

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON, D. C. 20523
BIBLIOGRAPHIC INPUT SHEET

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BATCH 51

1. SUBJECT
CLASSI-
FICATION

A. PRIMARY

B. SECONDARY

TEMPORARY

2. TITLE AND SUBTITLE

Industrialization and economic development in Brazil

3. AUTHOR(S)

Baer, Werner

4. DOCUMENT DATE

1964

5. NUMBER OF PAGES

237p.

6. ARC NUMBER

ARC

7. REFERENCE ORGANIZATION NAME AND ADDRESS

Yale

8. SUPPLEMENTARY NOTES (*Sponsoring Organization, Publisher, Availability*)

9. ABSTRACT

(ECONOMICS R & D)

(DEVELOPMENT R & D)

10. CONTROL NUMBER

PN-AAD-184

11. PRICE OF DOCUMENT

12. DESCRIPTORS

13. PROJECT NUMBER

14. CONTRACT NUMBER

Repas-12 Res.

15. TYPE OF DOCUMENT

INDUSTRIALIZATION AND ECONOMIC DEVELOPMENT IN BRAZIL

By Werner Baer

Economic Growth Center
Yale University

-1964-

To

JOHN KENNETH GALBRAITH

and

ARTHUR SMITHIES

ACKNOWLEDGMENTS

It would be impossible to produce a monograph of this nature without the help of many institutions and individuals.

My basic debt is to the Economic Growth Center of Yale University which has sponsored the study and whose resources made it possible to work with a reduced teaching load while in New Haven and to spend fifteen months in Brazil. I am especially grateful to Professor Lloyd Reynolds, the director, Professor Gustav Ranis, the associate director, and Mrs. Mariam Chamberlain, the executive secretary, for their encouragement, help, and understanding. My many colleagues of the Economic Growth Center have been a constant source of stimulation, but let me single out especially Joseph Grunwald and Dudley Seers, who during their residence at Yale were especially helpful.

My deep gratitude goes to the Brazilian Institute of Economics of the Fundacao Getulio Vargas, which provided me with a research home during my stay in Brazil. Its two directors during my residence, Professor A. Kafka (now of the University of Virginia) and Professor O. G. Bulhoes (now Brazil's finance minister) were most generous in providing for my needs.

It was a most pleasant surprise to find that the research staff of the Fundacao Getulio Vargas was of exceptionally high caliber by any standard and I feel fortunate not only in having received its members' help in obtaining information and exchanging ideas, but also in having won their trust and friendship.

I wish to thank especially Dr. J. Chacel, Dr. M. Costa, Dr. M. H. Simonsen, Dr. A. Villela, and Dr. D. Nogueira. I wish to thank Jayme Fuks of the Vargas Foundation, who was instrumental in helping me obtain data for Appendix III.

I received the cooperation of so many people in various governmental and private institutions that it is impossible to mention all of them in the allotted space. Let me single out, however, Eduardo Gomes of SUMOC, J.P. de Almeida Magalhaes, and H. Schlittler Silva.

My discussions with students of the Vargas Foundation were especially helpful in shaping my thinking on certain issues. I wish to thank especially Claudio de Moura Castro, Waldemar de Moraes, Jeannette Thomsen, and J.P. Velloso.

Gordon W. Smith of Harvard and Donald Huddle of Rice University, who were both working on research projects in Brazil were my constant valuable critics.

My discussions with Jorge Paulo Lemann of INVESCO, S.A., were most valuable in getting some insights into Brazil's financial and business community.

Isaac Kerstenetzky, the director of the National Accounts section of the Vargas Foundation, who co-authored one of the chapters with me, deserves special mention. His deep knowledge of the Brazilian economy and Brazilian society, his great erudition in economic theory, quantitative techniques, and economic history, and his cheerful willingness to let others exploit him were of great benefit to me. It was a rare privilege for me to receive his help and to be able to work with him on a number of projects. My association with him has undoubtedly been my greatest intellectual experience since finishing graduate school

Last, but not least, my thanks go to Joyce Blakeslee. I was lucky to have her help in smoothing out the many detailed, tedious, but necessary tasks which go into a research project. She deserves a special merit badge for putting up with my temperament.

Werner Baer

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Chapter 1

INTRODUCTION

In the decade and a half after the second world war, from the late nineteen forties until the early nineteen sixties, the Brazilian economy underwent substantial structural changes as a result of the government's industrialization policies. For example, the contribution of agriculture to the gross domestic product (in 1947 constant prices) fell from 27 percent in 1947 to 22 percent in 1961, while industry's contribution rose from 21 percent to 34 percent in the same period. As this process was going on, Brazil experienced one of the highest real growth rates in Latin America. It will be the principal purpose of this study to examine the process of Brazil's industrialization and its effects on different sectors of the economy.

Although this volume is considered to be in the nature of a specialized monograph, we feel it might be useful for the reader not acquainted with the region to feature in this introduction a brief birds-eye view of the physical setting of the country, its historical and political development, and its economic characteristics in periods prior to the one in which our analysis will concentrate.

Physical Setting

Brazil, occupying 3.3 million square miles, is the fifth largest country in the world and takes up almost half of South America. The largest part of Brazil is made up of geologically ancient highlands. Roughly, 57% of the land is on a plateau, varying between 650 and 3,000 feet in elevation; 40% consists of lowlands with an altitude of less than 650 feet, and 3% exceeds 3,000 feet in altitude. In many places the Brazilian highlands drop off sharply into the

Atlantic. North of the city of Salvador there is a gradual rise from the coast to the interior, but South of that city until Porto Alegre the mountains are like a steep wall facing the ocean - this wall-like slope is also called the Great Escarpment. The latter had made access to the interior rather difficult and has often been cited as a major reason for the slow development of the interior of the South-Central plateau of Brazil.¹

With the exception of the Amazon, the rivers drain inward from the South-eastern coast; thus, there is no natural focus of routes in that part of Brazil, which is today the most dynamic section. Most of the principal river systems have their sources in Central-Southeastern Brazil, almost within reach of the ocean. The Parana system is fed by tributaries which flow Westward into the interior until they reach the main river which flows Southward towards Argentina. The great Sao Francisco also has its sources in the South and it flows Northward, paralleling the coast for over a thousand miles before turning Eastward. These main river systems descend rapidly as they go through the Great Escarpment and this has made interior navigation of ocean vessels impossible.² Only the Amazon river is navigable far into the interior. It is clear that the river systems did not act as natural unifying forces of the country.

The climates of Brazil contain few extremes, but "...they are by no means so monotonously uniform, or so unbearably hot and damp, that the human spirit is deadened. If the Brazilian people in certain regions appear to be lacking in energy, this cannot be interpreted as the inevitable result of the climate

1. For the best description of Brazil's physical conditions and resources see: James, Preston E., Latin America, Third Edition, The Odyssey Press, New York, 1959.

2. The São Francisco river is navigable in the interior until shortly before the Paulo Afonso Falls.

until such other elements as diet and disease have been evaluated."¹ The average temperature on the Amazon at Santarem, a few degrees from the equator, is 78.1 degrees; in the dry Northeast, the highest temperature recorded is 106.7 degrees, but further Southward along the coast the maximum temperatures are much lower. The average in Rio de Janeiro in the warmest month is 79.0 degrees. In the highlands of the interior of Brazil the temperatures are lower than at the same latitudes on the coast. The Northern limit of the frost is South of the state of Sao Paulo.

Rainfall is adequate in most of Brazil. Deficiency is limited to parts of the Northeast, where there are areas receiving less than 10 inches a year. Most of the Northeast receives between 20 and 25 inches. The principal problem of that region is rainfall irregularity -- variations between excessive rains and droughts. Very moist areas, with more than 80 inches of rainfall a year, exist in four sections -- the upper Amazon lowlands, the coast from Belem Northward, scattered parts of the Great Escarpment, and in a small section in the western part of the state of Parana.

Brazil has a great wealth of mineral resources. It has an immense reserve of iron ore, manganese and many industrial metals. Many of these reserves have been mined only since the middle of the twentieth century. Unfortunately the fuel resources of the country have not matched its mineral resources. The only known coal reserves are located in the Southern state of Santa Catarina and are not of the best quality (containing a high proportion of ash and sulphur). Oil pools exist in the state of Bahia and are being exploited by the state-owned Petrobras company, but they have not yet made the country self-sufficient.

1. James, op. cit., p. 389.

The country also possesses substantial quantities of copper, lead, zinc, nickel, chromium, quartz crystals, industrial diamonds, and gem stones. The principal zone of minerals is the mountain range running through Central Brazil (especially the State of Minas Gerais), although important manganese deposits are also located near the Bolivian border and in the territory of Amapa, North of the mouth of the Amazon.

Brazil has substantial hydroelectric potential. Until recently the best sites for hydroelectric development were considered to be rather remote from centers of population, but in the fifties and early sixties the development of these sites has proceeded with speed with the construction of the Paulo Afonso Dam in the North of the Sao Francisco river, the Tres Marias Dam in central Minas Gerais, and the great dams of Urubupunga and Furnas in Southern Brazil.

Pattern of Brazil's Economic History¹

Although colonization began at the beginning of the 16th century, manufacturing industry did not appear until the second half of the 19th century and did not become a significant factor in the Brazilian economy until well into the 20th century. Until the end of the 19th century, the country was dominated by a plantation society based on slave labor, producing agricultural staples and raw materials for exports.

Brazil's economic history is characterized by a succession of cycles of its major export commodities. In the first years as a Portuguese colony Brazil exported Brazil wood, but from the middle of the 16th century until the second

1. For detailed economic histories of Brazil see: Simonsen, Roberto C., Historia Economica Do Brasil (1500/1820), Companhia Editoria Nacional, Sao Paulo, 1962; Furtado, Celso, Formacao Economica do Brasil, Editoria Fundo De Cultura, Rio de Janeiro, 1959 (translated as The Economic Growth of Brazil: A Survey from Colonial to Modern Times, University of California Press, Berkeley, 1963).

half of the 17th century, sugar was its principal export crop; it was also one of the principal items of international trade at that time and Brazil was the dominant source of supply. For twenty-five years in the first half of the 17th century the Dutch occupied the part Northeastern Brazil which was the main sugar producing region. After their expulsion, the Dutch used their technical skills and capital to develop the production of sugar in the British and French West Indies. Soon the strong competition brought along a sharp decline in prices and Brazil, a less efficient producer, suffered most.

The stagnation which resulted was interrupted when gold was discovered in the South-Central part of Brazil, the state of Minas Gerais. The gold mining period lasted throughout most of the 18th century and it had a number of important effects: because of it the economic center of the country shifted from the North to the Central-South; the shift of labor from the sugar mills to mining accelerated the contraction of sugar production; for the first time there was a large inflow of Portuguese immigrants, mainly because mining required much smaller initial capital resources than the establishment of sugar cane plantations; and finally, an urbanization process started with the appearance of numerous cities in the mining areas.

Although the mining boom brought into being a small bourgeoisie and an expansion of trade, no real manufacturing made its appearance due to the restrictive mercantilistic policies of the Portuguese authorities. By the end of the 18th century, with the exhaustion of gold, mining collapsed and a period of stagnation set in. Many of the European immigrants turned to subsistence agriculture in the former mining areas.

The 19th century was characterized by the rise of coffee as Brazil's principal staple crop. In the beginning, the production of coffee was based

on resources which had been underutilized since the decline of the gold boom. However, with the decline of the importation of slaves and, finally, with the abolition of slavery in 1888, the expansion of coffee continued on the basis of immigrant wage laborers. Coffee remained Brazil's principal staple until the second world war, although its strength fluctuated substantially with change in world demand.

One should also mention the brief rubber boom which occurred at the end of the 19th century and in the first decade of the 20th century. Brazil was the first large supplier of rubber for the developing automobile industry, but its hold on the world market collapsed when rubber from the lower cost East Indian plantations (which were started with seedlings smuggled out of Brazil) appeared on the world market in the second decade of the 20th century.

Besides coffee, cotton, tobacco and cocoa also developed as important though not as dominant export items. The development of manufacturing, however, did not seriously take root until the first world war. We shall, however, leave the discussion of early industrialization attempts until the second chapter.

Over the centuries, the dominance of each of the above mentioned products was associated with the development of a different region of Brazil. The sugar cycle was associated with the development of the Northeast of the country; the gold cycle with the central region of Minas Gerais; and the coffee cycle with the Central-Southern part of the country. Coffee, whose dominance was longest, also moved geographically over generations. Its dominance was first in the Paraiba Valley, between Rio de Janeiro and Sao Paulo. As the fertility of the region declined, coffee production moved South into the state of Sao Paulo and

later on ~~the~~ Parana.¹ Due to the country's vast areas, Brazilians were rarely concerned about conservation and the tradition of moving on as fertility declined is old. This has resulted in leaving many formerly rich areas, such as the Northeast, in extremely poor conditions.

Until the 20th century the role of foreign capital was principally in trade and the construction of public utilities. The strongest position was held for many years by the British who through treaties with the Portuguese had gained special trading rights in Brazil; these were continued even after Brazilian independence. The British were also principally responsible for building railroads. The network they created did anything but unify the country. Brazil emerged with a diverse railroad system, designed to transport goods from the interior to the ports rather than to connect the different regions of the country. In the 20th century American capital began to participate, especially in the construction of power and communications systems. Widespread foreign participation in manufacturing industry is a phenomenon of the mid-twentieth century.

Political Background

Until 1822 Brazil was a Portuguese colony administered along strict mercantilistic lines, i.e. no industry was allowed to develop, the territory had to buy Portuguese and English manufactured goods in exchange for its raw materials.² The mercantilistic policies were carried to such an extreme that no printing presses were allowed in the territory and higher education was forbidden. Some change occurred in 1808 when the Portuguese court emigrated

1. For an excellent study of the rise and fall of a coffee producing area see: Stein, Stanley J., Vassouras: A Brazilian Coffee County 1850-1900, Harvard University Press, Cambridge, Massachusetts, 1957. An interesting essay of the Brazilian economic cycle was made by: Normano, J.F., Brazil, A Study of Economic Types, Chapel Hill, University of North Carolina Press, 1935.

2. By the Treaty of Methuen of the British acquired special trading privileges which were later extended to the Brazilian territories.

to Brazil due to Napoleon's occupation of Portugal. The decade of residence of the royal family and its entourage created a market for manufactured goods, schools were organized, and administrative organs were developed. Shortly after the return of the Portuguese king to Portugal, pressure for ending the colonial status built up to such an extent that the regent, the eldest son of the King, declared Brazil's independence and made himself emperor. Thus, Brazil entered upon its independent road while continuing to be governed by a monarchical regime.

The monarchical status continued until 1889. During the 19th century Brazil's social structure was mainly that of a free trading plantation society. Little immigration took place since the economy was based on the slave system. Stresses began to develop as the British forced the closing of the slave trade, and with the influence of the liberal Emperor, Dom Pedro II, who supported the aspiration of the abolition movement which had grown in the second half of the century, slavery was abolished in 1888. With this act, the emperor lost the support of the landed interest groups, and in 1889 republican forces gained the upper hand and the emperor was forced to abdicate.

Although Brazil was a republic from 1889 until 1930, the country was ruled by a closed oligarchy, mainly representing the agricultural interests of two states, Sao Paulo and Minas Gerais. However, with the end of slavery, mass immigration from Germany, Italy, Poland, Portugal and Spain took place in the last decade of the 19th century and early decades of the 20th century, slowly changing the texture of Brazilian society. Beginnings of industrialization were felt in parts of the country, especially through the first world war's impact, and in the 1920's the conservative, free trading oligarchic system began to wobble. Periodic disturbances from dissatisfied social groups resulted in the decade of the twenties and with the seizure of power by Getulio Vargas in 1930, a new era began for Brazil.

Vargas steered the nation under both legal and dictatorial regimes. His instincts told him that Brazil's social structure was coming into conflict with economic changes, and he introduced a fairly advanced body of social legislation (much of this is discussed in chapter 4) which was to have a profound effect on post-World War 2 Brazil. The impetus towards industrialization created by the world wars and the depression continued in accentuated form in the 1950's. Although Vargas was deposed in 1945, the country's political and social climate had undergone profound changes. A substantial urban working and manufacturing class had emerged and was to grow throughout the postwar period. As the industrialization proceeded apace, more and more of the Vargas social legislation became important, many parts going beyond their initial paper stages.

The industrialization drive in the postwar era until the early sixties was carried on with a minimum of social conflict. Its very impact, however, was to bring Brazil to another social and political crisis in the early sixties. The growing modern sector put into bold relief the more backward parts of the Brazilian socio-economic scene: the backwardness of the agricultural system, of workers in rural regions, the backwardness of the educational system, etc.... There occurred tremendous internal migration to the cities, which did not have the facilities to house and employ all the new, mainly illiterate, arrivals. Thus, in the early sixties the country found itself in the midst of a political-social crisis and the big question was how to continue the industrial stride of the first postwar decades, while at the same time changing the more backward socio-economic features of the country. It is in this light that the crisis associated with the resignation of Quadros in late 1961, the turbulent regime of Goulart and his ouster in April 1964, should be viewed.

Purpose of Study

It is the purpose of this study to examine the industrialization drive of Brazil in the years 1947 to 1961. In the second and third chapters we shall tell the basic story, i.e. the industrialization attempts prior to the second world war, the conditions which led to the sustained industrialization effort after World War II, the policies used to foster this industrialization, the resulting changes in the structure of the economy and its rate of growth. In the fourth chapter we shall analyze the policy making structure of Brazil in order to gain an understanding about the process of economic decision making in the country and of the relative quantitative power public economic policy instruments have over the economy. The fifth chapter deals with the way in which the industrialization was financed and with the effect of the inflation, which dominated Brazil in the period, on the country's growth path. The sixth chapter, co-authored with Isaac Kerstenetzky, examines the linkages through which Brazil's industrialization spread and also analyzes the factor combinations in various key sectors in order to see how flexible the country was in adapting factor proportions to the country's relative factor endowment. We are also attempting in that chapter to offer an explanation for the country's low overall incremental capital output ratio. Chapter seven examines the effects of the country's industrialization on other sectors of the economy: we shall look at the various disequilibria which developed, such as between industry and agriculture, the regional disequilibrium, the imbalance between the growth of manufacturing activities and the availability of sufficient infrastructure, etc..., in order to see whether these disequilibria were inevitable and to what extent they could affect future growth.

The appendixes contain an essay on the state of Brazil's national accounts and other statistics and a number of sections presenting Brazil's national accounts, selected time series and benchmark data, in a form comparable to other country studies emanating from the Economic Growth Center of Yale University.

Chapter 2

INDUSTRIALIZATION EFFORTS PRIOR TO THE SECOND WORLD WAR

It was only after the second world war that Brazil engaged upon a deliberate, all-embracing and sustained industrialization drive which markedly altered the structure of its economy. This does not mean, however, that the industrialization started out from scratch. From the latter part of the nineteenth century onward, various types of industries made their appearance, often due to the interruption of supplies from overseas, but until the second decade of the twentieth century only a few established themselves firmly. The first world war and the great depression of the 1930's, however, were strong enough in their impact to establish a lasting, though still small, industrial base. But, as we shall see below, at the beginning of the second world war Brazil was still predominantly a primary producing country.

Industrialization Before the Twentieth Century

Until the second decade of the twentieth century, the Brazilian economy depended chiefly on the export of certain key primary commodities, which dominated in successive cycles its export structure: Brazil wood, sugar, gold and diamonds, rubber, cotton, and cocoa. Until the independence of Brazil virtually all manufactured goods were imported. This was due to the deliberate Portuguese mercantilistic policies prohibiting any type of industrial development in the colony. The Brazilian market for manufactured goods was the special preserve of Portuguese and British manufacturers. The latter had received special privileges by treaty arrangements with Portugal and kept these even after independence until 1844. During the greater part of the independent Brazilian empire (1822-1889)

commercial policy consisted of free trade, which made it extremely difficult for domestic manufacturers to establish themselves in the face of foreign competition. The dominant classes were the plantation owners and the trading sectors of the coastal cities which had no interest in promoting industrialization.

Until the 1850's no industrial development worth mentioning had taken place. For example, according to the industrial census of 1920, out of 13,336 establishments existing at the time, only 35 had been in existence in 1850 and only 240 had been founded before 1880.¹ The few small factories and workshops which did exist produced hats, smelling tobacco, soap, cast iron, and a few other assorted goods.

Attempts to create industrial establishments became more noticeable in the second half of the nineteenth century. The 1860's and the 1870's saw the building of Brazil's first railroad, the inauguration of steam navigation, the building of new ports, the expansion of the textile industry and foodstuffs industry. Many of these developments were associated with the Barao de Maua, Brazil's first great banker-entrepreneur. The new enterprises were helped partially by the favorable terms of trade during those years and by the occasional tariff protection enjoyed due to the revenue needs of the government, whose principal source was customs duties. The most noticeable growth took place in the textile industry. There were two textile mills in existence in 1850; this had grown to 44 in 1881. But even such a development was of relatively small proportions when one considers that only 3000 workers were engaged in these mills in the 1880's,²

1. Loeb, G. F., Industrialization and Balanced Growth: With Special Reference to Brazil, Groningen, Netherlands, 1957, p. 87.

2. Vieira, Dorival Teixeira, "The Industrialization of Brazil," in Brazil: Portrait of Half a Continent, Edited by T. Lynn Smith and Alexander Marchant, The Dryden Press, New York, 1951, p. 246.

and that Brazil still imported a considerable amount of its domestically consumed textiles.

A significant impulse towards expanding industrial enterprises came with the abolition of slavery in 1888 and the establishment of the republic in the following year. Abolition brought about a substantial amount of disorder into the agricultural sector, resulting in an exodus of a large number of farmers (fazendeiros) to the cities, where they turned to industry and commerce. In the 1890's exports of coffee, cocoa and rubber expanded rapidly and provided capital for the establishment of new industrial enterprises. This was complemented by a large number of immigrants which entered the country at the end of the nineteenth century, many of them bringing along the necessary know-how for such new enterprises.

In the early years of the republic a school of thought favoring industrialization became more and more vocal. It claimed that Brazil had to complement its political independence by acquiring its economic independence. And the latter could only be achieved by fostering new industries whose output would supplant a large number of imports. This agitation resulted in increased tariff protection and financial assistance from the government to new industries.¹ Thus, behind a protective wall, Brazil's number of industrial establishments increased from 636 in 1889 to 1,088 in 1895.² Throughout the last decade of the 19th century industries catering to the rising export sectors and to the internal consumption sector made their appearances. For example, a jute mill was opened in Sao Paulo to cater to the rising demand for coffee and grain bags; small mills producing

1. For an interesting study of the rise of nationalist sentiment favoring large scale industrialization, see Luz, Nicia Vilela, A Luta Pela Industrializacao do Brasil, Corpo e Alma do Brasil, Difusao Europeia De Libro, Sao Paulo, 1961.

