed. A comparison between exchange rates prevailing for specific major exports will therefore show their relative position with regard to the existing policy.

Effective exchange rates for agricultural and total exports are shown in Table 4.9. These rates resulted from continuous adjustments made by the Government in the levels established in 1953. Such exchange rates were maintained overvalued, thereby serving as an instrument of

Table 4.9. Effective Exchange Rates for Brazilian Agricultural Exports of Foodstuffs and Raw Materials, 1953-67.

Year	Foodstuffs		Raw Materials	Agr. Exports		All exports
	Total	Noncoffee		Total	Noncoffee	
	Cr$/US$					
1953	20.22	22.31	23.74	20.81	23.21	22.95
1954	26.92	30.40	29.33	27.50	29.72	29.58
1955	37.57	44.00	40.31	38.18	41.82	41.70
1956	38.04	48.14	47.62	39.59	47.83	48.12
1957	40.10	54.88	54.18	42.58	54.50	54.33
1958	44.83	66.24	72.00	49.00	68.55	69.11
1959	77.62	105.56	115.83	83.58	110.15	107.61
1960	95.92	136.58	179.21	109.97	156.26	157.80
1961	138.91	229.31	255.15	166.53	244.00	240.21
1962	195.15	359.89	363.96	238.33	362.54	359.87
1963	317.97	554.26	554.13	371.50	554.19	550.99
1964	639.34	1,149.54	1 108.47	760.08	1,122.08	1,152.47
1965	1 123.30	1,825.50	1 796.50	1,294.00	1,809.58	1,815.93
1966	2 196.25	2,184.06	2 172.08	2 190.35	2,177.92	2,180.45
1967	2 562.11	2,593.74	2 579.68	2 566.30	2,593.74	2,607.12

Source: Tables B-2 and B-3.

fiscal policy. A comparison between the exchange rate for all non-coffee agricultural exports does not show significant differences. But it should be recalled that non-agricultural exports comprised only about 15 percent of total exports.

Substantial differences appear when coffee-included figures are compared to other groups. The former are consistently smaller than the latter, clearly showing the conspicuous differences in the treatment given to coffee as compared to other exports. An additional aspect is related to the varying differences between noncoffee foodstuffs and raw materials, which suggests that during certain periods one group was more depressed than the other.

Further insights into the role of exchange policy are provided by data presented in Tables 4.10 and 4.11, which show effective exchange rates for the groups of major exports described above. Small differences between exports equally taxed can be attributed to exchange sold at different times, or because during certain periods part of the proceeds for some exports could be sold in the free market. These effective rates can be compared to those shown in Appendix G, where the changes from the fixed exchange rate prevailing until 1953 to the free rate gradually introduced in 1958-60 are presented for each of the major export groups. The result of this comparison shows a consistency between the two sets of data, except for a few differences due to specific policy moves that could not be detected.

Table 4.10. Effective Exchange Rates for Major Brazilian Foodstuff Exports, 1948-1967

Year	Fresh, frozen or dried meat	Processed meat	Bananas	Edible nuts	Rice	Corn
	CR$/US$					
1948-52	18.38	18.38	18.38	18.38	18.38	18.38
1953	18.95	21.64	26.55	26.57	18.40	23.00
1954	29.67	30.24	28.33	30.85	-	34.96
1955	48.89	49.71	35.50	45.90	47.97	48.61
1956	63.53	65.68	47.15	54.19	54.80	-
1957	65.95	66.66	57.06	65.89	67.59	-
1958	89.84	94.59	83.67	83.65	132.04	-
1959	104.81	140.15	151.09	125.85	134.33	-
1960	180.50	178.13	188.33	183.09	186.14	182.09
1961	261.52	263.59	265.19	245.79	258.84	200.69
1962	323.80	353.13	363.93	353.68	297.53	474.31
1963	578.20	571.89	545.45	565.12	-	588.44
1964	1 185.43	1 225.01	1 249.31	1 206.53	1 376.37	600.00
1965	1 810.88	1 807.09	1 838.50	1 815.61	1 849.78	1 827.57
1966	2 168.77	2 132.09	2 209.96	2 188.29	2 191.80	2 185.77
1967	2 665.68	2 685.14	2 611.87	2 633.30	2 678.57	2 682.27

Source: Tables B-7 to B-13.

(cont.)

Table 4.10. Effective Exchange Rate for Major Brazilian Foodstuff Exports, 1948-1967(Cont.)

Year	Sugar not refined	Coffee beans	Cocoa beans	Cocoa butter	Tea and mate	Feed-stuffs
	Cr$/US$					
1948-52	18.38	18.38	18.38	18.38	18.38	18.38
1953	20.38	19.94	20.37	27.43	24.01	28.18
1954	30.32	26.17	30.52	30.58	29.59	30.19
1955	48.25	35.98	40.65	46.71	47.47	46.27
1956	52.05	36.62	42.63	53.45	51.01	46.60
1957	65.78	36.65	42.92	54.87	56.49	43.51
1958	81.00	36.86	42.97	48.30	68.62	60.89
1959	119.44	68.38	72.27	89.50	101.48	105.44
1960	175.31	83.31	83.83	99.77	179.68	111.12
1961	230.92	110.91	183.47	195.69	254.45	246.96
1962	385.70	157.87	346.47	344.14	368.86	364.36
1963	541.88	249.68	560.14	547.25	547.49	520.73
1964	1 099.56	533.42	1 159.99	1 000.55	1 190.68	1 049.35
1965	1 828.23	849.94	1 852.35	1 833.18	1 844.48	1 798.39
1966	2 189.56	2 201.68	2 196.46	2 164.75	2 200.71	2 169.94
1967	2 622.27	2 542.76	2 569.33	2 555.42	2 578.24	2 574.08

Source: Tables B-7 to B-13.

Table 4.11. Effective Exchange Rates for Major Brazilian Agricultural Raw Material Exports, 1948-67

Year	Hides and skins	Wool	Pine lumber	Other lumber	Cotton fiber	Oil and oil seeds	Tobacco	Sisal
	Cr$/US$							
1948-52	18.38	18.38	18.38	18.38	18.38	18.38	18.38	18.38
1953	25.98	29.80	24.51	21.28	22.00	22.97	25.79	27.64
1954	29.82	28.82	29.44	29.12	29.04	29.97	31.12	29.31
1955	40.55	47.17	36.10	47.24	39.08	43.77	40.44	46.03
1956	46.25	49.39	45.89	52.51	41.85	52.87	52.36	58.10
1957	49.00	53.31	54.90	54.85	41.82	59.37	56.56	66.64
1958	73.74	68.90	67.73	81.60	61.14	73.16	75.43	85.70
1959	105.47	151.06	107.40	108.34	145.34	100.71	100.20	99.87
1960	177.64	185.86	178.47	180.42	182.61	173.76	180.72	178.92
1961	251.87	235.68	255.06	250.18	262.50	251.87	249.79	238.06
1962	347.89	373.56	362.62	354.76	369.42	357.96	371.28	356.01
1963	539.66	598.68	549.04	547.05	569.05	539.13	546.83	538.54
1964	1 185.67	1 161.12	1 132.76	1 151.02	1 124.61	1 184.51	1 020.79	1 014.16
1965	1 818.68	1 836.66	1 807.01	1 813.38	1 805.59	1 788.23	1 741.82	1 744.55
1966	2 166.08	2 184.79	2 177.50	2 156.77	2 185.93	2 171.69	2 096.31	2 161.26
1967	2 580.84	2 503.93	2 583.23	2 601.90	2 599.94	2 605.30	2 480.54	2 558.67

Source: Tables B-14 to B-17.

On this basis, one can immediately identify coffee as the agricultural export that carried the main burden of the policy.[2/] Its rate of exchange is consistently smaller than that for other products, even after 1960 when most exports were freed from exchange controls. As to the other exports, some were favored during 1953 when part of their proceeds could be exchanged in the free market; these were bananas, Brazil nuts, rice, cocoa butter and cake, hides and skins, wool, pine lumber, babassu and castor oils, tobacco, and sisal. However, in October 1953 all noncoffee exports were grouped under a single rate and only in 1955, when the four export categories were introduced did significant policy discrimination begin to take place.

In 1955 certain products were classified in the privileged fourth category where they remained until being completely liberated from controls; these were edible nuts (except Brazil nuts), rice, sugar, animal feed other than oil seed cakes, hides and skins tanned or otherwise processed, some lumber, and some oil and oil seeds. Other exports shared a varying burden of the export policy: meat, bananas, corn, Brazil nuts, tea and mate, wool, some lumber, some oil and oil seeds, tobacco and sisal.

[2/] It should be kept in mind, however, that Brazil has played a predominant role in the world market for coffee. Hence, at least some portion of the taxes on the coffee sector, both explicit and implicit, were probably passed on to the foreign consumer. For this reason coffee is usually treated separately in the analyses which follow. It would appear that over time the extent to which this tax could be passed on has declined. The incidence of the tax is an important empirical question, and merits further research before a final evaluation of the impact of trade policy on Brazilian agriculture can be made. It will be a study in itself, however.

Along with coffee, the remaining exports (cocoa and its products, cotton, raw hides and skins, and pine lumber) were all or part of the time under a relatively strong taxation. Some pine lumber and raw hides and skins were most of the time classified in the third export category, and for smaller periods in the second category(pine lumber for six months, and raw hides for two years). Cotton fiber was actually the most favored item of the group. It was liberated from exchange controls in 1959, and starting in 1956 it was under a special price support program known as "Tosta Filho Plan".

Cocoa and its products were, except for coffee, the most penalized export. The exchange rate for cocoa products was only liberated in 1961, but cocoa beans continued to be penalized after that year. From June 1959 to October 1961 cocoa beans were classified in the first export category, together with coffee; previously, it had been in the second category. Cocoa cake was also placed in the first category for six months (1959), and starting in 1956 it was in the second category. Cocoa butter remained in the second and third categories most of the time.

The case of cocoa is a particularly significant aspect of the export-disincentive problem since cocoa is the main product and export of a relatively underdeveloped Brazilian region (the State of Bahia). In regional terms, the differential exchange rate for cocoa might have been more important, as a disincentive for production and technological change, at the producer's level, than the lower coffee rate has been in Brazil's south.

Conclusions

To sum up, there was no difference in exchange treatment for noncoffee foodstuffs as compared to raw materials from October 1953 (Instruction 70) until January 1955 (Instruction 112). During 1955 the second and third export categories included important raw material exports, like cotton, pine lumber, castor seeds, carnauba wax, tobacco, sisal, and hides and skins. On the foodstuff side only cocoa and bananas could be considered important exports. This is the reason why the effective exchange rate for noncoffee foodstuffs was smaller than for raw materials, in 1955, as shown in Table 4.9.

Until May 1956 (Instruction 131) the situation remained roughly the same. Beginning that month, controls on foodstuffs were tighter and the balance between both groups was re-established (see Table 4.9). Controls were introduced for cocoa products, tea and mate, and for some minor but important domestic food items (potatoes, cassava flour, and dry beans).

In 1958 the effective exchange rate for raw materials began to increase relative to foodstuffs. However, this was not a result of additional constraints on food exports. The only important food items still subject to stronger controls were cocoa and cocoa products, but they made up more than 50 percent of noncoffee foodstuff exports. On the other hand, substantially lighter controls still remained for tobacco, castor seeds, carnauba wax, and hides, whereas cotton (except for linter) had dropped to the fourth category. This situation remained about the same until 1961, when the export exchange rate was liberated except for coffee and cocoa. At this point, cocoa was gradually making up a smaller

and smaller share of noncoffee foodstuff exports like cotton and meat. As a result, exchange rates tended to be the same for both groups (Table 4.9).

The above description shows no major concern with the exchange policy as it bore on major domestic food items, except for a few products and during a few years. But the licensing system was still in effect, and this might possibly have been the major instrument by which world prices were not permitted to interfere with domestic prices. Exchange controls were mostly used to tax raw materials and important, but non-essential, food exports like coffee, cocoa, edible nuts, and mate.

Given the objectives of trade policy, this can be considered a rational distribution of export controls. While small but domestically essential food exports were maintained under control by quantitative measures, large but domestically superfluous food exports, together with "surplus" raw materials, were used as major sources of government revenue. It was fortunate that Brazil had a composition of exports that allowed substantial gains from trade, without hindering directly the long-term supply prospects of essential food products.

CHAPTER V

IMPORTS OF AGRICULTURAL INPUTS

This chapter is both descriptive and analytical, and is divided into three parts. The first part presents descriptive data on the magnitude and composition of imports of agricultural inputs in the post-war period. The second part describes the exchange policy and other aspects of trade policy as it bore on agricultural inputs. And finally, there is some analysis of the effect of these policies on the price of inputs.

The Structure of Imports of Agricultural Inputs

Although Brazilian imports of agricultural inputs increased during the 1930's, it was only after World War II that they really reached a significant proportion of total imports. Imports of fertilizers in 1935 and 1936 were 25,812 and 39,314 metric tons, respectively, while the imports of tractors for agricultural use were 612 and 1,274 metric tons, respectively. The fertilizer figures corresponded to shares of 0.6 and 0.9 percent of total imports.

This share went up to 1.3 percent in 1939, came back down to 1.0 percent in 1940, and climbed again after World War II until it reached the 3.0 percent mark in 1950. Since that year this level has been maintained and surpassed except for a few years.

Even those imports that actually decreased throughout the 1950's and 1960's due to the incentives to internal production were still larger towards the end of the 1960's than they had been in the 1930's. Tractor imports were 3,678 metric tons in 1966 and 1,363 metric tons in 1967. An estimated 10,886 tons of pesticides entered the country in 1967, as compared to 406 tons in 1940. Total imports of agricultural inputs, which were only 2.0 to 2.5 percent of all imports in the period 1946-48, went up to 4.1 percent in 1949, and 5.8 percent in 1950 and 1951.

Imports of agricultural inputs have made up about 5 percent of total imports in value terms since 1949. However, they have increased substantially in volume and changed in composition since that time.

The basic data on these imports, from 1946 to 1967, can be found in Appendix B, Tables B-4, B-5, and B-6. These data are summarized as annual averages in Tables 5.1 through 5.4. The same time periods were used in organizing the data as were used for describing the structure of exports. The imports were divided into two main groups for purposes of analysis: intermediate goods, which include fertilizers, pesticides, and minor items (seeds, seedlings, hatching eggs, baby chickens, feedstuffs, etc.), and capital goods, which include tractors, machinery, tools, and other items such as breeding stock and barbed wire.[1/]

Table 5.1 presents data on the physical magnitude of the imports. On this criterion imports of agricultural inputs increased 2.6 times from 1948-52 to 1965-67. However, this increase was entirely due to the growth of fertilizer imports; other imports remained the same or decreased in

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1/ The NBM code numbers that correspond to the commodities included in each group are shown in Appendix D, Table D-3.

Table 5.1. Physical Magnitude of Brazilian Imports of Agricultural Inputs, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67
	----------metric tons----------				
Intermediate Goods	242,925	449,969	534,499	572,443	797,222
Fertilizers	220,073	426,240	520,709	554,616	772,072
Pesticides	11,513	3,380	8,143	7,680	11,037
Other	11,339	20,350	5,648	10,147	14,113
Capital Goods	84,315	81,953	56,490	83,939	56,022
Tractors	10,404	13,826	21,191	6,798	2,125
Machinery andTools	16,519	11,685	4,883	2,129	2,124
Other	57,392	56,442	30,416	75,012	51,773
T o t a l	327,240	530,922	590,989	656,382	853,244

Source: Table B-4.

Table 5.2. Value of Brazilian Imports of Agricultural Inputs, Annual Averages, Cruzeiro Series, 1948-52 to 1965-67

ITEM	1948-52	1953-57	1958-60	1961-64	1965-67
	Cr$1000				
Intermediate Goods	422,145	1,131,522	3,108,141	17,457,177	107,845,105
Fertilizers	240,312	870,774	2,131,429	12,480,202	76,409,534
Pesticides	141,782	144,530	699,177	3,537,786	22,939,030
Other	40,051	116,218	277,535	1,439,189	8,496,541
Capital Goods	711,870	1,810,691	4,317,865	12,092,787	39,306,409
Tractors	188,230	669,208	2,712,981	2,807,310	7,061,673
Machinery and Tools	257,559	574,601	583,181	2,125,090	7,999,974
Other	266,081	566,882	1,021,703	7,160,387	24,244,762
T o t a l	1,134,015	2,942,213	7,426,006	29,549,964	147,151,514

Source: Table B-5.

5.3

Table 5.3. Deflated Cruzeiro Value of Brazilian Imports of Agricultural Inputs, Annual Averages, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67
	---------- Cr$1000 ----------				
Intermediate Goods	578,762	704,489	908,152	1,119,914	1,652,013
Fertilizers	334,384	539,260	635,040	765,806	1,171,974
Pesticides	191,113	90,908	195,864	259,757	355,442
Other	53,264	74,320	77,248	94,351	124,597
Capital Goods	1,202,725	1,138,288	1,197,545	872,777	599,299
Tractors	464,399	417,477	759,079	251,018	108,812
Machinery and Tools	362,250	366,750	175,132	134,515	114,752
Other	376,077	354,061	263,306	487,243	375,735
T o t a l	1,781,488	1,842,777	2,105,697	1,992,691	2,251,312

Source: Table B-5 and FGV, Conjuntura Economica, index 45.

Table 5.4. Value of Braziliam Imports of Agricultural Inputs, Annual Averages, Dollar Series, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67
	US$1000				
Intermediate Goods	22,551	30,126	35,632	35,726	48,569
Fertilizers	12,837	23,271	26,000	24,564	34,401
Pesticides	7,574	3,688	8,001	8,447	10,443
Other	2,140	3,168	1,631	2,714	3,725
Capital Goods	38,027	42,554	35,864	28,475	17,903
Tractors	10,055	15,057	13,910	9,044	3,223
Machinery and Tools	13,758	14,248	5,977	4,232	3,437
Other	14,214	13,249	5,977	15,199	11,243
T o t a l	60,578	72,680	71,496	64,201	66,472

Source: Table B-6.

volume. The importance of fertilizers was so great that the totals in Table 5.1 would show a declining trend if fertilizer imports were deleted. The sharp change in the structure of imports that took place during the period is strongly related to the import policy followed by the government, and will be examined in greater detail later in the Chapter.

The results of the structural change were such that the total value of the imports of agricultural inputs remained relatively unchanged (dollar series, Table 5.4), or had a small increase (deflated cruzeiro series, Table 5.3). This was due in part to the higher per unit value of the items whose imports were diminished: capital goods, mostly. The trend toward a reduction in imports of capital goods can be partly explained by the fact that the post-World War II period (1948-52) was characterized by a heavy inflow of capital goods items.[2/] However, later policy measures, including those favoring the development of a Brazilian tractor industry, may have been more influential in this trend.

The nature of this change can perhaps be better understood with the data presented in Table 5.5, where the dollar value shares of the various items are shown. The importance of intermediate inputs increased substantially, and fertilizer imports became one-half of the total imports of inputs. On the other hand, capital goods, which comprised almost two-thirds of input imports in 1948-52, became about one-four by the end of the period.

2/ It should be noted that these imports increased substantially after 1949, when the results of the special exchange concessions for the imports of agricultural inputs came into effect (see Table B-4).

Table 5.5. Dollar Value Shares of Brazilian Imports of Agricultural Inputs, 1948-52 to 1965-67

Item	1948-52	1953-57	1958-60	1961-64	1965-67
	percent				
Intermediate Goods	37.2	41.5	49.8	55.6	73.1
Fertilizers	21.2	32.0	36.4	38.3	51.8
Pesticides	12.5	5.1	11.2	13.2	15.7
Other	3.5	4.4	2.3	4.2	5.6
Capital Goods	62.8	58.5	50.2	44.4	26.9
Tractors	16.6	20.7	33.4	14.1	4.8
Machinery and Tools	22.7	19.6	8.4	6.6	5.2
Other	23.5	18.2	8.4	23.7	16.9
T o t a l	100.0	100.0	100.0	100.0	100.0

Source: Table 5.4.

Examination of Table B-4, Appendix B, will show that in 1950 and 1951 the imports of inputs followed the general upward trend that resulted from the Korean War. In fact, these imports were more favored than most others.[3/] In 1960 and 1963, each of which were years of political instability, similar increases were observed.

The pattern which has been described above suggests that the whole general trend toward increasing imports was made up of a number of shorter positive trends which correspond to the phases of exchange policy described in Chapter II. This effect can be approximately observed in Tables B-4 (volume series) and B-6 (dollar series).

Exchange Policy Vis-a-Vis the Importation of Agricultural Inputs

In 1948, after a fixed exchange rate became effective for all Brazilian foreign trade transactions, imports of agricultural inputs received special treatment. Fertilizers and agricultural machinery, for example, were included in the high-priority import category.[4/] Since that date these imports have for the most part been granted a favorable position in Brazil's commercial policy, a point which will become clear in the following discussion.

The Period 1948-53

During the period 1948-53 the importation of agricultural inputs was gradually freed from any kind of quantitative control. This was

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[3/] Imports of pesticides, for example, never again attained their 1951-52 levels.

[4/] See the Rules published with Decree 24697 "A", art. 23 (3/23/48).

effected by excluding such imports from the licensing system, or by granting certain privileges to specific categories of inputs. An itemized description of these concessions is as follows:

1. Government imports were free from licensing.[5/] This favored the importation of agricultural machinery, which was mostly undertaken by the government. These imports were partly sold to farmers under special legal arrangements, like Law No. 404 (9/20/48), which allowed farm cooperatives and associations to buy farm equipment from the government, and exempted their imports from tariffs.

2. Imports of BHC and machinery employed to fight the coffee disease broca do cafe (Hipotenemus hampei) were excluded from licensing.[6/]

3. In 1949 the imports of barbed wire, certain fertilizers and pesticides, seeds, seedlings, breeding stock, and agricultural machinery were excluded from licensing.[7/] The list of these imports was recomposed from time to time.[8/]

4. In 1950, tractors for agricultural use were exempted from import tariffs.[9/]

5/ Decree 24679 "A", article 3 (d).

6/ Decree 25387 (8/20/48).

7/ Law 842 (10/4/49), art. 3(c).

8/ See Banco do Brasil, S.A., Boletim da Carteira de Exportacao e Importacao, January 1950, pp. 13-22; October 1950, pp. 17-32; March 1951, pp. 21-36.

9/ Ibid., July 1950, p. 16.

In 1951 and 1952, as a consequence of the Korean War, facilities or the importation of agricultural inputs were further extended. Imports of fertilizers, pesticides, and agricultural machinery were given absolute priority", and could be made regardless of the existing rules concerning the tradition of the importing firm.[10/]

These privileges for the importation of agricultural inputs showed no concern for stimulating the growth of the related industry inside Brazil, except for the fertilizer-mixing industry, which was protected by the existing barriers. In spite of these facilities, however, there was a clamor against high fertilizer prices, even though there was, at the same time, recognition of the increasing use of fertilizers and pesticides by the agricultural sector.[11/]

In 1953 substantial changes took place in exchange policy. The dollar shortage that resulted from the large imports of 1951-52 made the introduction of stronger exchange controls an urgent need if the cruzeiro were not to be devaluted. After a number of tightening moves a system of multiple exchange rates was introduced.[12/] Most imports of agricultural

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10/ See Communiques (Avisos) Nos. 221 (4/18/51), 225 (5/11/51), and 231 (5/22/51) of the Export and Import Department (CEXIM) of the Bank of Brazil.

11/ See F.G.V., Conjuntura Economica, "Fertilizantes Inaccessiveis", August 1950, pp. 11-13; "Aumenta o Consumo de Inseticidas", November 1950, pp. 14-17; Consumo Crescente de Adubos Quimicos", November 1952, pp. 10-14. See also S.A.E.S.P., Agricultura em Sao Paulo, "Aspectos da Situacao dos Fertilizantes em Sao Paulo", July 1951, pp. 22-27; "Suprimento de Inseticidas para a Defesa da Lavoura Algodoeira", July 1951, pp. 28-29; "O Problema do Preco dos Adubos em Sao Paulo", December 1951, pp. 13-17; "Progresso Tecnico da Agricultura de Sao Paulo", February 1952, pp. 1-2.

12/ SUMOC Instruction 70 (10/9/53).

inputs were included in Import Category I, which corresponded to the lowest agio per dollar purchased: Cr$10.00/US$.[13] The inputs that were assigned to each category, according to Instruction 70, were as follows:[14]

Category I:

A. Intermediate Goods

a. Fertilizers (except for natural vegetable fertilizer (NBM 2.29), blood meal (2.09.01), and potash, raw (2.39.21/29)).

b. Pesticides.

c. Other (except poultry (1.93.99), honeycombs (1.99.00), and feedstuffs (4.8).

B. Capital Goods

a. Tractors (except tires) (7.14/40).

b. Machinery and tools (except machinery for elementary processing of agricultural products (6.66.09), tires for agricultural machinery (7.14.50), axes, hoes, and other agricultural tools (7.76.55 and 7.77)).

Category II:

A. Intermediate Goods

c. Other - feedstuffs (only liver, meat, and fish meals, and mineral salts).

Category III:

B. Capital Goods

a. Tractors - only tractor tires (7.14.40).

13/ Agio is the amount left in the hands of the Government after export proceeds were purchased by importers in exchange auctions.

14/ Items included are those whose NBM code numbers are shown in Table D-3, Appendix D. It should be noted that a number of items included in the official lists were not taken into account here. The reason is that those items are only partially used for agricultural purposes, and there is no way of isolating their relevant shares from the existing statistics.

b. Machinery and tools - only tires (7.14.50) and processing machinery (6.66.09).

Category IV:

None.