2. Vieira, op. cit., p. 248.

woolens, silk and linen appeared; sugar mills, flour mills, food-canning plants, plants producing biscuits, macaroni, various types of beverages, etc.,...appeared.¹ But all this still represented a tiny fraction of total economic activity.

Industrialization in the First Decades of the 20th Century

The industrialization spurts which took place in the early decades of the twentieth century were caused principally by shocks from the external sector. These shocks consisted either of interruption of supplies from overseas due to wars, or of declines in imports because of falls in export earnings because of weakening markets for the country's principal exports.

Before the first world war a considerable rise in industrial production took place. This was partially influenced by increased protectionism, especially through "...the institution of partial tariffs in gold in the customs (which) was a markedly protectionist factor that made foreign competition difficult."² A marked accelerated rhythm between 1910 and 1914 was also due to the Caixa de Conversao (Exchange Conversion Agency) "...which permitted greater exchange balance for the acquisition of machinery, instruments, and even raw materials for...industrial development."³ This was an interesting early version of the type of policy instruments which were more fully developed in the promotion of industrialization in the 1950's.

1. Whyte, George, "Brazil: Trends in Industrial Development," in Economic Growth: Brazil, India, Japan, Edited by Simon Kuznets, et al, Duke University Press, Durham, N. C., 1955, p. 39.

Whyte also states that the 1907 industrial survey revealed the following distribution of workers in the main industrial enterprises: tobacco, 7,407; foundries and metal-working, 6,861; tanning, 1,967; shoes, 7,379; matches, 3,969; men's hats, 3,105; ceramics, 2,553; soap and candles, 1,763; salt, 2,146; glass, 1,328; and paper, 606.

2. Vieira, op. cit., p. 249.

3. Ibid.

Other contributing factors were the lack of employment on the fazendas which increased the labor available for factories, and the immigrants who mostly remained in the cities if their passage had not been paid by the government. The development of electric power, accelerated railroad construction, combined with a substantial inflow of foreign capital, served to maintain the accelerated rhythm of industrialization prior to the war.

The outbreak of the first world war was a great opportunity for Brazilian infant industries. The interruption of supplies from overseas eliminated foreign competition and many new industries were created to fill the gap and even to supply overseas markets. Additional elements re-enforcing the spread of industrial enterprises were the inflationary effect of wartime financing, which created new purchasing power, and the wartime profits from shipping, trading and manufacturing which were devoted to the creation of and further expansion of industrial firms. A total of 5,936 new industrial establishments were created during the war period, while the value of industrial production rose by 212% from 1914 until 1919.¹

The type of industrial structure which evolved during the wartime boom became evident with the publication of the census of 1920. The latter showed that there existed 13,336 industrial establishments employing a little over three hundred thousand workers. The most substantial growth had taken place in the food producing industry, whose product in 1907 amounted to 26.7% of total value of industrial output; this share rose to 40.6% in 1920 (it includes food, beverages and tobacco). The textile industry made substantial strides too and

1. Vieira, *op. cit.*, p. 249. This proportionate rise is of the nominal value of production. In real terms it would have amounted to roughly 150 to 160%.

reached 27.6% in 1920 (the exact 1907 share is not available). It is obvious from Table 1 that the wartime industrial boom was of little consequence to the development of heavy industry, and thus industrial activity continued to depend heavily on the import of machinery and parts.

Table 1

SECTORAL DISTRIBUTION OF INDUSTRIAL ACTIVITY

(percent of total value added)

<u>Industry Group</u>	<u>1920</u>	<u>1940</u>	<u>1950</u>
Non-Metallic Minerals	4.7	5.3	7.4
Metals	4.3	7.7	7.4
Machinery	2.0	5.8	2.2
Electrical Equipment			1.7
Transportation Equipment			2.3
Timber	5.8	5.1	3.4
Furniture	2.0		2.2
Paper and Allied Products	1.5	1.4	2.1
Rubber Products	0.2	0.7	2.1
Leather and Leather Products	2.4	1.7	1.3
Chemical and Pharmaceutical Products	6.0	10.4	9.4
Textiles	28.6	22.7	20.1
Apparel, Footwear, and Textile Products	8.6	4.9	4.3
Food Products	22.2	22.9	19.6
Beverages	5.9	4.5	4.3
Tobacco	3.9	2.2	1.6
Printing and Publishing		3.6	4.2
Miscellaneous	1.9	1.1	1.9
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Industrial Census of 1920, 1940, and 1950. Computed and made comparable by Jayme Fuks of the Fundacao Getulio Vargas.

When looked at in perspective, the wartime boom of industrial enterprises did not basically transform the structure of Brazil's economy. Since no national accounts estimates are available for that period, the only indication of the distribution of economic activity for the economy as a whole is the occupational distribution of the population (see Table 2). In 1920 only 13 percent of the

Table 2

OCCUPATIONAL DISTRIBUTION
OF GAINFULLY EMPLOYED POPULATION IN BRAZIL
(in percentages)

	<u>1920</u>	<u>1940</u>
<u>Primary Sector</u>	<u>69.7</u>	<u>67.0</u>
Agriculture, Fishing and Forestry	69.0	65.1
Extractive Industries:		
Vegetable Products	--	1.3
Hunting and Fishing	.7	.6
<u>Secondary Sector</u>	<u>13.8</u>	<u>14.8</u>
Extractive Industries: Minerals	.8	.8
Manufacturing Industries	13.0	14.0
<u>Tertiary Sector</u>	<u>16.5</u>	<u>18.2</u>
Commerce	5.4	5.5
Transport and Communication	2.8	3.4
Government	2.0	2.8
Liberal Professions	2.3	2.1
Payed Domestic Services	4.0	4.4
	<u>100.0</u>	<u>100.0</u>

Source: T. Pompeu Accioly Borges and Gustaaf F. Loeb, "Desenvolvimento Economico e Distribuicao Ativa," in Contribuicoes a Analise do Desenvolvimento Economico, Livraria Agir, Rio de Janeiro, 1957, p. 40. Borges and Loeb computed these data from respective censuses.

working population was engaged in manufacturing industries, and many of the firms in that category were more of the small workshop variety than substantial industrial enterprises.

In the 1920's many of the war-built industries received a considerable setback. Domestically produced goods were high priced and still of inferior quality in comparison to American and European goods. The latter started to appear again in the early twenties, once European industries had been fully rebuilt. The

European recovery also put great pressure on American industry, which suddenly found some of its industrial plant overexpanded and thus turned with increasing vigor towards Latin American markets. Thus, "...foreign industrial products, principally textiles, perfumes, china, porcelain, crystal, and even certain food products, reached the Brazilian market at prices much lower than those of goods produced in the country."¹

Another factor influencing production in the twenties was the coffee policy of the government. Coffee consumption did not suffer during the war and even increased substantially right after the war. Throughout the decade, however, the Brazilian government followed a high support system for this sector of the economy, even in the face of an evening out of exports. Thus, due to substantial amounts of plantings in the early twenties, exportable production increased by almost 100% from 1925 to 1929 in the face of an almost stagnant quantity of exports. Between 1927 and 1929 exports absorbed hardly two thirds of total output. Internally, however, coffee passed through an enormously prosperous period, hardly justified by the external situation. According to a leading authority, it was not "...strange...that the old prejudices against industry reappeared vigorously and that the economic literature of Brazil sharply attacked the national industry in the name of the well-being of the people."² Given the

1. Vieira, op. cit., p. 251.

2. Ibid., p. 251; also Furtado, Celso, Formacao Economica do Brasil, Editora Fundo De Cultura, Rio De Janeiro, 1961, p. 203. According to Vieira, the arguments against industry were that it was "...artificial, burdensome, and at times extortionate. It was a period, also, when writers returned to the defense of free trade and combated protectionist measures as dangerous, because, in reprisal, they provoked difficulties for the free entry of coffee in consuming countries." Vieira, op. cit., footnote on page 251.

influence of the older socio-economic groups, it is not surprising that the government did not come to the aid of the afflicted industries.

The net result of these trends was a noticeable fall in industrial production in 1924-25, followed by a subsequent slow rise during the rest of the twenties. Since the only available total index of industrial production starts in 1924, a number of other indicators were used in Table 3. The few indicators

Table 3

INDICATORS OF BRAZILIAN PRODUCTION AND TRADE
BETWEEN THE TWO WORLD WARS

<u>Year</u>	<u>Industrial Production (1939=100)</u>	<u>Ind. Prod. in Sao Paulo (1920=100)</u>	<u>Cotton Text. Gds. (1920=100)</u>	<u>Prod. of Shirts (1920=100)</u>	<u>Imports</u> (In mil. of US\$) (yearly average)	<u>Exports</u>
1914	N. A.	26				
1915	N. A.	34				
1916	N. A.	45				
1917	N. A.	70				
1918	N. A.	73				
1919	N. A.	89				
1920	N. A.	100	100	100		
1921	N. A.	96	94	91		
1922	N. A.	129	107	97		
1923	N. A.	200	160	84	277	355
1924	42	152	99	85	(1921-1925)	
1925	44	164	91	94		
1926	47	151	92	100		
1927	52	199	101	113		
1928	69	303	99	116	378	407
1929	65	295	81	105	(1926-1930)	
1930	63	236	81	82		
1931	64	243	108	113		
1932	61	242	107	102		
1933	67	256	109	96	170	240
1934	70		122	88	(1931-1935)	
1935	83		128	138		
1936	82		156	145	247	320
1937	89		164	144	331	348
1938	89		144	154	295	296
1939	100				261	305
1940	105				251	265

Sources: Industrial Production from Loeb, op. cit., p. 90; Sao Paulo Industrial Production from A Evolucao da Economia Paulista e Suas Causas, by Alfredo Ellis Junior, Companhia Editoria Nacional, 1937, p. 245 - I computed these indexes from current value of industrial production in Sao Paulo, estimated by the author; indexes of cotton textile and shirt production were prepared by Mr. Jayme Fuks of the Fundacao Getulio Vargas; import and export values come from Whyte, op. cit., p. 77.

available show a decline and/or slowing down of the rate of increase of production in the middle and late twenties. All this was accompanied by a substantial rise of imports.

Let us sum up the picture which emerged at the end of the twenties. The first world war was a substantial stimulus to Brazilian industries, but at the end of the war the infant industries were overwhelmed by free competition from industrial countries. The government had no policy to actively protect and/or further stimulate the tiny industrial base. Its only policy was to protect coffee production. This, as we have seen, had a partially detrimental effect on industrialization, since it precluded even some degree of industrial protection or subsidization. We shall show below, however, how this same protective attitude vis-a-vis the coffee sector had a more positive effect on the further growth of industry in the 1930's.

The World Depression Years

The depression of the thirties had a severe negative effect on Brazilian exports, whose value fell from US\$ 445.9 million in 1929 to US\$ 180.6 million in 1932. Brazil was one of the first Latin American countries to use exchange and other direct controls. The latter, combined with a depreciation of the Brazilian currency, making foreign goods expensive on the domestic market, caused imports to fall from US\$ 416.6 million in 1929 to US\$ 108.1 million in 1932.¹

1. Carlson, Reynold E., "Brazil's Role in International Trade," in Smith and Marchant, op. cit., pp. 274-81. The price of coffee fell from 15.75 cents per pound in 1929 to 8.06 in 1932 and 5.25 in 1938, while the coffee export quantum fell from 859 thousands of long tons in 1929 to 718 in 1932, and was up to 1,033 thousand in 1938. The Brazilian Milreis depreciated from \$.118 in 1929 to .071 in 1932, rising to .087 in 1937.

Since at the beginning of the depression coffee accounted for 71% of total exports, the government's main concern was to support the coffee sector. This was done by buying up the surplus coffee and the destruction of large quantities of it. Thus, the income of the coffee sector was artificially protected from the full brunt of the depression. As of now, there does not exist a study of the exact mechanism of this protection. It not only consisted of buying up coffee stocks, but also of helping the debt-plagued agricultural producer, especially in the State of Sao Paulo, by having the government pay off the debt (thus creating new money) and thus enabling the debtor to postpone his payment. This took place in the early thirties at the beginning of the Vargas administration and was called the Reajustamento Economico.

The decline in the quantity of imported goods and their consequent internal price rise created a strong market for similar domestically produced goods. It was thus not long before some of the liquid capital from the coffee support program and the general support program of the Reajustamento Economico found its way directly or indirectly into new industrial enterprises. The result of this movement was that industrial production fell by less than ten percent in the early depression years, and by 1933 it had already recovered to the 1929 level. (Also, by that time agricultural production for the domestic market had recovered to its pre-depression level.) Since expansion of industrial production could not take place through an increase in the importation of machinery, due to the foreign exchange shortage and the higher price of imports resulting from the depreciated currency, the initial phase of industrial expansion in the early thirties was marked by the increased utilization of idle capacity. This was possible, especially in such an industry as textiles, which had been

producing below capacity even before the depression struck. According to Furtado, this more intense use of idle capacity increased the profitability of the relevant industries, which, in turn, provided the funds for further subsequent expansion. It also became possible to import cheap second-hand machinery, in many cases from foreign factories which had been more severely affected by the depression.¹

Table 4

BRAZILIAN CEMENT AND PIG IRON PRODUCTION AND CONSUMPTION
(in thousands of tons)

<u>Year</u>	<u>Cement</u>		<u>Cons. Index. (1920=100)</u>	<u>Pig Iron</u>		<u>Cons. Index</u>
	<u>Domestic Production</u>	<u>Domestic Consumption</u>		<u>Domestic Production</u>	<u>Domestic Consumption</u>	
1920		173	100		85	100
1921		157	91		56	66
1922		320	185		56	65
1923		223	129		87	102
1924		317	183	5 (3.7)*	122	143
1925		336	194	8 (6.4)	118	138
1926	13 (3.2)*	410	237	10 (8.1)	122	143
1927	55 (11.1)	497	287	8 (5.5)	147	172
1928	88 (16.2)	544	314	21 (16.0)	133	156
1929	96 (15.2)	631	365	27 (17.8)	151	177
1930	87 (18.4)	472	273	21 (24.5)	86	101
1931	167 (59.4)	281	162	23 (42.5)	54	64
1932	149 (48.1)	310	179	34 (58.4)	59	69
1933	226 (66.5)	340	197	54 (50.2)	107	125
1934	324 (72.0)	450	260	62 (49.1)	126	147
1935	366 (81.3)	450	260	64 (41.2)	156	183
1936	485 (86.1)	563	325	74 (42.0)	175	206
1937	571 (88.4)	646	373	76 (33.2)	230	270
1938	618 (92.5)	668	386	92 (42.9)	215	253
1939	698 (95.2)	733	424	114 (45.5)	251	294
1940	745 (97.5)	764	442	141 (50.2)	281	330

Source: Data calculated by Jayme Fuks of the Fundacao Getulio Vargas.

* In parentheses domestic production as a proportion of domestic consumption. In the case of Pig Iron, it is understated because consumption also includes imported steel bars.

1. Furtado, op. cit., pp. 221-2.

The evidence available and partially presented in Tables 3 and 4 seems to confirm the above analysis. The industrial production index reached its low point in 1932 and by 1934 had again surpassed the pre-depression height. The indexes of cotton textile goods production and shirt production clearly reveal the undercapacity production of the twenties and the rapid utilization of this capacity in the early thirties, the depression low in both having already been reached in 1930. Table 4 also confirms the noticeable rise of investment goods production. Although total domestic cement consumption did not recover the pre-depression level until the second half of the thirties, a spurt took place in internal production after 1930, making the country practically self-sufficient as the decade progressed. The same tendencies were noticeable in the production of pig iron, though not to such a dramatic extent. It should be noted, however, that the consumption figures include not only imported pig iron, but also imported steel bars, while domestic production consisted only of pig iron; thus, the proportion of domestic production is slightly understated.

The data thus seem to confirm Furtado's observations that the Brazilian economy did not only find enough stimulus within itself to counteract the depressive influence coming from the outside, but that it also succeeded in building up production of some of the capital goods necessary to maintain its productive capacity.¹ Industrial production continued to grow throughout the thirties, reaching levels more than sixty percent above the 1929 level by the end of the decade. This was made possible by the continued protective mantle of the weak foreign trade position, the prices of exports recovering only very slowly. Imports were still well below the pre-depression level at the end of the decade.

1. Ibid., p. 225.

The spurt of industrial activities in the thirties did not drastically alter the structure of the Brazilian economy. This is clear from Table 2, which shows that between 1920 and 1940 the population employed in the manufacturing industry only rose from 13% to 14%, while the proportion working in the primary sector only fell from 69.7% to 67.0%. This obviously understates the relative importance of manufacturing in terms of value added, considering especially the large rise in the indexes of industrial production. One must obviously assume that productivity in industry increased substantially in those years. This stands to reason when one considers that in many cases the increased industrial production in the thirties consisted of increased utilization of idle industrial capacity and also that productivity per unit of input in newly installed industries tends to grow substantially in the first few years of the operation of new plants.

There was some, though no drastic, change in the structure of industrial production between 1920 and 1940 (see Table 1). Textiles and food products were still dominant in 1940, while the groups of metals, machinery and chemicals and pharmaceuticals made some noticeable, though not dramatic, strides in relative importance in the industrial structure.

Effects of the Second World War

The second world war again acted as a stimulus to further industrialization. As is clear from Table 5, there occurred a substantial decline in the quantum of imports. This took place especially in capital goods and other manufactured goods. The import decline was caused both by an interruption of supplies due to overseas scarcity and due to difficulties of shipping. Although the export quantum decreased, the value of Brazil's exports increased considerably, so that throughout the war period great foreign exchange reserves were built up. An

Table 5

a. CHANGES IN BRAZILIAN FOREIGN TRADE AND INDUSTRIAL PRODUCTION
(1939=100)

<u>Year</u>	<u>Quantum of Exports</u>	<u>Imports</u>	<u>Dollar Value of Imports Exports</u>		<u>Exports + Imports</u>	<u>Import Raw Mats.</u>	<u>Quantum of Capital Goods</u>
1939	100	100	100	100	117	100	100
1940	80	80	96	87	106	86	76
1941	83	85	107	118	129	82	73
1942	64	64	90	132	171	58	42
1943	68	77	120	154	150	81	69
1944	82	97	157	190	142	101	69
1945	90	95	169	217	150	105	124
1946	100	127	257	322	146	141	191
1947	95	175	466	378	95	155	280

Real Product

	<u>Total</u>	<u>Agriculture</u>	<u>Industry</u>	<u>Mining</u>
1939	100	100	100	100
1940	103	99	105	110
1941	109	104	116	122
1942	106	97	112	120
1943	113	103	125	125
1944	117	106	130	127
1945	118	101	137	126
1946	130	112	160	120
1947	134	112	167	116

b. SECTORAL DISTRIBUTION OF NATIONAL PRODUCT
(in constant 1939 prices; percentage distribution)

	<u>1939</u>	<u>1947</u>
Agriculture	33.3	27.8
Mining	.6	.4
Industry	17.4	21.7
Commerce	12.6	13.8
Transport	6.7	5.9
Government	9.8	8.5
Services	13.2	14.4
Rents	6.4	6.5
Total	100.0	100.0

Source: Relatorio Geral, Comissao Mista Brasil-Estados Unidos Para Desenvolvimento Economico, Rio de Janeiro, Brasil, 1954, 2. Tomo, Anexos; Whyte, op.cit., p. 77.

indication of the stimulation of this wartime induced interruption of supplies is the comparison of the real product indexes (especially the industrial component) with the foreign trade indexes (i.e., quantum of exports and imports). The stagnation and even decline of the latter was the main stimulant to the industrial index, which in turn was the fastest growing sector for the domestic real product.

Since 1939 is the only prewar year for which national accounts estimates were made, it is possible to observe the changes in the structure of the Brazilian economy as a result of the second world war. The second part of Table 5 shows a clear increase in the share of income derived from manufacturing and a decrease in the share of agriculture. The latter was, however, still the dominant sector in the economy. This comes out especially when looking at the pre and postwar employment distribution pattern. In Table 6 we find that although there was a noticeable increase in the share of the labor force employed in industry and the tertiary sector between the censuses of 1940 and 1950, agriculture was still the overwhelmingly dominant sector.¹

In more concrete terms, the war proved useful to Brazil from the external point of view because not only were the Allies buying larger quantities of Brazilian staple exports, but they were also interested in items which had hitherto not been important on the country's export list, such as industrial diamonds, quartz, mica and rubber. Coffee exports received a boost from the

1. It should be obvious from a comparison between Table 6 and Table 2 that the occupational comparisons made between 1950 and 1940 are not the same as those made between 1940 and 1920. In censuses previous to 1950, women who worked at home and away declared their principal occupation to be the latter, while the opposite happened in 1950. Thus, 1950 employment is somewhat underestimated, especially in agriculture. Adjustments were made by Borges and Loeb to make 1940 and 1950 more comparable. See Borges and Loeb, op. cit., pp. 39-40.

Table 6

DISTRIBUTION OF GAINFULLY OCCUPIED PERSONS
BY BRANCH OF ACTIVITY

(percentages)

	<u>1940</u>	<u>1950</u>
<u>Primary Sector</u>	<u>71.0</u>	<u>64.4</u>
Agriculture	69.4	62.5
Forestry and Fishery	1.6	1.9
<u>Secondary Sector</u>	<u>8.9</u>	<u>12.9</u>
Mining	0.7	0.6
Manufacturing, civil engineering and public utilities	8.2	12.3
<u>Tertiary Sector</u>	<u>20.1</u>	<u>22.7</u>
Commerce	4.7	5.3
Transport and Communication	2.9	3.5
Government	2.4	2.5
Professions	1.7	2.6
Domestic Services	3.3	3.3
Other Services	5.1	5.5
<u>Total</u>	<u>100.0</u>	<u>100.0</u>

Source: Loeb, op. cit., p. 78.

Inter-American Coffee Agreement of 1940. On the export side the war thus represented increasing bonanzas.

Industry also benefitted from the war situation by the virtual disappearance of foreign competition, especially by the disappearance of products which had been exclusively supplied from abroad. However, not only did many Brazilian manufacturers have the domestic market for themselves, but also other countries who had been cut off from former suppliers of industrial goods were turning to Brazil as a new source of supply. Thus, Brazilian manufactured exports for the first time became a noticeable factor on the country's export list.

Importers were partially hurt by the shortage of suppliers, but many benefitted from the increased profit margins which such shortages implied. These importers' profits were often used to deal in the export trade or to participate in the growing internal trade of domestically produced goods.¹

Most notable was the expansion of the textile industry, which also started supplying other Latin American countries and even some African countries. In Sao Paulo there occurred an expansion of the machine tool and metals industries. And toward the end of the war, there took place the installation of the government-run steel concern, Volta Redonda, which led the way to important future strides in Brazil's industrial development.