Category V:

A. Intermediate Goods

a. Fertilizers - natural vegetable fertilizer (2.29), and blood meal (2.09.01).

c. Other - poultry (1.93.99), honeycombs (1.99.00) and feed-stuffs (except meat and fish meals).

B. Capital Goods

b. Machinery and tools - axes, hoes, and other agricultural tools (7.76.55 and 7.77).

c. Other - livestock (1.91).

The immediate effect of the multiple rates was a general increase in the value of the import dollar, with the result that imports in general became more expensive. It was estimated by at least one group that the price of fertilizer, at the farm level, would increase by 50 to 60 percent--and that the price of insecticides would be 20 to 50 percent higher.[15/] Of course, commodities classifed in categories II to V were subject to higher agios. These, presumably, were imports whose production could be stimulated in Brazil and should, therefore, be protected from foreign competition. Examination of the list above will show that this protection

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15/ See S.A.E.S.P., Agricultura em Sao Paulo, "Os Efeitos da Resolucao 70 da SUMOC sobre os Precos dos Adubos e Inseticidas", November, 1953, p. 4-10.

was directed primarily to the domestic production of simple tools, tires, and feedstuffs.

The Special Auctions

The above grouping, however, did not last very long. In March 1954, "special" PVC auctions were introduced with the purpose of facilitating the importation of certain agricultural inputs.[16/] These inputs were taken mostly from import categories I and II, and were first listed in CACEX Communique No. 13 (3/19/54). Later on a number of new lists were published, adding to or substracting from the original one.[17/] However, one could say that the original pattern was not substantially changed.

CACEX Communique No. 13 listed 51 items (mostly fertilizers and pesticides) whose importation would be allowed through the purchase of PVCs in the first special auction that took place in March 25, 1954. This, and lists enacted through Communiques 26 and 28, distinguished import categories 1 and 2, both of which included a sizeable number of fertilizer and pesticide items, as well as breeding stock, seeds, seedlings, and a few feedstuff and machinery items. Communiques which were issued later replaced this list with a new version in which categories 1 and 2 were joined into a single one, with fertilizers being listed separately from pesticides and other inputs. The following is a list of major items included under "special auctions" from 1955 to 1957, together with those subject to the regular "normal auction".[18/]

16/ SUMOC, Instruction 86 (3/11/54). PVC is the Portuguese abbreviations for "promise of exchange sale" and was defined in Chapter II. Special auctions could sell exchange at a lower agio then first category auctions.

17/ See CACEX Communiques No. 26(6/16/54), 28(8/13/54), 41(5/21/55), 52(8/10/55), 59(10/13/55), 78(7/9/56), 79(7/10/56), 82(9/17/56), 83(8/23/56), 91(10/29/56), 92(11/28/56), 105(5/31/57), and 108 (7/12/57).

18/ This is an approximation based on the different "Communiques" listed in footnote 17, and with the limitations pointed out in footnote 14.

"Special" Auctions

A. Intermediate Goods

a. Fertilizers (except blood meal and guano (2.09.01, 05), natural plant or vegetable fertilizers (2.29), and potash raw (2.39.21 to 29)).

b. Pesticides.

c. Other (except poultry (1.93.42, 99), honeycombs (1.99.00), and feedstuffs (4.8)).

B. Capital Goods

b. Machinery and tools - only portable sprayers (6.74.20).

c. Other - only breedstock (1.90).

"Normal"Auctions

Category I:

A. Intermediate Goods

c. Other - only poultry (1.93.42,99).

B. Capital Goods

a. Tractors (except tires (7.14.40)),

b. Machinery and tools - only machinery and implements (6.2), and veterinary instruments (8.56.60).

c. Other - only barbed wire (7.74.80).

Category II:

None.

Category III:

B. Capital Goods

a. Tractors - only tires (7.14.40).

b. Machinery and tools - axes, hoes, and other agricultural tools (7.76.55 and 7.77).

c. Other - fence hooks (7.75.05).

Category IV:

None.

Category V:

Items not covered above.

A comparison with the listing under Instruction 70 will show almost identical specifications. As was the case with that earlier Instruction, only items that were already being fully supplied by national sources received some kind of protection from foreign competition. As a matter of fact, the main purpose of "special auctions" seems to have been the enlargement of the range of discriminatory exchange rates in order to reduce the price effects on agricultural inputs that resulted from Instruction 70.

The Post-1957 Period

The above system was maintained until 1957, when Law 3244 (8/14/57) and Decree 42820 (12/16/57) introduced a new tariff system and altered the basic import categories. After 1957 the name "special category" applied to non-priority imports, as described in Chapter II. Preferential imports of agricultural inputs, as well as imports of newsprint materials, wheat, petroleum, and equipment considered essential to the country's development were given exchange rate advantages.19/

19/ In order to quality for this treatment these imports were included in the special category, even though they were preferential (see Law 3244, art. 50 - §1, art. 48 - §3, and Decree 42820, art. 51 - §).

Decree 42820 ruled that imports of fertilizers and pesticides could be made at exchange rates not lower than the average rates paid to exports, but excluded from this privilege the importation of mixed fertilizers. At the same time it offered a subsidy to the national producers of such commodities. The subsidy was to be equal to the difference between the price of similar products imported at the average export exchange rate, and their price if they were imported at the average exchange rate for the general import category, plus the applicable tariff.[20/]

The main feature of the exchange system introduced under Law 3244, as compared to the previous system, was that not only exchange rate differentials, but also tariff differentials, applied to all imports. With regard to the exchange rate system as applied to the importation of agricultural inputs, three levels should be distinguished: preferential imports of fertilizers and pesticides, imports in the general category, and imports in the special category.

The rate applicable to preferential imports was first established in Law 3244 as being equal to the "exchange cost". Later, it was modified through SUMOC Instruction 158 (6/10/58), which ruled that these imports would pay a bonus, above the official selling rate, that was intermediate between the average export premium (the exchange cost) and the bonus paid in the general import category. This bonus was fixed initially at Cr$51.18/US$. It was raised to Cr$61.18/US$ in 10/4/58 (Instruction 166) and

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20/ This subsidy was paid from a "Fundo Especial" (Special Fund) made up with proceeds from exchange auctions, with the purpose of subsidizing the industries of newsprint, fertilizer, and pesticides. This Special Fund, in what it concerned newsprint production, was regulated by Instructions 149 (1/10/58), 160 (8/22/58), 171 (12/10/58), 176 (1/13/59), 183 (5/11/59), and 198 (8/18/60); that for fertilizers and pesticides by Instructions 151 (2/13/58), 189 (11/25/59), and 197 (7/7/60). The amounts allocated to the fertilizer fund should be equal to those necessary for the importation, in the "general" import category, of a volume equivalent to national fertilizer production sold in domestic markets.

to Cr$81.08/US$ in 1/10/59 (Instruction 175).[21] No other reference was found until Instruction 204, enacted in March 13, 1961, that raised it to Cr$200.00/US$, payable in two installments: Cr$150.00 when the import was authorized and Cr$50.00 after 120 days. Finally, on June 27, 1961, Instruction 208 transferred these operations to the free market. At the same time they were granted certain trade advantages, which were later modified by Instruction 243 (8/9/63).

The items that qualified for preferential treatment were first listed in "Circular" No. 26 (9/18/57) of the Ministry of Finance. A new listing and additions were later introduced by SUMOC.[22]

At the same time the newly-created Conselho de Politica Aduaneira-CPA (Customs Policy Council)[23] made the decisions on tariff levels and on shifting commodities among categories. Tables 5.6, 5.7, and 5.8 show the tariff rates for the imports of agricultural inputs which prevailed for almost the entire 1957-66 period.[24] The same Tables show the year those imports were included in the general import category. The year 1957 corresponds to the establishment of this category; introduction of new items was made through CPA Resolutions.[25]

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[21] Instruction 166 included, as preferential, imports of equipment for production of agricultural machinery, fertilizers, and pesticides.

[22] See Instructions 178 (1/13/59), 187 (8/3/59), 194 (5/4/60), 195 (6/17/60), 199 (9/6/60), 201 (10/13/60), and 203 (1/11/61).

[23] Law 3244, Chap. VII.

[24] These tariff rates were introduced in 1957. Substantial changes were effected only in 1966 and 1967 through Decree-Laws 63 (11/21/66) and 264 (2/28/67).

[25] Agricultural inputs were moved from the special to the general category by CPA Resolutions no. 2(11/14/57), 78(7/10/59), 219(7/6/61), 252(3/30/62), 256(5/18/62), 404(12/28/65), and others, until the special category was abolished in March, 1967.

Table 5.6 Fertilizers and Pesticides: Tariff Rates and Year of Entry into General Import Category, According to TAB and NBM Code Numbers, 1957-67.

TAB	NBM	General Category	Tariff Rate (percent)
Fertilizers			
25-10(001 to 003)*	2.39.10	1961	0
31-01-001*	2.09.05	1961	0
31-01-002*	2.09(01,09) 2.29(21 to 29)	1965	0
31-02-001*	5.70.40	1961	0
31-02(002,006)*	5.70.99	1961	0
31-02-003*	5.70.20	1961	0
31-02-004*	5.70.55	1961	0
31-02-005*	5.70.00	1961	0
31-02-007*	2.39.00 5.70.50	1961	0
31-02-008*	5.70.10	1961	0
31-02-009*	5.70.15	1961	0
31-02-010*	5.70.60	1961	0
31-03-001*	5.72.00	1961	0
31-03-002	5.72.30	1957	30
31-03-003*	5.72.24	1961	0
31-03-004*	5.72.10	1961	0
31-03-005*	2.39.20	1962	0
31-03(006,007)	5.72.99	1957	30
31-03-008*	5.72.21	1961	0
31-03-009*	5.72.22	1961	0
31-04-001*	5.74.10	1961	0
31-04-002	5.74.20	1957	30
31-04-003	2.39(21 to 29)	1965	0
31-04-004*	5.74.30	1961	0
31-04-005*	5.74.40	1961	0
31-05-001	5.79(80,99)	1957	30
31-05(002,004)	5.79.99	1957	0
31-05-003*	5.79.30	1965	0

Table 5.6 - cont'd

TAB	NBM	General Category	Tariff Rate
Pesticides			
38-12-001	5.92.20	1965	40
38-12-002*	5.92.40	1965	0
38-12-003*	5.92.60	a/	0
38-12-004	5.92.99	a/	10

Source: Abilio Correa, Lahire Nobre, and J.C. Magalhães, Manual de Atualização da Tarifa das Alfandegas.

a/ Entry into general category in 1966 or 1967.

(*) Commodities included in SUMOC list of preferential imports. Imports not required to pay tariffs were also exempted from certain taxes (impostos) levied on imports.

Table 5.7. Other Intermediate Agricultural Inputs: Tariff Rates and Year of Entry into General Import Category, According to TAB and NBM Code Numbers, 1957-66.

TAB	NBM	General Category	Tariff Rate (percent)
Other Intermediate Goods			
01-08-001	1.93.42	1957	0
01-08-003	1.93.99	a/	50
01-09-001	1.99.00	1957	0
01-09-002	1.99.00	a/	50
04-08-001	4.33.60	1957	0
06-03-000	2.28.52	1957	0
06-04(001 to 005)	2.28.55	1957	10
06-04-005	2.28(51,54)	1957	10
07-01-007	4.73.50	1957	0
09-01-004	4.89.11	a/	100
12-03(001 to 004)	2.28.65	1957	0
02-04-003	2.28.54	1957	0
12-08-001	4.80.00	1957	30
12-08-002	4.80.20	1965	30
12-08-003	4.80.99	1965	30
12-08-004	4.80(10,51,55,99)	1965	30
18-02-000	4.89.12	a/	60
23-01-000	4.89(01 to 09)	1957	2
23-03-000	4.81(00to 29,99)	1965	2
23-03-000	4.89.20	1965	2
23-04-000	4.89.22	1965	2
23-05-000	4.81(41 to 79); 4.82(01 to 79); 4.89.29	1965	2
23-06-000	4.89(34,35)	1965	60
23-07-000	4.81.99; 4.82.99; 4.89.90	1965	2
23-08-000	4.89.90	1965	15
23-09-001	4.89.60	a/	150
23-09-002	4.89.99	a/	50
23-09-003	4.89(40,50,70,99)	1957	15
23-09-004	4.89.60	a/	15
23-10-000	4.89.99	1965	30

Source: Abilio Correa, Lahire Nobre, and J.C.Magalhães, Manual de Atualização da Tarifa das Alfândegas.

a/ Entry into general category in 1966 or 1967.

Table 5.8. Agricultural Capital Inputs: Tariff Rates and Year of Entry into General Import Category, According to TAB and NBM Code Numbers, 1957-67.

TAB	NBM	General Category	Tariff rate (percent)
Tractors			
40-10-000	7.14.40	1957	100
87-01-001	6.81.35	1957	0
87-01-002 a/	6.81(31,35)	1957	0-30
Machinery and tools b/			
40-10-000	7.14.50	1957	100
82-01-001	7.77.03	1957	60
82-01-002	7.77(06,19)	1957	80
82-01-003	7.77.07	1957	60
82-01-004	7.77.04	1957	80
82-01-005	7.77.05	1957	60
82-01-006	7.77.19	1957	60
82-01-007	7.77.19	1957	80
82.19.003	7.76.55	a/	80
84-24-002	6.74.20	1957	20
84-34-001	6.20(31,80)	1957	10
84-34-002	6.20(33,80)	1957	30
84-34-011	6.20(49,79,80)	1957	2
84-34-013	6.20(60,80)	1957	30
84-34-014	6.20(01,80)	1957	10
84-34-015	6.20.80	1957	10
84-34-(017,034)	6.20(19,80)	1957	10
84-34-020	6.20(61,80)	1957	10
84-34-021	6.20(41,80)	1957	10
84-34-024	6.20(05,80)	1957	10
84-34-036	6.20(07,19,49,62 to 80)	1957	20
84-36-003	6.66.09	1957	20
84-36-004	6.66.09	1957	10
84-36(007 to 010)	6.66.09	1957	60
84-37(001,004)	6.22(10,80)	1957	2
84-37-002	6.22(15,70,80)	1957	2

Table 5.8 cont'd

TAB	NBM	General Category	Tariff Rate
84-37-003	6.22 (25,80)	1957	60
84-37-005	6.22 (00,21,80,99)	1957	10
84-38-001	6.29.30	1957	20
84-38-002	6.29.30	c/	60
84-38-003	6.29 (00,49)	1957	20
84-39-001	6.24.25	1957	25
84-39-002	6.22 (40,80)	1957	60
84-39-003	6.24.21	1957	10
84-39-005	6.24.00	1957	2
84-30-007	6.22 (30,80)	1957	20
84-39-008	6.22 (80,99); 6.24.99; 6.29.99	1957	20
84-40(001,002)	6.29.50	1957	60
90-23-074	8.56.60	1959	60
90-23(083,087)	8.56.60	1957	4
Other Capital Goods			
01-01-002	1.91.49	c/	40
01-02-001	1.90.01	1957	0
01-02-002	1.91.10	c/	25
01-02-003	1.91.50	c/	40
01-03-001	1.90.02	1957	0
01-03-002	1.91.20	c/	25
01-04-001	1.90.05	1957	0
01-04-002	1.91.60	c/	50
01-05-001	1.90.03	1957	0
01-05-002	1.91.30	c/	25
01-06-001	1.90.06	1957	0
01-06-002	1.91.70	c/	50
01-11-999	1.90.99; 1.91.99	c/	50
83-33-000	7.74.80	1957	0

Source: Abilio Correa, Lahire Nobre, and J.C. Magalhães, Manual de Atualização da Tarifa das Alfandegas.

a/This item, wheel tractors, was not required to pay tariffs until 11/7/63, when CPA Resolution 314 aiming at protecting national industries, introduced a 30% tariff applicable to tractors from 27 to 86 HP (motor power).

b/According to Note No. 183 of the Customs Tariff (Tarifa Aduaneira) all items under Chapter 84 that were used for agricultural purposes could obtain a tariff reduction of up to 50%.

c/Entry into general category in 1966 or 1967.

This information helps to understand more fully the variables affecting the level of the exchange rate during the period. Three main groups of imports can be noted:

a) Imports in the special category, under preferential treatment as determined by SUMOC (see TAB 31-01-001, Table 5.6). After June 1961 these imports were made at the free rate.

b) Imports included in the general category from the beginning. Before SUMOC Instruction 204 (3/13/61) was issued, their exchange rates were established in PVC auctions. Afterwards, the free rate applied to these imports (See TAB 31-03-002, Table 5.6, or 40-10-000, Table 5.8).

c) Non-preferential imports in the special category. Until 1966 or 1967 these imports were subject to special PVC auctions (see TAB 01-09-002, Table 5.7, or 01-01-002, Table 5.8).

This is not a rigid classification, however. The combination of tariffs, import categories, preferential lists, and waivers could make up almost any degree of protection.

The tariff system has been substantially modified since the general tariff reduction which resulted from Decree-Law 63. For the sake of illustration, Table 5.9 shows the frequency of trade items within given tariff ranges, at three different dates. It can be seen that the general trend has been toward a gradual reduction of the tariff level.[26/]

26/ It is recognized that with an overvalued exchange rate, part of the tariff is a substitute for a correction of the exchange rate to a higher level. However, as tariff reductions were promoted, more frequent adjustments in the official exchange rate were made. It could therefore be suggested that the advantages extended to imports by the tariff reduction may have been removed, at the same time, by the more realistic official exchange rate, and imports did not actually benefit from the new tariff.

Table 5.9. Frequency of Import Items, within Given Tariff Ranges, Brazil, Selected Dates.

Tariff Range	Frequency					
	12/31/66		3/1/67		12/31/69	
(percent)	(no.)	(percent)	(no.)	(percent)	(no.)	(percent)
0-19	2235	34.8	2350	36.5	2428	37.2
20-49	1350	21.0	1518	23.6	2087	32.0
50-99	1768	27.5	1825	28.4	1323	20.3
100	1076	16.7	741	11.5	791	10.5
Total	6429	100.0	6434	100.0	6529	100.0

Source: Oliveira (1970).

Effect of the Policies on the Price of Input Imports

The total exchange sold for "special" category imports of fertilizers, pesticides, and other items from 1954 to 1960 is shown in Table 5.10. The comparison with actual value of imports leads to the conclusion that the number of pesticide items taken into account in this study largely underestimates the actual amount imported. It should be pointed out, however, that it is almost impossible to disaggregate from the existing data the share of certain items which is destined for agricultural use. Also, at least until 1957, this group included many items other than pesticides.

The exchange rates resulting from the purchase of special category PVC's are presented in Table 5.11. These data can be compared to those contained in Table 5.12, which show the exchange rates computed directly from effective import data and which includes both favored and ordinary imports. It may seem paradoxical that exchange rates in Table 5.11 are generally higher than those in Table 5.12. However, this can be explained by the fact that exchange purchased in one period is only used in the next.

Table 5.10. Foreign Exchange Purchased in PVC "Special" Auctions and Effective Imports of Fertilizers and Pesticides, 1954-60.

Year	Agriculture	Fertilizers		Pesticides and Others	
		Exchange Purchased	Imports	Exchange Purchased	Imports[a]
		US$1000			
1954[b]	55,699	-		-	
1955	22,082	15,259	17,211	13,768	5,347
1956	-	30,262	22,339	22,696	3,179
1957	-	23,476	25,128	12,753	3,946
1958	-	31,051	32,098	12,057	4,424
1959	-	17,468	31,113	10,170	6,140
1960	-	21,126	19,920	14,841	7,423

Source: SUMOC, Boletim and Table B-6.

[a] Only NBM 5.92 (pesticides).

[b] Beginning March 1954.

Table 5.11. Exchange Rate Resulting from "Agios" Paid in "Special" Auctions, 1954-60.

Year	Agriculture	Fertilizers	Pesticide & Other
	Cr$/US$		
1954[a]	32.36	-	-
1955	43.16	45.20	47.53
1956	-	45.24	47.35
1957	-	45.19	46.08
1958	-	63.56	64.96
1959	-	101.07	100.59
1960	-	103.30	105.34

Source: SUMOC, Boletim.

[a] Beginning March 1954.

Table 5.12. Basic Exchange Rates Resulting from Effective Imports of Agricultural Inputs, 1953-67

Year	Intermediate Inputs				Capital Inputs				TOTAL
	Fertilizers	Pesticides	Other	Total	Tractors	Machin.& Tools	Other	Total	
	Cr$/US$								
1953	18.98	19.02	19.13	19.00	18.78	18.84	19.67	19.18	19.09
1954	29.98	31.66	29.69	30.28	30.44	29.51	31.12	30.29	30.28
1955	40.03	43.21	40.85	40.47	47.05	44.92	43.17	45.22	43.01
1956	45.42	47.15	45.02	45.60	70.47	56.50	61.32	62.24	54.25
1957	44.56	45.66	46.24	44.84	57.87	55.07	53.98	55.85	51.00
1958	56.44	58.40	106.10	58.59	77.03	72.75	84.02	76.88	67.12
1959	92.47	91.66	185.23	96.14	116.56	110.76	161.59	123.91	107.96
1960	103.70	101.40	202.85	108.75	135.95	115.73	204.30	146.89	130.52
1961	152.51	150.03	242.68	156.87	170.97	169.83	229.69	188.56	172.93
1962	345.78	329.60	355.48	341.03	301.57	360.47	340.71	334.98	338.45
1963	528.69	513.48	543.65	527.24	464.28	530.87	505.82	501.22	516.57
1964	970.94	972.66	936.05	968.47	732.66	957.92	767.36	794.76	894.84
1965	1744.82	1744.46	1759.57	1745.55	1664.97	1700.04	1709.82	1702.97	1734.43
1966	2178.83	2152.42	2155.91	2170.11	2208.23	2157.00	2150.92	2170.31	2170.17
1967	2610.15	2629.06	2606.19	2613.29	2582.39	2646.26	2528.91	2566.10	2600.59

Source: Tables B-5 and B-6.

Another useful comparison can be made between Table 5.12 and Tables 5.6 to 5.8. The latter tables showed that imports of fertilizers and pesticides were the most favored. The degree of protection to other groups, as far as the basic exchange rate is concerned, can be evaluated from the year of entry of their items into the general import category: the later they entered, the greater the protection. This leads to the choice of the groups "other intermediate goods" and "other capital goods: as those which were most protected. This is confirmed by the data in Table 5.12.

A next step would be to check whether this same structure of protection remained after the tariffs were introduced. This is like a test on the consistency of the exchange and tariff policies. For this purpose, the effective exchange rates for these import groups were computed. The results obtained are shown in Tables 5.13 and 5.14.[27/]

It should be noted, however, that the percentages in Table 5.13 and the basic exchange rates in Table 5.12 do not reflect the actual degree of protection enjoyed by an actual or eventual national production of agricultural inputs. They only detect the structure of protection resulting from the imports that were made in spite of the protective measures taken within each group. To behave rationally, importers must buy, in each group, those items that (a) are considered essential but cannot be produced in the country, or (b) items whose supply from domestic sources is considered insufficient, or (c) items whose domestic production has not yet been motivated by the existing, or possible, protection. The data

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27/ The procedure to compute effective exchange rates for agricultural imports is described in Appendix D.

Table 5.13. Percentages (Tariffs plus Port Charges) Added to Basic Exchange Rates to Obtain Effective Exchange Rates, 1958-66

Year	Intermediate Inputs (1)	(2)	(3)	Total	Capital Inputs (1)	(2)	(3)	Total	Total
	%				%				
1958	2.168	0.110	8.287	2.070	0.007	24.064	0	5.067	3.464
1959	0	0.280	2.989	0.183	0.078	18.152	0	3.644	1.655
1960	0.004	0.060	5.429	0.330	0.010	18.007	0	2.273	1.438
1961	0.076	0	8.679	0.534	0.024	22.203	0.005	2.986	1.776
1962	0.096	0	6.944	0.617	0.064	29.110	0	3.566	1.875
1963	0.040	0.056	4.455	0.419	0	27.711	0.400	4.876	2.347
1964	0.032	0.001	7.289	0.599	0.040	23.082	0.048	4.174	2.114
1965	0.024	0	4.728	0.264	0	24.840	0	3.745	1.171
1966	0.060	0.012	7.103	0.646	0.010	23.487	0.065	3.168	1.345

Source: Tables D-14 and D-15.

Table 5.14. Effective Exchange Rates for Imports of Agricultural Inputs, 1958-66

Year	Intermediate Inputs (1)	(2)	(3)	Total	Capital Inputs (1)	(2)	(3)	Total	Total
	Cr$/US$								
1958	56.66	58.46	114.89	59.80	77.04	90.26	84.02	80.78	69.45
1959	92.47	91.92	190.77	96.32	116.65	130.87	161.59	128.43	109.75
1960	103.70	101.46	213.86	109.11	135.96	136.57	204.30	150.23	132.40
1961	152.63	150.03	263.74	157.71	171.01	207.54	229.70	194.19	176.00
1962	346.11	329.60	380.16	343.13	301.76	465.40	340.71	346.93	344.80
1963	528.90	513.77	567.87	529.45	464.28	677.98	507.84	525.66	528.69
1964	971.25	972.67	1004.28	974.27	732.95	1179.03	767.73	827.93	913.39
1965	1745.24	1744.46	1842.76	1750.16	1664.97	2122.33	1709.82	1766.75	1754.74
1966	2180.14	2152.68	2309.04	2184.13	2208.45	2663.61	2152.32	2239.07	2199.36

Source: Tables 5.12 and 5.13.

presented should not, therefore, be taken as measuring relative protection, even though it can be used to evaluate the consistency of the protective policies.