Early Attempts at Planning in Brazil

Until the thirties there was little attempt by the government to plan the economic development, especially the industrial development of the country. This obviously does not mean that the government had never had a conscious policy to

1. Overseas Economic Surveys, Brazil, London, HMSO, January 1948, pp. 3-4.

support certain specific sectors of the economy. The free trade policy of the nineteenth century represented in a sense a conscious program to maintain the economic structure prevalent at the time, and so do the weak attempts prior to the 1930's to institute a protective tariff for certain industries. As we have seen, the industrialization that took place prior to the second world war was almost entirely due to circumstances outside the control of Brazilian authorities.

The first attempt at a systematic evaluation of Brazil's economic structure for purposes of influencing the direction of the country's development was made in 1931 with the appearance of the Niemeyer Report. The report was named after Sir Otto Niemeyer, who was called to Brazil by the government to study the precarious economic situation of the country and to suggest ways to overcome the crisis created by the depression. Niemeyer was the first to publicly state that the principal weakness of Brazil was its reliance on the export of one or two crops, which was the reason why the world crisis had hit the country more violently than many other countries. To criticize the country's overreliance on coffee at the time was considered almost sacriligious, and thus the report was received without much enthusiasm.

Niemeyer said that the basic goal of Brazilian policy makers should be to diversify the country's economic structure. By diversification, however, he meant agricultural diversification. He did not recommend an industrialization program. He believed that diversification of agriculture would ultimately raise the income of that sector. This increment in income combined with the savings of foreign exchange would ultimately produce the funds required for

investing in industries.¹

Much of the rest of the Niemeyer report concerned itself with a critique of public finances in Brazil and methods of restructuring them. Although the report had little influence and did not result in any effort to consciously influence the structure of economic development, it represented for the first time an effort by Brazilian authorities to examine the economy as a whole with the possibility of affecting the direction of its growth.

The next systematic attempt at evaluating the Brazilian economy, recommending changes in its structure, and means of achieving these changes, was made by the Cooke Mission, a mission of American technicians sponsored jointly by the Brazilian and the United States governments. The mission visited the country in 1942 and 1943. Its origin was the entrance into the war of both countries and the interest this created in seeing what contributions Brazil would be able to make to the war effort. This obviously involved a basic re-examination of the structure of the economy, with a view toward influencing the direction of its growth.

The Cooke Missions' work also represented the first systematic analytical research work ever done on the Brazilian economy in order to formulate a program of action. For the first time, it undertook to analyze the economy from a regional point of view, grouping the country into three distinct regions (Northeast-East, North Center, and South), whose economic characteristics were distinct enough to warrant substantially different analyses and programs for development.²

1. Much of the material of this part of the chapter is derived from the works of Dorival Teixeira Vieira, especially his O Desenvolvimento Economico Do Brasil e a Inflacao, Sao Paulo, Faculdade De Ciencias Economicas e Administrativas, Universidade de Sao Paulo, 1962; and a series of mimeographed lectures given at the Escola de Administracao de Empresas de Sao Paulo, Fundacao Getulio Vargas, entitled "Desenvolvimento Economico do Brasil."

2. For details see A Missao Cooke, Fundacao Getulio Vargas, Rio de Janeiro, 1949.

An important conclusion of the mission was that a major effort should be made to develop the South of the country, since that part of Brazil had the best conditions for rapid economic growth. Thus, not only the basic analysis, but also all programming recommendations of the mission were based on the assumption that the general growth of the country should have its point of departure in an emphasis on the development of the South. It was believed that from this development nucleus, growth would inevitably be spread to other regions of the country.¹

After analyzing the factors which made it possible for the Southern part of the country to achieve a greater degree of development, especially industrialization (e.g., the South having benefitted more from the coffee exportation boom in recent times, having received more skilled European immigration of the late nineteenth and early twentieth century, etc...), the mission stated that even in those more advanced parts, industry was still of a relatively simple character (i.e., simple transformation of raw materials or food products), on a small plant scale, and with excessively large profits.

The Cooke Mission analyzed a whole series of factors (now so familiar to development economists) which served as obstacles to rapid growth, especially industrialization. Among these factors were: an inadequate transportation system, a backward internal system for distributing fuels, lack of funds for industrial investments or machinery to funnel funds in this direction, restrictions on foreign capital, restrictions on immigration, low levels of technical training facilities and the complete absence of it in certain areas, lack of

1. For a more thorough analysis of the rate of development of various regions of Brazil, see chapter 7 below.

large scale production, investment policies based on excess profits considerations, inadequate energy producing facilities, etc...

After examining these socio-economic conditions and surveying the resources of the country, the Mission came to the conclusion that many industries could be developed in the Southern part of the country. It believed, however, that to start with, a steel industry on a fairly large scale should be created, and that this would provide the basis for the creation of a general capital goods industry. It also recommended the development of the wood and paper industry, of which at the time Brazil could only supply 25% of its consumption needs, and the further development of the textile industry, with a view towards exporting its products.

The Mission believed that the main task of industrialization should be left to private enterprise, while the Brazilian government should concentrate on general industrial planning, facilitate industrial credit, provide more technical education. It recommended the creation of an Institute for Development and Industrial Research, whose task would be three-fold. First, a production planning section would make plans for various types of industries which would help to orient private enterprise; making information available about the type of machinery required and the availability of raw material and energy supplies. It would also be available to give technical advice to existing firms about methods of increasing efficiency. A second section would be concerned with standardizing methods of operating industrial plants, while a third section would be of an advisory nature concerning the problems of finding new ways of installing factories. With such services, the mission recommended the setting up of a development bank for the purpose of furnishing industrial credits.

The Cooke Mission as such had more the effect of clarifying the development problem (especially the problem of industrialization) Brazil was facing at the time than of resulting in immediate large scale planning.

Chapter 3

THE POST WORLD WAR TWO INDUSTRIALIZATION DRIVE
AND ITS EFFECTS UPON THE STRUCTURE OF THE BRAZILIAN ECONOMY

Although the immediate cause for the post-World War Two industrialization effort was similar to previous situations which led to industrialization spurts, i.e. difficulties with the external sector, its ultimate characteristic turned out to be quite different from earlier times. The chief difference was that after the second world war the industrialization changed from a stopgap effort into a determined policy to drastically alter the structure of the Brazilian economy. The basic reason for this change was a realization by the policy makers that Brazil could not attain a high rate of growth in the future by relying chiefly on the export of its principal primary commodities, whose world market was shrinking.

Since the developments in the post-World War II era can only be understood and seen in perspective when considering trends on world trade and Brazil's role in it, we shall begin with a brief survey of Brazil's foreign trade structure and trends in world trade of its main export commodities.

Brazil's Foreign Trade and Its Role in the Economy

A glance at Table 7 shows that in the past and in the present a small handful of primary commodities have made up Brazil's export list. Coffee, cocoa, sugar, cotton and tobacco have and still do dominate the export structure and the main markets for these goods are the United States and Western Europe. The commodity import structure is not as one-sided, each commodity group having a fairly large proportion of total imports. The drastic decrease in manufactured consumer goods between the immediate postwar period and the early

Table 7

a. BRAZIL: COMMODITY DISTRIBUTION OF EXPORTS (percentages)

(in U.S. \$)

	<u>1925-9</u>	<u>1935-9</u>	<u>1945-9</u>	<u>1957-9</u>	<u>1962</u>
Coffee	71.7	47.1	41.8	57.9	53.0
Cotton	2.1	18.6	13.3	2.7	9.2
Cocoa	3.5	4.5	4.3	5.6	2.0
Iron Ore	--	--	--	3.3	5.7
Sugar	.4	--	1.2	3.7	3.2
Tobacco	1.9	1.6	1.8	1.2	2.0
Sisal Fiber	--	--	--	1.1	1.9
Manganese Ore	--	--	--	2.5	2.2
Rubber	2.9	1.1	1.0	--	--
Pinewood	.4	1.0	3.5	3.9	3.2
Others	17.1	26.1	33.1	18.1	17.6
Total	100.0	100.0	100.0	100.0	100.0

b. BRAZIL: GEOGRAPHIC DISTRIBUTION OF EXPORTS (percentages)

(in U.S. \$)

<u>Destination</u>					
United States	45.3	36.9	44.3	41.3	40.0
France	10.3	6.9	2.3	3.4	3.4
Germany	9.1	15.1	--	6.8	9.1
U.K.	4.4	9.7	9.1	6.7	4.4
Netherlands	5.7	3.7	2.7	4.2	6.1
Italy	5.2	2.5	2.7	2.7	2.9
Japan	--	4.1	--	3.0	2.4
Sweden	2.3	2.2	2.4	2.5	3.5
Argentina	6.0	4.8	9.0	6.6	4.0
Uruguay	2.7	--	1.7	2.1	--
Belgium-Luxemburg	2.7	3.2	4.1	--	2.5
Others	6.3	10.9	21.7	20.7	21.7
Total	100.0	100.0	100.0	100.0	100.0

c. BRAZIL: COMMODITY DISTRIBUTION OF IMPORTS (percentages)

(in U.S. \$)

	<u>1938-9</u>	<u>1948-50</u>	<u>1961</u>
Food Products, Beverages, & Tobacco	14.9	17.9	13.5
Fuels, Lubricants, & Derivates of coal and petroleum	13.1	12.8	18.8
Raw Materials (excl. previous item)	30.0	23.8	26.3
Capital goods	29.9	35.2	39.8
Manufactured Consumer Goods	10.9	9.7	1.5
Others	1.2	.6	.1
Total	100.0	100.0	100.0

Sources: Helio Schlittler Silva, "Comercio exterior do Brasil e desenvolvimento economico," Revista Brasileira de Ciencias Sociais, Marco 1962; Conselho Nacional de Economia, Exposicao Geral da Situacao Economica do Brasil, 1961, Rio de Janeiro, 1962; Banco do Brasil, Relatorio, 1962.

sixties reflect, of course, the import substitution measures which we shall discuss presently (the large share of capital goods imports does not show the amount of import substitution which has spread to that sector, especially in the early sixties.) When looking at this table one should also bear in mind the decrease in the relative importance of foreign trade to the economy between the early postwar years and the early sixties. For example, the ratio of exports and imports to gross domestic product in constant 1953 prices declined from 18.9 to 11.2 percent between 1947 and 1961.

The evidence showing that Brazil was heavily dependent on the foreign market for its well-being at the end of the war is clear cut. In the previous chapter we have shown that at the end of the war the largest share of the gross national product came from the agricultural sector (27.8%) and that in 1950 over sixty percent of the gainfully employed population was engaged in that sector. In Table 8 we have shown the share of agricultural exports in the national income and of total agricultural output. The proportions in the early postwar years were obviously of such magnitude that changes in the earnings of the country's principal export commodities would have strong positive or negative repercussions on the functioning of the entire economy. The subsequent decline of these proportions was due to both the decline of earnings of the principal exports and the internal growth of the economy based on the import substitution industrialization which we shall discuss presently. In Table 9 we have listed in quantum terms the proportion which exports form of the total output of the main export items. The decline of the proportion in coffee, and to a certain extent cocoa, reflect both the relative decline in the world market of the demand for coffee, the declining share of Brazil in this market and the continued internal support program for a growing production.

Table 8

a. SHARE OF AGRICULTURAL EXPORTS IN DOMESTIC INCOME
(percentages)

	<u>In Current Prices</u>	<u>In 1953 Prices</u>
1947	10.5	14.9
1948	10.2	14.1
1949	9.1	11.8
1950	9.9	9.3
1951	10.6	9.4
1952	7.7	7.5
1953	7.9	7.9
1954	8.5	8.2
1955	8.1	6.7
1956	6.8	7.2
1957	5.4	6.2
1958	4.2	5.5
1959	5.5	6.3
1960	5.7	6.1
1961		6.1

b. SHARE OF AGRICULTURAL EXPORTS IN TOTAL AGRICULTURAL OUTPUT

	<u>In Current Prices</u>	<u>In 1953 Prices</u>
1947	39.0	43.0
1948	36.3	41.3
1949	32.6	35.6
1950	34.6	30.4
1951	38.2	32.5
1952	26.5	24.4
1953	27.1	27.1
1954	28.6	21.6
1955	27.1	23.4
1956	25.1	25.9
1957	19.5	21.8
1958	16.5	20.6
1959	20.3	23.8
1960	20.3	23.2
1961		23.3

Sources: Estimated and Computed from data in Revista Brasileira de Economia, Marco 1962; IBGE, Anuario Estatístico do Brasil, 1962; IBGE, O Brasil Em Numeros, Rio de Janeiro, 1960.

Table 9

PRINCIPAL EXPORTS AS A PROPORTION OF DOMESTIC PRODUCTION
(each export item as a proportion of total output
on a quantum basis)*

<u>Year</u>	<u>Sugar</u>	<u>Cotton</u>	<u>Rubber</u>	<u>Cocoa</u>	<u>Coffee</u>	<u>Tobacco</u>	<u>Iron Ore</u>
1948	.5	21.2	23.3	87.1	101.4	27.2	36.2
1949	.4	15.7	14.3	87.5	97.4	26.5	39.8
1950	.08	12.1	14.3	88.2	93.9	27.4	45.9
1951	.08	8.1	13.8	73.6	86.1	28.8	49.9
1952	.3	8.5	13.3	71.0	86.4	23.5	48.2
1953	.4	12.6	12.9	69.6	77.5	21.1	48.6
1954	.3	17.5	12.9	76.5	68.5	19.0	57.5
1955	.6	17.2	9.4	76.4	73.3	20.0	66.4
1956	.8	10.5	9.4	73.9	71.5	20.1	71.2
1957	.8	7.1	9.4	69.3	64.6	21.1	64.1
1958	1.2	4.9	9.7	58.0	51.2	20.0	54.4
1959	1.4	5.1	9.7	61.3	48.4	19.7	51.1
1960	1.3	7.8	16.1	62.0	48.8	22.5	54.9

*These proportions are based on three year moving averages for each export item and its total output.

Source: Calculated from data in IBGE, O Brasil em Numeros, 1960, and IBGE Anuario Estatístico do Brasil, 1962.

Table 10

CHANGES IN BRAZIL'S SHARE OF WORLD MARKET OF PRINCIPAL EXPORTS
(Quantum in 1,000 Metric Tons)

	<u>World Export</u>	<u>Brazilian Exports</u>	<u>Brazilian Share of World Export</u>
<u>Coffee</u>			
1934-8	1,656.0	874.7	52.8
1948-52	1,939.0	1,006.5	51.9
1954	1,797.0	655.1	36.4
1960	2,622.0	1,009.1	38.5
1961	2,704.0	1,018.2	37.6
<u>Cocoa</u>			
1934-8	687.0	113.6	16.5
1948-52	695.0	98.0	14.1
1954	718.0	121.0	16.8
1960	902.0	125.5	13.9
1961	1,024.0	104.2	10.2
<u>Sugar</u>			
1934-8	10,082.0	41.1	.004
1948-52	11,191.0	96.8	.009
1954	12,961.0	161.8	1.2
1960	16,409.0	769.0	4.7
1961	18,055.0	783.4	4.3
<u>Tobacco</u>			
1934-8	542.0	31.3	5.8
1948-52	600.0	29.6	4.9
1954	634.0	28.1	4.4
1960	766.0	31.6	4.1
1961	846.0	48.8	5.8
<u>Cotton</u>			
1934-8	3,066.0	194.1	6.3
1948-52	2,406.0	139.8	5.8
1954	2,811.0	309.5	11.0
1960	3,419.0	95.4	2.8
1961	3,246.0	205.7	6.3

Source: FAO, Trade Yearbook, various issues - used as source for computation.

An examination of the yearly rate of growth in world exports of Brazil's main export products in the postwar period (see Table 11) reveals a very pessimistic picture. The highest rate of growth was attained by sugar (3.8%) and the lowest by coffee (2.2%), while the rate of growth of manufactures was 6.6%. It would be difficult to imagine how any country could hope to achieve high rates of growth while relying principally on the export of those products, especially a country like Brazil whose population growth rate was over three percent in the 1950's. To this bleak picture should be added the fact that Brazil also lost out in its relative share of the world market in its main export commodities. One reason for this was the maintenance of a high price of coffee in the early postwar period, when Brazil dominated the world market. This encouraged the development of competitors in other countries.¹ The other reason has been the preferential treatment which countries associated with the European Economic Community have been receiving.

While this gloomy picture was at first somewhat lightened by the rise in the price of Brazil's chief exports, there has been a steady deterioration of the country's export prices since 1954 (see Table 12) and in its general terms of trade.

The fate of Brazil's export products has been part of a general worldwide unfavorable trend in the market for primary products, especially food and agricultural raw materials. That this has been a steady long-run trend is

1. It could be claimed that had the country been more reasonable in its price policies in the early postwar period, it would have had a better chance to maintain its share of the world market. It will be seen shortly, however, that due to its balance of payments difficulties at that time, the policy makers were under pressure to maximize export earnings in the short run.

Table 11

a. AVERAGE YEARLY RATE OF GROWTH OF WORLD EXPORTS OF MAIN PRODUCTS ON BRAZIL'S EXPORT LIST ON QUANTUM BASIS

1948/49 to 1960/61

Coffee	2.2	Cocoa	2.8
Cotton	3.1	Sugar	3.8
Rubber	2.6	Tobacco	3.3

b. AVERAGE YEARLY RATE OF GROWTH OF TRADE VOLUME IN WORLD

	<u>1913-1948/50</u>	<u>1948/50-1957/9</u>
Manufactures	0.8	6.6
Primary Produce	0.4	4.6

Source: Part a. calculated from data in FAO, Trade Yearbook;
Part b. calculated from data in Maizels, A., Industrial Growth and World Trade, Cambridge University Press, Cambridge, 1963.

Table 12

PRICES OF SELECTED EXPORTS, IMPORTS, AND TERMS OF TRADE
(index of dollar prices, 1953 = 100)

	<u>Coffee</u>	<u>Cocoa</u>	<u>Exports</u> <u>Sugar</u>	<u>Iron Ore</u>	<u>Cotton</u>	<u>Total</u> <u>Exports</u>	<u>Total</u> <u>Imports</u>	<u>Terms of</u> <u>Trade</u>
1944	22	23	99	33	46	36	55	65
1945	23	21	122	33	47	39	57	68
1946	32	39	201	33	62	48	102	47
1947	41	83	222	27	80	59	132	45
1948	40	117	118	40	98	59	134	44
1949	47	57	125	53	107	61	115	53
1950	83	86	161	47	112	87	93	93
1951	93	104	208	67	199	105	112	95
1952	94	103	132	100	170	103	115	90
1953	100	100	100	100	100	100	100	100
1954	124	162	88	87	99	117	87	134
1955	88	108	93	80	103	93	79	118
1956	88	77	98	87	82	89	79	113
1957	84	92	123	93	92	91	78	117
1958	76	125	86	93	85	84	71	119
1959	60	108	78	73	63	71	65	109
1960	61	80	85	67	66	70	69	101
1961	60	64	96	67	73	71	73	97
1962	56	63	101	60	71	67	80	84
1963	54*	74*	141*	59*	72*	66*	81*	82*

*Preliminary, based on average of first 8 months

Source: Conjuntura Economica

clear from the evidence we have gathered in Table 13. Part b) of the table indicates that world imports and the imports of industrial countries from non-industrial countries have been shrinking considerably, much of this shrinkage being due to the decline of the relative share of Latin America. It should be noted that this decline would have been even greater had petroleum and petroleum products been excluded.

Further evidence of the dim outlook for the exports of primary producing countries and their continued reliance on specialization in those goods has been made available by a number of surveys. For example, the United Nations obtained the following estimates for the income elasticity of demand for imports of the industrially advanced countries from the developing countries:¹

<u>Commodity Group</u>	<u>Income Elasticity</u>
Foodstuffs (SITC groups 0 to 1)	0.76
Agricultural raw materials and ores (SITC groups 2 and 4)	0.60
Fuels (SITC group 3)	1.40
Manufactured goods (SITC groups 5 to 8)	1.24

Another statistical analysis getting even closer to the Brazilian situation concerned itself with the income and price elasticity of demand for coffee in the United States. It was shown that an increase of 10% in the price of coffee caused consumers to reduce their consumption of coffee by 2-1/2 percent, while a ten percent increase in real consumer income usually lead to an increase of 2-1/2 percent in per capita use of coffee.²

1. U.N., World Economic Survey, 1962, 1., "The Developing Countries in World Trade," p. 6, where it is stated that "These estimates were derived from regression of gross domestic product of the industrially developed countries on imports of each commodity group from the developing countries. The sample covers the period 1953-1960."

2. Daly, Rex F., "Coffee Consumption and Prices in the United States," Agricultural Economics Research, July 1958.

Table 13

CHANGES IN THE STRUCTURE OF WORLD TRADE

a) World Exports of Merchandise
(percentage distribution at current prices)

	<u>World</u>			<u>World</u> <u>Excl. Iron Curtain Countries</u>	
	<u>1913</u>	<u>1929</u>	<u>1937</u>	<u>1913</u>	<u>1953</u>
Food	29.0	26.1	24.8	27.0	22.6
Agricultural Raw Materials	21.1	20.0	19.5	20.7	13.9
Minerals	14.0	15.8	19.5	14.7	19.8
Manufactures	35.9	38.1	36.2	37.6	43.7
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Yates, Lamartine P., Forty Years of Foreign Trade, George Allen & Unwin, Ltd., London 1959.

	<u>1948</u>	<u>1953</u>	<u>1958</u>
Primary Goods	55.5	51.0	48.2
Manufactured Goods	44.5	49.0	51.8
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: Coppock, Joseph D., International Economic Instability: The Experience After World War II, New York: McGraw-Hill Book Co., Inc., 1962.

b) World Imports by Geographical Areas
(percentage distribution)

<u>Imports from</u> <u>to</u> →	<u>Non-Industrial Areas</u>			<u>Latin America</u>		
	<u>1953</u>	<u>1960</u>	<u>1961</u>	<u>1953</u>	<u>1960</u>	<u>1961</u>
<u>Industrial Areas</u> (excl. Eastern Europe, incl. Japan)	37.4	28.3	27.1	12.9	8.7	8.0
<u>World</u>	31.5	24.8	24.3	9.8	6.8	6.5

Source: GATT, International Trade, 1961.

Finally, it is also well known that consumption of raw materials by the industries of industrial countries tends to increase at a slower rate than production, due to more efficient techniques of production, which tend to decrease the input of raw materials required per unit of output. For example, it was recently shown that the percentage of raw material consumption to gross national product in the United States declined from 22.6% in 1904-13 to 12.5% in 1944-50.¹

The evidence above not only shows that Brazil found itself among the group of nations whose exports have steadily lost in the share of the world market, but also whose exports have little chance of regaining their former preeminence. It is in this context that one should view the gradual decision of the Brazilian government to change the structure of the economy. Whether the direction of this change was optimal is something we shall have to consider as our story and analysis progresses.

Effects of World War II

We ended our description in the last chapter with the advent of the second world war. The war was a powerful stimulant to the further industrialization of Brazil, as we have seen, due to the drastic curtailment of imports. The latter had to be substituted by domestic production. A substantial spurt occurred in some of the more basic industries like cement production and iron and steel. The production of steel was especially influenced by the opening of the government-owned steel plant at Volta Redonda.