Table 5.13 shows the percentages which result from tariffs and other expenses used as protective devices and which are to be applied to the basic rates (Table 5.12) in order to compute the effective exchange rates shown in Table 5.14. The test of consistency between the exchange and tariff policies may be made by comparing Tables 5.12 and 5.13. The period 1958-61 is the relevant one. Table 5.12 shows no major differences between the fertilizer and pesticide series, which have the lowest basic exchange rates. The most protected groups seem to have been those including "other intermediate" and "other capital" inputs. Table 5.13, on the other hand,shows the greatest degree of protection for "machinery and tools" and "other intermediate inputs", while "other capital inputs", "fertilizers", and "pesticides" were the least protected. This might suggest some inconsistencies between the exchange and fiscal policies.

The results of these combinations are presented in Table 5.14, It seems that the exchange policy had a predominant role in protection, for effective rates show a structure of protection very similar to that presented in Table 5.12.

Conclusions

Agricultural inputs were one of the least favored groups of commodities under the industrialization effort in Brazil. On the one hand, this might have been considered a fortunate event for agriculture, in a period when one of the major policy objectives was to keep prices of prime-necessity

goods from rising. However, the extent to which the subsidy extended for the importation of modern agricultural inputs was beneficial to agriculture could have been contested on the simple grounds that Brazil has always been a minor consumer of these inputs.

It is quite possible that a positive relationship could be found between the increasing adoption of fertilizers and pesticies in the early-1950's and the preferential status given to imports of these inputs. But they still were relatively low in demand, and were mostly consumed in small areas of the States of Sao Paulo and Rio Grande do Sul where there were technological and economic conditions for their use. A positive result of the policy, however, might have been that import facilities paved the way for a greater adoption of high-yielding inputs at a later date.

However, an interesting fact observed in the early 1950's were the complaints about high fertilizer prices in Sao Paulo. It seems that in spite of the subsidy fertilizers were considered an expensive input, given the prices paid to agriculture. It should be pointed out that fertilizers were mostly used in export crops which enjoyed unusually high dollar prices at the time.

Instead of subsidizing the imports of inputs, an alternative policy procedure would have been to protect the development of a national fertilizer industry as an investment to obtain more and lower-price fertilizers in the future. It seems, however, that for political reasons the Government preferred to use the subsidy policy in order to counteract eventual pressures against agriculture.

It was mentioned that a domestic subsidy was also offered in 1957 to stimulate national fertilizer and pesticide industries. Table D-33 shows domestic production and imports of ammonium sulphate and simple superphosphate for the period 1948-67. Domestic production of superphosphate experienced some sharp increases in the mid-1950's, and from then on continued to grow until making up over 95 percent of Brazil's needs starting in 1963. Imports like those of 1951 and 1952 never again took place. At least in this case it seems that import substitution was possible in spite of a liberal import policy. Additional insights into this can be obtained by the analysis of relative price trends as made in Chapter VI.

CHAPTER VI

EFFECTS OF COMMERCIAL POLICY: GOVERNMENT RETENTIONS, EXCHANGE RATES, AND RELATIVE PRICES

Previous chapters have suggested that commercial policies associated with Brazilian import substituting industrialization policies strongly discriminated against exports and, consequently, against agriculture. The present chapter attempts to produce some of the evidence on this issue, as well as to analyze its effects or consequences.

Evidence on the absolute magnitude of the tax on agriculture will be provided by means of estimates of the income transfers from agriculture through the *agios*. Relative measures of the tax will be provided by means of data on the exchange rates as well as the trends in domestic and world prices.[1/] The absolute measures of the income transfer are based on a computation of Government earnings from selling low-cost exchange to importers. The *agios* thus collected were an important source of income to the Government and the use to which they were put will receive special attention.

The relative measures of export taxation are evaluated from various points of view. First, the trade sector is studied in isolation by means of comparisons between the actual and effective exchange rates,

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1/ The procedures used to compute the exchange rates are explained in Appendix D. An explanation of the measures of relative protection were presented in Chapter III.

which applied to different export and import groups. This analysis is only a first approximation of the effects of trade policy on agriculture, but it is fairly accurate in showing the effects of the export sector in isolation.

The analysis of the effect of trade policies on relative prices is made by means of three alternative measures. One is the agriculture-industry domestic price ratio. This is a measure of the internal terms of trade and depicts the relative price situation of both sectors as a result of market forces as influenced by discriminatory trade and domestic price policies. A similar measurement is obtained by the use of implicit exchange rates, which provide absolute measures of the domestic price differentials adjusted by world price. Finally, two measures of product protection are presented. The nominal rate of protection shows the protection enjoyed by a product or group of products in the domestic market in relation to that provided by trade policy. The net nominal rate of protection shows domestic protection in relation to a "neutral" trade policy.[2/]

Since a fixed rate of exchange prevailed from the end of World War II up until 1953, the evidence produced by means of exchange rate data do not cover this period. Relative price measures, however, cover the entire period under study, 1946-67.

Government Retentions: The "Agios"

When multiple exchange rates were introduced in 1953, the importer, in order to have access to foreign exchange, either had to obtain a

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[2/] The procedure adopted for the computation of nominal rates of protection is explained in Appendix D.

certificate (PVC)[3] which was offered in auctions, or received special subsidized rates for the importation of goods deemed essential for the country's domestic supply needs and development. In either case a variable agio had to be paid by the importer, above the official exchange rate. Accordingly, exporters were paid a variable "premium", above the official exchange rate, for their exchange earnings.

The agios collected by the Government were transferred to a fund which had specified uses. SUMOC Instruction 70 (10/9/53) was the instrument that organized this fund and first established the rules about its uses. Agios were to be used primarily to pay to exporters the premiums established according to the different export categories. Furthermore, they would be used "for the normalization of exchange operations, as well as to finance, at long term and low rates of interest, the modernization of the methods of agricultural production... and for the purchase of agricultural products, seeds, fertilizers, insecticides, machinery and equipment for use in agriculture".[4]

The extreme importance of this fund for financing government expenditures can be understood from the following quotation taken from the 1956 SUMOC Report (p. 21): "The following were the main resources used by the Monetary Authorities to expand their allocations: increase in the net result of the agios paid by importers (16,386 million cruzeiros); increase in money in circulation (12,323 million); increase in the reserve of

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[3] PVC is the abbreviation for "promessa de venda do cambio" (promise of exchange sale).

[4] Instruction 70, item XIII.

commercial banks (3,370 million); increase in deposits of government companies (2,200 million); increase in deposits of the public (2,193 million)". Agios comprised, therefore, a larger amount of government funds than new money issues, and that in a country where inflation rates reached, at that time, annual levels of 20%.

Dollar and deflated cruzeiro figures for total agios collected by the government from 1953 to 1961 are presented in Tables 6.1 and 6.2, together with estimates of the "premiums" paid to exporters.[5/] These data cover two exchange policy periods: 1953-57, when a more complex version of the multiple exchange rate system was in effect, and 1958-61, which involved a more simplified exchange system and import tariffs. In the latter period the share of total agios used to pay export "premiums" was substantially reduced since most export items were gradually transferred to the free market (average share of 74.8 percent in 1953-57 as compared to 39.1 percent in 1958-61).[6/]

The balance figures (table 6.2) are equivalent to what was left in the hands of the Government after providing for all subsidized and non-subsidized imports and after exporters had been fully paid for their dollars. They amount to 44.2 percent of the total agios collected.

The use of the agios fund for purposes other than paying export "premiums" deserves a careful examination. It was noted above that SUMOC

5/ A test of accurateness of the dollar figures in Table 6.1 can be made by means of a comparison with data on total dollar imports (Appendix A). In general, the dollar figures are close to the total import figures, although somewhat smaller.

6/ Also, starting in April 1958 (Instruction 181), freights and insurance on imports were excluded from the official exchange market, resulting in a reduction in agios.

Table 6.1. Total Agios Collected and "Premiums" Paid to Exporters, Dollar Series, Brazil, 1953-60.

Year	Total Agios	"Premiums"	Balance
	US $ Million		
1953[a]	177	87	90
1954	1195	596	599
1955	1170	930	240
1956	1163	798	365
1957	1488	1372	115
1958	1401[b]	655	746
1959	1353[b]	635	717
1960	1389[b]	418	971
Total	9 336	5491	3843

Source: SUMOC, Boletim, March 1956 through 1961.

[a] October to December

[b] Interest included

Note: The dollar figures were computed by dividing the original cruzeiro data (Table 6.2) by the import exchange rate (Table 6.3) minus the official rate of exchange.

Table 6.2. Total Agios Collected and "Premiums" Paid to Exporters, Deflated Cruzeiro Series, Brazil, 1953-61.

Year	Total Agios	"Premiums"	Balance
		Cr$1,000,000	
1953[a/]	3,987	1,961	2,026
1954	24,763	12,348	12,416
1955	26,262	20,870	5,392
1956	30,559	20,996	9,593
1957	29,457	27,172	2,286
1958	43,428[b/]	20,308	23,120
1959	39,373[b/]	18,488	20,885
1960	40,275[b/]	12,124	28,151
1961	6,810[b/]	2,329	4,481
Total	244,914	136,566	108,350

Source: SUMOC, Boletim, March 1956 through 1962, and FGV, Conjuntura Economica, wholesale price index.

a/ October to December

b/ Interest included.

Instruction 70 attempted to allocate some fraction of these funds for agriculture. Later, other allocations were made. Law 2698 (12/27/55) directed that 30 percent of the agios derived from imports of petroleum and its products were to be allocated to a Road Paving Fund. In 1957 two other allocations were made: one to build the Fund for the Economic-Rural Recovery of Cocoa Production (Decree 40897 - 2/20/57), and another to the Fund for the Sustenance of Coffee Production (Decree 41651 - 6/4/57).[7/] Finally, in 1957, Law 3244 (art. 58) and Decree 42820 (art. 94) introduced a "Special Fund" charged from the agios fund, with the objective of subsidizing the industries of newsprint, fertilizers, and pesticides.[8/]

Table 6.3 provides estimates of the magnitude of some of these allocations. The amounts allocated to IBC were used to buy coffee under a price support program initiated in June 1954 (Executive Decree 35612 - 6/3/54). This program was interrupted in May 1955, since the market price had remained consistently below the relatively high support prices. A large share of the funds allocated to the "Other" category was to reinforce programs under Decrees 41651 and 42820. The fixed exchange rate prevailing before 1953, which largely overestimated the par value of the cruzeiro, was not sufficient to stop coffee production from growing at very high rates, leading the Government to protective policies involving large coffee purchases out of the agios fund. CFP allocations were used

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7/ Decree 40897 established a limit of one billion cruzeiros for the cocoa fund. Decree 41651 allocated to coffee 20 percent of the agio balance collected up through 12/31/56, and 20 percent of the positive balances from then on, as well as all the amounts collected by selling coffee acquired with agio resources.

8/ The nature of these subsidies and the rules concerning the Special Fund were described in Chapter V.

Table 6.3 Distribution of Total Agios Other than Paying Export "Premiums", Brazil, 1953-1961.

Year	Fund [a]	IBC [b]	CFP [c]	Law 2698 [d]	Decree 40897 [e]	Law 2145 [f]	Other	Total
	Cr$1,000,000							
1953 [g]	-	-	-	-	--	2,026	-	2,026
1954	5,180	2,300	1,100	-	-	7,064	-	15,644
1955	-	5,850	7	-	-	2,177	-	8,034
1956	13,051	-	-	1,828	-	2,484	-	17,363
1957	-	-	-	3,019	1,000	-1,966	2,701	4,754
1958	-	-	-	3,162	-	-1,182	53,045	55,025
1959	-	-	-	5,621	-	-4,313	69,284	70,592
1960	-	-	-	4,241	-	9,664	112,494	126,399
1961	-	-	-	2,243	-	8,056	17,795	28,094

SOURCE: SUMOC, Boletim, March 1956 through 1962

a/ Fund for Normalization of Exchange Operations.

b/ Brazilian Coffee Institute.

c/ Production Financing Committee.

d/ Road Paving Fund (12/27/55).

e/ Fund for the Economic-Rural Recovery of Cocoa Production (2/20/57).

f/ Fund for Modernization and Recovery of National Agriculture (12/29/53). Estimates for this fund are adjusted so that the row sums add up to the total.

g/ October to December.

in agricultural price support programs. The one billion cruzeiros indicated under Decree 40897 were destined to the organization of a Government institution (CEPLAC) to stimulate cocoa production in Bahia.

The Fund for the Modernization and Recovery of National Agriculture was the original agios fund, created by Law 2145. It was the balancing item for all other allocations. Negative balances were covered with positive ones from previous years.

Therefore, in terms of the official exchange rate the agios could be considered as a tax on imports which was used to pay a "premium" to exporters and to stimulate agriculture. But in terms of the average import rate the agios could be considered as a transfer from the export sector to the agricultural sector. This, of course, is to some extent a transfer from agriculture to agriculture itself.

In the existence and use of the agios fund there is the implicit assumption that the Government was in a better position to allocate farm income than farmers themselves. The agios were partly used to redistribute income generated by export crops to other enterprises, and partly used to stimulate the same export crops which generated it. The fact that these resources ended up being increasingly used to purchase surplus coffee is indicative that their main objective,which was originally specified as the development of agriculture in general, could not be accomplished.

Evidence to this end can be found in the deflated cruzeiro figures shown in Table 6.4. If columns (2) and (7) are considered as investments made in the coffee sector, the total amounts to Cr$77,728 million. This means that coffee was receiving 71.7 percent of the total agios, and

Table 6.4. Distribution of Total Agios Other than Paying Export "Premiums", Deflated Cruzeiros, Brazil, 1953-61.

Year	Fund (1)	IBC (2)	CFP (3)	Law 2698 (4)	Decree 40897 (5)	Law 2145 (6)	Other (7)	Total (8)
					Cr $ Million			
1953	-	-	-	-	-	2,026	-	2,026
1954	4,111	1,825	873	-	-	5,606	-	12,416
1955	-	3,926	5	-	-	1,461	-	5,392
1956	7,210	-	-	1,010	-	1,372	-	9,593
1957	-	-	-	1,451	481	- 945	1,299	2,286
1958	-	-	-	1,329	-	- 497	22,288	23,120
1959	-	-	-	1,663	-	-1,276	20,498	20,885
1960	-	-	-	945	-	2,152	25,054	28,151
1961	-	-	-	358	-	1,285	2,838	4,481
Total	11,321	5,571	878	6,756	481	11,184	71,977	108,350

Source: See Table 6.3; FGV, Conjuntura Economica, wholesale price indices.

approximately 70 to 80 percent if the total balance (column (6)) is subtracted from column (8).[9/] Given the fact that coffee contributed, during that period, an average share of 65 percent of total export proceeds, this sector was collecting more than it was paying. Therefore, a reallocation from other exports to coffee was in effect.

Actual and Effective Exchange Rates

Another approach to analyzing the position of exports and agriculture in response to Brazil's commercial policy is through an analysis of the prevailing exchange rate system. The considerable official overvaluation of the Brazilian currency, together with variable subsidies and taxes, were translated into favorable exchange rates for certain imports as compared to others, and in a general disincentive to exportation. However, the extent of overvaluation can only be measured if a common denominator like an equilibrium exchange rate is available.[10/] It has already been shown that the existing free market rates were closely dependent on official export and import rates. It is not likely to be very helpful, therefore, to use differences between the prevailing "free market" rates and official rates as measures of absolute or relative taxation or subsidy to exports or imports.[11/] For this reason, estimates of product protection are made later in this Chapter with the use of estimated equilibrium exchange rates.

9/ The data in column (6) are a residual balance.

10/ In the review of literature, Chapter I, especial reference was made to the "equilibrium" exchange rates estimated by Bergsman (1970), and Knight (1971).

11/ However, these rates have been used as approximations of true free rates. They were used by Gudin (1969), p. 10, to measure the subsidy extended to the industrial sector.

In the present section estimates of exchange rates applied by Brazilian trade policy are presented, as instruments for further analysis. Estimates of the prevailing exchange rate differentials between exports and imports are also presented, as are some preliminary measures of export taxation. For this purpose, actual rates of exchange resulting from the existing exchange policy will be estimated and analyzed. Then, other trade policy tools like tariffs and taxes will be brought into the picture for the estimation and analysis of effective exchange rates.

Actual Exchange Rates

Table 6.5 shows the average exchange rates for imports and exports that resulted from agios paid by importers and bonuses received by exporters. Their computation was based partly on data for partial aggregates and resulted in approximations as close as possible. The difference between import and export rates would measure the overvaluation of the export relative to the import dollar, assuming that invisibles and capital movements do not enter the balance of payments.

A major limitation of the series in Table 6.5 is that starting in October 1958 exports began to be transferred to the free exchange market, and transactions in this market have not been taken into account in their computation. As a result, comparisons between import and export rates for the years 1959 and 1960 are not very relevant. The same might also be true for the 1958 rates.

A check on these results is provided by Table 6.6, which shows the exchange rates computed directly from total values in cruzeiros and dollars, as reported by Brazilian foreign trade statistics. A comparison with

Table 6.5. Exchange Rates Resulting from Import "Agios" and Export "Premiums", Brazil, 1953-60.

Year	Import rate[b]	Export rate[c]
	Cr$/US$	
1953[a]	41.32[d]	25.07[g]
1954	44.92[d]	28.81[g]
1955	52.25[e]	38.27
1956	66.36	41.21
1957	60.01 [f]	45.18[h]
1958	92.59 [e]	55.73 [i]
1959	117.31 [e]	79.41[i]
1960	149.07 [e]	78.17[i]

Source: SUMOC, Boletim.

a/ October-December.

b/ Weighted average rate comprising the offical exchange rate (Cr$18.82/US$ in 1953-58, and Cr$18.92/US$ in 1959-60) plus all-auction and preferential imports average agio per dollar. Based on the "taxa media global" as reported by SUMOC Boletim.

c/ Corresponds to the "custo de cambio" (exchange cost). Comprises the official exchange rate (Cr$18/36/US$) plus the average premium per dollar paid to exporters.

d/ Rate resulting from exchange auctions only.

e/ Annual rate computed from semester data weighted by "agios".

f/ Annual rate computed from data for first semester, July-August, and September-December, weighted by "agios".

g/ Rate computed from data for coffee and "other exports", weighted by contribution to total export value.

h/ Rate computed from data for first semester, July-August, and September-December, weighted by premiums paid to exporters.

i/ Rate computed from semester data weighted by premiums paid to exporters.

Table 6.6 Exchange Rates Resulting from Actual Imports and Exports, Brazil, 1953-60.

Year	Import rate	Export rate
	Cr$/US$	
1953[a]	19.68	23.30
1954	33.82	27.51
1955	46.09	38.31
1956	58.03	40.13
1957	58.07	43.59
1958	76.37	51.29
1959	117.34	85.38
1960	137.62	115.96

Source: 1954-60-Appendix A; 1953 - SEEF, Comercio Exterior.

[a] October-December.

Table 6.7. Overvaluation of "Premium"-Based and Current Export Exchange Rates as Compared to Current and Agio-Based Import Exchange Rates, Brazil, 1953-60.

	Exchange rate overvaluation[a]	
	$(R'/R)-1$ (1)	$(R''/R^*)-1$ (2)
1953[b]	-15.5	64.8
1954	22.9	55.9
1955	20.3	36.5
1956	44.6	61.0
1957	33.2	32.8
1958	48.9	66.1
1959	37.4	37.4
1960	18.7	28.6

Source: Tables 6.5 and 6.6. R'=import rate, Table 6.6; R''=import rate, Table 6.5; R=export rate, Table 6.6; R*=export rate: 1953-58 - Table 6.5, 1959-60 - Table 6.6.

[a] Overvaluation as a percentage of export rate.

[b] October-December

Table 6.5 shows greater differences between import than between export rates.[12/] Since import data are given in C.I.F. terms, this may be due to the fact that exchange purchased in one period (Table 6.5) pays for imports brought only in the next period (Table 6.6). This is also why the data in Table 6.5 might be better suited to measure Government-oriented differences in exchange rates than the data in Table 6.6. Each pair of observations refers to exchange transactions made in the same time period.

A possible solution to the problem of obtaining exchange rates that result from current exchange transactions would be to substitute export rates for 1959 and 1960 from Table 6.6 for the rates in Table 6.5 as approximations of the true rates. Table 6.7 presents two measures of the overvaluation of export exchange rates relative to import exchange rates. The first (column 2) results from this substitution, while the second (column 1) is based on actual exports and imports.[13/] Column (1) shows an increasing overvaluation up to 1958 and a reduction thereafter. Column (2) also has a peak in 1958, but the trend in the earlier period is uncertain, with a greater overvaluation in 1953-54 and 1956. Since the latter estimate seems to better reflect changes in policy, one could conclude that adjustments in import and export rates were effected in connection with each other, but with time lags in between. It seems that only when adjustments in one direction had shown their effects were changes in the opposite direction taken by policy makers.

12/ The opposite happened after 1958 due to the already mentioned export transfer to the free market.

13/ These estimates do not take into account other important price differentials like tariffs and other taxes. These will be considered in the next section.

Another finding from these data is the reduction in export penalization after 1958. Since the tariff reform of 1957 was considered to be a substitute for taxation through the exchange system, one should expect a reduction in the relative differences between import and export rates in 1958. However, the opposite in fact happened, and it was only after a sizeable number of export items were shifted to the free exchange market that export taxation was reduced.

In addition to this evidence on the relative exchange rates for imports and exports, a further analysis can be made with respect to the different export groups as compared to the general average "exchange cost". Estimates of the average exchange rates at which export categories were paid are shown in Table 6.8. These data show that coffee, in 1953 and 1954, and the first and second categories, in the remaining years (only first category in 1959 and 1960), were consistently below the average "exchange cost". These were, therefore, the most penalized exports, and included the following commodities: coffee, cocoa beans and other cocoa products, cotton fiber, castor seeds, bananas, Brazil nuts, hides, carnauba wax, leaf tobacco, pine lumber, and iron ore. Only coffee was continuously in the first export category; cocoa beans were in the first or second category most of the time, and other exports remained in these categories only for short periods. Agricultural products comprised, therefore, the large majority of exports paid at exchange rates below "exchange cost".

An estimate of the rate of taxation can be made by assuming that exports could have been paid at the same exchange rate charged importers. Using such a procedure an estimate of the taxation on coffee exports

Table 6.8. Average Unit Value of the Export Dollar ("Exchange Cost"), Brazil, 1953 - 60

Item	1953 a/	1954	1955	1956	1957	1958	1959	1960
	Cr$/US$							
Coffee	23.36	27.41	-	-	-	-	-	-
Other exports	28.36	30.98	-	-	-	-	-	-
"Exchange cost"	25.07	28.81	38.27	41.21	45.18	55.73	79.41	78.17
First category	-	-	30.78	36.74	39.46	45.29	69.39	76.00
Second category	-	-	36.39	37.54	42.20	42.83	87.61	100.00
Third category	-	-	41.89	48.19	54.13	64.29	100.00	-
Fourth category	-	-	48.82	56.29	63.13	83.29	-	-

Source: SUMOC, Boletim. Exchange rates computed as described in notes (c), (g), (h), and (i), Table 6.5.

a/ October-December

was made for the period 1954-60. The results are shown in Table 6.9, together with data on the value of total coffee exports, and an estimate of the rate of implicit taxation in percentage terms. Except for the peak in 1958 (56.2 percent), taxation was always close to 40 percent, even in 1959-60 when most exports were liberated from exchange controls.

Effective Exchange Rates

Exports of Agricultural Products

The following analysis involves a comparison of effective exchange rates for agricultural exports and the major import groups. Effective exchange rates include not only exchange differentials but also taxes and tariffs; therefore, they can be much different from exchange rates derived from "cost of exchange" and "agios". In the presence of tariffs, exchange differentials picture only part of the protection enjoyed by domestic manufacturers as compared to agricultural producers. Starting in late 1957, however, tariffs were used not only to raise public funds and to protect domestic industries but also to provide a substitute for official currency devaluation. The extent to which each of these objectives were attained is of some interest. As far as the latter is concerned, Table 6.10 shows that, previous to 1958, devaluations implicit in the effective rates for imports were not so important as they were after 1958 (column 3). However, if tariffs are excluded (column 4) changes in the import exchange rates are still larger than changes in the general price index (column 5). Therefore, the devaluating functions performed by tariffs substantially increased that which was implicit in exchange rate adjustments.

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Table 6.9. Estimates of the Taxation of Coffee Exports Through Exchange Policy, Brazil, 1954-60.

Year	Coffee exports (1)	Taxation (2)	(2)/[(1) + (2)]
	- - - - - Cr$1,000,000 - - - - -		(percent)
1954	24,813	16,601	40.1
1955	30,367	18,119	37.4
1956	37,710	30,502	44.7
1957	30,993	17,376	35.9
1958	25,390	32,538	56.2
1959	51,559	35,654	40.9
1960	59,377	52,078	46.7

Source: (1) Table B-2; (2) Tables 6.5, 6.8, and B-3.

Note: Taxation = (Import rate minus coffee export rate) dollar coffee exports.

Table 6.10. Import Effective Exchange Rates for Exports and Imports, Average Tariffs, and General Price Index, Brazil, 1953-65.

Year	Effective exchange rate for imports (1)	Tariff (2)	Index of exchange rates for imports: Effec. rate (3)	Index of exchange rates for imports: Exclud. tariff (4)	General price index (5)	Index of effective exchange rate for imports
	Cr$/US$		1955=100			
1953	19.1	-	39	39	68	61
1954	35.2	-	72	72	86	72
1955	49.1	-	100	100	100	100
1956	60.9	-	124	124	120	105
1957	59.6	-	121	121	136	114
1958	112.0	29.4	228	168	155	134
1959	154.7	36.9	315	240	214	223
1960	186.8	42.1	380	295	275	303
1961	290.3	85.1	591	418	378	456
1962	489.7	146.9	997	698	573	660
1963	754.0	233.7	1,536	1,060	995	1,020
1964	1,411.3	451.0	2,874	1,956	1,899	2,150
1965	2,396.0	640.3	4,880	3,576	2,989	3,624

Source: Columns 1 and 2 - Morley (1969), Appendix Table 1 (aggregation weighted by imports from Appendix Table 4); column 5 - Conjuntura Econômica, index 2; column 6 - Appendix A.

The protective function performed by tariffs is also shown in Table 6.10. Up until 1958, exports, as compared to imports, were being penalized by the exchange policy (columns 3 and 6). Starting in 1959, however, with export liberalization, the relative differences in exchange rates were largely eliminated (columns 4 and 6) and tariffs assumed the discriminating role (columns 3 and 6). Thus, differences in the effective exchange rate remained throughout the period, with the difference maintained in the latter period by means of tariffs rather than by means of explicit differences in the exchange rates.

In order to broaden the frame of reference effective exchange rates were also calculated for different export and import groups. Agricultural export rates for foodstuffs and raw materials (Table 6.11) were obtained by a simple division of cruzeiro by dollar values of actual FOB exports; the results were reduced by 10 percent to allow for port taxes. Import rates were taken from Morley (1969) and are shown in Table 6.12.

The main series in these tables are presented in the form of graphs in Figures 6.1 to 6.3. These graphs have a vertical log scale in order to show relative differences between the lines. They compare effective exchange rates for agricultural exports (total and non-coffee) to effective exchange rates for the imports of consumer goods (durable and non-durable), intermediate goods (fuels, metallic and non-metallic), and capital goods (industry and transportation).

A common pattern in these graphs is that during the period from 1957 through 1959, under the Kubitschek Government, there was a general increase in protection to manufactures as compared to agriculture. Previous to that there was a period of increasing protection from 1953 through 1956,

Table 6.11. Adjusted Effective Exchange Rates[a/] for Exports of Agricultural Products, Brazil, 1953-65.

Year	Foodstuffs			Agric. exports	
	Non-coffee	Total	Raw materials	Non-coffee	Total
	- - - - - - - - - - - - - - - - Cr$/US$ - - - - - - - - - - - - - - - -				
1953	20.08	18.20	21.37	20.89	18.73
1954	27.36	24.23	26.40	26.75	24.75
1955	39.60	33.81	36.28	37.64	35.36
1956	43.33	34.24	42.86	43.05	35.63
1957	49.39	36.09	48.76	49.05	38.32
1958	59.62	40.35	64.80	61.69	44.10
1959	95.00	69.86	104.25	99.13	75.22
1960	122.92	86.33	161.29	140.63	98.97
1961	206.38	125.02	229.63	219.60	149.88
1962	323.90	175.63	327.56	326.29	214.50
1963	498.83	286.17	498.72	498.77	334.35
1964	1,034,59	565.41	997.62	1,009,87	684.07
1965	1,642.95	1,010.97	1,616.85	1,628.62	1,164.60

Source: Table 4.9.

[a/] The effective exchange rates were obtained by a simple division of cruzeiro by dollar values of actual FOB exports. The results were adjusted by port taxes by reducing them by 10 percent.

Table 6.12- Effective Exchange Rates for Major Import Groups, Brazil, 1953-65.

Year	Consumer Goods		Intermediate Goods			Capital Goods				Wheat
	Non durable	Durable	Fuels	Metallic	Non metallic	Construction material	Agriculture	Industry	Transportation	
	Cr$/US$									
1953	20.6	19.1	18.8	18.9	19.3	18.9	19.0	18.9	19.0	18.8
1954	36.4	45.2	28.8	37.2	36.8	34.2	31.2	32.6	46.0	24.5
1955	49.2	72.0	46.7	56.7	50.4	45.0	46.4	45.7	50.9	25.5
1956	61.2	95.7	49.2	74.7	64.6	59.3	63.0	59.9	64.7	30.8
1957	67.7	97.6	52.4	68.2	56.8	56.7	56.8	55.7	63.1	51.7
1958	136.8	200.7	113.1	132.3	127.6	116.5	96.0	92.6	93.4	64.3
1959	216.1	281.8	179.4	207.8	178.9	158.0	152.3	127.2	104.8	99.7
1960	250.4	331.7	182.6	223.0	205.9	181.8	177.5	146.0	149.8	100.0
1961	390.2	448.6	313.3	290.9	298.9	265.7	234.8	243.4	236.0	222.1
1962	572.3	664.8	476.5	442.5	509.6	515.0	419.8	449.9	509.5	357.6
1963	901.0	1,052.7	697.6	675.8	795.3	784.9	660.2	707.5	755.0	560.6
1964	1,710.6	1,975.7	1,360.7	1,240.6	1,465.1	1,443.4	1,125.2	1,329.4	1,293.3	1,110.6
1965	2,608.1	3,079.5	2,442.5	2,185.1	2,424.1	2,481.9	2,108.6	2,183.5	2,259.4	1,866.6

Source: Morley (1969), Appendix Table 1.

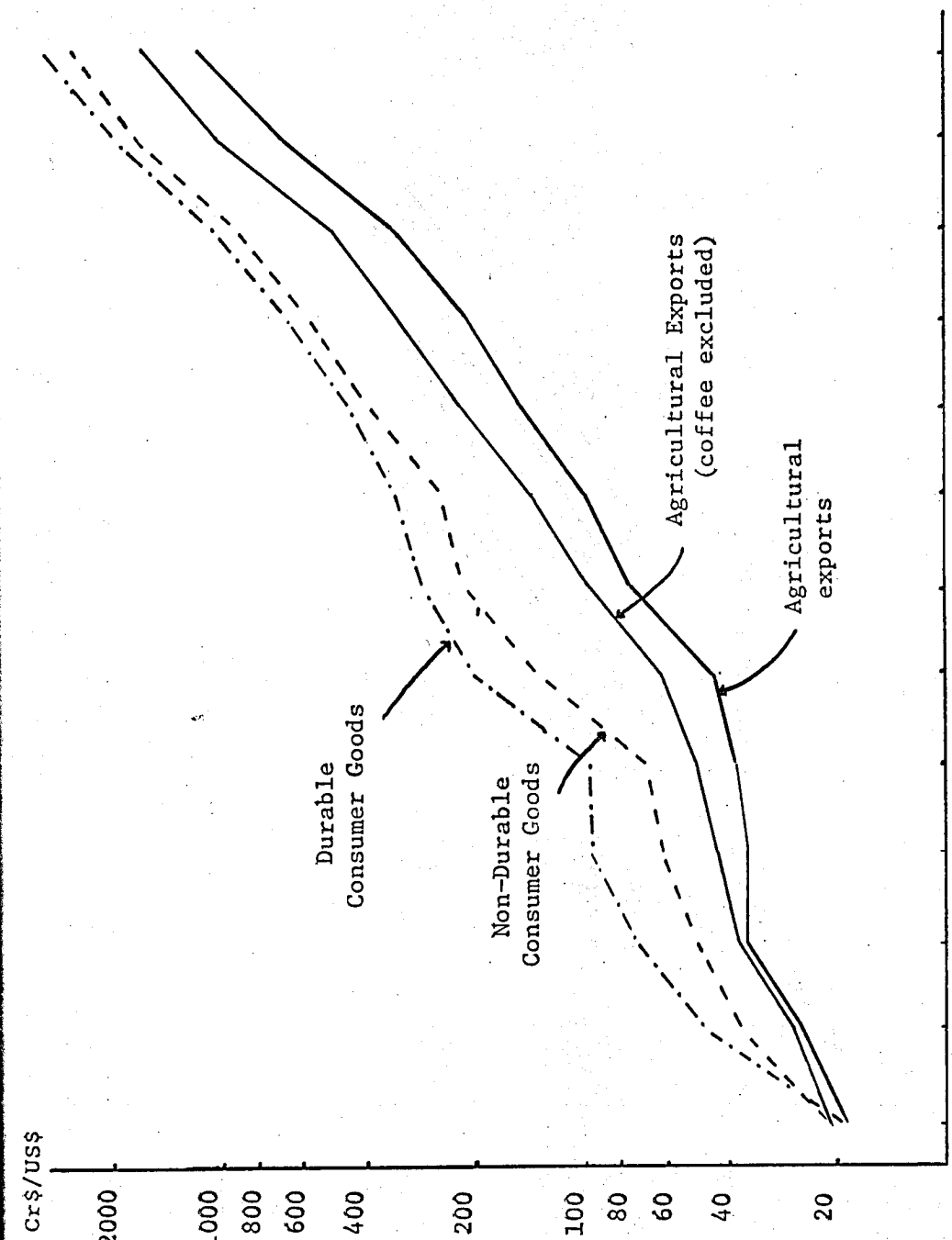

Figure 6.1. Effective Exchange Rates for Agricultural Exports and Imports of Manufactured Consumer Goods, Brazil, 1953-65.

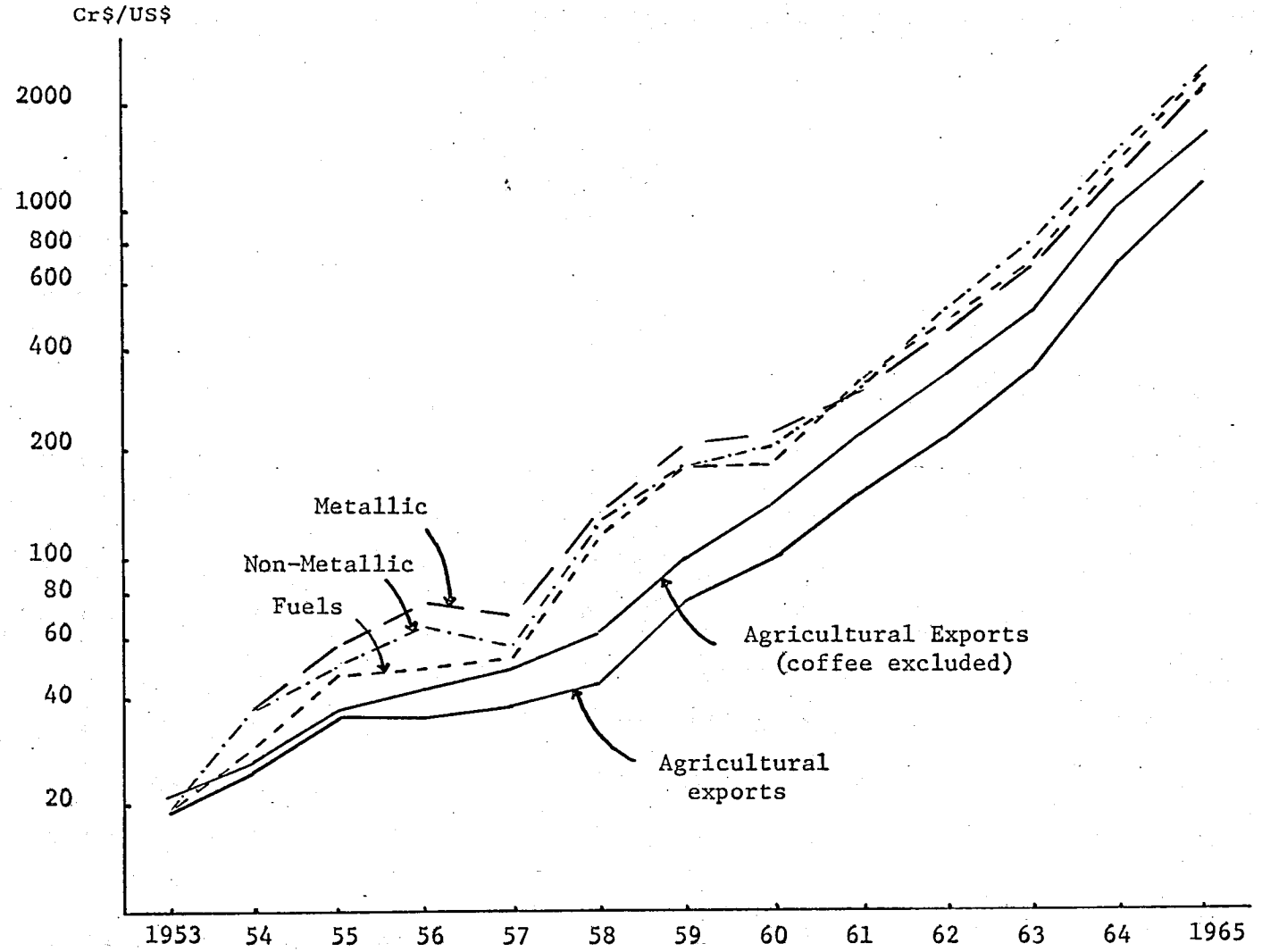

Figure 6.2. Effective Exchange Rates for Agricultural Exports, and Imports of Manufactured Intermediate Goods, Brazil, 1953-65.

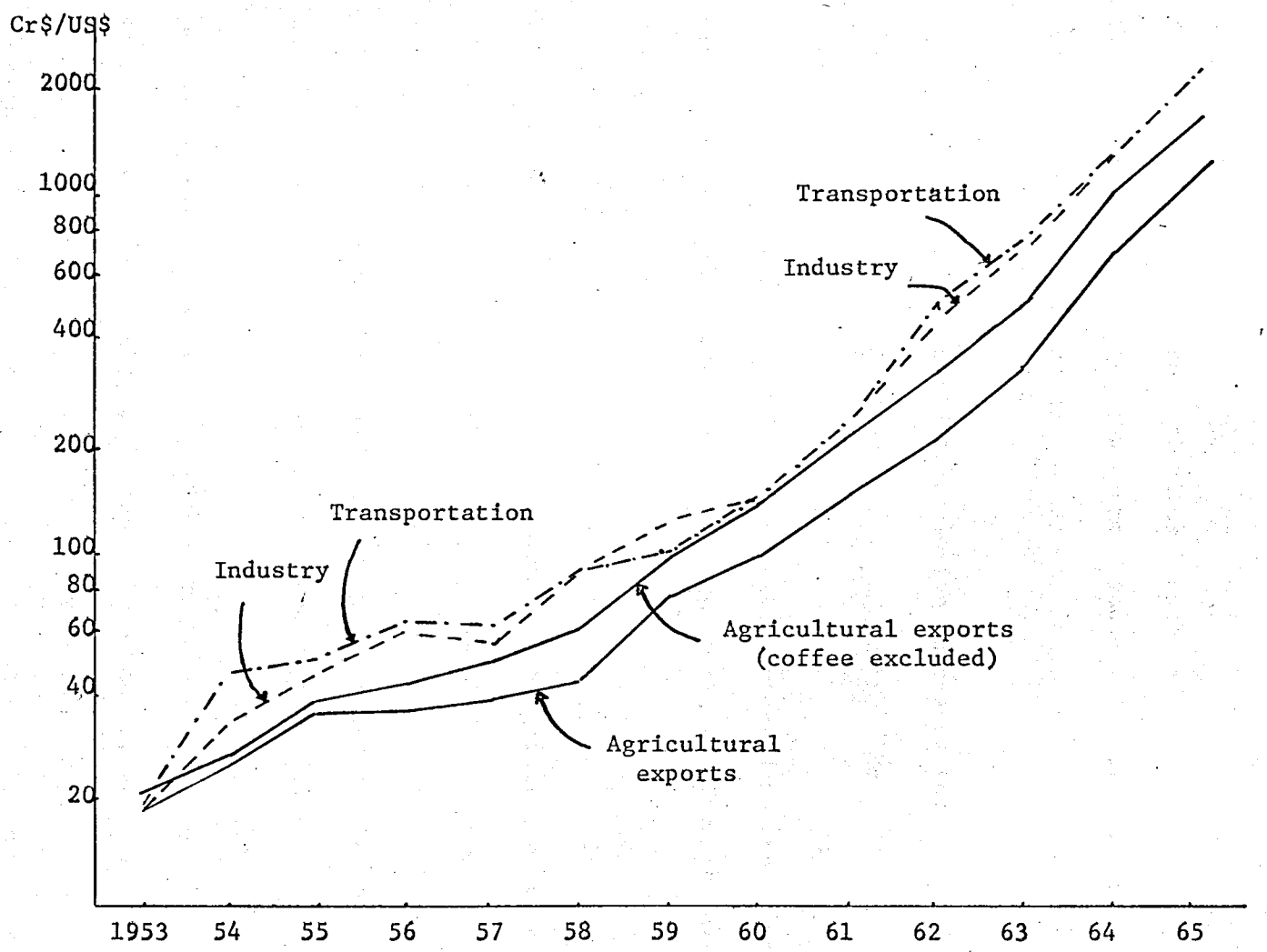

Figure 6.3. Effective Exchange Rates for Agricultural Exports, and Imports of Manufactured Capital Goods, Brazil, 1953-65.

and a stationary or declining protection through 1957. From 1959 through 1961 protection declined somewhat, and was maintained largely the same until 1965.

In addition, the data show that the relative differences between industrial as compared to agricultural exchange rates were greater for consumer goods and smaller for capital goods. Durable consumer goods was the most protected group and capital goods for industry the least protected.

These differences reflect successive phases of the import-substitution policy after multiple exchange rates were introduced. The position of agricultural exports in relation to exchange policy was usually dependent upon the Government's need to keep domestic prices down and to stimulate given preferential imports. But after the tariff reform, the discriminating role among imports was transferred from the exchange to the tariff system (see Table 6.10). With exports lagging there was incentive to liberate the exchange rate for exports. Since agricultural prices in world markets were declining, it was possible to liberate the export exchange rate without serious adverse price effects in the domestic economy.

A major observation should be made with regard to the above findings, however, As the import substitution process proceeds, a number of imports are gradually replaced by domestic production, favored, in general, by protective exchange rates or tariffs. Therefore, the import structure tends to change over time, and becomes more concentrated in less-protected items. This means that if the 1954 import structure were maintained through the 1960's, the effective exchange rates might have been quite different.

Evidence on this point is presented in Table 6.13. It shows that there was a substantial reduction in the imports of consumer goods (mainly durable)--the most protected group, a smaller reduction in capital goods, a small increase in intermediate goods and a large increase in imports of fuels, one of the least protected groups.

On the other hand, under taxation, the export structure tends to remain constant or to change in favor of items paid at higher exchange rates. In the Brazilian case the response to these changes is not clear in the short run because of a delayed response to export incentives due to quantitative controls and the large price fluctuations that might overshadow the effects of differential exchange rates. In the longer run, however, changes would take place. An example of this is that coffee became a smaller share of total Brazilian exports over time (Table 4.5), and it was the sector which received the most serious discrimination.

Both structural changes described above tend to introduce a downward bias in the effective exchange rate series for imports, and an upward bias in the effective exchange rate series for exports. This is an important reason why data on price ratios might contribute more to an understanding of inter-sectoral unbalances that result from import-substituting industrialization than would data on effective exchange rates.

Imports of Agricultural Inputs

Even though agricultural exports were penalized by the prevailing exchange policy, it is not so clear that there was not discrimination against the agricultural sector, since imports of certain inputs received preferential treatment. Material presented in Chapter V showed that one of the most

Table 6.13. Import Structure by Major Groups, Brazil, 1948-61.

Year	Consumer goods			Fuels	Intermediate goods			Capital goods	Total
	Durable	Non-Durable	Total		Metallic	Non-Metallic	Total		
	percent								
1948	9.8	7.5	17.3	13.0	6.9	23.5	30.4	39.3	100.0
1949	8.2	7.4	15.6	13.4	9.4	24.9	34.3	36.7	100.0
1950	6.4	7.0	13.4	13.7	9.0	26.9	35.9	37.0	100.0
1951	9.3	6.6	15.9	11.4	8.2	23.7	31.9	40.8	100.0
1952	6.0	6.8	12.8	13.1	7.3	20.9	28.2	45.9	100.0
1953	2.1	7.4	9.5	20.1	9.8	28.6	38.4	32.0	100.0
1954	2.6	6.4	9.0	18.3	14.4	27.9	42.3	30.4	100.0
1955	1.7	7.6	9.3	22.8	9.4	31.3	40.7	27.2	100.0
1956	1.7	7.9	9.6	24.6	8.7	30.6	39.3	26.5	100.0
1957	1.9	6.4	8.3	19.0	9.3	26.3	35.6	37.1	100.0
1958	2.1	4.7	6.8	21.7	7.2	26.0	33.2	38.3	100.0
1959	2.0	4.3	6.3	19.3	6.8	25.9	32.7	41.7	100.0
1960	1.4	5.6	7.0	22.2	8.3	29.1	37.4	33.4	100.0
1961	1.2	6.2	7.4	22.7	9.5	28.8	38.3	31.6	100.0

Source: United Nations (1964), Table 9-A.

favored import groups was that of agricultural inputs. In the present section effective exchange rates for agricultural exports and for imports of agricultural inputs will be compared for the purpose of analyzing the extent to which the Government was able to provide the agricultural sector with modern resources at terms comparable to those offered for its output.

Effective exchange rates for agricultural exports were presented earlier in Table 6.11. Effective rates for imports of agricultural inputs are presented in Table 6.14. These rates were obtained by a simple division of cruzeiro by dollar values of actual FOB exports and CIF imports. Both have a 10 percent adjustment for port charges and taxes; this percentage was deducted from the export rate and added to the import rate in order to reflect its effect on export earnings and import payments. The import rates are also adjusted for tariffs starting in 1958, with the basis of the adjustment being the material presented in Chapter V.

The main series from these tables are graphed in Figure 6.4. This graph has a vertical log scale in order to show relative differences between the lines. Exchange rates for total agricultural exports and for non-coffee agricultural exports are compared with exchange rates for intermediate and capital inputs for the agricultural sector. The data show that imports of intermediate inputs were favored relative to capital inputs, and that non-coffee agricultural exports enjoyed a relatively favorable position with regard to both during at least part of the period. The data also show that it was always more difficult for coffee producers to take advantage of this subsidy policy.

Table 6.14. Effective Exchange Rates for Agricultural Input Imports, Brazil, 1953-66.

Year	Intermediate Inputs				Capital Inputs				Total
	(1)	(2)	(3)	Total	(1)	(2)	(3)	Total	
	Cr$/US$								
1953	20.88	20.92	21.04	20.90	20.66	20.72	21.64	21.10	21.00
1954	32.21	34.83	32.66	33.31	33.48	32.46	34.23	33.32	33.31
1955	44.03	47.53	44.93	44.52	51.75	49.41	47.49	49.74	47.31
1956	49.96	51.87	49.52	50.16	77.52	62.15	67.45	68.46	59.67
1957	49.02	50.23	50.86	49.32	63.66	60.58	59.38	61.43	56.10
1958	56.66	58.46	114.89	59.80	77.04	90.26	84.02	80.78	69.45
1959	92.47	91.92	190.77	96.32	116.65	130.87	161.59	128.43	109.75
1960	103.70	101.46	213.86	109.11	135.96	136.57	204.30	150.23	132.40
1961	152.63	150.03	263.74	157.71	171.01	207.54	229.70	194.19	176.00
1962	346.11	329.60	380.16	343.13	301.76	465.40	340.71	346.93	344.80
1963	528.90	513.77	567.87	529.45	464.28	677.98	507.84	525.66	528.69
1964	971.25	972.67	1 004.28	974.27	732.95	1 179.03	767.73	827.93	913.39
1965	1 745.24	1 744.46	1 842.76	1 750.16	1 664.97	2 122.33	1 709.82	1 766.75	1 754.74
1966	2 180.14	2 152.68	2 309.04	2 184.13	2 208.45	2 663.61	2 152.32	2 239.07	2 199.36

Source: Tables 5.12 and 5.14.

Note: Intermediate Inputs: (1) Fertilizers; (2) Pesticides; (3) Other intermediate inputs.

Capital Inputs: (1) Tractors; (2) Machinery and tools; (3) Other capital inputs.