The most notable development in the manufacturing sector during that period was the boom in the textile industry. This was caused not only by the need for replacing formerly imported goods by domestic production, but

1. Schultz, T., "Economic Prospects of Primary Products," in Economic Development for Latin America, Edited by Ellis and Wallich, St. Martin's Press Inc., New York 1961, p. 313.

also by the demand from the textile-starved overseas markets, such as South Africa, and also other Latin American countries. By the end of the war Brazil was one of the world's leading textile exporters.

That the war had an especially strong influence on the industrial sector can be seen by the following index numbers of real output (1939 = 100)¹:

	<u>1945</u>	<u>1947</u>
Agriculture	101	112
Mining	126	116
Industry	137	167
Commerce	124	145
Transport	112	136
Public Administration Services	133	144
Rents	126	135

Postwar Developments: Immediate Postwar Years

The drastic decrease of imports and the boom of Brazil's exports resulted in a substantial increase of the country's foreign exchange reserves, from 71 million dollars just before the outbreak of the war to 708 million dollars in 1945. In February 1946 the government established a foreign exchange regime without any restrictions (except some small limitation concerning the remittance of profits and capital). In general, there existed no quantitative restrictions on imports, and for most capital transactions foreign exchange was freely available. The cruzeiro was kept at its prewar value CR\$ 18,00 to the dollar. It has been claimed that this was a deliberate policy of the government, which was anxious to spend the wartime accumulated foreign exchange reserves in order to meet the pent-up demand for imports and also to use the balance of payments surplus of the past as an instrument for combatting inflation.

1. Comissão Mista Brasil-Estados Unidos Para Desenvolvimento Economico, Relatorio Geral, 1. Tomo, Rio de Janeiro, Brasil, 1954, p. 43.

The result of this policy was that within one year most of the accumulated wartime foreign exchange reserves had vanished. Table 14 clearly shows the results of the return to a completely free exchange system. The import quantum increased by 40 percent and the dollar value of imports by 80%, while the export quantum decreased and its value only rose by 17%. From 1946 to 1947 the real product of the country only rose by 2 percent. It is not certain whether the sharp drop in the real rate of growth was due to the sudden flood of imports. It should be noticed, however, that the latter rose again in the following year and was at a high level for the rest of the decade.

Table 14

IMPORTS, EXPORTS AND THE REAL OUTPUT: 1944-1951
(yearly rate of growth)

Year	Exports		Imports		Total Real Product
	<u>Quantum</u>	<u>Value (US\$)</u>	<u>Quantum</u>	<u>Value(US\$)</u>	
1944-45	6	16	5	6	1
1945-46	21	49	-17	50	8
1946-47	-5	17	40	80	2
1947-48	3	3	-10	-8	7
1948-49	-11	-8	16	-1	5
1949-50	-13	24	22	-2	6

Source: Comissao Mista, op. cit., and Conjuntura Economica.

The balance of payments as shown in Table 15 would seem at first to contradict what we just said, i.e. that by the middle of 1947 most of the foreign exchange reserves were used up as a result of the import spurt. In 1946 the balance on current account was still positive and it was only in 1947 that it turned substantially negative, though obviously not enough to eat up most accumulated foreign exchange reserves. The difficulty is that up to 1947 no regular balance of payments statements appeared. The special estimates which exist were collected by the International Monetary Fund.

They do not, however, contain a regional breakdown, which would have cleared up this apparent contradiction.

The current account surpluses which Brazil had developed during the war and immediate postwar years were especially due to substantial surpluses which the country developed with Western European countries. During most of these years Brazil had deficits with the United States. Since European currencies were inconvertible in the early postwar years, a substantial part of Brazilian reserves in those currencies could not be used to cover the growing deficit with the United States. It has been estimated that by the end of the first quarter of 1947 total foreign exchange holdings were US\$ 673 million. Of this amount, gold accounted for US\$ 354 million and sterling for US\$ 262 million, while the rest was in dollars and in European currencies. However, the sterling balances were blocked; the French balance was effectively blocked due to an agreement with France that no withdrawals by conversion would be made until the balance held by Brazil would exceed US\$ 44.3 million; an unknown sum was also blocked by agreement with Belgium; and, finally, Brazilian law required that US\$ 275 million be held as reserve against the domestic currency. It has thus been estimated that taking all these factors into account, instead of US\$ 673 million, Brazil at that time had only a maximum of US\$ 91.7 million in foreign liquid assets.¹ This sum shrank even further in the second quarter of 1947.

1. Kershaw, Joseph A., "Postwar Brazilian Economic Problems," The American Economic Review, June 1948, pp. 333-4.

Table 15

The Brazilian Balance of Payments 1939-47

	(millions of US\$)								
	1939	1940	1941	1942	1943	1944	1945	1946	1947
1. Commercial Balance	87.6	56.3	127.6	208.2	205.4	230.7	277.7	371.5	11.3
2. Goods and Services Balance	34.1	-7.4	74.1	175.4	154.2	143.3	200.3	193.5	-161.3
3. Private Capital Movements	-.03	-22.4	-32.4	-26.5	43.9	18.4	-11.2	-5.5	26.0
4. Official Capital Movements	--	-1.1	-3.5	-0.9	5.7	-35.6	-29.0	-22.4	-3.1
Total (1-4)	33.8	-30.9	38.1	148.0	203.8	126.1	160.1	165.6	-138.4
Errors and Omissions	-34.6	35.3	22.2	1.6	49.0	31.3	-98.3	-84.7	-22.7
Commercial Arrears	--	--	--	--	--	--	--	--	81.0
Official Compensatory Finance	0.8	-4.4	-60.4	-149.6	-252.8	-157.4	-61.8	-80.9	80.1

Source: Comissao Mista, op. cit.; Brazilian balance of payments data have been collected only since 1947. These were estimated by the I.M.F.

Exchange Controls 1947-53

Since the post-World War II industrialization spurt was initially the consequence of measures taken for coping with external difficulties, and since gradually these measures became conscious instruments for the active promotion of an industrial complex, we shall begin our survey of the policy instruments used to promote changes in the structure of the Brazilian economy by concentrating on foreign exchange controls.

In June 1947 exchange controls were reintroduced. These lasted until January 1953. During the entire period the cruzeiro was kept at the completely unrealistic level of 18.5 to the dollar, while the price level continuously rose (between June 1947 and January 1953, the cost of living in Guanabara state - i.e. the Federal District at the time - rose by 67%), which discouraged exports and encouraged imports. Imports were also spurred on by the outbreak of the Korean war.

A drastic system of import licensing was used to keep demand in check.¹ In theory, under the system all types of imports were allowed, but importers had to join waiting lists for various categories of imports. The latter were determined by a system of priorities, set up by the Export-Import Department of the Bank of Brazil (CEXIM), which was in charge of operating the whole licensing system. Essential goods, such as drugs, insecticides, and ferti-

1. Much of the material used in this section is based on two monographs: Simonsen, Mario Henrique, Os Controles De Precos Na Economia Brasileira, CONSULTEC, Rio de Janeiro, 1961; Gordon, Lincoln, and Grommers, Engelbert, L., United States Manufacturing Investment in Brazil: The Impact of Brazilian Government Policies 1946-1960, Division of Research, Graduate School of Business Administration, Harvard University, Boston, 1962.

Simonsen also states that not only did the fixed overvalued rate discourage exports and encourage imports, it was also a barrier to the inflow of capital, a stimulus towards an increase of profit remittances, which had to be directly controlled, and it also stimulated the development of a black exchange market, where foreign currencies were quoted at rates much higher than the legal values.

lizers were allowed to be freely imported, while such goods as fuels, essential foodstuffs, cement, paper and printing equipment, and machinery received priority in the licensing system. At the other extreme, consumer goods which were considered to be of a superfluous nature were discouraged by very long waiting lists for the necessary import licenses. In addition to these measures, annual capital repatriation was limited to 20 percent and the remittance of earnings to 8 percent of registered capital.

In the years 1948-50 the CEXIM authorities exercised enough control to more or less equilibrate the balance of payments again. It has been claimed that the sacrifices in terms of growth which this entailed had not all been necessary. For example, a less rigid attitude on maintaining a fixed and overvalued exchange rate would have improved the burden of distributing the sacrifice in controls and might have spurred on exports to a greater extent. The main criterion for distributing import licenses was tradition. Each importer was given the right to a certain quota of foreign exchange proportional to the volume of his transactions before the introduction of the licensing system. This was obviously a very static policy, not taking into account the development and needs of new industries, which depended very much on supplies from abroad in their initial stage of operation. The few exceptions to the rules that were allowed gave rise in some cases to quite a number of unnecessary imports.

With mounting pressure of excess demand for foreign exchange, the licensing system was beset by long delays and many irregularities became evident in the operation of the whole system. Since importers who received licenses usually made huge windfall profits, "...it is hardly surprising that

there were increasing allegations of corruption in the system's administration. Alternatively, the system was simply bypassed by smuggling."¹

In 1951 CEXIM relaxed its controls mainly as a result of its belief that the Korean war would grow into a world conflict, which would imply a great shortage of supplies from the exterior. As a result, imports which had averaged between 900 and 950 million dollars, rose to 1,703 and 1,702 million dollars in 1951 and 1952 respectively. Some of this increase was compensated by a rise in the value of exports, especially due to the substantial rise in the price of coffee. A large part of these surging imports, however, had to be financed by commercial arrears and by official compensatory finance. The latter amounted to 291 and 615 million dollars in 1951 and 1952 respectively (See Table D4, Appendix III).

Although Brazil operated at an overvalued fixed exchange rate during this period, there was one way in which this inflexibility could be circumvented; this was through the "operacoes vinculadas" ("compensatory deals"). Exporters of difficult-to-sell products could sell their foreign exchange earnings directly to importers at a premium which "...amounted to a kind of 'ad hoc' devaluation of the cruzeiro, and it reached large proportions in the last years of the licensing period."² At first the system worked quite well, the CEXIM authorities keeping a firm control over these operations and seeing to it that the exports concerned were of a basic (i.e. worth promoting) nature, and that the imports were of a more or less essential nature. At the end of the period, however, this system weakened due to the appearance of many abuses.

1. Gordon and Grommers, op. cit., p. 16.

2. Ibid.

This system also acted as a great stimulus to the remittance of profits and to an outflow of foreign capital, while it discouraged the inflow of new capital. Between 1949 and 1952, 173 million dollars of profits were remitted abroad, while net direct investment from abroad amount to only 13 million dollars. All this occurred, despite the restrictions on capital mentioned above.

The Multiple Exchange Rate System: 1953-7

In January 1953 a new policy was adopted, leading towards the adoption of a more flexible exchange rate system. Law 1807 created a limited free exchange market. In the latter were allowed the inflow and outflow of capital and its earnings, and also the buying and selling of foreign exchange for tourist purposes. Imports and most exports were retained in the official market (18.72 cruzeiros to the dollar) and controlled by CEXIM, and so were also the capital dealings considered of importance to the country. Certain exports which the government wanted to stimulate were partially or totally allowed into the free market. Of the capital transactions allowed on the free market, controls were kept to the extent that the outflow of interest should not exceed 8 percent and of profits not more than 10% per year.

Since the dollar in the free market was quoted high above the official rate, the authorities made use of Law 1807 to incentivate certain types of exports. Thus, with Instruction 48, SUMOC (Superintendency of Money and Credit) in February 1953 divided exports into three categories: first, where 15 percent of the exchange receipts could be sold on the free exchange market; a second category, where 30% could be sold there; and a third

category, where 50% could be sold in that market. Many instructions followed which increased the list of essential export products and after a while all of these products were put into the latter category.

The earnings of traditional exports, like coffee, cocoa, and cotton, were supposed to be exchanged at the official rate. However, exceptions were made through the system of the "minimum list", exporters were supposed to sell in the official market only exchange corresponding to certain minimum prices, anything above being allowed to enter the free market. These maneuvers could have been a stimulus to increase and to diversify exports. However, the full effects of this policy could not be felt, since the government tried to contain the free rate by selling exchange received in the official market. Though this was done for political and psychological reasons, the policy lessened the stimulus to exports and the influx of foreign capital, while it created an unhealthy stimulus to tourism and profit remittances.

In October 1953 a basic reform was instituted in the Brazilian exchange system. Instruction 70 of SUMOC and Law 2145 introduced a multiple exchange rate system. The system eliminated direct quantitative controls and created an auction system for obtaining foreign exchange. Imports were classified according to five categories, depending on the degree of their essentiality. Each category corresponded to a different exchange rate, which would be determined by the auctions of exchange certificates in that category.¹

1. Another interesting description and analysis of this system is contained in Kafka, A., "The Brazilian Exchange Auction System," The Review of Economics and Statistics, August 1956, pp. 308-22.

Some imports were considered to be in a preferential category and were not obliged to participate in the auction system. They were allowed to obtain foreign exchange at the official rate, plus some surtaxes which were determined by SUMOC. This preferential category included such items as petroleum and derivatives, printing paper, and equipment considered to be essential for the further development of the country.

On the export side, the Banco do Brasil regained its monopoly position in the buying of foreign exchange, paying the official rate, plus a sum of 5 cruzeiros per dollar for coffee and 10 cruzeiros per dollar for other products. Also, under the older Law 1807, the remittance of profits, interest and amortization payments of foreign investments which were considered to be essential for the development of the country, could be exchanged at the official rate, plus an additional tax determined by SUMOC.

Over the years of its operation the system underwent a number of changes. Many imports were reclassified according to categories, minimum "agios" were established for auctions and raised over time in order to keep up with inflation, and, on the export side, a number of changes occurred, resulting finally in the setting up of four export categories in January 1955. The system got to be so complicated that at one time dozens of official exchange rates were in existence.¹

What were the principal results of this multiple exchange rate system? First of all, it represented some degree of progress in the direction of currency devaluation in the face of continuing internal inflation. Secondly,

1. For example, the official rate, the five import categories which themselves varied with the type of foreign money in question, the four export categories, the rates determined in auctions for specified goods, etc..., see Simonsen, op. cit., p. 52.

it "...established a market mechanism for equating foreign exchange supply and demand. Moreover, it siphoned off to the government the windfall profits from imports and eliminated the pressures for administrative corruption in the issuance of licenses."¹ Thirdly, the system seemed to be more flexible on the import than on the export side. This flexibility on the import side made the system more advantageous than a tariff system, which would have to be changed by a change in the law, whereas the exchange classifications could be changed by executive decision. Fourthly, the positive result of drastically changing the structure of Brazilian imports in favor of more essential goods was counterbalanced, according to some economists, by having the system give protection to the development of industries in the least important areas and thus channeling investment funds in that direction - i.e. the goods most stimulated by the protection given by this system had the least priority in the eyes of the authorities. However, as we shall see below, other policy measures subsequently introduced resulted in a much more balanced industrialization than was at first apparent.

Finally, export rates were always lagging behind the rate of inflation. This, apparently, was due to the fact that the government had an interest in the additional revenue the system represented for its internal budgetary position, that the government was under the impression that a lower export rate had an influence in counteracting the terms of trade position, and that the government thought that this would be a method of fighting the rising prices of export-type products. All this, of course, just had the opposite effect and destimulated exports.

1. Gordon and Grommers, op. cit., p. 17.

Changes in Exchange Controls, August 1957 to March 1961 and Supplementary Methods to Stimulate Capital Inflows

In August 1957 a basic change in the Brazilian exchange system occurred with the passage of Law 3244, reforming the country's tariff. The old tariff, having been of a specific nature, had lost all of its effectiveness with the inflation and was now replaced by an advalorem tariff, varying between zero and 150 percent. In the exchange system, the five import categories were reduced to two. A "general category" included the imports of raw materials, capital goods and certain essential consumer goods, while the other "specific category" included all goods not considered essential. An especially low exchange rate was maintained for the importation of wheat, petroleum and derivatives, printing paper, fertilizers, equipment considered to be of high priority, and interest and amortization payments for loans considered essential to the development of the country. This latter exchange rate was called "cambio de custo" and could not be below the average rate paid to exporters. Exchange rates for exports and financial transfers continued under the old rules.

In the mid-1950's the character of the exchange system changed in that it was no longer regarded merely as an instrument to cope with balance of payments difficulties, but more as a method to consciously promote the industrialization of the country and thus a radical change in the structure of the Brazilian economy. By that time the Brazilian policy makers were convinced that high rates of economic growth could ultimately be obtained only by such a change. The best evidence of this new attitude is found in such complementary measures as the Tariff law, SUMOC Instruction 113, revival of the Law of Similar, and others which we shall discuss presently.

The principal novelty was the Tariff Law of 1957 whose purpose it was to adequately protect the newly stimulated industries. It really complemented the measure introduced in early 1955, whose purpose it was to attract foreign capital, namely the famous instruction 113 of SUMOC. This enabled foreign investors to import capital equipment without the need for exchange cover. The instruction provided that a foreign investor was allowed to import machinery under the condition that "... he agreed to accept payment, not in the form of cash or deferred debt, but by assuming instead a cruzeiro capital participation in the enterprise by which the equipment was to be used.¹ Approval was to be given only where the investment was deemed to be desirable for the development of the country. This was to be decided by CACEX (the foreign trade department of the Banco do Brasil) which had replaced CEXIM.

The criterion for desirability was automatically determined if the goods concerned fell into the first three categories of the import control system which worked up to 1957. Most goods, however, fell into the other categories and in that case CACEX was supposed to consult the SUMOC Council and other interested agencies and outside bodies (such as the National Confederation of Industries) before granting the privileges of Instruction 113. The latter was to be given only for complete sets of manufacturing equipment, "... although in exceptional cases permission could be obtained to complete the modernization of existing industrial units. The Brazilian company concerned also had to agree not to dispose of the machinery during its normal economic life and not to make any direct payment abroad corresponding to its value.²

1. Gordon and Grommers, op. cit., p. 19

2. Ibid., p. 20

Instruction 113 was obviously advantageous to the foreign investor. Without it, he would have had to send dollars to Brazil at the free market rate and with the cruzeiros bought he would have had to repurchase dollars in the auction market at a higher price. The degree of benefit could be measured by "... the difference between the cost of foreign exchange in the relevant auction category and the free market rate." This difference was considerable for dollar imports, while for nondollar imports it was much smaller, but this disappeared after currency convertibility was achieved in most of the major exporting countries by the end of 1958.

The Tariff Law of 1957 expanded and solidified the protection offered to the growing domestic industry. In many cases tariffs were as high as 60, 80 and 150 percent. Goods which were already adequately supplied by domestic industry could only be imported via the "special category" where the price of foreign exchange would rise as high as twice or three times as much as the value in other categories. Favored industries were also allowed to import needed equipment at the "cambio de custo", and this was also the case with badly needed raw materials.

Over the following years a number of difficulties arose in the administration of this system of exchange. The strongly subsidized rate ("cambio de custo") for preferential imports was kept at low levels for long periods of time (it was kept at CR\$ 53.- to the dollar until October 1958, then at CR\$ 80.- until January 1959, when it was changed to CR\$ 100.-) in the face of continuing inflation and the continuing rise of other rates. The authorities had the mistaken notion that such rigidity in readjustment would be an effective tool against the inflation. This policy in effect encouraged some distortion in the import structure and in the general resource allocation pattern.

In the second half of the 1950's the Brazilian government had to deal increasingly with the problem of the overproduction of coffee. It engaged in the buying of surpluses and in the field of foreign exchange it remunerated coffee exporters with a rate of about half the import rates. The government thus obtained some extra revenue due to the difference between the rate paid to the exporters and the rate at which the foreign currencies were sold to importers. This extra revenue was used both to finance the coffee support program and other government activities.

As was mentioned earlier, one of the main difficulties in the exchange rate system up to 1959 was the rigidity of the export rates, and the lag with which they were adjusted. In January 1959, SUMOC Instruction 167 transferred manufacturing exports to the free market, and in December of that year Instruction 192 transferred all other exports to the free market, with the exception of coffee, crude mineral oil, mamona and cocoa. In another liberalizing step in April 1959, freight rate payments for imports were also transferred to the free rate (SUMOC Instruction 181).

From 1958 until March 1961 the dollar in the free market was constantly below the rate in the "general category." This meant that foreign enterprises which remitted profits or Brazilians who engaged in tourism received a more favorable rate than the importers of essential goods. The government seemed to have insisted on maintaining this rate, according to some observers, in order to hide the more obvious symptoms of the inflation from the people. During the last years of the system, the government engaged in forced loans for exporters and importers. Importers had to pay the "agio" in the auction market, but could only receive the foreign exchange six months thereafter. Exporters only would receive a certain proportion of the

cruzeiro prices of the foreign exchange, the balance being invested in six months bills of the Banco do Brasil.

Exchange Reform and Further Developments, 1961-3.

In early 1961 a new exchange policy was instituted with SUMOC Instruction 204. The "cambio de custo" was increased from CR\$ 100.- to CR\$ 200.- per dollar; the "general category" imports were put on the free market; all exports, except coffee, were also placed on the free market; and the forced loans imposed on importers were replaced by a system of "Letras de Importacao". The latter consisted of having importers deposit for a period of 150 days the equivalent in cruzeiros of the value of foreign exchange bought; in exchange, the importers would receive notes of the Bank of Brazil.

Other SUMOC instructions complemented Instruction 204. Number 205 transferred exchange earned from coffee exporters to the free market, requiring exporters to deliver 22 dollars per bag so as to enable the government with the equivalent in cruzeiros to finance the support of excess production. Instruction 208 did away with the "cambio de custo" system, transferring all imports to the free market. On the whole, these measures brought greater unity to the foreign exchange system.

The years 1962 and 1963 were dominated by political crises, by nationalist agitation which resulted in the passage of a severe profit remissions act in the latter part of 1962, and a continuing decline of foreign exchange earnings from exports, and by acceleration in the rate of inflation. These events had strong effects on the country's exchange rate. Throughout most of this period the setting of the official "free rate" lagged substantially

behind the internal inflation, which resulted in a basic destimulation for newer types of exports, especially manufactured products.

The Law of Similarars

As was mentioned previously, the reason for this long review of Brazil's foreign exchange policy is that it not only was the chief instrument used to remedy the balance of payments difficulties, but it also came to be one of the principal policy instruments to stimulate the great import-substitution industrialization drive of the 1950's and early 1960's. The policies reviewed, and especially the important ~~SUMOC~~ Instruction 113 which attracted the necessary foreign capital, were supplemented by a rigorous application of the Law of Similarars.

In the last decade of the nineteenth century tariff protection of goods produced domestically became generalized in what came to be referred as the "law of similarars." In 1911 the "Register of Similar Products" was created. Brazilian producers who desired protection could apply for the registration of the goods they were producing or intended to produce. In the postwar period, especially in the 1950's, the registration of a product as a "similar", "... has become the basis ... for broad tariff protection and also for classification in a high foreign exchange rate category under the multiple exchange rate system."¹ The "law of similarars" is presently used to include all types of devices of protection for goods produced locally which are of a nature similar to the ones imported. The exact definition of "sufficient quality and quantity" for a product to warrant protection has been left rather flexible by the law and has been subject to a substantial amount of discretion by the administrative authorities.