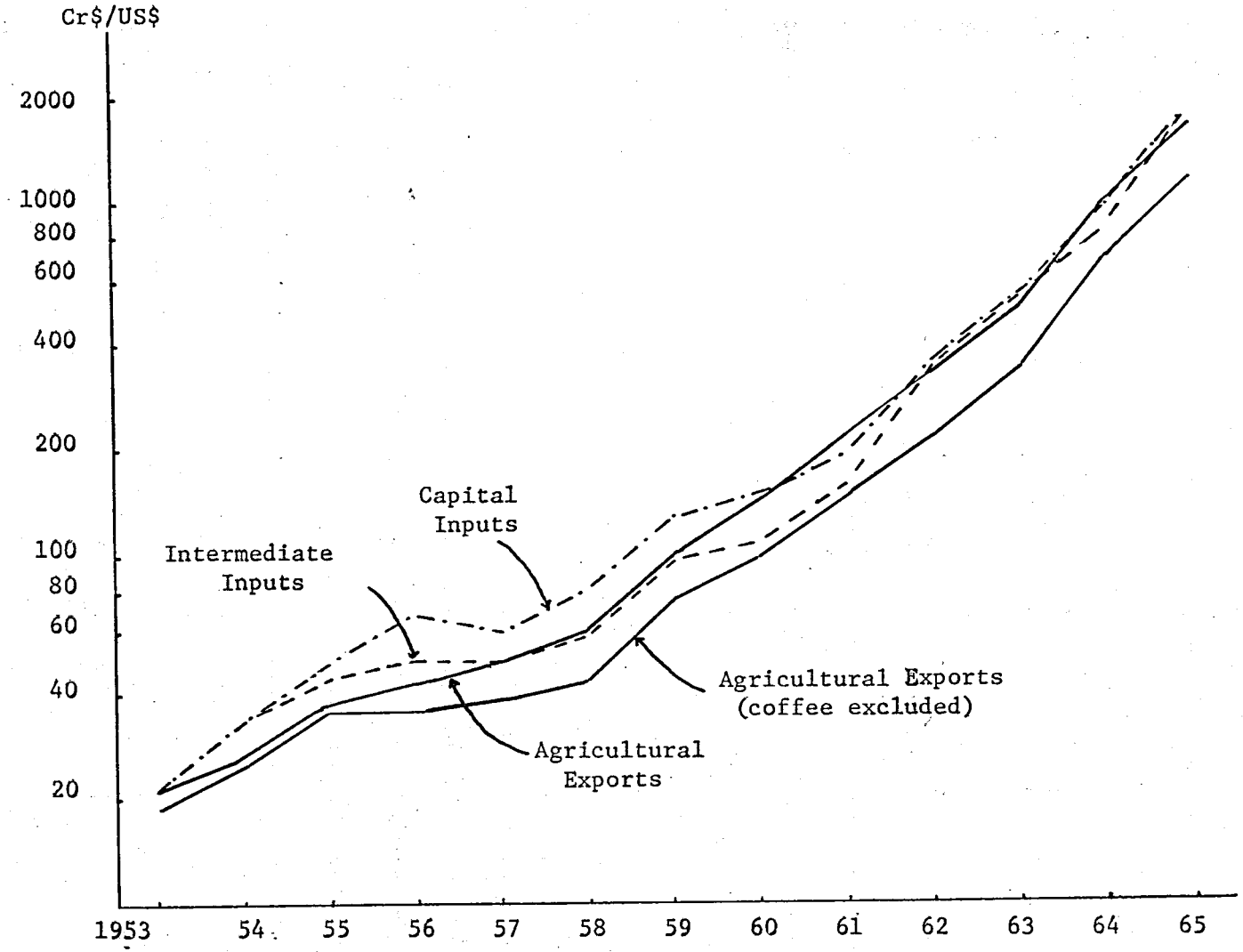

Figure 6.4. Effective Exchange Rates for Agricultural Exports, and Imports of Agricultural Inputs, Brazil, 1953-65.

During the period 1953-56 there was a growing discrepancy between the exchange rates for agricultural exports and agricultural imports. This disparity continued up through 1959, especially for capital inputs.[14/] This may explain some of the issues discussed in Chapter V, including the complaints about high prices of fertilizers and pesticides and the increase in domestic production of fertilizers in the mid-1950's.

Ratios of the effective exchange rates for agricultural exports relative to the effective rates for imports of agricultural inputs were also calculated. The ratios based on non-coffee agricultural exports were consistently above 0.80 for intermediate inputs throughout the period, and below 0.80 for capital inputs up through 1959. From 1959 to 1961, with export liberalization, exchange ratios were increasingly favorable to exports. But as the imports of inputs were turned to the free exchange market, the ratios declined again.

The structure of input imports changed throughout the study period. Evidence to this end is presented in Appendix B and Table 5.5. Over time there was substantial increase in the importance of intermediate inputs--fertilizers in particular--relative to capital inputs. This was the result of incentives provided for domestic production of tools, machinery, and tractors, while the industries of fertilizers and pesticides were only partially protected. Such structural changes may have influenced the ratios by reducing the importance of imports of capital inputs after 1962, and contributing to a more stable pattern towards the end of the period.

14/ A greater protection for capital inputs began to take place in the early 1960's, through incentives to the tractor industry.

A final appraisal of the import policy with respect to agricultural inputs has to take into account the effort made by the Government to compensate agriculture for the price effects resulting from its export exchange policy. On the other hand, it should be recognized that these efforts were only partly successful not only because Brazilian agriculture has been a small consumer of modern inputs, but also because the exchange subsidy extended to the import of inputs was not sufficient to offset the difference between import and export exchange rates.

Effects of Discriminatory Policies on Relative Prices

It has been shown that commercial policies associated with the import substitution industrialization drive clearly discriminated against agricultural exports. Evidence to this end was presented by means of exchange rate comparisons and data on the retentions of export proceeds. These analyses, however, have limited the scope of the study to the foreign trade sector.

The combination of these policies together with efforts to fight a persistent domestic inflation through price-freezing methods and quantitative controls are likely to have had a decided influence on the system of relative prices by adversely affecting the whole set of agricultural products as compared to production from other economic sectors. This possibility is investigated in this section, where domestic and world wholesale price trends are analyzed. The analysis is made by examining intersectoral price ratios, and by applying the concepts of implicit exchange rates and product protection.

Agriculture-Industry Relative Price Ratios

Technical Limitations

As pointed out previously the price index estimated for the manufacturing sector could only be taken as representative of specific sub-sectors which include mostly intermediate producer goods. These sub-sectors are fuels, metals, construction materials, hides and shoes, textiles, chemicals, and other goods comprising mainly the paper and rubber industries. Data to represent non-durable consumer goods and producer capital goods is very scarce, and for durable consumer goods it is non-available.

This fact implies a number of restrictions to the scope of the results obtained. As pointed out in Chapter I, previous studies dealing with import substitution in Brazil found that higher protection was given to the consumer goods sub-sector, whereas intermediate goods and capital goods received moderate and low protection, respectively.

It should not be expected, then, that price indices which largely reflect the intermediate goods sub-sector of industry would provide a clear picture of trends in the prevailing inter-sectoral price differentials. In terms of effective exchange rates, evidence was produced[15/] above which showed that imports of intermediate goods were favored over imports of consumer goods, but suffered some discrimination in relation to the imports of capital goods. This may mean that the present price indices can be taken as intra-sectoral "compromise" indices, though they obviously cannot be considered as representative of the whole structure

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15/ See Tables 6.11, 6.12, and Figures 6.1, 6.2 and 6.3.

of industrial production prevailing throughout the period.

Evidence

The analysis of domestic price ratios has to take account of what was happening in world markets. If domestic relative prices do in fact reflect the effects of protection to national industries and discrimination against agriculture, one should expect, based on previous analysis, that during the period 1946-54 any possible deterioration in the agriculture-industry relative price ratios as a result of trade policy may have been offset to some extent by the prevailing favorable world prices. Similarly, during the second half of the 1950's any deterioration in domestic price relatives as a result of trade policy could have been aggravated by the prevailing decline in world prices and increase in domestic price controls, but reduced by gradual trade liberalization. During the 1960's, domestic price controls, greater trade liberalization, variable world prices, and slow exchange rate adjustments provide a rather mixed background for the analysis. Other influential variables would be the protection differentials prevailing among industrial sub-sectors.

Intersectoral price ratios based on the Getulio Vargas Foundation's wholesale price indices are presented in Tables 6.15 and 6.16. Similar ratios synthesized from data collected by the author are shown in Table 6.17. Price ratios between agriculture (and sub-sectors) and industry (and sub-sectors) are presented in Tables 6.18, 6.19, and 6.20. As a rule, these data show that previous assumptions about relative price behavior are sustained. Table 6.15, column (1), shows an increase in the ratio up to 1952-54, a sizeable reduction up to 1956-61, and a variable situation afterward. When coffee is excluded from the agricultural

Table 6.15. Relative Price Ratios Between Agriculture and Industry, Moving Averages, Brazil, 1946-48 to 1965-67.

Period	Agriculture[a/]	Coffee[b/]	Agriculture coffee excluded[c/]
1946-48	88.4	87.2	83.5
1947-49	99.0	104.2	92.4
1948-50	108.0	143.3	96.9
1949-51	117.9	180.4	98.3
1950-52	127.2	207.1	102.1
1951-53	129.8	205.9	107.0
1952-54	130.3	214.3	106.3
1953-55	128.4	208.5	106.5
1954-56	124.2	197.0	104.5
1955-57	117.8	169.0	104.7
1956-58	109.4	145.7	100.0
1957-59	101.4	120.5	96.3
1958-60	99.8	103.0	98.9
1959-61	99.0	87.7	102.0
1960-62	104.4	84.2	108.3
1961-63	102.5	73.6	107.3
1962-64	105.3	87.1	106.5
1963-65	100.3	92.3	99.4
1964-66	101.1	96.4	99.4
1965-67	98.6	78.6	100.6

Source: Computed from Fundacao Getulio Vargas annual indices (Tables D-23 and D-40) with a base period 1958-60=100.

a/ Index 46 (agricultural products) divided by index 49 (industrial products).

b/ Index 47 (coffee) divided by index 49 (industrial products).

c/ Index 48 (agricultural products, coffee excluded) divided by Index 49 (industrial products).

price index, the ratio (column (3)), has a somewhat similar patter, with the first peak attained in 1951-53, a low point in 1957-59, and the highest point of all in 1960-62. But clearly the timing was slightly different and the relative shifts were quite different.

These data suggest that the penalization of agriculture by means of trade policy was not sufficient to prevent the agriculture-industry relative price ratios from improving after World War II. Moreover, when the ratios declined they still remained well above the levels that prevailed in the immediate post-World War II period.

A superficial look at the specific industrial sub-sectors that make up the index (Table 6.16) would suggest that the sectors contributing to a greater improvement in agriculture's relative prices were fuels, metals, and chemicals, because the index of agricultural prices relative to each of them were high in the early- and mid-1950's peak period. This would be consistent with the fact that traditional industrial branches (textiles, construction materials, hides and shoes) were the most protected by industrialization policies.16/ However, a closer look will show a different picture. From 1946-48 to the peak period in the several industrial subsectors (column (2).) the ratio of agriculture relative to industrial prices grew by the following percentages: fuels: 39.8; metals: 9.1; construction materials: 21.7; hides and shoes: 25.4; textiles: 28.1; chemicals: 25.8;and other: 18.7. From this evidence, it would appear that the most protected sub-sectors were metals and "other", which presented the greatest price increases as compared to agriculture. By the

16/ See Chapter I, Review of Literature.

Table 6.16 Relative Price Ratios Between Agriculture and Some Industrial Sub-sectors, Moving Averages, Brazil, 1946-48 to 1965-67

Period	Fuels		Metals		Construction materials		Hides and shoes		Textiles		Chemicals		Other	
	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)	(1)	(2)
1946-48	112.8	111.0	119.5	117.6	89.6	88.1	96.1	94.5	80.8	79.5	96.5	94.8	96.7	95.2
1947-49	121.6	117.9	126.2	122.4	97.8	94.9	106.7	103.4	94.1	91.2	105.0	101.7	111.1	107.6
1948-50	135.9	121.9	137.4	123.7	109.2	98.5	120.2	107.9	103.1	92.9	96.4	107.5	128.3	115.2
1949-51	155.9	129.7	145.6	121.5	112.3	93.9	130.8	109.2	103.9	87.2	109.6	111.2	133.5	111.8
1950-52	177.7	142.8	159.7	128.3	120.0	96.4	139.3	111.9	110.4	88.7	119.2	114.8	136.7	109.7
1951-53	186.2	153.5	154.1	126.9	122.5	101.1	116.9	118.0	118.0	97.6	144.6	119.3	133.9	110.5
1952-54	190.5	155.2	148.7	121.3	125.1	102.1	119.0	118.4	124.6	101.8	144.8	118.1	135.8	110.8
1953-55	176.8	146.1	135.8	112.5	127.5	105.9	116.9	118.5	122.5	101.7	138.8	115.0	134.5	111.5
1954-56	167.7	140.4	132.1	111.1	125.5	105.9	135.9	114.3	116.7	98.3	129.7	108.9	131.8	111.0
1955-57	140.8	125.1	128.0	113.9	120.7	107.2	127.0	113.0	113.4	100.9	125.6	111.8	127.1	113.0
1956-58	123.5	112.7	114.9	104.9	106.5	97.3	122.5	112.1	107.7	98.4	118.1	107.9	119.5	109.2
1957-59	101.7	96.4	103.4	97.9	97.8	92.9	115.7	109.9	102.7	97.6	110.5	104.7	108.9	103.2
1958-60	100.1	99.2	99.3	98.6	98.9	98.2	105.4	103.9	100.1	99.1	100.8	99.7	101.5	100.3
1959-61	95.3	98.1	107.3	110.7	103.3	106.5	95.7	98.5	96.2	98.9	98.8	101.7	99.3	102.3
1960-62	102.4	106.2	119.1	123.6	112.0	116.2	95.6	99.2	96.2	99.9	100.6	104.4	109.2	113.4
1961-63	99.9	104.5	115.8	121.2	107.3	112.2	102.8	107.6	93.3	97.7	94.1	98.5	113.3	118.7
1962-64	104.6	106.0	115.2	116.6	111.6	112.8	116.5	117.4	98.8	99.9	84.2	85.7	115.1	116.7
1963-65	95.1	94.5	106.8	105.9	106.7	105.5	121.3	119.9	98.0	97.0	70.4	70.1	110.5	109.7
1964-66	91.9	90.4	107.7	106.0	109.3	107.5	122.1	119.9	101.6	100.0	70.1	69.2	113.3	111.8
1965-67	89.4	91.4	105.6	107.9	102.6	104.6	114.8	116.9	100.2	102.2	70.8	72.4	116.7	119.3

Source: Computed from Fundacao Getulio Vargas annual indices (Table D-23 and D-40) with base period 1958-60=100.

(1) Numerator is index 46 (agricultural products).

(2) Numerator is index 48 (agricultural products, coffee excluded).

same token, the least protected sub-sectors were fuels and textiles. In both cases it should be remembered, however, that trends in relative prices cannot tell the whole story about the level of protection.

In the downward trend of agricultural prices in the late fifties, the results were these: a greater decrease in the ratios of agricultural prices relative to prices of the fuels and metals (the more protected sub-sectors) and a smaller decrease in the ratios of agricultural prices relative to prices of textiles, construction materials, and other (the less protected sub-sectors). With the major exception of fuels these results are consistent with the above, and are contrary to those suggested by other authors. (See Bergsman (1970), for example.)

A similar result, but more pronounced in the upward and downward trends, is shown by column (1) in Table 6.16. These results reflect the wide fluctuations in coffee prices during the period.

The use of price ratios like the above can be criticized on the grounds that the weighting system is constant for the whole series.[17/] Constant weights fail to take account of the fact that the product mix may change substantially during the period. Thus, in order to obtain more meaningful results, the agricultural series were computed with different data and given year weights, and the FGV industrial series were aggregated with weights based on data from 1949, 1955, 1959 and 1966.[18/] This procedure is expected to reduce the bias that might be introduced

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17/ The weights used in Tables 6.15 and 6.16 are based on 1949 data.

18/ The construction materials sub-sector was deleted in this analysis. The procedures used in synthesizing these data are explained in Appendix A.

from using constant weights.

The results obtained are shown inTable 6.17. Columns (1) used agricultural price indices at the wholesale level; columns (2) used price indices at the farm level. The general pattern is still the same. There is a peak in the first part of the 1950's and a trough at the end of the decade. However, the decrease in agricultural relative to industrial prices is more pronounced at the end of the period when the changing weights are used, as is the upward trend in the mid-1950's, except for coffee. Column (2), based on farm prices, shows a similar increase in agricultural relative to industrial prices from 1948-50 to the mid-1950's, but a longer and substantially greater deterioration afterward. Therefore, farmers seem to have been disadvantaged in the longer run as compared to wholesalers and exporters.

As noted above, however, there is no clear evidence of a relative price deterioration for agriculture during part of the period. However, the main industrialization drive (1956-60) was characterized by a reduction in agricultural prices relative to industry, in spite of gradual export liberalization.

Unfortunately, the lack of data on consumer goods (the most protected items) precludes a more complete analysis. However, some insights are possible when the available data on industry is divided into modern (fuels, metals, and chemicals) and traditional (hides and shoes, textiles, and other) sub-sectors. The resulting ratios are shown in Table 6.18. The ratio based on the traditional sub-sector (column (2)) increased from 1946-48 to 1953-55 by 55.6 and 35.9 percent for coffee included and excluded, respectively, whereas the ratio for the modern sub-sector (columns (1)) increased in a shorter time period by 42.7 percent (coffee included) and 29.1 percent

Table 6.17. Relative Price Ratios Between Agriculture and Industry, Moving Base, Brazil, 1946-48 to 1965-67 (Moving Averages).

Period	Agriculture		Coffee		Agric., coffee excluded	
	(1)	(2)	(1)	(2)	(1)	(2)
1946-48	94.1	--	106.2	--	91.2	--
1947-49	106.9	--	120.2	--	103.9	--
1948-50	119.7	144.3	148.6	191.6	109.0	117.1
1949-51	124.8	151.7	167.1	218.2	108.8	112.8
1950-52	131.8	160.8	181.3	238.4	112.6	114.0
1951-53	131.8	160.1	171.7	223.3	118.0	126.0
1952-54	139.8	169.9	195.4	252.0	120.9	125.2
1953-55	141.1	173.0	203.3	259.0	119.3	123.9
1954-56	137.4	164.1	203.6	251.4	115.5	116.8
1955-57	129.0	152.2	176.0	218.7	114.5	118.9
1956-58	118.1	132.1	154.9	176.0	108.7	113.7
1957-59	108.3	116.6	126.8	134.7	103.1	108.0
1958-60	101.6	101.9	104.3	101.5	100.5	102.0
1959-61	96.5	98.1	86.1	94.6	98.6	99.4
1960-62	98.3	105.5	83.1	102.0	105.7	106.4
1961-63	96.7	110.2	73.3	109.4	104.6	110.7
1962-64	95.6	112.9	80.4	128.5	102.4	110.6
1963-65	87.1	98.6	79.5	120.1	88.1	94.7
1964-66	87.8	92.5	80.2	104.2	88.5	90.4
1965-67	92.9	88.1	66.1	82.0	95.8	88.9

Source: Computed from Tables D-21, D-22, and D-43 annual data with base period 1958-60=100.

(1) Agricultural wholesale price index ÷ industrial price index.

(2) Agricultural farm price index ÷ industrial price index.

Table 6.18. Relative Price Ratios Between Agriculture and Industrial Sub-sectors, Moving Base, Brazil, 1946-48 to 1965-67 (Moving Averages).

Period	Agriculture		Agric., coffee excluded	
	(1)	(2)	(1)	(2)
1946-48	106.0	87.3	102.6	84.6
1947-49	115.2	101.8	112.0	99.0
1948-50	129.7	113.5	117.7	103.5
1949-51	141.5	115.1	123.0	100.4
1950-52	152.8	118.7	130.6	101.3
1951-53	148.4	121.3	132.5	108.7
1952-54	151.3	131.0	130.9	113.4
1953-55	147.4	135.8	124.5	115.0
1954-56	143.3	132.3	120.3	111.4
1955-57	132.4	125.7	117.5	111.6
1956-58	119.0	117.5	109.5	108.2
1957-59	107.2	110.1	101.9	104.9
1958-60	100.7	102.8	99.8	101.7
1959-61	98.3	94.5	100.6	96.6
1960-62	102.2	93.8	109.8	100.9
1961-63	98.1	95.2	106.1	103.0
1962-64	93.4	100.2	100.3	106.8
1963-65	81.5	99.1	82.4	100.0
1964-66	80.8	103.4	81.5	104.1
1965-67	87.5	105.1	90.3	108.2

Source: Computed from Tables D-21 and D-44 annual data with base period 1958-60=100.

(1) Relative to modern sub-sector (fuels, metals, and chemicals).

(2) Relative to traditional sub-sector (hides and shoes, textiles, and other).

(coffee excluded). This is consistent with a hypothesis of greater protection for the modern sub-sector.

The same situation is observed in the period in which there is a downward trend in relative prices for agriculture. In this case the agricultural prices decrease faster relative to industrial prices in the modern as compared to the traditional sub-sector. Once again the traditional sub-sector shows a smaller degree of protection than the modern sub-sector.[19/]

Turning back to agriculture, the relative price ratios of Tables 6.15 and 6.17 do not confirm for the period 1946-1954 what one should expect from the type of commercial policy followed in Brazil. Neither set of data shows definite evidence of an adverse shift in the internal terms of trade with respect to agriculture.[20/] Even excluding coffee, which enjoyed an excellent price position until 1954-55, the trend in price ratios is still favorable to agriculture during this period.

These trends can better be observed in Figure 6.5 where the data from Table 6.17 are plotted. Deterioration in the agriculture-industry price ratios are noticeable after 1954, mainly due to a sharp decline in coffee prices, However, when coffee is excluded, all trends are smoothed and the highest peak is attained in 1953.

Another feature of Figure 6.5 is that farm prices tend to present larger fluctuations than do wholesale prices. In addition, in the upper graph if only the post-1950 period is considered and the 1953-55 peak is

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19/ This is a rough measure of industrial protection, which is not the main objective of this study. However, it may deserve a closer look since these results are contrary to those of Bergsman (1970), pp. 173 and 177.

20/ This frustration is also shared by Bergsman (1970), pp. 153-6.

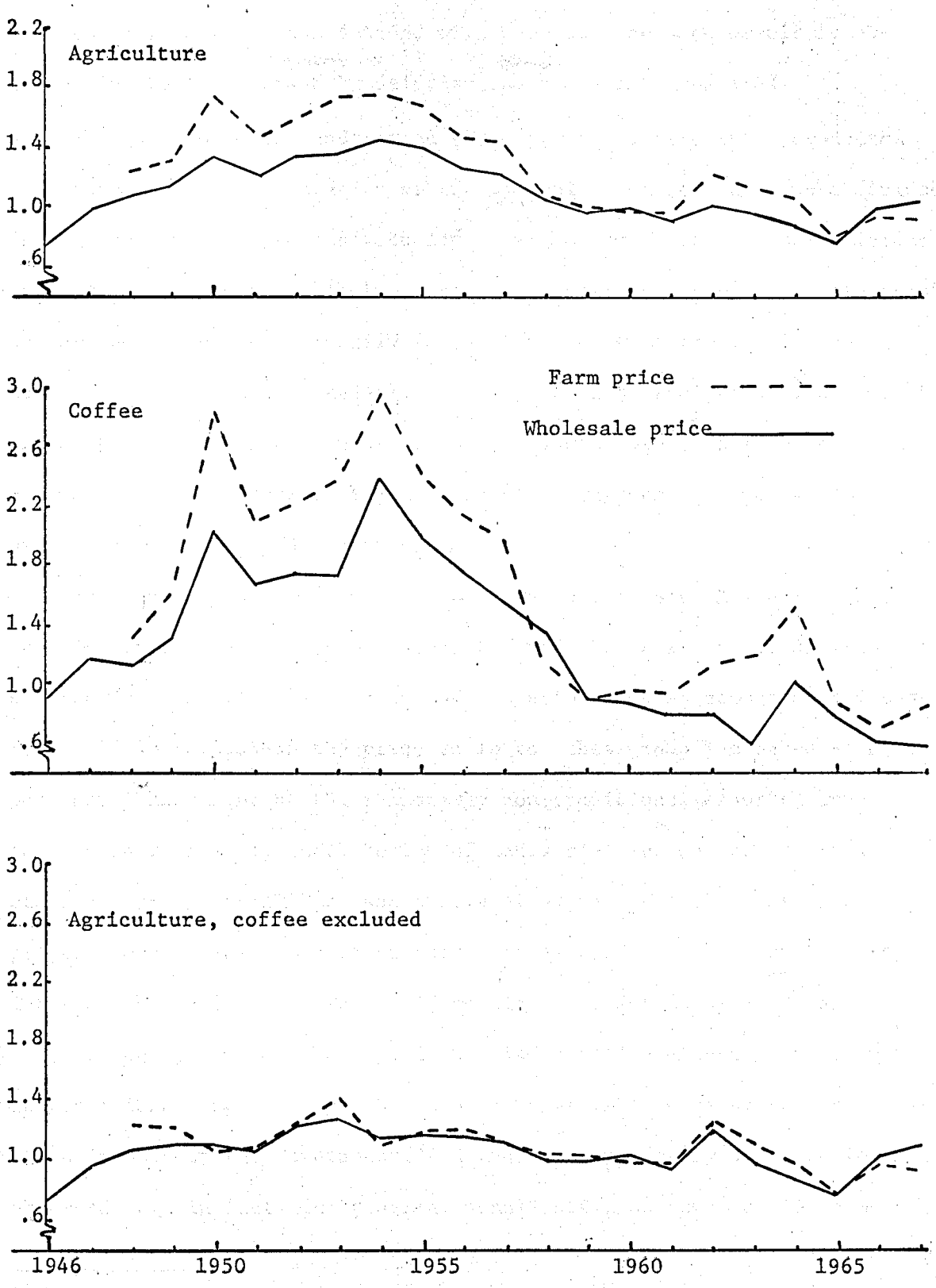

Figure 6.5. Adjusted Relative Price Ratios Between Agriculture and Industry, Brazil, 1946-67.

deleted, a general downward trend will result. The same result is obtained in the lower graph by deleting the years 1952 and 1953.

In order to better understand these trends, agricultural products considered for the computation of the agriculture price index were divided into groups and studied individually. Agricultural products were divided into traditional exports (coffee, cotton, cocoa, castor beans,and tobacco), and products destined primarily for domestic consumption (sugar, beef, corn, rice, dry beans, potatoes, soybeans, onions, wool, and milk).[21/] In addition, a group of non-traditional exports (beef, rice, corn, sugar and wool) was considered. Price ratios between these groups and industry are shown in Table 6.19 and Figure 6.6.

Both exports and domestic consumption goods again show a favorable relative price behavior from 1946-48 to 1952-55. However, traditional exports (column (1)) had an outstanding performance as compared to industry: from 1946-48 to 1953-55 the price ratio for this group increased by 63.6 percent. This might be the reason why non-traditional exports, even carrying a relatively small burden of industrialization policy, remained stagnant during the 1950's, and only evolved in the 1960's when their prices increased as compared to traditional exports. The downward trend later in the period is also more dramatic for traditional exports.