1. Gordon and Grommers, op. cit., p. 13.

The law seems to have been applied in such a way as to encourage a substantial amount of vertical integration as the industrialization process got under way, i.e. vertical integration either within firms or within the country by the emergence of supplying firms. According to a study of American companies operating in Brazil which was made by Gordon and Grommers, "... the operation of the law of similars has been a most powerful incentive for foreign investors to move from importing into assembly, or from assembly into full-fledged manufacturing. The essential feature of this incentive has been fear of outright exclusion from the market rather than hope for preferential treatment in relation to competitors. In many cases, the mere report that some Brazilian or competing foreign firm was contemplating manufacture, with the implication that imports of similar goods would henceforth be ruled out, was the critical factor impelling U.S. companies to move to preserve their market position by building local plants ..."¹ This law, however, also stimulated much local capital to establish supplying firms. Thus, even though the initial protective devices of the government stimulated industries of a "non essential nature" (i.e. at first light consumer goods were kept out of the country), complementary policies provided substantial incentives for vertical integration and thus for the ultimate establishment of a "productive base." We shall show this more specifically in a subsequent chapter.

Special Plans and Programs to Facilitate Growth in the Postwar Period

We have seen in the previous chapter that in the 1930's and during the second World War attempts were made to assess the country's resources in order to plan their utilization more efficiently. These attempts continued

1. Gordon and Grommers, op. cit., pp. 23-4.

in the postwar period and occasionally resulted in concrete and significant public investment programs which acted as necessary complements to the stimulations the private sector received from the above discussed protection measures.

The first postwar attempt at planning occurred with the introduction of the SALTE plan (the name being an anagram containing the first letters of the Portuguese words standing for health, food, transportation, and energy). It was not a full scale economic plan, but rather a five year public expenditure program in the four fields just mentioned. The plan can be regarded as a reaction to the Cooke Mission's emphasis on industrialization and the general industrialization spurt of the war years which increasingly brought forth the lagging of the economy in other sectors, such as transportation, energy, food supply and health, which was already producing a number of bottleneck situations.¹

SALTE was a five year plan which was supposed to run from 1950 to 1954. The total expenditures in that period were supposed to run at CR\$ 19.9 billion, of which CR\$ 2.6 billion was destined for the improvement of health services, CR\$ 2.7 for modernizing food production and supply, CR\$ 11.4 billion for the modernization of the transportation system, and CR\$ 3.2 billion for increasing the energy capacity of the country.

The plan as such did not last more than a year due to its weak methods of implementation and especially due to the difficulty of financing. Since the plan contained not only special development projects, but also projects

1. Sources for the paragraphs on the SALTE plan are: BNDE, XI Exposicao Sobre O Programa De Reparcelamento Economico, Exercicio De 1962, Rio de Janeiro, Brasil, pp. 3-6; Singer, H.W., "The Brazilian SALTE Plan," Economic Development and Cultural Change, February 1953; also Vieira, op.cit., see footnote 1, p. 31.

which appeared in the regular government budget, it "... had the effect of carving out from the normal budget statement some of the expenditure which was assumed to be of a developmental nature, and was thus a step in the direction of 'functional' budgeting."¹ Thus the plan did not imply additional expenditures in its entirety, 30 percent being already covered by activities included in the normal budget. The 70 percent of new financing provided the difficulty, however. Part of the latter was supposed to be obtained from the taxation of additional income resulting from the plan itself, part through the sale of foreign currencies held by the Bank of Brazil, and another amount was supposed to come from a readjustment of customs to a more realistic ad valorem basis. This left, however, a sum of about seven billion cruzeiros for which there was no cover. It was decided that this amount would have to come from borrowing operations. One of the reasons for the plan's discontinuance after one year was the overoptimistic estimate of the revenue and borrowing possibilities. The planners did not reckon with the possibility of balance of payments difficulties which would reduce the possibility of financing the plan from the sale of reserves, with increasing inflationary forces and with the budget deficits which made borrowing more difficult.

After a year of operation, the plan was discontinued in 1951. Some of the planned public works projects were transferred to the relevant government departments, to be continued as resources became available.

1. Singer, op. cit., p. 342

The SALTE plan was not really a global plan. It did not contain any targets for the private sector, or programs to influence the latter. It was basically a public expenditure program covering a five year period. It did, however, draw attention to other sectors of the economy which were lagging behind the industrial sector and might thus ultimately hamper further growth.

The work of the Joint Brazil-United States Economic Commission in the period 1951 to 1953 constituted a much more ambitious and thorough attempt at planning. Its large Brazilian and American technical staff made one of the most complete surveys of the Brazilian economy and formulated a series of infrastructure projects, with programs for their execution. The proposed expenditure program amounted to US\$ 387.3 million in foreign exchange and 14 billion cruzeiros, which were to be divided among the following projects proportionally:

	<u>Investment in Foreign Currency</u>	<u>Investment in ¹ Domestic Currency</u>
Railroads	38	55
Road Building	2	-
Harbor Construction	9	5
Coastal Shipping	7	3
Electric Energy	34	33
Other	<u>10</u>	<u>4</u>
	100	100

More concretely, these categories involved projects to modernize various railroad lines, harbors, and coastal shipping; the expansion of energy producing capacity (i.e. electric energy); and "other" category included the importation of agricultural equipment, the construction of silos, and the construction or expansion of some industrial plants. The Commission also made recommendations in the fields of technical training, diversification of exports, measures to overcome the noticeable regional disparities in income (i.e. measures to better integrate such a region

1. BNDE, op. cit., p. 9

as the Northeast into the rest of the economy), and measures to achieve monetary stability.

The foreign exchange resources were supposed to have come from international agencies and direct loans from foreign governments, while the domestic resources would be obtained from a "forced loan" collected as an addition to the income tax, and also from loans of insurance companies, social security institutes, etc...

The plan of the Joint Commission was never formally adopted. It had, however, a number of beneficial effects. It led to the establishment of the National Bank for Economic Development (BNDE) whose purpose it was to analyze and finance various development projects. Many of the studies of the Commission were subsequently used to formulate projects financed by the development bank and by international lending institutions. More than the SALTE plan, the Commission's work give impetus to projects in sectors of the economy which had been lagging behind and which might soon develop into bottleneck areas.

Between 1953 and 1955 technicians of the BNDE and the Economic Commission of Latin America (ECLA) of the UN cooperated in an effort at systematic overall planning.¹ The work consisted principally of certain aggregative relationships observed in the economy between 1939 and 1953 and making projections under alternative hypotheses about changes in the rate of savings, terms of trade, etc...., for a seven year period. It seems that the group's principal function was to call the attention of Brazilian authorities to the key variables (such as the savings ratio, capital/output ratio, foreign capital influx, etc....) which determined the rate of growth of the country and which could be influenced by various types

1. See United Nations, Analyses and Projections of Economic Development, II, The Economic Development of Brazil, New York, 1956.

of policy actions. To consciously influence the rate of growth was thought to have become of prime importance due to the high growth rate of the population in the 1950's (which had reached a rate higher than 3 percent).

There was, of course, some scepticism about the application of the sophisticated ECLA projection techniques to Brazil, many of whose data were thought to be rather weak for such an exercise. It was also true that the group's "... physical projections were not matched by financial plans for raising the necessary revenue."¹

These postwar series of development plans and the intense discussions surrounding them "...spread a sort of political mystique of development - what came to be called desenvolvimentismo- among the leaders of Brazilian public and political opinion."² This concern with development, i.e. the attainment of high rates of growth within a relatively short period of time, and the government's role in influencing it substantially became the hallmark of the administration of Juscelino Kubitschek (1956-61). The day after his inauguration a National Development Council was created which formulated the " Program of Targets" (Programa de Metas).

This Program of Targets was not a general global development plan. It did not include all areas of public investments, basic industries, and it did not attempt to reconcile the resource needs in its areas with the needs of fields not covered and with the general availability of resources. Targets were set over a five-year period for thirty basic sectors of the economy, both infrastructure and directly productive sectors, which were supposed to be undertaken by both government and the private sector. Five general areas were covered:

1. Gordon and Grommers, op. cit., p. 123.

2. Gordon and Grommers, op. cit., p. 123; the best translation of "desenvolvimentismo" is "growthmanship."

energy, transportation, food supply, basic industries, and education (especially the training of technical personnel). The infrastructure investment was mainly concerned with the elimination of structural bottlenecks and in this area much groundwork had already been done by the Joint Commission; in many cases detailed targets were available, including many individual projects, while other targets had only been formulated in broad general terms.

The targets for basic industries were supposed to consist of the stimulation of such industries as steel, aluminum, cement, cellulose, automotive, heavy machinery, and chemicals. These were considered to be so-called "growing points" industries which would set the pace for further rapid industrialization. A special project included in Kubitschek's program was the construction of the new interior capital of Brasilia. There can be no doubt that this project did not immediately contribute to increasing the productive capacity of the country, and there was a substantial amount of controversy over the merit of undertaking the project at all, given the limited resources available for the rest of the program.

Investments programmed for the five-year period 1957-61 were 236.7 billions in cruzeiros and 2.3 millions in U.S. dollars; which were to be distributed among the main sectors in the following way:¹

	<u>Goods and Services Produced in Brazil</u> (in bil. of CR\$)	<u>Goods and Services Imported</u> (in bil. of US\$)
Energy	46	37
Transportation	32	25
Food Production	2	6
Basic Industries	15	32
Education	5	-
Total	100	100

1. BNDE, op. cit., p. 14

financing in domestic currency was supposed to come from government budgets (39.7% federal, 10.4% state), from private firms or mixed enterprises (35.4%), and from public entities (14.5%). Foreign exchange finance came both from loans of international agencies (much of it administered by the development bank) and from the inflow of private foreign capital attracted by the numerous inducements talked about earlier in this chapter. We shall turn to a more thorough discussion of sources of finance in a later chapter.

During the Kubitschek administration a substantial amount of progress was made towards fulfilling many of the targets, especially in industry and some of the planned infrastructure. The agricultural sector, however, lagged behind. Since we shall examine in a more analytical fashion the impact of all these development programs below, let us briefly illustrate more graphically the results of these planning and incentive efforts by the early 1960's. Brazil became completely self-sufficient in cement, its production rising from 914 thousand metric tons in 1947 to 4,680 thousand metric tons in 1961; steel ingots production increased from 1.4 million metric tons in 1956 to 2.7 million in 1962; motor vehicle production increased from 31,000 in 1957 (at that time mainly assembled) to almost 200,000 in 1962 (over 90% produced in Brazil); installed capacity of electric energy increased from 2.8 million kwts. in 1954 to 5.8 million in 1962; paved roads, which amounted to 2000 miles at the beginning of the Kubitschek administration, tripled by the early sixties.

The last attempt at planning was made in late 1962, when a Three Year Development Plan (1963-5) was formulated. It was partially a stabilization plan to cope with the country's runaway inflation and partly a series of projections based mainly on the growth rates of immediately preceding years. Since this plan

has been severely criticized for its faulty projections and incompleteness, and since it was discontinued a few months after its presentation, we shall not describe its provisions here.¹

Special Incentive Programs

Last, but not least, in our survey of policies and programs which contributed to the industrialization spurt in postwar Brazil, we should mention a number of specific programs established under the Kubitschek administration to promote such specific industries as automobile and utility vehicle construction, naval construction, and heavy machinery. These special programs were organized through the development bank and through it the favored industries were given special treatment for importing manufacturing equipment, raw materials, and components, for certain periods of time. This type of program had already been used once before, prior to the war, when the government gave special benefits to companies which intended to produce cellulose.

The most successful of these programs was the one designed to promote an automotive manufacturing industry which was directed by GEIA (Executive Group for the Automotive Industry). The group offered substantial benefits for the importation of manufacturing equipment and automotive components for a limited period of years. The firms, in return, committed themselves to a policy of progressive replacement of imports by components made in Brazil. GEIA was also instrumental in persuading Brazilian companies to get into the part industry and in making arrangements for them to negotiate technical assistance agreements with American and other foreign companies. In general, "encouragement was given to

1. See Presidencia Da Republica, Plano Trienal De Desenvolvimento Economico e Social 1963-5, Dezembro de 1962; also see the special issue of Revista Brasileira de Economia, Dezembro 1962, which was devoted to a discussion and criticism of this plan; although this journal is dated the same month as the appearance of the plan, the articles were actually written in February and the issue came out in May 1963.

arrangements for intensive recourse to external Brazilian suppliers and subcontractors for production of specialized parts. It was intended by these means to build a large Brazilian industry of noncaptive component makers."¹ Another type of benefit received by firms in the automotive industry was that they were classified as "basic industries", which meant that they could receive financial assistance from the national development bank.

The guidance provided by GEIA not only led to rapid vertical integration of automotive production within the country, but it was also responsible for bringing about what was thought to be the correct mix of the types of vehicles produced. Thus, by the end of the Kubitschek administration, only half of the output consisted of passenger cars, while the rest consisted of utility vehicles and trucks. Other executive groups made similar efforts in the creation of a shipbuilding, heavy machinery, tractor and automatic telephone equipment industry.

Effects of Industrialization Policies

The high rate of real growth experienced by the Brazilian economy in the postwar period (see Table 16), and especially in the fifties, can in large part be attributed to the industrialization policies. This is clearly indicated by the different sectoral growth rates. While the real product increased by 128 percent from 1947 to 1961, the real agricultural product increased by only 87 percent; the industrial, however, increased by 262 percent.² For the absolute increase of gross domestic product between 1947 and 1961, agriculture was responsible for only 18 percent, while the non-agricultural sector contributed the rest.

1. Gordon and Grommers, op. cit., p. 51; see Chapter IV of this book for a full analysis of the GEIA program.

2. National accounts statistics for Brazil have been available on a yearly basis since 1947, although a rough estimate exists for 1939. See Appendix I.

Table 16

Indicators of Brazil's Growth and Foreign Position

	<u>Fixed Inv.</u> <u>GNP</u> (percentage)	<u>Rate of</u> <u>Real</u> <u>Growth</u>	<u>Terms of</u> <u>Trade</u> (1953 = 100)	<u>Export Quantum</u> (1953 = 100)	<u>Balance of Payments:</u> <u>Current Account</u> <u>Balance</u> (Mil. of US\$)	<u>Foreign Direct</u> <u>Investment</u> (Mil. US\$)
1947	17	1.8	45	127	n.a.	n.a.
1948	16	9.5	44	131	n.a.	n.a.
1949	15	5.6	53	117	n.a.	n.a.
1950	13	5.0	93	102	104	28
1951	16	5.1	95	109	-470	70
1952	16	5.6	90	90	-709	118
1953	13	3.2	100	100	17	109
1954	17	7.7	134	86	-235	75
1955	14	6.8	118	100	- 34	109
1956	13	1.9	113	108	7	248
1957	13	6.9	117	100	-299	356
1958	14	6.6	119	96	-266	230
1959	16	7.3	109	117	-311	214
1960	15	6.3	101	118	-509	137
1961	n.a.	7.7	97	128	-241	169
1962	n.a.	4.1*	88*	114*	n.a.	n.a.

*Estimates

Source: Fundação Getulio Vargas, Conjuntura Econômica and Revista Brasileira de Economia, Março 1962; SUMOC, Boletim, Maio 1963.

The key element here was the direct and indirect effects of the more than tripling of the industrial sector.¹ All this is reinforced when one considers the decline of earnings from agricultural exports during most of the decade of the fifties. It should be noted that the fixed investment proportion was relatively low during the entire period under review, averaging 15 percent, which implies a low capital/output ratio. We shall have some more comments on this phenomenon in a later chapter of this monograph.

1. The direct and indirect impact of the industrialization will be the principal theme in the analysis of chapter .

Due to the high import content of investment, the investment proportion was correlated with the balance of payments deficit. Especially during the latter part of the period examined, the investment coefficient was maintained by a substantial inflow of private foreign capital.

One indication of the transformation of the economy resulting from these developments is the change in the income distribution by branches of activity. On Table 17 are shown the changes in the relative share of agriculture,

Table 17

CHANGES IN THE FUNCTIONAL DISTRIBUTION OF THE
NET DOMESTIC PRODUCT
(percentage distribution in constant 1947 prices)

	<u>1947</u>	<u>1951</u>	<u>1956</u>	<u>1961</u>
Agriculture	27	24	23	22
Industry	21	24	28	34
Other Sectors	52	52	49	44
Total	100	100	100	100

Source: Estimated and computed from data in Revista Brasileira de Economia, Março, 1962

industry, and the rest of the economy in the net domestic product at constant prices. It will be seen that the share of agriculture decreased from 27 percent in 1947 to 22 percent in 1961, while industry increased from 21 percent to 34 percent in the same period.

An examination of changes in the structure of the manufacturing sector must, of course, begin with a brief review of changes in the import structure. One important fact which should not be overlooked is the downward trend in the ratio of imports of goods and services to gross domestic product. A first

glance at Table 18, which shows the changes in the commodity structure of imports, reveals an important decline in the share of processed goods from 86 to 68 percent between 1949 and 1962. A large share of the increased proportion of raw materials imported represents goods not available in sufficient quantities in Brazil, like crude petroleum, which were, however, of extreme importance to the new industries and for the continued overall growth of the country.

We have already noted that the newly protected industries did not only represent activities in the last stages of the production process. As can be seen in Table 18, and as will be shown further on with different types of evidence, the newly emerging industrial structure was fairly well balanced both from a horizontal and from a vertical point of view. Important items of import substitution can be noticed both from a decline in their share of total imports and their decline in real terms in relation to the average of 1949-50 (see column 3). Important substitution also took place in items whose share did not change or even went up, and whose real amounts of imports rose, because these increases were all substantially less than the increase of industrial production which more than tripled. This is reinforced when we realize that for only three categories imports rose by more than real GNP, which doubled in this period.

A more accurate measure of import substitution is the change of the proportion of imports to the total availability of the commodity for the main import groups. Unfortunately this type of calculation can only be done for census years. Thus we were only able to compare 1949 and 1959, although the policies of the fifties were only beginning to have their total impact in the

Table 18

Changes in Brazil's Commodity Import Structure*
(percentage distribution)

<u>Commodity Groups</u>	<u>1949</u>	<u>1962</u>	<u>Percentage Change of Imports in Constant 1949 US Dollars Between 1949 and 1962</u>
1. Food, beverages, and tobacco	4.58	3.13	+245; +25**
2. Textiles	3.99	0.13	-89
3. Clothing & Footwear	0.05	0.00	na
4. Wood Products	0.18	0.04	na
5. Paper and Paper Products	2.36	2.58	+55
6. Printing and Publishing	0.31	0.47	+320
7. Leather Products	0.27	0.01	na
8. Rubber Products	0.12	0.07	na
9. Chemicals & Petroleum & Coal Products	19.55	18.02	+5; -43; -42; -14***
10. Non Metallic Min. Products (Basic Metal & Metal Prds.)	2.04 (11.48)	1.33 (11.62)	-1
11. Iron and Steel	3.71	3.43	+27
12. Non Ferrous Metals	3.02	3.97	+108
13. Others (Machinery)	4.75 (14.21)	4.22 (12.99)	na
14. Metal Working Machinery	7.06	7.64	+63
15. Others	7.15	5.35	-29
16. Electrical Machinery (Transport Equipment)	6.61 (14.30)	6.27 (10.17)	+46
17. Motor Vehicles	9.58	2.44	-60
18. Others	4.72	7.73	+112
19. Other Manufacturing	1.92	1.95	na
Total Manufacturing	81.97	68.78	+45
Non-Processed Raw Materials	18.03	31.22	
TOTAL	100.00	100.00	
Change in Industrial Production			+213
Change in Real GNP			+105

* The original data used were those expressed in current dollars.

** food-245; drinks-25

*** Chemicals (proper) 5; Products of Petroleum and coal-: -43;
Fertilizers:-14; Medicinal and Pharmaceutical preparations: -42.

Sources: Servico de Estatistica Economica e Financeira, Comercio Exterior do Brasil, several years. The basic data from this source were retabulated in order to make them comparable to the industrial census classification.

latter year. The calculations are reproduced on Table 19. It will be noted that the widespread import substitution is also quite evident here, i.e. its

Table 19

IMPORTS AS A PROPORTION OF TOTAL GOODS AVAILABLE*

	<u>1949</u>	<u>1959</u>
<u>Non Metallic Mineral Products</u>	<u>8.6</u>	<u>2.1</u>
Cement	23.7	.9
<u>Basic Metal Industries & Metal Products</u>	<u>22.5</u>	<u>11.6</u>
Iron and Steel	24.9	15.3
Nonferrous Metals	80.1	37.0
<u>Machinery</u>	<u>63.0</u>	<u>41.4</u>
Metal Working Machinery	68.9	56.9
Other Machinery	58.3	23.0
<u>Electrical Machinery & Appliances</u>	<u>47.6</u>	<u>13.3</u>
<u>Transport Equipment</u>	<u>56.1</u>	<u>18.6</u>
Motor Vehicles	54.2	13.7
Other Transport Equipment	59.6	37.5
<u>Paper and Paper Products</u>	<u>18.6</u>	<u>12.1</u>
<u>Chemicals and Products</u>	<u>39.3</u>	<u>18.2</u>
<u>Textiles</u>	<u>4.4</u>	<u>.1</u>
<u>Processes Food Products</u>	<u>1.2</u>	<u>1.0</u>
<u>Beverages</u>	<u>2.3</u>	<u>.8</u>
<u>Printing and Publishing</u>	<u>2.3</u>	<u>2.6</u>
<u>Miscellaneous</u>	<u>31.5</u>	<u>10.1</u>

* Total goods available includes domestically produced goods plus imports.

Source: Computed from data in IBGE, Recenseamento Geral do Brasil, 1950 and 1960, Censo Industrial, and Serviço de Estatística Econômica e Financeira, Comércio Exterior do Brasil. See Table 18.

spread over producers' and consumers' goods. If data were available for 1962 or 1963, the proportions would have been still much lower in such categories as Motor Vehicles, Metal Working Machinery, Iron and Steel, etc.... The effects of investment in import competing goods was only beginning to be felt in 1959.

Another method of observing changes in Brazil's economic structure is to examine the country's industrial structure itself. On Table 20 are shown changes in the structure of Brazil's industry according to the proportional distribution by gross value added and by workers employed between 1950 and 1960.