It could, however, be argued that the positive effect of world prices in traditional exports would be much stronger if it were not for the taxation imposed by the Government, and that the increasing price ratios observed were in fact hiding a real penalization on exports. As a means

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21/ The criterion adopted to identify traditional and non-traditional exports is explained in Appendix D.

Table 6.19. Relative Price Ratios Between Agricultural Sub-sectors and Industry, Moving Base, Brazil, 1946-48 to 1965-67 (Moving Averages).

Period	Exports			Domestic consumption		Total	
	Traditional		Non-traditional	Beef excluded	Total	(3)	(4)
	(1)	(2)					
1946-48	108.8	135.3	83.7	95.9	86.0	94.1	103.8
1947-49	120.3	130.6	99.0	111.2	99.7	106.9	110.2
1948-50	139.6	127.5	103.6	116.0	105.2	119.7	113.6
1949-51	154.0	113.9	99.7	109.5	101.7	124.8	107.7
1950-52	165.7	107.5	102.1	108.7	104.8	131.8	106.7
1951-53	157.3	101.5	116.4	115.7	113.6	131.8	109.3
1952-54	172.4	108.8	125.0	120.8	119.6	139.8	115.5
1953-55	178.0	117.0	124.8	120.4	119.0	141.1	118.7
1954-56	176.0	118.4	117.9	116.9	115.0	137.4	116.6
1955-57	153.5	117.9	119.0	118.8	116.0	129.0	116.8
1956-58	136.1	111.3	112.6	113.6	109.9	118.1	110.3
1957-59	117.9	107.6	105.2	108.2	103.6	108.3	104.6
1958-60	103.4	102.9	100.4	101.3	100.4	101.6	101.1
1959-61	89.6	95.7	100.4	95.9	99.4	96.5	98.3
1960-62	89.0	96.6	105.8	93.2	101.9	98.3	100.5
1961-63	81.3	90.5	107.3	94.5	101.7	96.7	99.0
1962-64	84.5	92.0	104.1	94.2	99.0	95.6	97.4
1963-65	80.1	84.5	93.9	85.5	89.0	87.1	88.1
1964-66	78.9	81.9	94.8	81.8	89.8	87.8	88.4
1965-67	74.0	78.7	103.6	86.1	97.4	92.9	93.8

Source: Tables D-24 and D-43.

(1) Simple ratio.
(2) Column (1) divided by "world" price index for traditional exports.
(3) Weighted average of columns (1) and Total Domestic Consumption.
(4) Weighted average of columns (2) and Total Domestic Consumption.

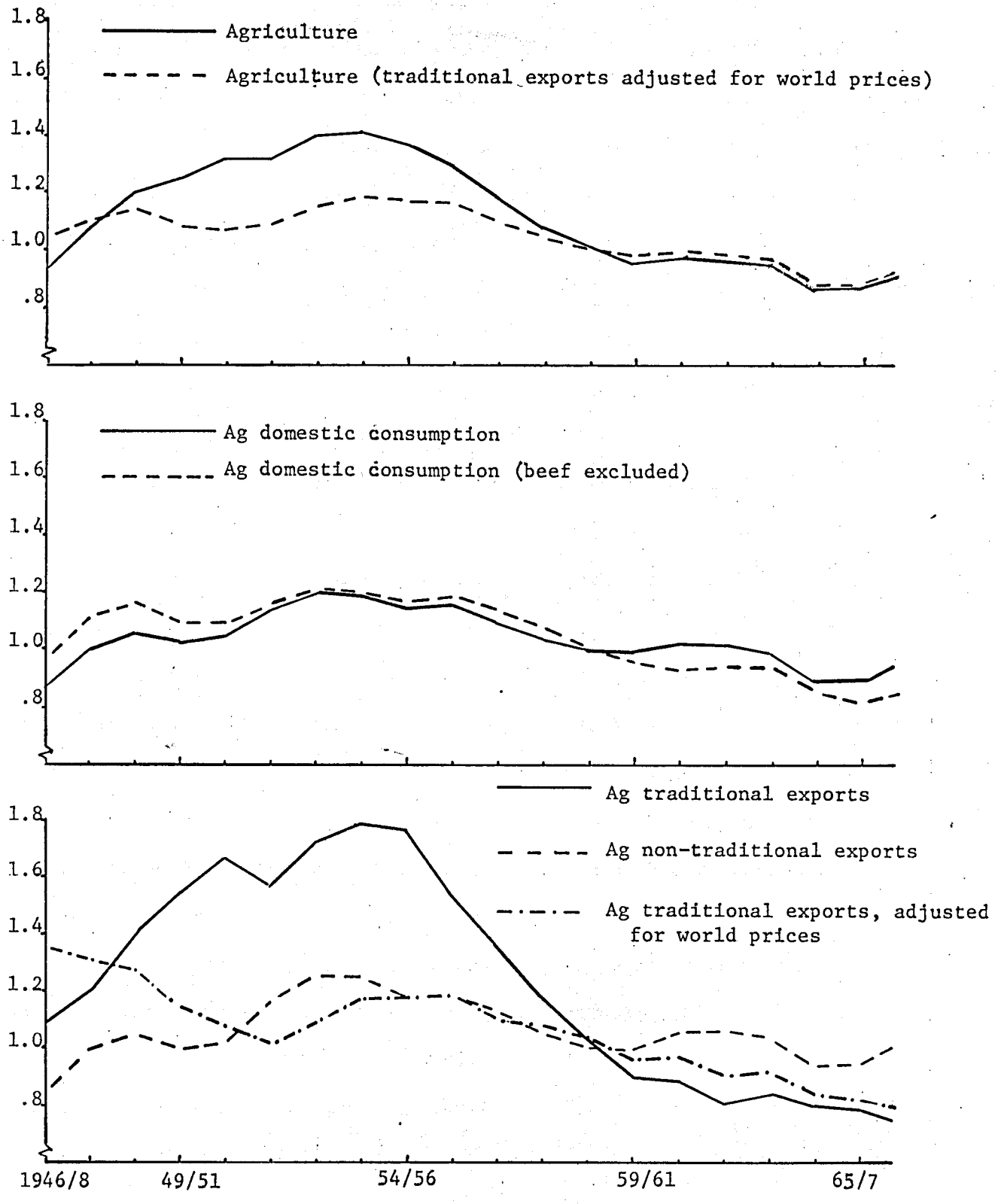

Figure 6.6. Relative Price Ratios Between Agricultural Sub-sectors and Industry, Moving Averages, Brazil, 1946/8 - 1965/7

to verify this possibility the domestic price indices of traditional exports were divided by the"world" price indices of the same products, and the price ratios with industry were recomputed. The results are shown in Column (2) under traditional exports, Table 6.19, and in Figure 6.6. The previous trend has been reversed, and a general deterioration in the ratio is observed, except for some years in the mid-1950's, succeeded by fast-falling ratios at the turn of the decade.

The new adjusted line for traditional exports shows, therefore, that rising world prices concealed an effective penalization on agricultural exports during the fixed exchange rate period, and that some recovery was obtained as a result of the 1953-54 devaluation. But from 1956, a steady decline took place to the end of the period. The total deterioration in the price ratio from 1946-48 to 1965-67 was 42 percent.

A new computation of the agriculture-industry price ratios was made based on the adjustments for traditional exports. The resulting time series is column (4) in Table 6.19, (see also Figure 6.6). It includes the joint effects of the following price ratios: traditional exports/industry adjusted for "world" prices, and domestic consumption goods/industry. Now the trend from 1946-48 to 1953-55 is still favorable to agriculture but to a smaller extent than previously.

A final price ratio computation was made to relate agricultural and industrial sub-sectors. The results are shown in Table 6.20. The two series most unfavorable to agriculture (domestic consumption, beef excluded, and traditional exports adjusted to "world" prices) were equated to the most favorable industrial series (modern sub-sector). Both trends are shown in Figure 6.7.

Table 6.20. Adjusted Relative Price Ratios Between Agricultural and Industrial Sub-sectors, Moving Averages, Brazil, 1946-48 to 1965-67.

Period	(1)/(2)	(3)/(2)
1946-48	107.8	154.4
1947-49	119.8	141.6
1948-50	125.3	137.9
1949-51	123.2	130.8
1950-52	125.9	125.8
1951-53	129.4	114.7
1952-54	130.6	117.5
1953-55	125.4	122.4
1954-56	121.5	123.5
1955-57	121.9	120.8
1956-58	114.5	112.0
1957-59	106.9	105.6
1958-60	100.3	101.7
1959-61	97.4	97.4
1960-62	97.0	100.6
1961-63	95.8	92.0
1962-64	92.0	89.8
1963-65	80.0	78.6
1964-66	75.2	72.0
1965-67	81.1	74.0

Source: Tables D-24 and D-44.

(1) Agriculture, domestic consumption, beef excluded.

(2) Industry, modern sub-sector.

(3) Agriculture, traditional exports adjusted for "world" prices.

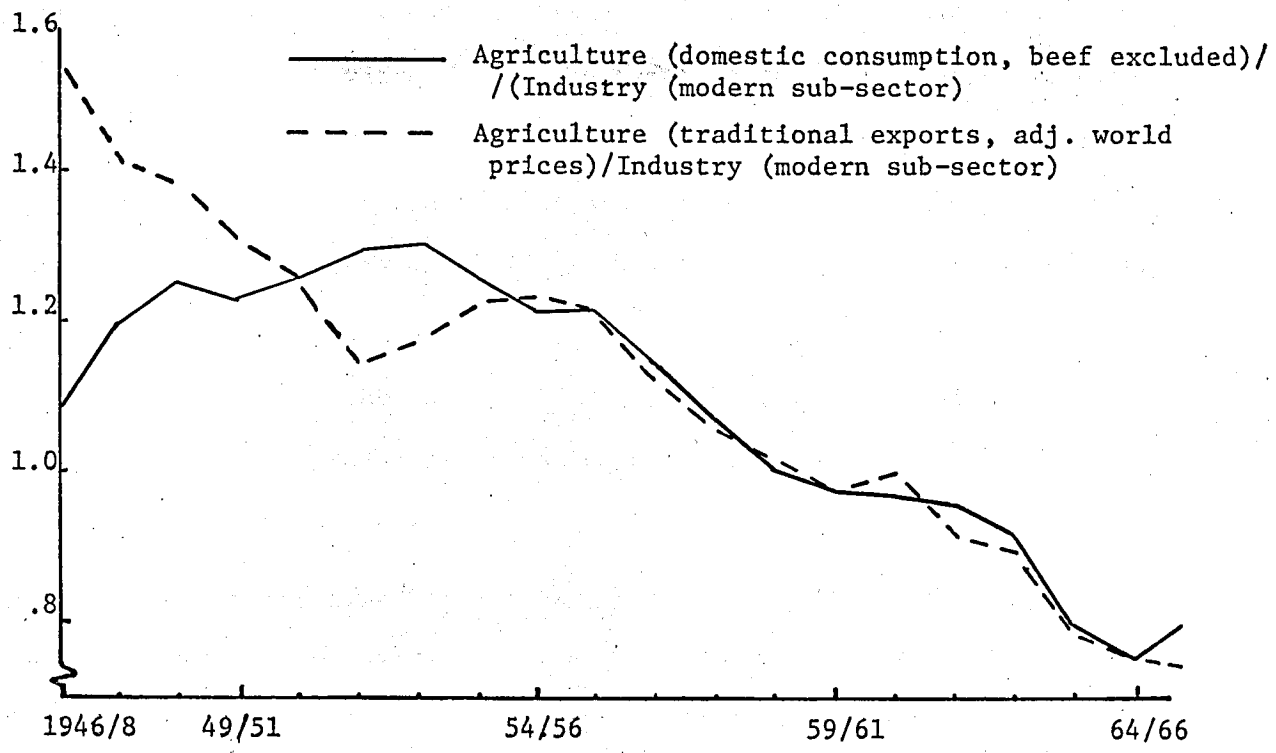

Figure 6.7. Relative Price Ratios Between Agricultural and Industrial Sub-sectors, Moving Averages, Brazil, 1946/48-1965/67.

The ratio of agricultural prices (domestic consumption) relative to industrial prices (modern sub-sector) still increases in the 1946-53 period, but the ratio with prices of traditional exports adjusted for trends in the world market has a definite negative trend, and deteriorates from 1946-48 to 1965-67 by 52 percent.

Conclusions

The direct evidence on aggregate price relatives shows a general pattern favorable to agriculture in the post-World War II decade (up through about 1953-55), and a less favorable one after that. However, more detailed data on relative price ratios between agriculture and industry show that the effect of trade policy on agriculture was complex, particularly

as one compares different sub-sectors and makes certain adjustments.

It is clear that increases in the international prices of agricultural Products that Brazil exported were instrumental in helping agriculture experience a favorable trend in the domestic terms of trade relative to manufactured intermediate goods up to 1954-55. It is also clear that the impact of these favorable prices were not completely transmitted to agriculture, however. At the same time, a similar positive trend for non-export agricultural products was taking place.

The reason why industrial prices did not experience a proportionate growth as a response to protective policies is a complex question. One possible answer may be related to the world market situation after War War II. Under the limitations in supply imposed on industrial countries during the war and the necessary slow recovery from it, industrial production in Brazil could have already been sheltered from world competition when import controls began to be imposed in 1947-48. This means that industrial prices for Brazilian manufacturers could have been high even previous to the study period under consideration. This could probably explain why the traditional industrial sub-sector shows a smaller degree of protection than the modern sub-sector after 1946, and why industrial prices were relatively stable during the late forties and early fifties.

Another explanation for the behavior of industrial prices as compared to agricultural prices is that the industrial products considered in the present study do not include but a few items which are consumer goods, a highly protected sub-sector. Chemicals, fuels, metals, textiles, hides,

rubber, and paper are generally considered intermediate goods which, in some cases, received little protection. These commodities were often subsidized, like fuels and paper, and this was translated into lower market prices. Table 6.16 shows fuels as the sector with the smallest price increases relative to agriculture.

In order to account for changes in world prices that might have been interfering with the correct identification of domestic relative price trends, the series of domestic agricultural prices were adjusted for this factor. Even though any bias from protection in the war years remained, prices for traditional agricultural exports adjusted for world prices showed a decline relative to industrial prices over the 1946-53 period. A small increase occurred in 1953-56, probably as a result of the exchange policy (a devaluation of the cruzeiro), and then a new and steady decline took plaee until 1967.

Under this adjustment, prices of export products appear to have been more depressed relative to manufactured intermediate products than prices of prime-necessity domestic-consumption food items. This suggests that exchange policy may have been more effective in keeping prices from rising than was the domestic anti-inflation policy, and that the pressure for higher prices from the agricultural-based export sector could be more easily circumvented than pressures against higher prices from consumers. This was partly possible because traditional export products were not so essential for domestic consumption, and partly due to the favorable world price situation of these exports after World War II.

The above evidence also emphasizes the point that the particular world and domestic economic conditions emerging from the mid-1940's were

instrumental in encouraging Brazil into an industrialization effort. Agricultural prices were a major variable among these conditions and played a decisive role in the first decade of the study period to supply the appropriate conditions for industrial "take-off". The point is that agricultural prices were favorable, despite the strong discrimination against this sector. This came about because of the upward trend in world markets of prices of products that Brazil traditionally exported. Hence, the agricultural sector could be taxed by means of trade policy to subsidize the emerging industrial sector.

Implicit Exchange Rates

A different perspective on agriculture-industry price relatives can be obtained by a comparison of domestic and world prices. The resulting patterns depict domestic protection or penalization as compared to a supposedly neutral price system where supply and demand are determined in a reasonably free manner.

In the presence of free trade, implicit exchange rates will be equal to free market exchange rates. In its absence, implicit rates will be above or below free rates depending on relative protection and penalization for a given commodity.

An attempt to measure implicit exchange rates for agricultural and industrial commodities was made as a means to measure relative protection as well as to obtain a possible range within which an eventual free market exchange rate would prevail. Unfortunately, the lack of adequate comparable data for the same commodities in the domestic and world markets precluded a wide scope for this analysis. Even though implicit exchange rates were obtained for ten agricultural products, they could only be estimated for a few industrial items.

Table 6.21 Implicit Exchange Rates for Major Agricultural Products, Moving Averages, Brazil, 1946-48 to 1965-67

Period	Coffee	Cotton	Cocoa	Sugar	Castor beans	Tobacco	Corn	Rice	Dry beans	Potatoes	Average rate		Effective rate	
											Total	Coffee excl.	Total	Coffee excl.
	Cr$/US$													
1946-48	18.51	18.39	18.34	17.17	16.48	27.77	15.54	--	--	58.94	19.90	20.32	18.42	18.42
1947-49	17.69	17.87	18.32	20.23	14.58	30.13	20.94	23.65	--	58.37	21.70	23.06	18.38	18.38
1948-50	17.98	17.33	18.33	21.76	16.70	29.02	22.96	27.62	--	74.48	22.95	24.91	18.38	18.38
1949-51	18.34	16.86	18.33	21.39	19.44	32.26	21.66	28.19	--	75.21	22.45	24.33	18.38	18.38
1950-52	18.79	16.48	18.32	22.01	20.35	38.03	22.50	30.82	21.32	74.93	23.18	25.61	18.38	18.38
1951-53	19.28	17.81	18.99	27.20	19.82	41.87	30.03	42.23	26.70	80.80	28.20	32.57	19.19	19.99
1952-54	22.36	22.64	23.03	36.71	20.65	41.72	34.94	60.97	28.38	112.58	36.06	42.96	22.23	23.77
1953-55	28.48	30.80	30.43	51.59	27.47	37.64	44.35	76.95	44.75	123.72	45.87	55.16	28.83	31.58
1954-56	34.71	42.06	37.81	66.08	38.83	40.11	55.72	101.12	73.66	140.45	60.24	71.92	35.09	39.79
1955-57	39.75	52.36	43.39	79.05	47.06	47.06	72.25	128.63	88.25	135.95	72.95	87.65	40.12	48.05
1956-58	44.64	68.43	44.59	88.45	55.41	57.45	85.94	157.84	77.89	152.73	85.40	102.18	43.72	56.36
1957-59	52.53	93.93	55.02	110.56	65.56	74.53	115.59	189.59	95.72	183.98	105.40	127.18	58.39	77.73
1958-60	63.92	130.55	65.19	142.99	90.99	113.64	135.57	223.28	139.54	237.38	133.14	158.48	80.85	111.65
1959-61	81.85	152.49	107.36	197.17	127.92	174.70	180.12	273.81	169.24	332.06	169.62	199.61	120.03	170.14
1960-62	114.36	221.61	194.39	287.99	213.91	252.62	253.17	365.85	193.22	464.75	239.65	275.44	171.61	254.27
1961-63	164.42	337.52	365.24	393.45	342.00	361.50	347.99	692.02	313.16	796.94	408.28	460.69	258.78	386.91
1962-64	330.51	635.91	668.74	628.58	532.30	613.26	594.70	1,156.69	505.37	1,187.86	706.67	774.50	456.64	679.60
1963-65	539.91	1,086.79	1,042.51	1,515.04	786.39	1,047.12	912.92	1,565.11	805.77	1,985.39	1,134.57	1,263.24	808.53	1,161.95
1964-66	726.66	1,575.22	1,660.98	2,599.46	1,011.84	1,565.35	1,386.86	2,247.83	1,489.06	3,171.38	1,751.22	1,949.54	1,414.81	1,703.19
1965-67	835.34	2,074.25	2,118.11	4,026.61	1,560.95	2,061.02	1,895.53	2,947.62	1,934.72	4,001.27	2,347.25	2,655.04	2,016.88	2,193.75

Source: Table D-109 . Effective rates from Table 4.9

Implicit exchange rates for major agricultural products are shown in Table 6.21. In this case it is the absolute price level that matters. A first general observation from these data is that most traditional exports show smaller implicit exchange rates during the period 1947-53, when quantitative controls and a fixed exchange rate prevailed, as well as during the period 1953-60, when multiple exchange rates were in effect. Then, as most exports were liberated, implicit exchange rates for traditional exports increased to the levels of some other products like corn and dry beans.

A second observation is that the average non-coffee implicit rates are consistently above non-coffee effective export rates. This means that prices of the agricultural product mix domestically produced were higher than prices of the export product mix, relative to world market prices. Thus, for instance, while domestic agricultural production, at the wholesale level, would be paid Cr$19.90 per dollar's worth in 1946/48, the export dollar was paid at Cr$18.42. In terms of world prices, domestically consumed agricultural products were worth more than Brazil's exports.

Differences between implicit and effective rates (coffee excluded) became wider after 1946-48, and reached a peak in the mid-1950's. The differential then turned smaller toward the end of the period. This trend is coincidental with the gradual increase and decrease in export penalization observed during the period.

There was, therefore, a greater incentive to produce for the domestic market than to export, mainly in the 1950's. Comparatively, in the late

1940's and in the 1960's exports were more stimulated.

These trends are partly expained by greater export penalization in the 1950's, but can also be attributed to more stringent controls on domestic prices in the forties and sixties. These possibilities are more clearly seen in Table 6.22 and Figure 6.8, which show the same data in deflated cruzeiros. In terms of world prices, real domestic agricultural prices were higher from 1953-55 to 1958-60 than in any other segment of the period. At the same time, export prices were smaller in the period 1950-52 to 1955-57.

Another remarkable feature of figure 6.8 is that from 1953-55 to 1958-60 one dollar of agricultural goods was worth more cruzeiros than in any other segment of the period. This is in contrast with the peak at the end of the period that is shown by the effective exchange rates.

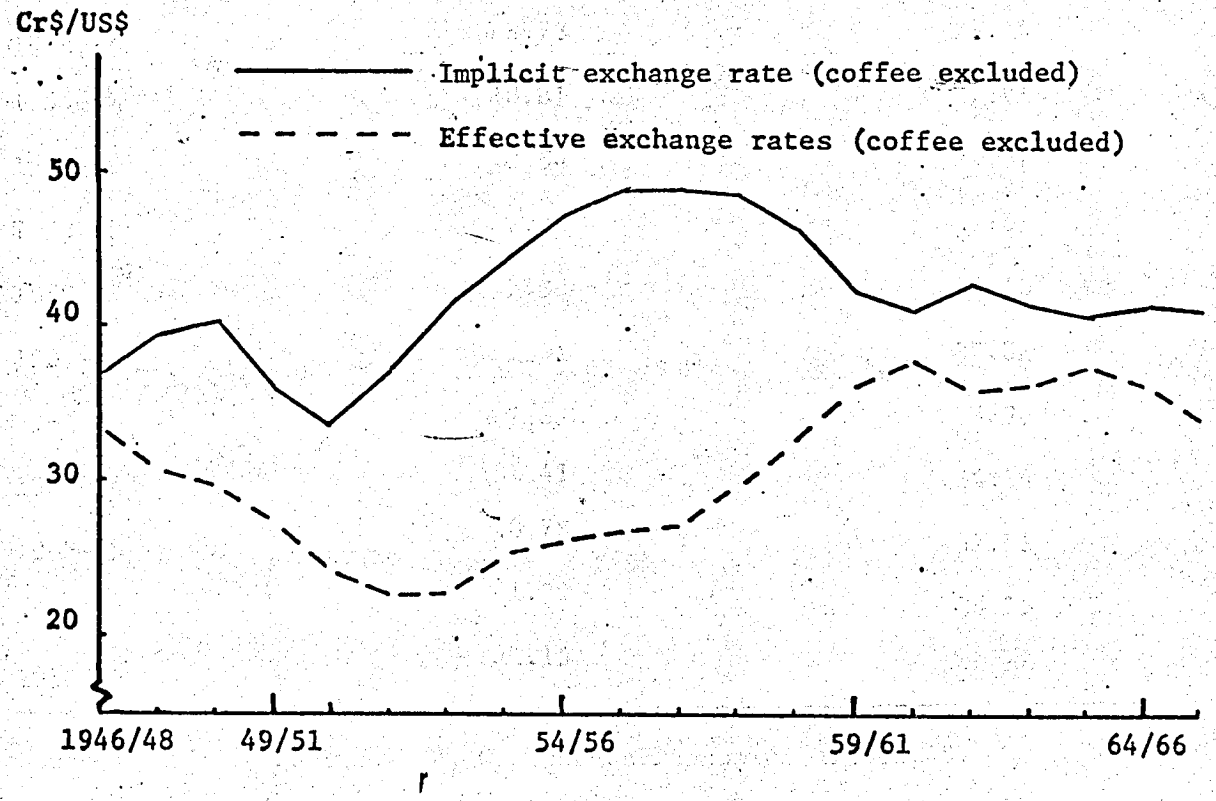

Figure 6.8. Deflated Implicit Exchange Rates for Agriculture and Effective Exchange Rates for Agricultural Exports, Moving Averages, Brazil, 1946/48 - 1965/67.

Table 6.22. Deflated Implicit and Effective Exchange Rates for Agriculture (Coffee-excluded), Moving Averages, Brazil, 1946-48 to 1965-67.

Period	Implicit exchange rate	Effective exchange rate
	Cr$/US$	
1946-48	36.72	33.29
1947-49	39.30	30.80
1948-50	40.39	29.80
1949-51	35.95	27.16
1950-52	33.70	24.18
1951-53	37.01	22.72
1952-54	41.18	22.78
1953-55	44.13	25.26
1954-56	47.21	26.12
1955-57	48.78	26.74
1956-58	48.81	27.21
1957-59	48.54	29.67
1958-60	46.38	32.68
1959-61	42.36	36.10
1960-62	41.01	37.86
1961-63	42.82	35.96
1962-64	41.41	36.34
1963-65	40.78	37.51
1964-66	41.37	36.15
1965-67	41.15	34.00

Source: Table 6.19 and FGV, Conjuntura Economica, index 45.