Table 20

Sectoral Distribution of Gross Value Added
and Employment in Brazil (percentages)

	<u>Gross Value Added</u>		<u>Employment</u>	
	<u>1950</u>	<u>1960</u>	<u>1950</u>	<u>1960</u>
Non Metallic Minerals	7.2	6.7	9.7	9.7
Iron and Steel and Metal Products	9.4	11.9	7.9	10.2
Machinery	2.1	3.5	1.9	3.3
Electrical Machinery & Appliances	1.6	3.9	1.1	3.0
Transport Equipment	2.2	7.5	1.3	4.3
Wood and Wood Products	4.2	3.2	4.9	5.0
Furniture	2.2	2.2	2.8	3.6
Paper and Paper Products	2.2	3.0	1.9	2.4
Rubber and Products	1.9	2.3	.8	1.0
Leather and Products	1.3	1.1	1.5	1.5
Chemicals	5.3	8.7	3.7	4.1
Pharmaceuticals	2.8	2.5	1.1	.9
Perfumes, Soap, Candles	1.6	1.4	.8	.7
Plastic Products	.3	.8	.2	.5
Textiles	19.6	12.0	27.4	20.6
Clothing, Shoes, etc.	4.2	3.6	5.6	5.8
Food Products	20.5	16.9	18.5	15.3
Beverages	4.4	2.9	2.9	2.1
Tobacco	1.4	1.3	1.3	.9
Printing and Publishing	4.0	3.0	3.0	3.0
Miscellaneous	1.6	1.6	1.7	2.1
	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>	<u>100.0</u>

Source: IBGE, Recenseamento Geral do Brasil, 1960, Censo Industrial.

It can be seen that the traditional industries of textiles, food products, and clothing have suffered declines in relative position, while the most pronounced growth took place in such key import-substituting industries as transport equipment, machinery, electric machinery and appliances, and chemicals. It is interesting to note that for the traditional industries there has been a greater relative decline in gross value added than in workers employed, while for many new industries the increase in gross value added was greater than the increase of workers employed. This is a reflection of the greater labor intensity of the more traditional industries as compared to the newer ones.

We have thus far reviewed the industrialization policies of Brazil and analyzed their results in terms of changes in the structure of the economy and overall rates of growth. Before engaging in an analysis of the financing of this industrialization, its general repercussions in the economy, and the disequilibria between sectors which it brought forth, we shall first venture into a brief analysis of the institutional setting within which government and the private sectors make economic decisions.

Chapter 4

THE STRUCTURE OF BRAZILIAN POLICY MAKING INSTITUTIONS

Economic policy making in Brazil is a fairly decentralized and, at times, disorganized process. Except for the occasional attempts at planning, which we described earlier, when there is also an attempt at coordination between various policy making bodies, there has to date not existed a central coordinating or planning agency whose task it would be to set certain policy goals consistent with resource availability and to coordinate the various official policy making agencies in order to attain these goals.

The Brazilian economy can best be described as a mixed market economy. It is a "mixed" economy for a number of reasons. First, in aggregative terms, the government sector accounted for 24% of gross domestic product (i.e. taking expenditures of government as a proportion of gross domestic product) and for over 38% of total fixed investment in 1960. This, however, does not take into account government enterprises which do not form part of the budget. If they were included, i.e. the government's participation in certain directly productive activities like steel, automotive, petroleum, iron ore, and its increasing participation in the public utility sector, the government's share would be much greater. In addition, through various control mechanisms described below, it influences directly the formation of certain prices and the allocation of certain resources. Still, the bulk of the manufacturing, agricultural, and a large part of the service sectors, are in private hands. Thus, one should call the Brazilian economy a modified capitalist market economy.

The Policy Matrix

In order to simplify the view of Brazil's various economic policy making centers, we have arranged a policy making matrix which is presented in Table 20. In the first column we have listed the policy goals with which Brazilians have been concerned during the post-World War II period and we have ranked these goals in order of priority, i.e. in what seemed to us, after studying the Brazilian postwar period, to be the Brazilian policy maker's order of priority. In the second column we have listed next to each policy goal the instruments available to gear the economy in its direction. The final column contains a list of institutions which can wield these instruments.

An examination of this table should make it obvious that there is ample room for conflict between a number of these policy goals, i.e. where the striving to attain one goal could easily compromise the attainment of another goal. Unless some planning, involving coordination, exists, the simultaneous attainment of a number of these objectives might not be possible. Let us mention a few obvious cases of conflict which have appeared on the Brazilian scene.

The prime postwar policy objective was, of course, the expansion of import-competing products; this objective tended to conflict with the target of price stability to the extent that domestic resources were used for the former. Thus, the local currency loans of the development bank (BNDE) or the Banco do Brasil, the expansion decisions of government enterprises, often worked in a manner contrary to the goals of those institutions responsible for achieving price stability. Even within the same institution responsibility was often divided between competing or contradictory objectives. For example,

Table 21

POLICY MATRIX OF BRAZIL

<u>Policy Goals</u>	<u>Instruments</u>	<u>Institutions</u>
1. Expansion of import-competing output	Tariff, exchange rate control, Development Bank loans, special incentives program, government enterprises, law of similars.	Tariff Commission, SUMOC Banco do Brasil, BNDE Autarquias (in the production field), Mixed Government enterprises.
2. Expansion of Infrastructure	BNDE loans, government enterprises' expansion	BNDE, Mixed Gov't Enterprises, Autarquias, Regional Planning Agencies, local governments.
3. Social Reform	Tax structure, labor and other social legislation, laws and decrees of executive, land reform laws and decrees.	Labor laws (Ministry of Labor, Tax Laws (Ministry of Fazenda), Executive agencies.
4. Social and Community Services.	Government Budget, Action of Social Security Institutes, Allocation of Foreign Aid.	Finance Ministry (Fazenda), Autarquias, COCAP, Local Governments.
5. Regional Equilibrium	Federal Government Budget, Tax Incentives, Distribution of Credit.	Constitutional Clauses of Tax Laws (Fazenda), Regional Planning Agencies, COCAP, Banco do Brasil.
6. Sectoral Equilibrium (especially non-agricultural sector vs. agricultural sector)	Technical Aid by regional organizations, Credit, land reform.	Regional Planning Agencies, Banco do Brasil, COCAP, SUPRA, BNDE.
7. Improvement of Balance of Payments.	Tariff, Exchange control and exchange rate manipulations.	SUMOC, Tariff Commission.
8. Price Stability.	Credit Restriction, Government budget, controls of various prices (interest rate blocked)	Banco do Brasil, SUMOC, Finance Ministry (Fazenda)
9. Improvement of Resource Allocation.	Price control, direct control of distribution of goods and materials, direct action of specific governmental institutes.	SUNAB (former COFAP), Government control of public utility rates, laws, various governmental institutes (e.g. of coffee, sugar, etc...)

we have the Banco do Brasil making substantial loans in order to contribute to the first goal and also the sectoral equilibrium goal (i.e. being the principal source of credit for the agricultural sector) and thus neglecting many times its price stability objective.

As will be seen in a subsequent chapter, the expansionary policies in the import-competing sector influenced policy vis-a-vis the infrastructure sector in such a way as to interfere with the attainment of goal 5 (regional equilibrium), i.e. emphasizing investment in areas where new industries located (Center-South of the country), or with policy goal 6 (by neglecting investment, relatively speaking, in the agricultural sector). One might even argue that overemphasis on goals 1 and 2 at the expense of price stability (number 4) acted in a negative way also in relation to goal 3 (social reform) to the extent that the accompanying inflation redistributed the increment in the national product from the low income consuming classes to the investment sector (both governmental and private). Returning to the question of regional equilibrium, we also find government bodies working at cross purposes when one considers that for a long time government enterprises and the development bank's loan policy worked in such a way as to concentrate growth in one region while, on the other hand, the tax structure is supposed to work in such a way as to redistribute income towards less favored regions.

One also finds a definite conflict between price stability and optimum resource allocation objectives. The controlled prices which are supposed to protect the consumer against inflation and/or against monopolistic pricing, or the price supports given by the numerous government institutes to various primary sectors, frequently result in a distortion of relative prices and

in a misdirection of resource allocation. Some of these distortions are at times corrected by direct government investments or subsidies.

It should not be thought at this stage that the policy making mechanism is completely dominated by anarchy. It has already been mentioned that the series of attempts at planning served as coordinating mechanisms at various times. Also, the very existence of a development bank acts as a control mechanism, since many government-owned companies, which are not responsive to the finance minister's plans, are often dependent on the bank for their expansion programs.

Brazilian Policy-Making Institutions

We shall now engage upon a brief description of how the various Brazilian policy making institutions function, putting them into the context of the above described policy matrix.

The Budget

The federal budgetary process is handled by the Ministerio da Fazenda (Finance Ministry), more specifically by DASP (Departamento Administrativa do Serviço Publico). There is no comprehensive budget in Brazil, since many important items are handled on the side. For example, there are the Autarquias (independent government institutes), or the Companhias Mistas (mixed government corporations), whose activities do not show up directly in the budget. The budget is on an annual basis and it is fundamentally a cash budget.

Each of the principal ministries of the government has a budget department to prepare its own budget for the Finance Ministry. Each ministry then submits its budget to DASP, which puts all of the partial budgets together. All this

takes place from September to May. In May, the general budget is submitted to congress, first to the Chamber of Deputies, whose Comissao de Financas e Orcamento examines it. Once the Chamber of Deputies has approved, the budget goes to the Senate. If the latter amends the Deputies' version, the budget goes back to the Deputies. All this has to be finished by November 30. At that time the budget goes for signature to the president.

While the budget is in execution, the Tribunal de Contas supposedly makes a systematic control. In the Finance Ministry the Contadoria Geral da Republica keeps accounts which have to be submitted to the Tribunal. If the appropriations are not large enough, congress can grant permission for special credits from the Banco do Brasil. These credits have to be registered by the Tribunal. All this is very automatic, especially in the postwar inflationary milieu of Brazil.

The budgetary process is a fairly perfunctory affair. There exists no careful evaluation of projects. No decisions are based on micro-economic analysis. No attempt is made to realistically project price increases in order to possibly adjust revenues and prevent too large a budget deficit.¹ In other words, the budget has not been used as a conscious instrument of economic policy, but is, on the whole, a fairly passive affair.

This obviously does not mean that the budget is neutral in its effect. Let us briefly look at its impact in terms of the revenue and expenditure side.

1. It is true that in an inflationary milieu the policy maker finds himself in a dilemma. It is difficult for him to be realistic and make expenditure projections assuming a higher rate of inflation the following year, since this would admit the government's impotence in controlling the growth of inflation. Even projecting under the assumption of the same rate of inflation would admit the government's impotence in reducing the rate of inflation. So, at best, a government can project assuming the same rate of inflation or a smaller rate. Many times projections are based on the assumption that prices will remain unchanged. All this, in the end, makes for bigger deficits, since there will be no pressure to raise revenues to "realistic" levels.

One measure of the relative importance of government in the economy is given in Table 22, where we take government consumption and investment as a proportion of gross domestic product. This measure includes both the federal, state and local governments, and also various autonomous governmental agencies (autarquias) about which we shall have some more comments below. It does not include the "mixed companies", i.e. enterprises which are owned mainly by the government. It can be seen that the participation of the government in the economy has increased substantially between 1947 and 1960.

Table 22

EXPENDITURE OF THE PUBLIC SECTOR
1947-1960
(Percent of GDP)

<u>Year</u>	<u>Consumption</u>	<u>Gross Fixed Capital Formation</u>	<u>Inventory Change</u>
1947	10.7	2.7	-
1948	11.7	3.8	-
1949	12.6	4.4	-
1950	12.7	4.7	-
1951	12.5	4.0	-
1952	12.9	4.2	1.5
1953	15.2	3.8	-0.2
1954	13.6	4.0	0.4
1955	13.6	3.4	0.5
1956	14.7	3.3	0.3
1957	14.5	4.8	1.2
1958	13.8	5.6	2.0
1959	13.6	5.2	3.0
1960	14.2	5.7	2.3

Source: Fundacao Getulio Vargas

The government's influence on the economy has grown to an even greater extent when measured through its participation in fixed capital formation (see Table 23). The government's share more than doubled in the same period.

From 1956 on, we also have an estimate of the share of mixed government enterprises in fixed capital formation. If we include this item, government participation in fixed investment approached 50% in 1960. The steep proportional rise after 1956 reflects substantial expansion in infrastructure investment.

Table 23

PUBLIC AND PRIVATE SECTOR'S SHARE IN
FIXED CAPITAL FORMATION
(in percentages)

<u>Year</u>	<u>Public Sector</u>	<u>Mixed Government Enterprises</u>	<u>Private Sector*</u>	<u>Total</u>
1947	15.8	--	84.2	100.0
1948	23.3	--	76.7	100.0
1949	29.4	--	70.6	100.0
1950	35.1	--	64.9	100.0
1951	25.0	--	75.0	100.0
1952	26.8	--	73.2	100.0
1953	29.4	--	70.6	100.0
1954	24.3	--	75.7	100.0
1955	24.0	--	76.0	100.0
1956	24.8	3.1	72.1	100.0
1957	37.0	4.7	58.3	100.0
1958	40.8	5.5	53.7	100.0
1959	32.3	6.0	61.7	100.0
1960	38.2	8.0	53.6	100.0

Source: Fundacao Getulio Vargas

* Until 1956 the private sector includes mixed government enterprises.

Table 24, which contains the tax structure on all three levels of government in Brazil, shows an overwhelming reliance by the government on indirect taxes. Since much of the income tax is derived from corporate taxation, the personal income tax is hardly more than ten percent of total direct tax revenue. States rely mainly on sales and property taxes, while local governments receive their income mainly from urban property taxes and licenses of various kinds. A tax on fuel and lubricants, introduced by the Constitution of 1946, began

Table 24

BRAZILIAN GOVERNMENT REVENUE STRUCTURE
(percentages)

a. Revenue According to Levels of Government

	<u>1949</u>	<u>1957</u>	<u>1960</u>
Federal	50	45	48
States	32	37	38
Federal District	7	6	5
Municipalities	11	12	9
Total	100	100	100

b. Revenue of Federal Government by Types of Taxes

Excise	38	41	43
Income Tax	33	35	32
Import Tax	17	12	11
Stamp Tax and Similar	12	12	14
Total	100	100	100

c. Further Breakdown of Brazilian Tax Structure by All Government Levels

	<u>1947</u>			<u>1958</u>		
	<u>Federal</u>	<u>State</u>	<u>Municip.</u>	<u>Federal</u>	<u>State</u>	<u>Municip.</u>
Sales		63.3			77.9	
Excise	38.5			34.2		
Income	33.3			27.5		
Fuel and Lubricants				14.7		
Stamp duties	11.9	1.5		10.4	2.1	0.3
Import duties	16.2			11.1		
Tax on houses			28.7			37.4
Tax on professions		6.3	34.7			36.9
Transmission "inter-vivos"		11.1			6.3	
Land property (rural & urban)	.1	3.1	9.2		2.1	9.1
Business license			14.8			10.5
Power Consumption				1.2		
Transmission "causa mortis"		2.9			1.6	
Exports		4.3			1.2	
Additional tax on income				.8		
Public entertainment						4.6
Capital transactions					0.9	
Others		7.5	12.6	.1	7.9	1.2
Total	100.0	100.0	100.0	100.0	100.0	100.0

Source: Anuario Estatístico and Fundacao Getulio Vargas

to be collected in 1948 and has become increasingly important. It has a constitutionally set destination: 75% going to the National Highway Department, 15% to Petrobras (the national petroleum company), and 10% to the Railroad Fund. A tax on power consumption has been collected since 1954 and is earmarked for the "Electrification Fund," while the "additional tax on income" was created in 1955 and represents a compulsory loan to the BNDE.

It can also be seen from Table 24 that the federal and state taxes constitute the bulk of the revenue. However, the constitution requires a substantial amount of redistribution between levels of government. Thus, ten percent of income tax collections have to be redistributed to municipalities; or, when the tax receipts of the state, except the export tax, exceed the municipal tax collections, the state government has to return 30 percent of the excess to the municipalities, except state capitals.

With indirect taxes making up nearly three quarters of the total government revenue, there can be no doubt that Brazil has a regressive tax system. However, this is softened to a certain extent due to the progressive nature of some of the indirect taxes, especially the excise taxes. Thus, some goods which are defined by law as minimum necessary for persons in lower income groups (e.g. housing, certain types of clothing, some foods and medical care) are exempt partially or totally from taxation.

On the expenditure side one can find a substantial increase of total government expenditures as a proportion of gross domestic product, and a rising proportion of fixed capital formation within that expenditure pattern (see Table 25)). In spite of the frequent talk of overexpanded bureaucracies, the budgetary proportions for employees is surprisingly stable. Substantial

Table 25

**PUBLIC SECTOR EXPENDITURES AS PERCENTAGES
OF GROSS INTERNAL PRODUCT**

	<u>1947</u>	<u>1955</u>	<u>1960</u>
I. Consumption Expenditure	10.7	13.6	14.2
Federal Government*	5.5	7.0	6.9
States, Municipalities and State "Autarquias"	5.2	6.6	7.3
1. Compensation of employees	6.2	6.8	7.0
Federal Government*	3.2	3.3	3.5
States, Municipalities and State "Autarquias"	3.0	3.5	3.5
2. Purchases of goods and other services for current operations	4.5	6.8	7.2
Federal Government*	2.3	3.2	3.4
States, Municipalities and State "Autarquias"	2.2	3.6	3.8
II. Current Transfers to Households	3.6	4.7	5.3
Federal Government*	2.3	2.8	3.8
States, Municipalities and State "Autarquias"	1.3	1.9	1.5
III. Subsidies	0.1	0.2	0.7
IV. Gross Fixed Capital Formation	2.7	3.4	5.7
Federal Government*	1.4	2.0	3.5
States, Municipalities and State "Autarquias"	1.3	1.4	2.2
V. Inventory Changes	--	0.5	2.3
VI. Purchases of Existing Capital	0.6	0.1	0.8
VII. Total	17.7	22.5	29.0
Federal Government*	9.9	12.6	18.0
States, Municipalities and State "Autarquias"	7.8	9.9	11.0

* Including Federal "Autarquias"

Source: Center of Fiscal Studies, Fundacao Getulio Vargas.

increases also took place in the item "subsidy" which represent, for example, subsidies to the deficit ridden railroads.

Not listed here are the many "special funds" which appear in the federal budget and which amount to over 20% of the budget. For example, there are constitutional provisions to automatically transfer funds to deal with regional disequilibria, i.e. to redistribute funds from richer to poorer regions of the country. Three percent of federal tax revenues automatically go to the development of the Amazon area; one percent to the development of the Sao Francisco Valley, two percent to the Northeastern region. Seventy-five percent of tax collections on fuel and lubricants go to the National Highway Fund; 8% of import duties are set aside for port improvements; 50% of excise taxes on liquor go for school buildings, etc... Thus, built into the tax structure are many automatic redistributive measures.

There are some advantages and disadvantages to these constitutional provisions. Their advantage are that they allow for long term investment planning in certain areas, since certain funds are always automatically available. But one of the chief disadvantages is that they reduce the flexibility and universality of the budget.

On the whole, the budgetary system of Brazil is not responsible for much redistribution of income between income groups, although due to lack of data this can not be quantitatively verified. It is also difficult to test the degree to which regional redistribution takes place through the budget due to the lack of complete information on the regional distribution of expenditures. Some studies for such individual regions as the Northeast of Brazil and some Southern states show that redistribution through the federal budget from the South, where the bulk of the federal revenue comes

from, to the rest of the country does take place. We shall examine this more carefully in a subsequent chapter.¹

SUMOC and the Banco do Brasil

Since the last century there have been periodic attempts at creating a genuine central bank in Brazil, but these have usually been without results. In 1920 the Banco do Brasil became the official bank of issue, but it did not acquire the status and most of the power of a central bank. In 1945 SUMOC (Superintendency of Money and Credit) was created with a view to gradually develop a genuine central bank. It was directly under the control of the Finance (Fazenda) Ministry. Among the members of the council of SUMOC are the finance minister, who is also the chairman, the president of the Banco do Brasil, the presidents of the development bank (BNDE) and the Northeastern development bank. Since SUMOC acquired most of the attributes of a central bank and since the finance minister is the chairman of its governing council, there is really no separation of central banking and fiscal operations in Brazil, which explains the ease with which the necessities of a deficit budget have been met.

SUMOC makes most of the central banking decisions, which are then carried out by the Banco do Brasil. It makes decisions concerning the issue of new paper money, deposit requirements, rediscount rates; it controls all foreign exchange regulations and also makes all foreign financial policy decisions.

1. For this section on the Brazilian budget I am especially grateful to Margaret Costa of the Fundacao Getulio Vargas. Some of the material was taken from her unpublished essay "The Government and the Economy: With Reference to Some Economic Development Aspects of Brazilian Finance," Institute of Social Studies, The Hague, June 1961.

The Banco do Brasil itself is in essence only the fiscal agent of the government. It receives both government and private deposits. It is the main source of credit of the rural sector and contributes substantial amounts of short-term credits to the industrial sector. Its main policy arm is the ease or difficulty with which it makes credit available. Thus, the Banco do Brasil has both the functions of a central bank and a commercial bank, which has been thought by many to be two conflicting functions.

The National Development Bank

It was seen in the previous chapter that the BNDE was founded in the early fifties and that its principal purpose was to give long-term loans to government and private enterprise engaged in infrastructure investment or basic industry investment. It receives its cruzeiro funds from special taxes (really a compulsory loan of 15% of the business income tax paid), from deposits of PL 480 funds, some government deposits, and deposits of savings banks and insurance companies. It also administers the foreign exchange loans received from foreign or international institutions. Through its loan policy and the special agencies to incentivate certain industries (see previous chapter and the following chapter), the bank has had a strong influence on the direction of the industrialization. It is the one governmental agency which can influence the policies of the government enterprises (companhias mistas), which we shall discuss presently.

Regional Development Agencies

In order to overcome the regional unevenness of Brazil's economic development, a number of regional agencies were established to handle the special funds which automatically are supposed to be transferred through the tax

system to less favored regions. The principal areas involved are the Amazon region and the Northeast. For the former there exists the Superintendency for the Economic Development of Amazonia (SPVEA). For the latter, there existed at first a number of agencies, like the National Department of Works against the Drought (DNOCS), the Sao Francisco Valley Authority, and others. In 1961, SUDENE was created.

SUDENE, the best functioning regional agency, is a federal organ in charge of distributing all federal funds which are transferred to the Northeast. It has developed a master plan to change the structure of the Northeastern economy and funds are allocated only to develop in the direction of goals envisioned by this plan. With control over all federal funds, SUDENE is able to influence the cooperation of individual Northeastern state governments in the formation of their own development policies. SUDENE is closely assisted by the Bank of the Northeast, a federal development bank for the region, which was established already prior to SUDENE, which supervises the allocation of long term investment funds, following the plans of the development agency. Thus, SUDENE represents a first initially successful attempt at coordinating economic planning in Brazil. It lacks, however, some of the legal authority at present to change the land holding structure in order to modernize agriculture, an important aspect of its general program (see chapter 7 for a more thorough discussion of the Northeast.)

The Amazon agency and CODESUL, a similar agency to coordinate the development of the three southernmost states, have so far not achieved the same success as the Northeastern agency. This is partly due to the fact that no integrated plans have ever been formulated for those areas and to the fact that the political pressure for action has been much weaker than in the case of the Northeast.

Some individual states have at times attempted more systematic planning of their economies. The most successful was the Plano de Acao of Governor Carvalho Pinto of the state of Sao Paulo. It really consisted of a systematic planning of budgetary expenditures, striving for a rational allocation of expenditures between current and capital needs, planning the capital expenditures in a direction consistent with the growth of the state, and it also strove for the achievement of some regional equilibrium of expenditures within the state.

Autarquias and Regulatory Agencies

There are a number of autonomous bodies operating at the federal level, in addition to the federal government, which are called "Autarquias." These agencies have their own budgets, but they are dependent in varying degrees on subsidies and grants from the federal government. They are supposed to perform with a certain degree of autonomy a number of functions in the fields of education and culture, administration and management of public utilities and services, fiscalization of trades and professions, and economic regulation and control. In the realm of education and culture, all federal universities are autarquias (they are entirely dependent on the government for finance), so are the National Research Council, the Brazilian Institute of Education, the Brazilian Institute of Geography and Statistics (which collects most basic statistical data and conducts censuses). Examples of public utilities and services are the Rio de Janeiro Port Authority, the federal railroads, the Brazilian shipping line (Loide Brasileiro), and others. These are frequently run at a deficit and require substantial federal subsidies and, as will be seen in a subsequent chapter, are thus a strong contributory factor to the inflation. Although the development bank (BNDE) is quite influential in the expansion policies of these public

utility autarquias, this has not led to a rational allocation of investment, e.g. between railroads vs. roads.

Another group of autarquias consist of professional associations, social security institutes, federal savings banks, etc... The social security institutes and pension funds are supposed to contribute to the building of low-cost housing. Funds are contributed by workers, enterprises, and the state. Many times the latter has failed to pay its share. For example, during the construction of the new interior capital of Brasilia, much of the financing for this project came from funds destined to social security and pension funds.

Finally, autarquias also consist of units having regulatory and/or controlling powers, such as the National Coffee Institute, the Sugar and Alcohol Institute, the National Pine Institute, the Superintendency of Supplies (SUNAB), etc... These institutes regulate prices and production. The specialized institutes often support prices when the international market of their products weakens and buy up surplus products for storage. SUNAB'S (formerly COFAP) function is to control prices and the flow of essential consumer goods. It was at first set up to protect the consumer against monopolistic pricing of essential goods and to ease the flow of these goods to areas where shortages would appear. Unfortunately pricing has been erratic, often political considerations getting the upper hand in setting different maximum prices for different states, resulting in shortages in some places and surpluses in others. Shortages have also resulted because the control agency did not adjust the prices of goods rapidly enough with the inflationary situation.

Another area of price controls has been the setting of public utility rates. These have lagged behind the general price level to such an extent as to incur substantial losses to the relevant companies. These have cut their investment

and maintenance to such an extent as to create frequent breakdowns in such areas as electricity, telephone, etc...

Controls through law also exist. It is illegal for banks to charge more than 12 percent interest. This has resulted in negative rates of interest being charged during most of the postwar period, since the rate of price increase has been substantially above the legal interest rate maximum. Although banks have gotten around this law by charging for "services", the law has resulted in loans being made by private and governmental banks which are based on personal connections rather than on economic considerations. This has led to a less than rational allocation of loanable funds.

Another example of legal controls has been rent control. The "lei do inquilinato" gives the right to tenants of an apartment not to pay more rent than was stipulated in the original contract, even when the contract has been terminated. Given the inflation, this has led to ridiculously low rents being paid by people who have lived in the same place for a longer period of time. In this case, however, it will be seen in the following chapter that there was a favorable effect. It became less profitable for people to build new apartment houses and thus a tendency to invest in more inflation-proof, but less productive, assets was substantially checked.

On the whole, it can be claimed that the direct control mechanism of the autarquias interfered with the best allocation of resources.

Government Mixed Companies (Companhias Mistas)

These are government corporations in which the federal or state governments usually own more than 90 percent of the shares. They are, however, somewhat more independent of government interference than the autarquias engaged in production or services. Among the more prominent of these government mixed

corporations can be found: Petrobras, the government-run petroleum company; the national steel company; the Banco do Brasil; the National Alkalies company; the National Motors Factory, etc... Some of these companies have monopoly positions in their field, others compete actively against private companies. The reason for their greater independence is that they are separate corporate entities, having to publish reports as "sociedades anonimas" (i.e. incorporated firms). The fact that they are owned by a few shareholders besides the central government (Brazilian law requires incorporated firms to have at least seven shareholders), increases the pressure on these firms to be run more on a business-like basis than the autarquias. Some data are available as to their relative importance. For example, in 1959 out of total income created in the industrial sector of the economy, 6.3% was generated by government companies (this now includes autarquias); they contributed 53 percent of total income generated in the financial intermediaries sector; and in the transport and communications sector they contributed 5.7%.¹ Their relative importance in fixed investment has already been discussed previously and the data was reproduced in Table 23.

Brazilian Labor Laws and Social Security Benefits

The labor and social legislation in Brazil had their origin in the creation of the Estado Novo in 1937, i.e. the corporate state set up by Getulio Vargas when he set himself up as dictator.² After having dissolved the existing congress, Vargas tried to reorganize the state on the basis of "functional repre-

1. Villela, Annibal, "As Empresas Do Governo Federal e Sua Importancia Na Economia Nacional - 1956-1960, " Revista Brasileira De Economia, Marco 1962.

2. Information for this section was gained mainly from conversations with my Brazilian colleagues and from Alexander, Robert J., Labor Relations in Argentina, Brazil and Chile, McGraw-Hill, New York 1962, chs. 4, 5, 6 and 9.

sentation." Both employers and employees were supposed to be organized into separate sindicatos for various trades or industries in each municipality. This pyramided into state federations of sindicatos of employers or employees for each field of activity, and on the national level these came together into confederations representing workers or employers in such broad fields as industry, commerce, etc...

The system was codified in 1942 (Consolidacao das Leis do Trabalho). The Ministry of Labor had complete discretion in recognizing sindicatos. Independent workers' unions could hardly function in this system, since there was no collective bargaining and all issues were settled in special labor courts. Officially recognized unions were also under the strict control of the Ministry of Labor with regard to elections, finance, etc.... The basic function of the labor sindicatos was really to help administer the extensive social services created by the Estado Novo.

This system, though never fully established, provided the basic framework for the development of the postwar system. Throughout most of the postwar period the state was in firm control of labor unions. Only by the early sixties, with Goulart's presidency, did the labor unions seem to acquire some independent power, resorting to a series of strikes which the government was having difficulty in controlling. At this writing it is too early to tell in which direction labor relations will evolve.

The labor laws and the social security system introduced by the Estado Novo were quite elaborate and advanced for an underdeveloped country which was just beginning to industrialize. Besides one social security fund established for government workers in 1926 (Instituto de Previdencia Assistencia dos Servidores do Estado), most of the other institutes were

established during the first reign of Vargas. The system was made up of a number of autonomous funds (part of the above mentioned autarquias), and at one time they amounted to 38, though some consolidation has taken place. Among the most important institutions are the one for industrial workers (Instituto de Aposentadoria dos Industriarios), mercantile workers, transport workers, bank employees, etc... All of these institutes give medical services to workers, subsidies after the first 15 days of illness, grants upon birth or deaths, old age pensions, and a number of other services. (It should be mentioned that not in all cases do these services function as smoothly or effectively as they seem on the books). The latter, old age pensions, are enjoyed by only very few since few survive to the age of 65, when they would enjoy a pension. Some institutes have hospitals and most lend money for the construction of low-income housing. Contributions are supposed to come from workers, employees and the government. There have been complaints, however, that the latter is often delinquent in its contributions.

Another Vargas legacy was the establishment of two institutes to train workers for industry and commerce (SENAI - Servico Nacional de Aprendizagem Industrial and SENAC - Servico Nacional de Aprendizagem Commercial). Employers contribute one percent of their wage bill to these institutes. Schools are generally run by employers' organization on a state level and in some states there have been established schools having courses in metal working, carpentry, electricity, shoe and leather work and a number of other fields. Although periodic criticisms were leveled at the method of teaching or the part-timeness of most schools, they have had a beneficial effect. They are still limited, being only able to handle 40 to 50,000 students, a fairly tiny fraction of the labor force.

The Vargas legislation also included the "tenure law" which states that "the employee who has more than ten years of service in the same firm cannot be dismissed except for grave misbehavior."¹ This law had the good intention to give workers a greater stability. It had, however, the opposite effect, since employers are careful to let workers go before they have reached their tenure status. The incentive to rapid turnover is increased, however, since the longer the workers is employed, the greater is his severance pay. Needless to say, in an industrializing society such rapid turnover is quite costly, in terms of loss of skill, work-in requirements of new workers, etc...

In 1941 the Estado Novo established a minimum wage decree which was later to become a law. The minimum wage is now established by the government and is revised periodically. It will be seen in the following chapter that the readjustment of the minimum wage has for a long period of time lagged behind price increases, though this has ceased to be the case by the early sixties. Minimum wage rates differ for various regions of the country, the extent of their actual coverage or effectiveness is not known, and they do not extend to rural workers (in 1964 there has been a movement to cover the latter).

Finally, there are other fringe benefits which large firms (more than 100 employees) are supposed to provide -such as infirmaries, paid vacations, subsidized meals, nursing schools, etc...

Although the above description gives just a birdseye view of Brazil's social legislation, one observes a fairly advanced social legislation structure for urban workers. It should be remembered, however, that even in 1964, less than 40% of the labor force worked in urban enterprises covered by these laws and that it is difficult to measure the extent to which all the legislation

1. Alexander, op. cit., p. 121.

on the books was complied with. The legislation has, however, served as an increasingly stronger weapon for a more equitable distribution of income.

The Institutional Framework of the Private Sector

Having tried to present a general framework of the economic policy making institutions in Brazil and the extent of the country's social legislation, let us end this chapter by taking a glimpse at the institutional structure of the private sector. In Table 26 we have tried to give an idea of the size distribution of firms in the manufacturing sector of Sao Paulo state. Unfortunately, at this writing information is not yet available for the whole of Brazil, but since Sao Paulo contains the largest proportion of Brazil's industrial activities (thirty percent)¹, its business structure can be thought of as fairly

Table 26
SIZE DISTRIBUTION OF MANUFACTURING FIRMS
IN SAO PAULO STATE
(percentages)

Size of Firms (acc. to no. of employees)	1950			1960		
	Total Firms	Monthly Av. of Workers	Total Output	Total Firms	Monthly Av. of Workers	Total Output
1-4	51	6	9	63	7	5
5-9	13	5	5	14	5	4
10-19	9	7	7	9	6	6
20-49	8	12	12	7	11	10
50-99	3	10	9	3	10	10
100-249	2	16	16	2	16	17
250-499	0.8	14	15	0.9	16	14
500-999	0.3	13	12	0.4	12	13
1,000 and more	0.1	17	14	0.2	17	19
No Declarations*	13	-	1	0.5	-	2
TOTAL	100	100	100	100	100	100

* For 1950 means firms without workers, i.e. employees.

Source: IBGE, Servico Nacional De Recenseamento, Censo Industrial, Estado De Sao Paulo, 1950 and 1960.

1. In 1958, Sao Paulo state accounted for 80% of machinery production, 82% of electrical equipment, 80% of transport equipment, 63% of paper and paper products, and 53% of metal and metal products.

representative of the industrial Center-South of the country. It can be seen that the largest proportion of firms are fairly small and this has not changed much over the ten-year period 1950 to 1960. The larger firms employ, however, a much larger proportion of the labor force than the smaller firms and produce a much larger proportion of total output. These aggregates, however, hide differences which exist in various types of industries. For example, in steel and especially the new automobile industries, large size firms predominate. Also, many of the small firms in the census include rural workshops and other sundry enterprises.

Individually owned or family firms still predominate on the Brazilian scene. Some of these (like Matarazzo, Klabin, or Renner) are giant multiform enterprises built up by energetic and imaginative entrepreneurs, while others are small and very conservative enterprises. Many have become closely held corporations for tax and other legal advantages. However, with increasing capital requirements and the difficulty and expense of obtaining capital from banks, many companies have had to open up and sell shares on the open market. It is interesting to note that any attempt by the government at anti-inflationary credit restrictions (like the attempt in early 1963) has forced more companies to open themselves up to the public by selling shares.

Although the middle classes have been growing in number, they are only gradually becoming aware of the advantages of holding stock. Many still are dominated by the old agrarian mentality prevalent in rural Brazil, which prefers real estate as an outlet for its savings. Also, the stock exchange is as yet quite small and antiquated in its operations. Stocks are traded only for a limited period of time in the afternoon of trading days and most shares are often not traded for weeks or even months on end.

As far as business methods are concerned, the Brazilian businessman has traditionally used the low quantity-high profit margin method, which is a wasteful method of operation in an industrializing milieu. This tradition of operation had its origin, obviously, in the formerly limited Brazilian market.

Since the publicly-owned corporation is only beginning to make its appearance, it is not surprising that professionalism in management is also only in its initial phases. Elaborate management training programs hardly existed up to the present, but the opening of a Business School in Sao Paulo a few years ago and the organization of foreign manufacturing firms which moved into the Brazilian scene in the postwar years are beginning to make their influence felt.

Chapter 5.

THE FINANCING OF BRAZIL'S INDUSTRIALIZATION:
SOURCE OF FUNDS AND THE ROLE OF INFLATION

We have seen in an earlier chapter that Brazil's postwar growth was generated by an investment proportion averaging fifteen percent (i.e. gross fixed capital formation being 15% of gross domestic product). It is the principal purpose of this chapter to see how this investment was financed.

Sources of Funds

Table 27 contains a proportional distribution of sources of funds on an aggregative level. It would be useful to compare this table with Table 23 in the previous chapter, showing the distribution of capital formation between the public and the private sectors. The conclusion one comes to is that the private sector has been and still is the principal source of funds. One also concludes that throughout most of the period the government's share in the investment sector has been larger than its share of total savings, which means that in one way or another private savings were an important element in financing the government's fixed capital formation.

The importance of foreign savings has fluctuated over the postwar period. Although it exceeded the 15% mark only once, it can hardly be written off as being relatively unimportant, since the areas it went into were of strategic importance in the Brazilian growth process - both in the financing of government-sponsored infrastructure investment and in private investment. Needless to say, it also helped to finance current account deficits at crucial moments. It should be noted that in the fifties there was a close correlation between the level of foreign finance and the rate of growth.

Table 27

BRAZIL'S PRINCIPAL SOURCES OF CAPITAL FORMATION
(percentage distribution)

	<u>1947</u>	<u>1948</u>	<u>1949</u>	<u>1950</u>	<u>1951</u>	<u>1952</u>	<u>1953</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
Savings of the Private Sector	14	17	31	41	26	28	52	40	38	38	40	44	34	42
Depreciation of Fixed Capital	32	31	38	44	26	24	36	24	30	33	31	31	25	28
Savings of Government	24	24	27	19	22	16	7	18	11	4	8	27	24	22
Balance of Payments on Current Account	12	3	8	-7	15	18	-1	6	1	.5	8	9	9	14
Errors and Omissions	18	25	-4	3	11	14	6	12	20	24.5	13	-11	8	-6
TOTAL	100													
Gross Fixed Investment Over Gross Dom. Prod.	17	16	15	13	16	16	13	16	14	14	13	14	16	15
Real Growth Rate	1.8	9.5	5.6	5.0	5.1	5.6	3.2	7.7	6.8	1.9	6.9	6.6	7.3	6.

Source: Calculated from data in Revista Brasileira de Economia, Marco 1962.

Note: Large errors and omissions are due to the fact that many of the savings sources came from sources which were difficult to reconcile exactly with Brazil's national accounting procedure. Some of it is also due to the arbitrary way in which depreciation is calculated (see Appendix I), which might be accurate over long periods, but cause occasional errors of estimation for specific years. The converting of dollar balance of payments figures is also a source of errors due to the difficulty in choosing an adequate rate of exchange for conversions.

Table 28

SAVINGS AND INVESTMENTS AS A PROPORTION OF GROSS DOMESTIC INCOME
OF THE GOVERNMENT AND PRIVATE SECTORS

<u>Year</u>	<u>Sp/Ip</u>	<u>Sg/Ig</u>	<u>f f Sg/Ig</u>	<u>B</u>
1947	12/14	4/3	4/2	2
1948	14/14	4/4	3/3	0
1949	10/10	4/5	3/3	1
1950	12/8	2/5	2/3	-1
1951	13/17	5/5	4/2	3
1952	16/17	4/6	4/4	4
1953	15/11	1/4	1/2	0
1954	19/19	4/5	4/3	1
1955	17/14	2/5	2/3	0
1956	17/13	1/4	0/2	0
1957	16/12	1/7	1/5	2
1958	12/10	5/9	4/6	2
1959	16/14	6/10	5/8	2
1960	14/12	5/10	4/7	3

Sp/Ip - private savings as a proportion of gross domestic income over private investment as a proportion of Gross Domestic Income.

Sg/Ig - same for government: all levels.

f f
Sg/Ig - same for federal government.

B - balance of payments deficit on current account as a proportion of gross domestic income.

Source: Computed from National Accounts figures of the Fundacao Getulio Vargas by I. Kerstenetzky.

Table 28 reveals even more clearly that the Brazilian government is a relatively bigger investor than saver. Both saving and investment are taken in relation to gross domestic income (which is equal to Gross Domestic Product minus indirect taxes plus subsidies). It is clear that during most of the years examined the former was larger than the latter for the private sector, while the opposite was the case for the government. The principal influence was, of course the central government.

It will be our contention in this chapter that much of the redistribution of resources from the private to the public sector was accomplished by the inflationary process. The few times when the private savings proportion was smaller than the private investment proportion, there were substantial inflows of foreign savings to make up for this deficiency. This does not mean that the private investment sector did not benefit from the inflationary process. Its particular benefit was, however, only of the nature of extruding some of its savings from the consumption sector.

Table 29

PRINCIPAL SOURCES OF NET PRIVATE SAVINGS
(percentage distribution)

Year	Retained Earnings	Changes of Money Supply in Hands of Public	Other*	Total
1947	54	3	43	100
1948	45	18	37	100
1949	33	18	49	100
1950	29	48	23	100
1951	40	22	38	100
1952	47	15	38	100
1953	46	21	33	100
1954	49	24	27	100
1955	60	19	21	100
1956	58	21	21	100
1957	46	20	34	100
1958	59	20	21	100
1959	53	23	24	100
1960	55	8	37	100

* Consists principally of reserves of insurance and capitalization companies, time deposits in commercial banks and savings banks of the federal government.

Source: Revista Brasileira de Economia, Marco 1962, and SÚMOC, Relatorio do Exercício 1961.

The sources of savings for the private sector are contained in Table 29. It can be seen that especially in the 1950's on the average between 55 to 60% came from retained earnings of the business sector, rising from an average of about 40% in the early postwar period. The balance represents savings by the public through increased holdings of money or time deposits in commercial or federal savings banks, or reserves of capitalization and insurance companies. This balance was appropriated by the government and private sectors partially through loans and partially through the inflationary process.

The data in Table 30 provide an even more conclusive evidence of the reliance of the private business sector on internal funds for financing investment activities. Information in this table comes from the balance sheets of corporations which list the origin and use of their funds. In the table we have presented the proportional distribution of the principal sources of funds and their use for all incorporated businesses (sociedades anonimas), and we have also presented separately the information for commerce and industry. It seems at first surprising to find such a large proportion of funds coming from external sources, but a more careful examination will show that these come mainly from new capital issues and especially from the "others" category under current liabilities, which consists mainly of accounts payable. Banks furnish only a very small proportion of funds. Since "capital" consists mostly of new equities, it seems that few of the external funds represent direct impersonal market forces (a bond market, of course, does not exist), which in more developed and stable economies would act as an external disciplining force.

Most important for our immediate purposes is the fact that the proportion of fixed assets on the use-side of funds, representing gross fixed investment activities of firms, is generally matched on the origin side of funds by the internal

Table 30

ORIGIN AND USE OF FUNDS OF CORPORATIONS
(in percentage of origin and use)

<u>ALL CORPORATIONS</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>	<u>1961</u>
<u>Origin</u>	<u>100</u>							
External	77	71	57	79	68	67	66	71
Capital	15	22	22	14	16	20	18	13
Total Current Liabilities of banks	7	8	5	9	9	10	9	10
Total Current Liabilities of Others	55	41	30	56	43	37	39	48
<u>Internal</u>	<u>23</u>	<u>29</u>	<u>43</u>	<u>21</u>	<u>32</u>	<u>33</u>	<u>34</u>	<u>29</u>
Reappraisals	-	2	18	3	-	3	4	3
Reserves	4	5	14	3	2	6	6	3
New Reserves	14	16	9	10	24	17	17	18
Depreciation	5	6	2	5	6	7	7	5
<u>Use</u>	<u>100</u>							
Fixed Assets	22	30	34	27	30	35	36	30
Liquid Assets	-	7	3	12	3	7	4	3
Current Assets, Inventories	26	20	10	11	13	16	14	18
Current Assets, others	52	43	53	50	54	42	46	49
<u>COMMERCE</u>								
<u>Origin</u>	<u>100</u>							
External	83	28	97	100	68	76	75	74
Capital	35	27	58	35	11	13	16	16
Total Current Liabilities of Banks	7	1	1	22	7	10	11	14
Total Current Liabilities of Others	41	-	38	43	50	53	48	44
<u>Internal</u>	<u>17</u>	<u>72</u>	<u>2</u>	<u>-</u>	<u>32</u>	<u>23</u>	<u>25</u>	<u>26</u>
Reappraisals	-	-	-	-	-	2	-	1
Reserves	13	23	2	-3	30	19	22	23
Depreciation	4	49	-	3	2	2	3	2
<u>Use</u>	<u>100</u>							
Fixed Assets	14	22	13	16	17	12	10	13
Liquid Assets	-17	6	-	10	3	5	5	3
Current Assets, Inventories	54	30	27	14	21	16	14	33
Current Assets, Others	48	42	56	60	59	66	69	51
<u>INDUSTRY</u>								
<u>Origin</u>	<u>100</u>							
External	69	44	100	76	70	63	64	66
Capital	28	36	65	30	20	22	20	13
Total Current Liabilities of Banks	9	8	10	11	9	11	8	10
Total Current Liabilities of Others	32	-	26	35	41	30	36	43
<u>Internal</u>	<u>32</u>	<u>56</u>	<u>-1</u>	<u>24</u>	<u>30</u>	<u>36</u>	<u>36</u>	<u>34</u>
Reappraisals	-	-	-	-	-	4	3	4
Reserves	23	20	-6	17	23	25	27	24
Depreciation	9	36	5	7	7	7	7	6
<u>Use</u>	<u>100</u>							
Fixed Assets	32	41	38	36	31	36	36	29
Liquid Assets	-4	5	2	6	4	7	4	4
Current Assets, Inventories	39	21	15	20	14	19	17	21
Current Assets, Others	33	33	44	39	51	38	43	46

Source: Every year the Conjuntura Economica publishes the balance sheets of corporations. In 1961 these numbered 6,441 corporations in the fields of commerce, industry

funds proportion. This is a good indication that firms rely primarily on their internal resources for investment funds.