The findings above suggest a different conclusion than allowed by most analyses of the role of agriculture in Brazil's economic development. Excluding any inter-sectoral comparisons, during the major industrialization drive Brazilian farmers were being paid more relative to world prices than they were in any period from 1946-48 to 1965-67.

However, this is a partial view which does not take into account the position of agriculture relative to other economic sectors. Unfortunately, it was not possible to estimate implicit exchange rates except for a few of the already limited number of manufacturing sub-sectors for which price indices were derived in the previous section.

Table 6.23 shows implicit exchange rates for fuels, processed agricultural products, and fertilizers as well as the effective exchange rate for Brazilian imports in the aggregate. The same series, deflated, is shown in Table 6.24. Here again implicit rates are consistently greater than effective rates.

The three deflated implicit exchange rate series for manufactures are pictured in Figure 6.9, together with implicit exchange rates for agriculture, coffee excluded. The upper part of Figure 6.9 shows that more than one dollar's worth of agricultural goods was needed to pay for one dollar's worth of fuels in Brazil. But this surcharge varied unevenly through time. In 1946-48 one dollar's worth of fuels was paid with almost twice as many cruzeiros as were agricultural goods; in the mid-fifties about the same amount of cruzeiros was enough to pay for one dollar's worth of both. The graph shows that, as compared with the fuels sub-sector, agriculture enjoyed its best position during the early-and mid-fifties, and was strongly penalized in the late-forties and specially during the 1960's.

Table 6.23 Implicit Exchange Rates for Industrial Sub-Sectors, Moving Averages, Brazil, 1946-48 to 1965-67

Period	Fuels	Processed agricultural products	Fertilizers	Effective import rate
	Cr$/US$			
1946-48	36.89	27.17	- -	18.93
1947-49	34.16	33.42	- -	18.72
1948-50	34.63	38.93	33.26	18.72
1949-51	33.83	42.61	35.36	18.72
1950-52	33.58	45.48	37.24	18.72
1951-53	36.44	51.88	37.60	19.04
1952-54	44.86	74.68	38.84	24.07
1953-55	60.43	97.99	48.75	33.20
1954-56	74.53	125.66	62.00	45.98
1955-57	94.24	146.97	74.61	54.06
1956-58	117.85	179.22	84.02	64.16
1957-59	160.71	212.13	104.38	83.93
1958-60	198.73	304.85	131.73	110.44
1959-61	294.84	413.82	207.05	153.33
1960-62	436.41	547.12	346.70	229.85
1961-63	759.94	752.28	639.23	359.34
1962-64	1,057.12	1,531.99	1,138.80	618.90
1963-65	2,512.47	2,459.45	2,099.78	1,089.92
1964-66	4,044.34	3,977.30	3,023.90	1,641.90
1965-67	5,682.83	5,198.82	3,940.98	2,171.99

Source: Table D-112

Table 6.24. Deflated Implicit Exchange Rates for Manufactured Goods and Effective Exchange Rates for Imports, Moving Averages, Brazil, 1946-48 to 1965-67.

Period	Fuels	Processed agricultural products	Fertilizers	Effective import rate
		Cr$/US$		
1946-48	66.67	49.11	--	34.21
1947-49	60.27	56.95	--	31.90
1948-50	56.15	63.13	53.95	30.36
1949-51	49.99	62.97	52.25	27.66
1950-52	44.18	59.84	49.00	24.63
1951-53	41.41	58.95	42.73	21.64
1952-54	43.00	71.58	37.23	23.07
1953-55	48.34	78.39	39.00	26.56
1954-56	48.93	82.49	40.70	30.18
1955-57	52.45	81.80	41.53	30.09
1956-58	56.30	85.62	40.14	30.65
1957-59	61.13	80.97	39.84	32.03
1958-60	58.16	89.22	38.55	32.32
1959-61	62.55	87.80	43.93	32.53
1960-62	64.97	81.46	51.62	34.22
1961-63	70.63	69.91	59.41	33.40
1962-64	56.52	81.91	60.89	33.09
1963-65	81.12	79.41	67.79	35.19
1964-66	85.83	84.41	64.17	34.85
1965-67	88.07	80.57	61.08	33.66

Source: Table 6.23, and F.G.V., Conjuntura Economica, index 45.

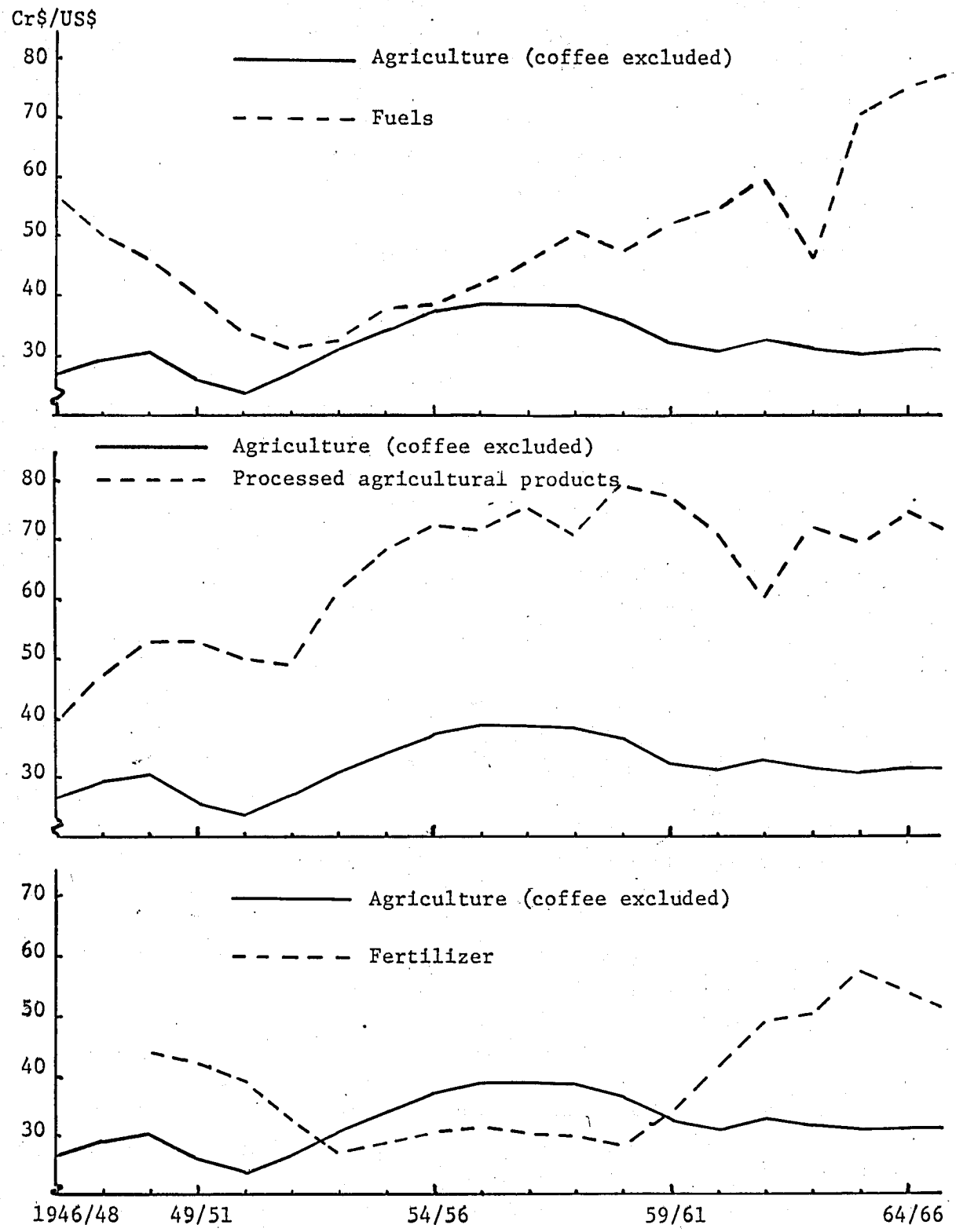

Figure 6.9. Deflated Implicit Exchange Rates for Agriculture and Fuels, Processed Agricultural Products, and Fertilizers, Moving Averages, Brazil, 1946/48-1965/67.

A different pattern of protection is suggested in the middle part of Figure 6.9, where processed agricultural products are compared to unprocessed agricultural products. Agriculture was severely penalized throughout the period, with the greatest discrimination in and after the mid-fifties. If this is taken as a typical agriculture-consumer goods relationship, then one can say that agriculture was paying, on the average, Cr$74.32 for industrial products worth one dollar for which it received only Cr$41.95.

Finally, the lower part of Figure 6.9 shows a comparison of agriculture with one of its main manufactured inputs, fertilizers. Now the situation appears highly favorable to agriculture during the 1950's, when it paid less for one dollar's worth of fertilizer than it would get for its own production. The 1940's and 1960's were the periods when agriculture was in a less favorable position.

The three agriculture-industry relationships described above are very diverse and suggest different interpretations. In the first case (fuels), Brazil was a large importer of gasoline until the early fifties and of Diesel oil until the early sixties.[22/] With the 1953 exchange reform a special subsidized exchange rate was introduced for petroleum imports and by-products, but gasoline imports paid a higher rate beginning in 1955. For the remainder of the 1950's some form of subsidy was paid to petroleum imports and to some of its by-products at the same time that refining in Brazil was increasingly protected. This was conducive to lower fuel prices in the fifties and a gradual increase in relative prices

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22/ See Tables D-83 and D-84.

as protection was more effectively reinforced.

In the second case (processed agricultural products) the trend observed is similar for both implicit rate series. The food processing industry was one of the most protected from foreign competition and not so much subject to domestic price controls as were farm products. Nevertheless the wide differences between the implicit exchange rates suggests the importance of further studies on price relatives of agricultural and other final consumer goods.

The results obtained for fertilizers and agriculture were as expected because of the subsidies extended for the importation of modern inputs. The interesting aspect of the fertilizer section is the rapid increase in the implicit rate for fertilizers as these inputs were gradually transferred to the general import categcry, and consequently, to the free market exchange rate (see Chapter V).

This scant evidence on implicit exchange rates is not enough to justify a clear conclusion about the position of agricultural relative to industrial prices. It does, however, raises the new and unexpected possibility that in spite of strong exchange controls on agricultural exports during the early and mid-1950's, the agricultural sector as a whole was in a worse price situation in the 1960's than in the earlier period. This possibility is further investigated in the following sections.

Nominal Rates of Protection

As defined in Chapter III, the nominal rate of protection is the "percentage excess of the domestic price over the world market price,

resulting from the application of protective measures".[23/] If the world dollar price is multiplied by a policy-biased exchange rate one gets the percentage excess of the domestic price over an administered export price. Nominal rates of protection can therefore be computed by a division of implicit by effective exchange rates, with one subtracted from the quotient.

This was the procedure adopted in this section. However, some qualifications must be made. World prices used in the computations of both rates for a given commodity are not necessarily the same. Generally world prices used in the computation of implicit rates are unit values of world exports and/or average prices of major world producers. In the case of some traditional exports (coffee, cotton) domestic and/or world prices refer to specific product types for which better data were available.[24/] This might cause some small inconsistencies in the results if specific commodities and years are considered. For this reason, time series are presented as moving average and relate the implicit rate for a given commodity to the aggregate effective exchange rate for agricultural noncoffee exports.[25/] It is believed that these discrepancies will not affect the validity of the results.

23/ Balassa et. al. (1971), p. 4.

24/ These types are representative of a major portion of the commodity exports.

25/ The effective exchange rate for non-coffee agricultural exports is not significantly different from the effective exchange rate for total non-coffee exports.

Nominal rates of protection for ten crops are shown in Table 6.25. The average rate, column (2), is always positive, showing that domestic prices were high relative to export price. Negative protection is mostly found in traditional exports, with coffee being the most penalized, followed by cocoa, castor beans, and cotton. Coffee exports remained about the same, quantity-wise, throughout the period (Table B-11) even though negative protection greatly increased. This shows the buffer power of coffee exports in keeping total exports from falling.

But other traditional exports also show a clear resistance to decline in the presence of negative protection. In fact, they tended to react in an opposite direction. A higher positive protection of cotton was coincidental with decreasing exports (Table B-16) from 1954 to 1960. This might be explained by a protective domestic policy, since world prices went down. For cocoa, a higher negative protection from 1956 to 1962 goes together with large exports (Table B-12) during most of the period. In the case of castor beans, a greater negative protection prevailed after export suppression (Table B-17a) by the Government in the early-1960's. Exports of leaf tobacco (Table B-17b) had a sharp increase in 1961 and remained at that level thereafter; rates of protection are also substantially smaller during this period.

Positive protection was particularly high for non-traditional exports and other products (sugar, corn, rice, dry beans, and potatoes) and for the period 1947-60 (mainly 1952-59). This is consistent with a greater exchange overvaluation during that period and with the existence of small incentives to exportation. However, it is worth noting that there was a decrease in protection given these products toward the end of the period,

Table 6.25 Nominal Rates of Protection of Agricultural Products, Moving Averages, Brazil, 1946-48 to 1965-67

Period	Coffee	Cotton	Cocoa	Sugar	Castor beans	Tobacco	Corn	Rice	Dry beans	Potatoes	Average rate (1)	Average rate (2)
	percent											
1946-48	0.5	- 0.2	- 0.4	- 6.7	- 10.6	50.8	- 15.6	--	--	219.9	8.0	3.3
1947-49	- 3.7	- 2.8	- 0.3	10.1	- 20.7	63.9	13.9	28.7	--	217.5	18.1	25.5
1948-50	- 2.2	- 5.7	- 0.3	18.4	- 9.2	57.9	24.9	50.3	--	305.2	24.9	35.5
1949-51	- 0.2	- 8.3	- 0.3	16.4	5.7	75.5	17.9	53.4	--	309.2	22.1	32.4
1950-52	2.2	- 10.3	- 0.3	19.8	10.7	106.9	22.4	67.7	16.0	307.7	26.1	39.4
1951-53	- 2.8	- 10.5	- 4.4	33.9	0.0	113.2	48.6	106.1	34.5	292.6	39.4	60.3
1952-54	- 5.3	- 5.9	- 3.5	52.9	- 12.8	85.9	51.2	152.1	28.0	356.9	51.5	80.0
1953-55	- 9.9	- 3.6	- 4.4	62.5	- 13.0	27.2	42.3	150.3	32.5	326.4	47.8	77.8
1954-56	- 11.9	5.4	- 4.0	65.3	- 4.5	3.7	37.2	154.5	71.9	269.3	50.4	79.7
1955-57	- 16.8	8.3	- 9.2	64.9	- 2.2	- 3.0	49.8	163.7	87.2	181.0	51.1	81.5
1956-58	- 21.3	18.9	- 20.1	56.8	- 1.4	1.0	51.4	179.2	46.2	177.6	51.8	81.7
1957-59	- 29.5	21.0	- 27.4	45.1	- 13.8	- 1.7	49.5	154.5	17.0	137.1	38.3	66.9
1958-60	- 39.3	19.6	- 39.7	31.5	- 17.3	- 0.2	28.6	111.1	18.6	114.1	23.2	46.9
1959-61	- 50.1	- 2.7	- 37.8	19.3	- 23.8	1.3	11.8	70.7	12.5	104.0	5.5	25.0
1960-62	- 54.3	- 11.0	- 29.3	13.4	- 18.0	2.3	- 2.2	47.7	- 16.4	84.0	- 4.7	10.1
1961-63	- 57.1	- 16.5	- 10.4	4.3	- 14.2	- 5.1	- 7.2	65.9	- 25.0	97.4	0.3	13.7
1962-64	- 53.6	- 6.5	- 1.6	- 2.7	- 15.6	- 9.4	- 10.2	72.4	- 23.0	86.9	5.2	16.6
1963-65	- 53.9	- 6.4	- 5.5	15.5	- 26.8	- 9.8	- 20.7	57.8	- 24.1	82.0	3.1	14.4
1964-66	- 55.5	- 7.3	- 3.6	42.8	- 39.4	- 8.6	- 18.1	33.4	- 17.7	78.2	1.3	12.3
1965-67	- 61.5	- 5.8	- 4.2	81.6	- 30.7	- 6.4	- 14.9	31.4	- 12.7	83.2	5.8	19.6

Source: Table D - 113

(1) Total implicit rate divided by non-coffee effective rate minus one.

(2) Non-coffee implicit rate divided by non-coffee effective rate minus one.

in some cases (like corn and dry beans) below that of traditional exports.

As in the case of traditional exports, greater protection is not positively correlated with exportation. A decrease in protection for sugar took place as regular exports became effective in the later-1950's (Table B-10a). Exports of corn were high in 1946-48 and again in 1965-67 (Table B-9b), when protection was low. This fact is not so clear for rice, though exports were most unstable (Table B-9a) during the years of greater protection. Dry beans (Table B-13a) and potatoes (Table B-13b) were seldom exported and no relationship of this kind can be found.

In order to test a possible negative correlation between export protection and agricultural exportations, a rank correlation was estimated between noncoffe agricultural exports and nominal protection.[26/] The result was -.615, which suggests that high agricultural exports are associated with low or negative product protection. The significance of this evidence will be discussed later.

The nominal rates of protection for agricultural commodities can be advantageously explored when compared with protection enjoyed by other sectors. Nominal and effective protection of the manufacturing sector were estimated by Bergsman for the years 1966 and 1967.[27/] His results were 99 percent and 48 percent for nominal protection, and 254 percent

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26/ Quantities exported were ranked after being adjusted for trend. Annual data were used.

27/ Bergsman (1970), Table 3.3., p. 42.

percent for effective protection, as compared to Table D-113 estimates of 29 percent (1966) and 27 percent (1967) for noncoffee agricultural products.[28/] These results suggest a nominal protection in manufacturing goods that was 70 percent (1966) and 90 percent (1967) above agriculture. If protection for coffee is considered (Table D-113 column (1)), nominal and effective protection of manufacturing, above agriculture, will increase, respectively, to 83 percent (1966) and 37 percent (1967), and to 238 percent (1966) and 106 percent (1967). Therefore, protection given to agriculture was largely exceeded by protection given to manufacturing, even allowing for some possible redundancy.

In short, nominal and effective rates of protection of agriculture show positive values, mostly attributable to exchange overvaluation. These positive rates were, however, substantially below those of manufacturing, which resulted in a strong discrimination against agriculture in 1966 and 1967. A higher positive protection of agriculture in the 1950's is consistent with a lack of incentives to export other than traditional exports or eventual domestic surpluses of other commodities. Rates of protection for individual products were, in general, negatively correlated with their export performance.

Net Nominal Rates of Protection

Net nominal rates of protection are the previously defined nominal rates of protection calculated in relation to a hypothetical equilibrium

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28/ For these purposes, the effective rate of protection of agricultural products is considered equal to the nominal rate of protection, based on the assumption that no tradable inputs were used. The amounts of improved seeds, chemicals and machinery used were considered to be irrelevant relative to total cost, mainly during the 1940's and 1950's. If these inputs should be considered, then effective protection rates would show a higher level than otherwise, since modern inputs were largely subsidized through import and credit policies.

exchange rate. The theoretical basis underlying the computation of "equilibrium" exchange rates was explained in Chapter III. Since a measure of protection including both imports and import-competing products was needed, the rates of protection, and the same time period (1954-67) and assumptions about import and export elasticities made by Bergsman were adopted.[29/] These are infinitely elastic import supply and export demand, export supply elasticity of unity, and import demand elasticity of -0.5. The export exchange rate was also defined as the average rate for non-coffee exports, but it is somewhat different from Bergsman's estimates.[30/] Dollar values of total imports and non-coffee exports were taken from Appendices A and B, and the rates of protection for manufactured goods are those of Bergsman,[31/] adjusted for the difference between actual export and import exchange rates. Finally, Bergsman's assumption of zero export taxes and subsidies was dropped, and the non-coffee average nominal rates of protection shown in Table D-113 were used.[32/] The whole procedure is described in Appendix D.

29/ Bergsman (1970), pp. 249-53.

30/ For a comparison, see Table 4.9 and Bergsman (1970), Table 3.2, p. 38. There are small differences due to diverse computation procedures.

31/ Bergsman (1970), Table A-22, column (4), p. 247.

32/ Bergsman was concerned with exchange rates reflecting actual exports and imports whereas the present study has a broader perspective, allowing for non-price and further price protective measures in agriculture by considering domestic instead of export prices in the computation of nominal rates of protection.

A major limitation of the "equilibrium" exchange rate, as computed, is the assumption that coffee policy is immutable and differential exchange rates or taxes still apply to coffee. The nominal rates of protection presented in Table 6.25 are substantially smaller since coffee negative protection is included. The inclusion of coffee would imply a smaller equilibrium exchange rate, but by a smaller proportion than the decrease in the actual exchange rate. The net result would be a greater penalization of agriculture and greater protection for import substitution.

The "equilibrium" rates and the related rates of net nominal protection are shown in Table 6.26. As anticipated, agriculture received a negative protection, with exports the most penalized,while a positive protection was given to import substitution. However, the trends observed are worth noting. A "de facto" import-substitution protection was small right after the 1953 exchange reform (column (4)). It increased in 1956-60 (average of 31.5 percent) and again in 1961-65 (average of 67.6 percent) falling rapidly by the end of the period.[33/]

On the other hand, taxation on agricultural exports (column (2)) was relatively high in 1954 and increased in 1956-57. Then, it declined (with the exception of 1962-63) to find its lower levels in 1965 and 1967. Thus, taxation was higher during 1954-59 (average of 53.7 percent), and greatly reduced in the 1960's (average of 32.7 percent).[34/] Column (5), Table 6.26, shows total protection of imports relative to exports. It was high during 1954-60 (average of 78.1 percent), but much higher in 1961-65 (average of 101.5 percent).

[33/] These results are smaller than those observed by Bergsman. The trends show also some differences. His average protection rates were 95.0 percent in 1956-60 and 79.6 percent in 1961-65.

[34/] Bergsman's average estimates for 1954-59 and 1960-67 were, respectively, 31.5 percent and 26.1 percent.

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34/ Bergsman's average estimates for 1954-59 and 1960-67 were, respectively, 31.5 percent and 26.1 percent.

Table 6.26. "Equilibrium" Exchange Rates and Net Nominal Rates of Protection, Brazil, 1954-67

Year	"Equilibrium" rate (R') (1)	Net nominal protection[a] in relation to: Effective export rate (2)	Implicit Agr. Exchange rate (3)	Effective import rate (4)	(2) + (4) (5)	(3) + (4) (6)	Extent of overvaluation[b] (7)
	(Cr$/US$)	percent					
1954	61.0	- 51.3	- 12.7	12.5	63.8	25.2	105.4
1955	78.9	- 47.0	- 14.5	18.2	65.2	32.7	88.8
1956	132	- 63.8	- 28.0	39.4	103.2	67.4	175.9
1957	134	- 59.3	- 25.1	32.8	92.1	57.9	145.7
1958	141	- 51.3	- 21.2	29.1	80.4	50.3	106.0
1959	218	- 49.5	- 22.0	28.9	78.4	50.9	98.0
1960	247	- 36.7	- 21.3	27.1	63.8	48.4	58.5
1961	342	- 28.6	- 31.4	77.8	106.4	109.2	40.2
1962	608	- 40.4	- 34.6	67.6	108.0	102.2	67.4
1963	1,058	- 47.6	- 29.1	58.2	105.8	87.3	91.0
1964	1,636	- 31.4	- 28.1	70.1	101.5	98.2	45.8
1965	2,315	- 21.8	- 19.5	64.1	85.9	83.6	27.9
1966	3,141	- 30.7	- 10.6	17.9	48.6	28.5	44.2
1967	3,424	- 24.2	- 3.8	4.5	28.0	8.3	32.0

Source: Effective export rate and implicit agr. exchange rate - Table D-109; effective import rate - Bergsman (1970), "Equilibrium" rate computation procedure is described in Appendix D.

a/ Net nominal rates of protection as a percentage of "equilibrium" rate.

b/ "Equilibrium" rate divided by export effective exchange rate, minus one.

Therefore, an appraisal of the export-import situation as related to an "equilibrium" exchange rate, shows heavy export taxation in 1954-59 and a gradual reduction in the 1960's. Exchange overvaluation was substantial, mainly during the 1950's (see column (7)). This is the logical result of Brazil's commercial policy during the period and is consistent with the maintained hypothesis of the present study. However, when compared to import protection, exports were more penalized in the early-1960's, even though a general disfavorable picture was predominant.

Net nominal protection in relation to implicit exchange rates for agriculture shows somewhat different results (Table 6.26, column (3)). Changes in the level of negative protection between the 1950's and 1960's are not so clear. In general, a greater taxation was prevalent from 1956 to 1964 (average of 26.8 percent), but in all years except one (1961), penalization of agriculture was smaller than for exports. Like in the previous case, penalization of agriculture vis-a-vis protection to import substitution (column (6)) was greater in 1961-65 (average of 96.1 percent), and much smaller in 1954-60 (average of 47.5 percent). In short, taxation on agriculture was smaller than on exports, and --as confronted with import protection--more pronounced in the early-1960's than in 1954-59.

The same set of estimates made by using Balassa's median assumptions as to elasticity coefficients yields exactly the same results as Bergsman's.[35/]

Table 6.27 shows net nominal rates of protection for ten major crops. These can be compared to the "gross" nominal rates shown in

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35/ A discussion of Bergsman-Malan's and Balassa's assumptions about import and export elasticities for Brazil are made in Balassa (1970),(pp. 345-8). Bergsman's and Balassa's assumptions are, respectively; import demand elasticity, -0.5 and -1.5; export demand elasticity, infinite and -10; export supply elasticity, 1.0 and 5.

Table 6.27. Net Nominal Rates of Protection for Major Agricultural Products, Brazil, 1954-56 to 1965-67

Period	Cotton	Cocoa	Sugar	Castor beans	Tobacco	Corn	Rice	Dry beans	Potatoes	Average rate
	percent									
1954-56	-51.9	-55.6	-24.1	-57.0	-52.3	-37.6	15.2	-23.5	20.7	-18.4
1955-57	-53.5	-60.4	-28.5	-58.3	-58.5	-35.6	11.5	-19.3	17.7	-22.5
1956-58	-49.8	-67.1	-34.9	-59.2	-57.8	-36.8	16.0	-42.1	12.9	-24.8
1957-59	-43.4	-66.5	-32.8	-60.0	-54.5	-30.5	16.9	-45.4	9.8	-22.8
1958-60	-35.7	-67.8	-29.4	-55.4	-45.5	-32.1	12.1	-35.2	15.3	-21.5
1959-61	-41.8	-61.6	-27.3	-53.1	-37.0	-33.0	2.6	-33.8	23.5	-24.9
1960-62	-43.2	-54.5	-26.8	-47.3	-33.7	-36.9	- 4.6	-46.3	18.9	-29.1
1961-63	-50.1	-46.4	-35.8	-48.3	-41.7	-42.8	- 1.2	-55.5	18.9	-31.7
1962-64	-43.8	-41.0	-41.6	-50.0	-45.6	-45.8	2.0	-54.6	10.1	-30.6
1963-65	-37.9	-38.4	-20.2	-52.9	-40.2	-47.4	- 0.8	-51.4	17.5	-25.6
1964-66	-33.2	-31.0	3.8	-56.4	-34.2	-41.3	- 5.1	-41.3	28.1	-19.4
1965-67	-29.8	-29.2	35.3	-48.2	-30.4	-36.8	- 2.9	-35.9	35.4	-11.3

Source: Table D-114.

able 6.25. Negative protection is obviously much stronger in the resent case. With the exception of rice and potatoes, all products were redominantly negatively protected. Greater penalization is found for ocoa, castor beans, cotton, corn, and sugar. The negative sign for ome important domestic consumption crops results from considering a maller time period (1954-67), when these crops were increasingly penalzed relative to traditional exports (see Table 6.25).

Therefore, the present consideration of agriculture and export protecion relative to an "equilibrium" exchange rate stressed its negative impact ith emphasis in the 1960's. A comparison of actual and "free trade" onditions suggests the existence, during the main industrializtion period, f a compensatory policy toward agriculture, mostly directed to major omestic consumption goods. From 1960 to 1967, when export penalization as reduced, other protection measures were also lifted resulting in a eneral decrease in nominal protection to agriculture.

CHAPTER VII

SUMMARY, CONCLUSIONS, AND SUGGESTIONS FOR FURTHER RESEARCH

Summary

The role that agriculture played in fostering Brazil's industrialization effort in the period 1946-67 was the underlying concern of this study. It deals with the impact of trade policy on the agricultural sector, and with some of the implications of these policies with respect to the contribution of agriculture to total development. This approach seemed appropriate because resources were extracted from agriculture for support of the industrialization effort largely through trade policy.

Chapters I and II were descriptive in nature. They included the formulation of the problem and research objectives, a review of the relevant literature, a brief description of the structure of Brazil's agricultural exports and imports, and a detailed view of the exchange policy that was followed.

Those chapters stressed the importance of agriculture in Brazil's foreign trade and the nature of the problems it faced as a result of the inter-sectoral income transfers effected through trade policy. Relatively little attention has been given to this issue by previous students of the Brazilian economy who have tended to focus more directly on the

import-substitution industrialization drive.

The evidence presented herein shows that in order to create an economic environment receptive to industrial growth price relationships could have been substantially changed by means of a system of quantitative controls, multiple exchange rates, and basically an overvalued currency acting on exports and imports. Export exchange rates were strongly overvalued and an increasing domestic inflation stimulated the introduction and enforcement of domestic price controls on prime-necessity commodities, resulting in substantial penalization of agricultural production. On the other hand, imports of capital goods and basic raw materials, including agricultural inputs, were favored by the Government.

Chapter III introduced the conceptual framework of analysis. It was based on a simple supply-demand static model in which relative price changes resulting from controls exerted by the Government on agriculture and manufacturing can be measured and analyzed.

Further evidence and an analysis of the impact of trade policy on exports and on agriculture was developed in Chapters IV, V, and VI. Chapters IV and V deal with the structure of agricultural exports and imports of agricultural inputs, and with the analysis of commercial policy measures applied to these. Chapter VI contained an estimation and analysis of exchange retentions by the Government, exchange rate differentials, changes in relative prices, and estimates of nominal and net protection of the agricultural sector.

The analysis of policy discrimination within the agricultural export sector (Chapter IV) showed a clear burden on coffee and, secondarily, on cocoa exports, but a relatively balanced situation between non-coffee

foodstuffs and raw material exports. A major conclusion was that exchange policy probably did not have much direct impact in keeping prime-necessity foodstuffs from being exported. This was probably accomplished through quantitative controls based on export-surplus considerations. In addition, it was probably the case that the level of production technology was so low for these products that Brazil did not have a basic comparative advantage in them.

Given the objectives of domestic policy, it appears that commercial policy tools were being used with some degree of rationality. The Brazilian export structure and policy was such that it permitted, simultaneously, a taxation on domestically superfluous but highly important food exports, and the maintenance of a relatively stable supply of domestically necessary agricultural products.

The position of agricultural exports, and agriculture as a whole, relatively to other sectors was examined in Chapter VI. First, the amounts collected by the Government from the sale of export proceeds in exchange auctions to importers were estimated. During the period 1953-61 the equivalent of 9,336 million dollars in agios were collected, of which 5.491 million were used to make complementary payments to exporters, and 3,843 million were directed to Government programs which emphasized agricultural objectives. Therefore, a sizeable share (44.2 percent) of the agios fund was used as a means to reallocate agricultural income, and this share was largely oriented toward agriculture itself. To a large extent, however, this reallocation was effected to the same crop which originated these funds. It is estimated that about 70 percent of these agios were allocated in the coffee sector, mostly for the purchase of

surplus coffee; only 0.4 percent were used to stimulate cocoa production. If it is taken into account that about 65 percent of the agios were derived from coffee exports, the coffee sector was actually getting more than it was giving. This means that the reallocation was done from other export crops to the coffee sector. Therefore, one of the major objectives of the agios fund--the modernization of the methods of agricultural production--could never be accomplished. On the contrary, it contributed to a poorer income distribution in agriculture, and reduced possibilities for investment in the non-coffee agricultural sector.

Differences between import and export effective exchange rates prevailing in 1953-65 were also calculated (Chapter VI). To this effect, effective rates for agricultural exports were compared to those for imports of manufactures (consumer, intermediate, and capital goods). Both, exchange rates and post-1957 tariff rates were taken into account. The results showed that from 1953 to 1958 exports, as compared to imports, were penalized by the exchange policy, but starting in 1959 tariffs began to substitute for exchange rates in the discriminating role. Thus, differences in the effective exchange rate between exports and imports persisted throughout the period, being the greatest in 1958-60. In general, larger differentials were found in the 1960's as compared to 1954-57.

Relative differences in industrial as compared to agricultural exchange rates were greater for consumer goods and smaller for capital goods. Coffee exports were always the most penalized.

With the use of relative prices the above analysis could be broadened to include a larger number of agricultural products, and for the entire period 1946-67. This included the computation of the internal "terms of trade" between agriculture and manufacturing, and of implicit exchange rates.

The fact that the available industrial price data cover only the group of intermediate manufactured goods somewhat limited the scope of the analysis; the consumer goods sub-sector is known to have been more protected. However, since capital goods were the least protected sub-sector, intermediate good indices can be taken as "compromise" prices for the manufacturing sector.

Estimates of the internal "terms of trade" showed increasing trends during 1946-54 as a result of rising international agricultural prices. After this period, price ratios declined until 1960/61, and remained variable during the 1960's. These results are consistent with declining world prices during this period, and with the introduction of a new tariff system in 1957.

When prices for manufacturing sub-sectors were compared to agricultural prices, the traditional sub-sectors appear to have been less protected as compared to modern sub-sectors. This fact, and the generally stable behavior of industrial prices, can be attributed to the protection existing previous to 1946/47 as a result of restricted trade and supply during World War II.

In order to detect the isolated effects of Brazilian policy on agricultural exports, these were adjusted for world prices, and new price

ratios were computed. The result was a generally unfavorable trend, except for some better years in the period 1947-55. This suggests that world price incentives were not completely transferred to agriculture. In addition, prices of traditional exports were more depressed as compared to prime-necessity domestic-consumption food items, which suggests that domestic anti-inflation policy was less effective than commercial policy in keeping prices from rising.

Asa means to explore in more depth the consequences of the introduction of world prices in the analysis, implicit exchange rates for agricultural and manufactured goods were computed. Due to data problems it was necessary to consider a smaller number of products for both sectors in this analysis.

Implicit exchange rates detect absolute differences between domestic prices adjusted for world price changes. The results were different than those suggested by previous analyses that were limited to domestic comparisons. In the first place, traditional exports showed smaller implicit rates than other products during 1947-53, when quantitative controls and a fixed exchange rate prevailed; the same occurred under multiple exchange rates during 1953-60. Only when most exports were liberated from exchange controls did the implicit exchange rates increase to the level of some other products.

Throughout the period implicit exchange rates were above effective exchange rates, which indicates a greater incentive to produce for domestic rather than for foreign markets. However, this incentive was greater in the 1950's than in the late-1940's and in the 1960's.

Another striking result was obtained as agricultural and manufacturing exchange rates were compared. Even though evidence was produced for only three industrial sub-sectors (fuels, processed agricultural products, and fertilizers), the results suggested that Brazilian agricultural-manufacturing "terms of trade" were in a worse situation in the 1960's than in the 1950's.

This and other points were further investigated with the estimation of nominal rates of protection. These rates were measured both on the basis of the prevailing export effective exchange rate and on the basis of an estimate of the equilibrium exchange rate.

The first set of estimates considered protection only for agriculture. During 1947-60 positive protection was higher for non-traditional exports and other products, which is consistent with small incentives to export. However, in the 1960's this protection substantially decreased and, in some cases, went below that for traditional exports.

Estimates of nominal protection using an equilibrium exchange rate were only calculated for the period 1954-67. Throughout the period, protection was negative for agriculture as a whole, as well as for individual products, with the exception of rice and potatoes. Since coffee was excluded, greater penalization was found for cocoa, castor beans, cotton, corn, and sugar.

In support of previous findings, manufacturing protection relative to agriculture was greater in 1961-1965 than in 1954-60. Therefore, in spite of a greater exchange overvaluation in the 1950's, agricultural penalization was smaller during that period than in the 1960's.

On the side of imports of agricultural inputs (Chapter V) the evidence produced showed that they received a very small protection from the exchange and tariff policies. The least protected items among these were fertilizers and pesticides, whereas the greatest degree of protection was given to the group of machinery and tools. It should also be remembered that tariffs on tractors were substantially raised in 1963, when incentive were extended to the organization of this industry in Brazil.

When effective exchange rates were estimated for imports of agricultural inputs (Chapter VI) and compared to agricultural exports, it was found that while exchange rate differences were much smaller between these groups as compared to other manufactures, there was still a significant discrepancy during 1954-56. Since 1957, and specially in 1960-61, effective exchange rates for imports of intermediate inputs were smaller or very close to the similar rates for non-coffee agricultural exports.

When domestic prices of fertilizers and of agricultural products were adjusted for world prices and absolute differences were measured with the use of implicit exchange rates, a different pattern was observed, although it did not conflict with the previous results. In the late forties prices of fertilizers were relatively high as compared with agricultural prices. However, as multiple exchange rates were introduced, fertilizer prices declined relative to those of agriculture, and so remained until the late fifties. As most fertilizer imports were moved to the general import category in 1961 and controls on agricultural prices tightened, fertilizer prices increased relative to agricultural prices and stayed relatively high until 1967.

Conclusions

The Brazilian industrialization drive which took place after World War II is often said to have resulted from adequate,but unusual--and in some cases fortuitous--economic and political circumstances which made possible the transformation of a development effort into reality. As one tries to set the necessary conditions for industrial development, under Brazil's peculiar conditions, one is tempted to agree with that statement.

As a matter of fact, the world economic situation that emerged from World War II was particularly instrumental and encouraging in the Brazilian case. The state of warfare and the necessarily slow world economic recovery were appropriate to implicity generate conditions for industrial protection. The relatively small Brazilian manufacturing sector, predominantly directed to the production of non-durable consumer goods, not only had experienced six years of insulation from foreign competition but was also substantially stimulated by a growing demand from abroad. Under the more competitive conditions of the late forties, it was only necessary for the Government to maintain and reinforce the existing protection through commercial policy tools.

A second condition was the availability of low-cost foreign exchange to facilitate the importation of raw materials and capital goods necessary for equipping and supplying the traditional and new industries. This was partly met with the reserves accumulated from positive trade balances during the war, and largely complemented with the maintenance of an overvalued export exchange rate. Overvalued exchange rates and selective quantitative controls were also used for imports in order to

facilitate the supply of items deemed essential for Brazil's industrial growth.

A third important condition was the achievement of relatively stable price conditions in the domestic market. Increasing domestic prices would affect resource allocation, income and demand prospects, and force exchange adjustments, which as a whole could strongly impair the industrialization drive. This condition was met with domestic price controls of foodstuffs and other prime-necessity items, and with over-valued export exchange rates.

Finally, a fourth condition was political stability and peace. This was obtained with the calm and compromising 1946-50 Dutra Government which succeeded the long-lasting Vargas dictatorship.

The above points place a strong emphasis on the contribution of agriculture to industrial growth. It was obvious that the burden had to be put on the sector which commanded most of the nation's economic resources. In this respect, the nature and structure of Brazilian agricultural production and trade were extremely helpful to allow the use of policy tools to accomplish industrial development goals.

For these purposes, agricultural production could be divided into two major groups: exports, and products for domestic consumption. The group of products primarily oriented toward exportation included coffee, cocoa, castor beans, tobacco, and to a smaller extent, cotton. Prime-necessity foodstuffs like rice, dry beans, corn, and potatoes were seldom exported in meaningful amounts; beef and sugar were secondary exports during the forties and fifties. This allows a separate consideration of two markets: the foreign and the domestic.

Brazilian foreign trade was largely sustained by coffee exports. Using its monopolistic power as a coffee producer, Brazil was able to keep world prices high. It was possible, therefore, to maintain a stable, and even increasing, domestic production under overvalued exchange rates. Cocoa, some cotton, and castor beans, as well as exports of edible nuts and industrial oils and waxes, were produced in restricted and poor regions, without alternative use for the resources involved, and with slow responsiveness to relative price changes. This situation made possible a permanent pressure on agricultural prices through commercial policy without affecting the domestic supply of the products oriented toward domestic consumption.

A different policy was used to maintain a stable domestic supply of foodstuffs. On the one hand, quantitative controls, under an export-surplus orientation, were eventually enforced. On the other hand, price controls were flexible enough to allow some protection to consumers against foreign competition. This latter kind of implicit controls were often found during the 1940's and 1950's turning largely insubstantial the arguments about an export-surplus theory of trade as a continuous Government concern.

Another important component of Brazil's policy-making towards agriculture were the diverse political concessions made from time to time to exporters and producers. These played a role more important than is often recognized to pave the ground for industrial growth, and to provide agriculture with short-term capital and higher income prospects.

For analytical purposes, the period 1946-67 was divided into five relevant phases from the point of view of trade policies concerning

agriculture. The first phase, 1946-53, was probably the most important and delicate of the entire period since it was responsible for giving substance and impulse to the industrialization process. In this respect, agricultural exports made an important contribution. Thanks to rising world prices and some exchange concessions a fixed, and obviously overvalued, exchange rate could be maintained throughout the period without an apparent depressing effect on exports and on agriculture.[1/] Agricultural prices were increasing as compared to manufacturing prices, even though they were being given only part of the prevailing world price incentives.

During that phase, all exports received the same share of the overvaluation burden. Accordingly, a higher nominal protection resulted for non-export products. However, this was not enough so as to keep farmers from making large investments in new coffee plantations. The pressure on the Government for higher export exchange rates kept mounting, however, and led to the "tied operations" at the end of the forties and, eventually, to the exchange reform of 1953.

The whole set of policy measures which included the introduction of the multiple exchange rate system in 1953 deserve a careful analysis since they appear to provide, simultaneously, more flexible trade controls, a new form of export taxation, and a response to political pressures. In the first place, it should be remembered that multiple export rates, and the exchange devaluation it implied, came while world prices for coffee were still rising and near their peak. Only two exchange rate levels were established, with the lower for coffee and the higher for

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1/ It should be noted that exports might have been larger under an alternative policy and thereby financed a higher rate of economic development.

other exports. It is clear that if the Government intended to maintain a greater burden on coffee, this would be the most appropriate time for it.

At the same time, the average export exchange rate was still maintained overvalued, but the average import rate became undervalued as a protective device. The whole procedure to meet pressures from agriculture was an ingenious one: exports were paid the same basic exchange rate (Cr$18.36/US$) plus a "premium" paid with part of the agios obtained from the import auctions. This "premium" could be changed upward in response to pressures, which arose as world prices began to decline. It is worth noting that the payment of the "premium" was only made possible because the Government transferred resources from the import sector, and politically this has a favorable connotation to the Government. And finally, the remaining agios, not used to pay "premiums" were allocated to Government programs to stimulate agriculture. And this goes without saying that agricultural modern inputs were imported at subsidized exchange rates.

A closer look at the policy implementation, however, reveals a different picture. The difference between offering an overvalued or undervalued exchange rate to agricultural exports was the share of the agios fund (44 percent) used in agricultural programs. The existence of this procedure assumes that the Government was in a better position to allocate agricultural income than the farm sector itself. The rationale was that some income redistribution inside agriculture could take place as resources were diverted from coffee and cocoa exports to other crops. Non-export crops could thereby be stimulated and contribute to a greater production diversification.

The results, however, were different than expected. About 70 percent of the agios fund ended up in the hands of the coffee sector in the form of payments for surplus production. There was, therefore, a transfer from the trade sector to the coffee farm sector which further stimulated its production, and the concentration of farm income.

There are reasons to believe that cocoa was more penalized than coffee during the 1950's. Cocoa exports were taxed almost as strongly as were coffee exports. But Brazil did not hold a position in the world market for cocoa that would permit it to shift the burden of this tax onto the foreign consumer. And, finally, resources were transferred from cocoa exports to the coffee sector through the agios fund.

The above conclusions, however, cannot hide the fact that the Government was trying to compensate agriculture for at least part of the effects of its economic policy. It was unsuccessful in this effort to the extent that it did not react to pressures from the coffee sector, maintaining an artificial price policy instead of fighting for greater coffee exports at lower prices.[2/]

A general analysis of the whole period 1953-61 shows a declining trend of agricultural prices in isolation or as compared to domestic manufacturing prices. The exceptions are the years 1953/55 when world prices for coffee reached a peak and then steadily declined until the early 1960's. Accordingly, the domestic price system implied a greater incentive to produce for domestic rather than for foreign markets. This happened in spite of the export liberalization effected in the late 1950's,

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2/ As a side comment, it can be pointed out that policy-makers were not so autonomous in their decisions as some authors suggest (see Leff (1970)).

which shifted most exports to the free market exchange rate. A smaller but still clear decline in agriculture-manufacturing price ratios was observed after the mid-1950's when agricultural prices were adjusted for world prices. This reflects the depressing effects of the 1957 tariff reform and the increasing controls on domestic prices as inflation rates began to grow.

The last two phases, comprising the period 1961-67, were characterized by an unstable political situation. Exchange rates continued to be overvalued, but less so than in the previous period. However, industrial protection increased substantially. At the same time, inflation was spiraling and domestic price controls were highly discriminatory against foodstuffs. The net result was a greater difference between export and import effective exchange rates. Agriculture-industry domestic price ratios showed varying trends, but when adjusted for world prices they were the lowest of the entire period of study.

The fact that agriculture was more penalized in the early 1960's than during the major industrialization period is contrary to what most previous analyses have suggested. As exports were increasingly liberated from exchange controls, the distinction between the export and domestic markets, implicit in the price system, largely disappeared. Under a stagnant world price situation and tighter domestic price controls, agricultural prices were strongly depressed. Since industrial protection remained high as industrial growth slackened, agriculture-industry relative price differentials soared. A result of this situation was that domestic consumption commodities became less protected by the price system and, eventually, turned into viable export products. This was the case of corn, dry beans, and rice.

Modern agricultural inputs were given an independent and special analysis. As a political option the Government decided to introduce subsidized exchange rates for most of these inputs as multiple exchange rates were introduced in 1953. Previous to that, they were considered preferential imports, but still there were complaints of high fertilizer prices. As higher exchange rates were paid for exports and the agricultural price situation improved, the price of fertilizers (the only input for which comparable world data were found) became more accessible to farmers. Only in the early sixties was this privilege withdrawn and the fertilizer price climbed again to its highest levels in the period. This new, protective policy resulted, eventually, in the organization of the national fertilizer industry. Previously, in 1963, the national tractor industry was introduced, through special incentives.

Therefore, Brazil's modern agricultural input policy was characterized by increasing incentives to consumption through import subsidies from the late forties until the late fifties. Then, protective barriers were gradually built in order to generate conditions for the growth of a national industry. The importance of the exchange subsidy extended during over 10 years was more of a political nature than of economic significance. As a result of the relatively small use of modern inputs in Brazilian agriculture, the impact of an import subsidy was necessarily small, and could better serve the large farmers who comprise the major pressure groups.

Perhaps,over the long run, the subsidy policy may have generated a demand sufficient to add stimulus to the recent growth of Brazil's agricultural modern input industry. But, it seems that a greater impact

could have been obtained if the protection given from the start to other industrial products had been also extended to the group of modern agricultural inputs. The effect on agricultural prices would have been negligible and input prices could be smaller today.

A final conclusion of this section is that throughout the period of study, agriculture experienced some degree of penalization. In the Brazilian case, this was consistent with establishing conditions for industrial growth. Without going into discussion about the nature and scope of Brazil's industrialization process, one could say that industrial growth objectives were largely accomplished, and agriculture played a major role to make it possible.

The question of whether the right kind of policies were adopted with respect to agriculture is a more complex one. Even assuming that exchange policy tools were the only viable way to promote a foreign exchange flow from agriculture, a number of ways in which it was implemented are open to discussion. The fact that penalization through the exchange system was greater in the fifties and forties than in the sixties is consistent with what should be expected. Also, one should be appreciative of the policies through which the Government aimed at transferring resources from the industrial to the farm sector in order to counteract its exchange retentions. However, policy makers seem to have yielded to pressure groups, and the allocation of these resources was far from reaching any acceptable objectives in the long run. The cases of coffee and input imports are very illustrative.

Another aspect of the policies followed was that they extracted resources from the agricultural sector largely through changes in relative prices. This system of taxation probably had strong disincentive effects on output, at a time when development goals would have called for increases in output. Political considerations and the administrative difficulties involved in implementing an income or other tax systems are probably why the implicit export tax of overvaluing the currency received such a heavy emphasis. But that it had rather deleterious effects on agriculture, and ultimately on the rate of growth, seems clear.

Finally, as agricultural products directed to domestic markets are brought into the picture a new and relevant question could be asked. Why was agriculture penalized more heavily in the 1960's than in any other segment of the period of study? The answer to this question seems to be related to the two-market system mentioned above. Considerations about domestic price stability were to a large extent independent of industrial growth objectives. Price controls were tightened whenever domestic inflation reached unacceptable levels, and under this situation the major burden is usually assigned to agriculture. Also, the industrial effort cannot be entirely detached from this. It was shown that a substantial part of agricultural penalization during the sixties came from higher industrial protection as the Government strived to sustain high rates of industrial growth.

Suggestions for Further Research

In relation to the general framework and findings of the present study, the following major topics can be suggested as relevant for further research:

1. The effects of Brazil's new exchange policy on traditional and non-traditional agricultural exports. The new exchange policy initiated in 1968 seems to have brought substantial incentives to exportation. Also, a number of other export incentives were introduced. A survey of these measures and an analysis of their effects on traditional and non-traditional agricultural exports, as well as on exports of manufactures largely based on agricultural products (like instant coffee, fruit juices, and processed beef) could offer useful insights into the relative value of the different policy tools, and help to improve their use in the near future.

2. The impact of industrial protection vis-a-vis agricultural export incentives in the period 1968-74. In spite of the substantial incentives extended to agricultural primary exports, it has been argued that it has still been penalized as compared to exports of manufactures, which received even greater incentives. The system of relative prices, as it was used in this thesis, could provide meaningful answers to this question and raise some additional issues on equity and comparative advantage.

3. The impact of inflation on agricultural prices. This study suggests that domestic price controls were of prime importance in setting the degree of agricultural penalization. One of the major problems posed to the development of Brazilian agriculture has been the effect on its long term objectives of the short term policy interventions in the price system. A study which attempted to bring evidence to bear on this topic, as well as to examine alternative policies to deal with rising prices without unnecessarily burdening agriculture, would be an important

contribution to policy-making in contemporary Brazil.

4. The effects of commercial policies on national production and imports of modern agricultural inputs. Since 1960 Brazil has paid increasing attention to an import substitution policy for industrial modern agricultural inputs. Thus far, the effects of this policy have been an almost complete substitution of tractor and machinery imports, and a substantial progress in the national production of fertilizers and pesticides. This has been accomplished through tariffs, conditional imports, and fiscal and credit incentives to national industries. The nature and development of this effort, its practical consequences for agriculture, and suggestions on priority areas could also be a major research contribution.

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