Table 31 shows the way in which supplies of savings from abroad became available. From this table one can appreciate the crucial importance of both private and official compensating capital. Their relative importance has fluctuated over the years, but there can be no doubt about the increasing role private foreign savings played in the latter part of the fifties and early sixties in financing investment activities.

Table 31

FOREIGN CAPITAL FLOWS TO BRAZIL
(in millions of US\$)

Year	Autonomous Capital			Compensatory Capital	Total
	Total	Private*	Official		
1947	31	47(36)	-16	182	213
1948	-9	80(25)	-89	24	15
1949	-35	32(5)	-67	74	39
1950	-29	28(3)	-57	-52	-81
1951	56	70(-4)	-14	291	347
1952	120	118(9)	22	615	735
1953	97	85(22)	12	-16	81
1954	22	75(11)	-53	203	225
1955	39	109(43)	-70	-17	22
1956	201	248(90)	-47	-194	7
1957	290	356(144)	-66	180	470
1958	202	230(110)	-28	253	455
1959	216	248(124)	-32	154	370
1960	92	176(98)	-84	430	522
1961	268	300(108)	-32	13	281

Source: SUMOC, Relatorio do Exercicio 1961 and some earlier years.

* In parenthesis refers to direct private investment.

Unfortunately we do not have available at this writing a breakdown of sources of savings for the government sector similar to the one for the private sector. The evidence from Table 28 shows that most of the savings is achieved by the federal government. In many years all savings were done by the federal government and investment funds were then transferred from the federal to the state and local level. We have, however, a breakdown of investment by various government sectors, which gives us an interesting idea of the distribution of public investment funds; this is reproduced in Table 32. Here it is clearly evident that although state and local governments might be responsible for relatively little saving, they are important investors. The Mixed Enterprises portion which has been included since 1956 was formerly part of investment in the private sector. The importance of infrastructure investment is borne out by the high proportion taken up by the federal and state road departments.

Within the system which is described here, one should keep in mind the influence of the national development bank (BNDE) in channeling domestic and foreign savings into certain desired directions. Table 33 gives an indication of the relative importance of the bank's activities in the 1950's. It can be seen that especially in the second half of the decade the bank's activities measured in terms of local currency loans as a proportion of gross capital formation was large enough to have an influence on the direction of national capital formation. The bank's importance was even greater when measured in terms of its foreign currency loans as a proportion of total capital inflow. One must remember that the foreign savings sector, though smaller than ten percent of total savings, has had a crucial role, since it made it possible to

Table 32

**DISTRIBUTION OF PUBLIC INVESTMENT
BY GOVERNMENTAL LEVELS**
(percentage distribution)

Year	Federal Govt.	Fed. Dept. of Roads*	State Dept. of Roads*	Social Sec.	States	Municipalities	Mixed Govt. Enterprises**	Total
1947	39	7	12	-	34	8	-	100
1948	43	11	12	-	27	7	-	100
1949	49	9	8	-	27	7	-	100
1950	48	10	8	-	27	7	-	100
1951	31	11	10	12	29	7	-	100
1952	29	8	11	7	36	9	-	100
1953	32	12	16	9	21	10	-	100
1954	33	13	16	8	21	9	-	100
1955	33	15	15	5	22	10	-	100
1956	29	14	12	3	21	10	11	100
1957	30	14	16	3	17	8	12	100
1958	18	12	10	4	18	5	33	100
1959	24	15	10	5	16	6	24	100
1960	19	16	12	7	18	5	23	100

* Federal and state department of roads are autonomous public entities.

** Mixed enterprises are owned principally by either the federal or state governments.

Source: See Appendix III, Table F-7.

Table 33

**a) RELATIVE IMPORTANCE OF THE DEVELOPMENT BANK'S
FINANCING**

(percentages)

	1952	1953	1954	1955	1956	1957	1958	1959	1960
Domestic Currency Loans as a Proportion of Gross Fixed Capital formation			1.7		3.3	7.3	5.5	7.4	6.2
Foreign Currency Loans as a Proportion of Autonomous Capital Inflow	1.9	30.9	50.2	23.9	38.7	86.6	69.9	78.4	

b) LOCAL CURRENCY LOANS OF THE BANK: 1952-62
(percentage distribution)

<u>According to Sectors of Activities</u>	<u>Distribution of Loans to Basic Industry</u>
Transport	15
Electric Energy	45
Basic Industry	36
Agriculture	4
	<u>100</u>
	Iron and Steel
	71.0
	Chemicals
	12.4
	Automotive
	5.8
	Naval Construction
	4.6
	Celulose
	2.6
	Electrical Material
	1.5
	Machinery
	1.2
	Railroad Equipment
	.7
	Others
	<u>.2</u>
	100.0

c) FOREIGN EXCHANGE LOANS: 1952-62
(percentage distribution)

Transport	24.8
Electric Energy	25.4
Basic Industry	48.1
Agriculture	1.7
	<u>100.0</u>

import the capital equipment without which domestic capital formation might have been severely hampered. Table 33 gives an indication of the development bank's emphasis on investment in social overhead capital and on such basic industries as iron and steel (both publicly and privately owned).

THE BRAZILIAN INFLATION AND ITS CONSEQUENCES

A glance at Table 34 shows that Brazil's high rate of real growth in the postwar period, especially in the fifties and early sixties, was accompanied by high rates of inflation. It is also interesting to note that in the latter part of the fifties, when the inflation rate increased, the rate of real growth was also, on the average, higher than previously. It is our impression, therefore, that inflation did not have an obvious negative effect on the country's development, and that it can even be argued and partially shown that it had a positive effect. We have already shown in Table 28 that inflation must have had an effect on capital formation, since the only explanation for the transfers of savings from the private sector, which usually saved more than it invested, to the government sector, which usually saved less than it invested, lies in the inflationary process. It is our contention, however, that inflation not only acted as an intersectoral transfer mechanism of savings, but that it also acted as a mechanism of transferring resources from the consuming to the investing sector, be it governmental or private. In order to clarify our empirical analysis, we shall develop¹ a brief little model which generalizes, but not necessarily conforms in detail, to the Brazilian situation.¹

1. This model was first developed by the author in his article: "Inflation and Economic Growth: An Interpretation of the Brazilian Case," Economic Development and Cultural Change, October 1962.

Table 34

REAL GROWTH RATE AND CHANGES IN PRICE LEVELS
(percentage growth rates)

<u>Year</u>	<u>Real Rate of Growth</u>	<u>Cost of Living Changes*</u>		<u>Wholesale Price* Changes</u>
		<u>Rio de Janeiro</u>	<u>Sao Paulo</u>	
1947	1.8	6	24	-1
1948	9.5	4	3	12
1949	5.6	66	.4	17
1950	5.0	11	4	14
1951	5.1	11	11	12
1952	5.6	21	24	10
1953	3.2	17	16	25
1954	7.7	26	23	24
1955	6.8	19	17	9
1956	1.9	22	33	26
1957	6.9	13	14	3
1958	6.6	17	23	28
1959	7.3	52	43	36
1960	6.3	24	32	33
1961	7.7	43	43	50

* Annual Change, December each year.

Source: Conjuntura Economica and Revista Brasileira de Economia, Marco 1962.

AN ANALYTICAL FRAMEWORK FOR THE BRAZILIAN INFLATION

1. Assumption About the Position of the Country

We are assuming that our country has a low per capita income, but that it is developed enough to have a few large centers of commercial and industrial activities. It depends for most of its export earnings on one or two staple crops, while its imports consist of a mix of capital goods, raw materials, intermediary goods, and consumer durables. We shall further assume that up to our analytical starting point the country was relatively stable, meaning that the price level was constant or was rising at a moderate rate relatively to its historical experiences, and that the balance of payments

was in equilibrium. The capacity of import-competing industries is at first limited and product and factor prices are inflexible in the downward direction. Finally, we assume that the country is growing at a satisfactory rate and is politically committed to insure this rate of growth in the future.

2. Reaction to Falling Export Earnings

Let us suppose that export earnings begin to fall relative to the growth of imports. This might be due to the fact that export prices are falling and that the export quantum does not rise fast enough to make up for this fall, or it might be due to the fact that although export prices remain unchanged or fall only slightly, the export quantum increases very slowly relative to the import requirements of a growing economy. Let us assume further that reserves are not adequate to keep imports at an unchanged level for more than a very short time, and that foreign capital which can be used to cover balance of payments deficits is either not forthcoming, or, if it is, then only for a short period of time. The value of imports in foreign currency thus has to be curtailed in order to match export receipts. This can be done in a number of ways, depending on the preferences of the policy-maker and the situation faced by the particular country in question. One could use direct quantitative controls, or tariffs, or currency depreciation, or multiple exchange rates, etc... We shall for the moment assume that export earnings in domestic currency remains unchanged (the government subsidizing that sector, which amounts to a currency depreciation for that sector).

It is in the government's interest to continue the rate of growth experienced prior to the balance of payments difficulties, which means that it wants to keep investments in social overhead capital projects and pro-

ductive private direct investments at previous rates. In order to attain these objectives, the government will have to influence in one way or another the structure of imports, i.e., making sure that items essential for priority investment projects will keep flowing in at an undiminished rate. As a result, imports of consumer goods will have to bear the brunt of import curtailments.

3. Initial Inflationary Process

It should be obvious that in such a situation inflationary pressures and price rises are inevitable. The total domestic purchasing power will remain unchanged at first, while the total amount of goods available will have decreased, the decrease taking place primarily in the consumer sector. If consumers should take their cut in real purchasing power without pressuring for wage and salary increases to match the rise in the cost of living, importers and manufacturers of import competing industries will experience substantial increases in profit rates. This might encourage them to increase their capacity and/or to invest in new import-replacing industries. Since the situation facing the country is that of long-run declining earnings of its export staple, the government might be favorably disposed toward such investment activities, and might even supplement the source of capital formation in this area (i.e. increased profits) with credit creation. Such an action would, however, produce a further bout of inflation, since more resources would be diverted to investment activities, which would occur through bidding up the price of resources, leading to an increase in the general cost of production. The latter, combined with an increasing scarcity of consumer goods relative to the high incomes of factors employed in various investment activities,

should push prices up still further. Finally, increased investment activity will probably aggravate the foreign imbalance in the short run and intensify inflationary pressures.

The investment spurt in import-replacing industries would naturally imply a higher degree of imports during the investment period. This could be supported either by curtailing imports destined for other investment activities, implying for example a slowdown in the expansion of infrastructure facilities,¹ or an import deficit would be tolerated for some time, drawing on the meager reserves or being financed by foreign loans, since the investment activity for which imports are destined will ultimately imply a lesser dependence on imports.

Thus far we have seen that inflation has acted partly as a rationing device, forcing the consuming sector to tighten its belt in the face of declining export earnings, and this tightening was increased through the inflationary bout resulting from investment activities in the import-replacement sector, thus amounting to forced savings being administered to the consuming sector.

4. On the Inevitability of Inflation

Could inflation have been avoided altogether had exporters not been subsidized, i.e, had their domestic currency earnings been allowed to fall proportionately in the same way as their foreign exchange earnings? Had this been politically feasible, the inflation might have been less drastic, but would not have been avoided. A fall in domestic currency earnings by the export

1. In all probability this will not happen. The development programs of most underdeveloped countries necessitate substantial expansion of social overhead capital as a necessary complementary feature to their general development program. Due to the nature of social overhead projects, they have often to be undertaken in large lumps.

sector might have alleviated somewhat the demand for the declining supply of imported goods. It is doubtful, however, whether this declining demand would have been enough to prevent the inflationary pressures discussed above from taking place and therefore prevent import-replacement industries from finding it profitable to invest. Realistically speaking, however, the political and social pressures will probably be such as to either make it impossible to cut the domestic currency earnings of the exporting sector, or if a cut is allowed, it would be proportionately less than the fall in foreign exchange earnings, thus protecting the income of the exporting sector to some extent, while giving some incentive for factors to move out of the declining sector.

Although some of the inflationary pressure might be eased if domestic currency earnings of the export sector were allowed to fall, this could be more than made up if the government should decide to encourage a change in the structure of exports, i.e. if the government should encourage the development of new export industries. The result would be a new round of credit creation leading to the bidding away of resources from other occupations, raising the price level further. Some of the resources for the new export industries might come from the declining export sector, easing the extent of the additional inflationary pressures. It would be realistic, however, to assume that for some time the new export industries will have limited capabilities in the world market and will be in need of some degree of subsidization. This implies an added amount of money creation, contributing still further to the general upward trend in prices. But an easing of the supply situation should also occur, since more foreign exchange earnings resulting from the new exports would permit an increased amount of imports.

5. Evaluation of the Model

As described in the above paragraphs, the inflationary process is a natural concomitant of a country which faces continuously declining export earnings, which is committed to a high rate of growth, and which meets its external situation by promoting import replacement industries and new export industries. The function of the inflationary process is to force the consuming sector to save in order to reduce imports, and to increase planned productive capacity and the productive capacity needed for import replacements. Such saving would not be possible if the non-investing sector were strong enough to force an increase in its money earnings in order to safeguard its real income. A lag in wages and salaries is thus a sine qua non for making the inflationary process an ultimately productive one.

From this analysis it should be obvious that deliberate anti-inflationary policies would be harmful to the fundamental growth objectives of the country. For example, monetary policy is a general policy, and tightening up the general money supply would not insure an optimal rate of investment in basic overhead capital facilities, in the import replacement and new export industries. These industries would not have the power to bid away resources from the current consuming sector. It might be claimed that all the policy objectives enumerated above could be obtained by more direct methods. This could be done in a number of cases, but in a relatively underdeveloped country, with inexperienced, inefficient, and generally backward and cumbersome bureaucracies, with an underdeveloped and ineffective tax system, the inflationary method would, on the whole, be the more efficient one in the short run.

We are left with two important questions: first, how long must the inflation last, and, second, is there a chance for the inflation to run away

or not to perform in the way it is supposed to perform? The answer to the first question is that the rate of inflation should begin to subside when the fruits of the general investment activities appear on the market; in other words, the length of the inflationary period will depend on the gestation period of the investment program, which, in turn, depends on the composition of the various investment projects which were encouraged. The answer to the second question depends on the degree to which wage and salary advances can be kept in check, thus avoiding a typical wage-price spiral, and on the degree to which continued inflationary pressures will not misdirect resources into unproductive investments. As a rule of thumb, this method will have a chance of success until the wage and salary sector becomes sophisticated and powerful enough to insist on its share of the national product at all times. It should then be hoped that when the labor sector is organized to that extent, the growth of the fiscal machinery and other control mechanisms will have been such as to be able to direct resources into the relevant growth sectors.

BRAZIL'S APPROXIMATION TO THE INFLATION MODEL

I shall try in this section to show to what extent the Brazilian inflation can be explained in terms of the model outlined above. This does not mean that the entire inflationary experience of the last decade can be explained by this model. There were many forces contributing to it, including at certain times reckless spending by the government on non-productive matters, e.g. on an overswelled bureaucracy, subsidies to the deficit-ridden railroads, etc...¹

1. For an analysis of the type of policies which have led to unnecessary additions to the inflation see: Baer, W., Kerstenetzky, I., and Simonsen, M., "Transportation and Inflation: A Study of Irrational Policy Making in Brazil," Economic Development and Cultural Change, October 1964.

As far as Brazil's falling into our general model is concerned, we have already established in previous sections of this monograph that the country suffered from both falling terms of trade and a general decline in its earnings of foreign exchange, that the relative importance of trade has tended to decline, and that there was a change in the import structure with consumers' goods declining at the expense of producers' goods, the former being replaced by newly stimulated industries. The widespread investment activities in import-competing industries and in complementary infrastructure was only partially financed by foreign savings. To the extent that it was financed by internal savings, substantial amounts of incomes were created which were not met immediately by the appearance of a requisite amount of consumer goods. Thus, a lower amount of consumer goods imported, plus the high degree of investment-created incomes, represented part of the inflationary forces.¹

We also have evidence that the foreign exchange earnings decline of the export sector were not matched by a commensurate decline in domestic incomes earned. In Table 35 we notice a substantial decline in the per unit dollar earnings of coffee. It is true that when the cruzeiro index of coffee prices is deflated by the cost of living, the decline in the index is occasionally greater and occasionally smaller than the dollar index decline. But when one realizes that coffee production almost doubled in the period examined while the export quantum of coffee remained fairly stationary, it becomes quite obvious that the coffee sector was substantially supported by the government against losses equivalent to the export earnings decline. Thus, the money

1. An additional inflationary force was, of course, the higher costs of the products of new industries in comparison with the formerly imported products. Measurement of these higher costs and the degree of its contribution to inflationary forces is extremely complex. Of course, one can argue that the learning process will increase the factors' productivity and thus ultimately eliminate this inflationary force.

earned in domestic currency by the coffee sector was relatively greater than the foreign buying power with which it provided the country. This also was a contributory factor to the Brazilian inflation.

Table 35

MEASUREMENTS OF THE COFFEE SECTOR'S EARNING CAPACITY

Year	Average Value Per Bag (in US \$) (1953 = 100)	Cruzeiro Earnings Per 10 kg. of Santos 4 Coffee (1953 = 100)	Cruzeiro Earnings Index Deflated by Cost of Living Index (1953 = 100)
1953	100	100	100
1954	123	185	151
1955	87	180	119
1956	87	192	95
1957	83	194	92
1958	76	208	86
1959	60	198	59
1960	61	242	55
1961	60	313	54

Coffee Production and Exports (1,000 metric tons)
(index in parenthesis)

Year	<u>Production</u>	<u>Exports</u>
1948/9-1953/4 (yearly av.)	1,076.6 (100)	1,006.5 (100)
1959/60	2,628.9 (244)	1,046.2 (104)
1960/1	1,796.6 (167)	1,009.1 (100)
1961/2	2,085.0 (194)	1,018.2 (101)

Source: Calculated from Conjuntura Economica; IBGE, Anuario Estatístico; FAO, Yearbook of Food and Agricultural Statistics.

The fact that . increasingly higher rates of inflation did not affect the rate of growth of the economy (See Table 34), which was on the average higher in the later fifties and early sixties than in the beginning of the period examined, can also be taken as evidence that inflation might not only have been a neutral factor, but even a positive factor.

Inflation's positive role in Brazil should be interpreted as an allocative device, or rather a reallocation of resources from the consumer sector to the producer sector. The evidence we have seems to bear this hypothesis out. An initial glance at Table 36 would seem to contradict our claim that the postwar inflation redistributed resources from the consuming to the producing sector, since wages and salaries as a proportion of gross domestic income have slightly risen in the period examined. This is an illusion, however, since wages and salaries are taken at the pretax level. Considering the regressive nature of the Brazilian tax system, which was discussed in the previous chapter, and considering the much greater rise of the indirect tax to gross domestic income ratio than the wages and salary to gross domestic income ratio rise (see Table 36), we can conclude that this actually indicates the possibility of a proportional decline of the latter.

Table 36

REMUNERATION OF LABOR AND INDIRECT TAXES AS A PROPORTION
OF GROSS NATIONAL INCOME AT FACTOR COST

<u>Year</u>	<u>Remuneration of Labor Over Gross Income at Factor Cost</u>	<u>Indirect Taxes Over Gross Income at Factor Cost</u>
1947	39	11
1948	40	11
1949	41	12
1950	41	12
1951	39	13
1952	40	13
1953	40	12
1954	39	15
1955	42	13
1956	45	14
1957	45	14
1958	45	17
1959	45	19
1960	44	18

Source: Calculations made by I. Kerstenetzky from data of the Fundacao Getulio Vargas.

Table 37 gives much clearer evidence of our claim: We have computed for the entire manufacturing sector and for a number of selected industries the ratio of wages paid to workers to value added. This was done for the two census years 1949 and 1959, and for four intervening years when special industrial surveys were undertaken. The decline of this ratio is quite clear in all cases and it is especially noticeable in the second half of the fifties, a time when the rate of inflation was higher than in the early part of the decade.

Table 37

RATIO OF WAGES PAID TO WORKERS TO VALUE ADDED

All Manufacturing Industries

1949	23
1955	24
1956	24
1957	23
1958	21
1959	19

Textiles

1949	30
1955	32
1956	32
1957	35
1958	32
1959	29

Basic Metal Industries and Metal Products

1949	27
1955	27
1956	25
1957	25
1958	23
1959	21

Food Products

1949	14
1955	18
1956	16
1957	16
1958	15
1959	14

Machinery

1949	32
1955	32
1956	30
1957	31
1958	28
1959	23.5

Source: Computed from IBGE, Censo Industrial, 1950 and 1960; and IBGE, Producao Industrial do Brasil, 1955, 1956, 1957, 1958.

The greatest relative decline took place in the more dynamic import-replacing industries, such as the basic metals and machinery industries. This conclusion is weakened, however, when one considers that these were new industries and that the technology also changed drastically, probably becoming more capital intensive. However, the downward trend in the traditional industries of textiles and food products where little change of technology occurred in the years examined would tend to back our analysis.

Further partial evidence comes from an examination of the behavior of the wages of workers in manufacturing industry and in government. The evidence should be considered as partial due to the spottiness of the coverage of surveys and their lack of continuity.¹ In Table 38 are summarized various types of data on wage behavior. Throughout the fifties there has been a substantial lag in the readjustment of minimum wages. To the extent that the minimum wage has an influence on the general wage level of urban workers, there was thus ample room for redistribution from the wage earning sector to the producing sector to occur. In part b) of Table 38 are listed changes in median wages for the manufacturing sector; these are compared with changes in the cost of living and increases in the real output (the few observations are due to the irregularity of surveys). The reason for this comparison is that even

1. Wage data in Brazil are of a precarious nature. Minimum wage statistics have existed for a long time, but no evidence exists as to the actual impact of the minimum wage rates. Wage data from IAPI, the social security agency for industrial workers, are of doubtful value; they are based on employers' contributions to social security according to the number of employees declared by employers. It is known that many employers underreport the number of workers they have and the actual wages they pay. There also exist data on average earnings made by the Inqueritos Economicos; these are based on a survey of industrial workers since 1955. Many Brazilian economists view these data with apprehension due to their coverage. They are not based on sampling technique and only cover certain large establishments.

Table 38

WAGE BEHAVIOR IN BRAZIL

a) Changes in Minimum Wages

<u>Date of Effectiveness</u>	<u>Minimum Wage (CR\$) (per month)</u>
1940 (July)	240
1943 (December)	380
1952 (January)	1,200
1954 (July)	2,400
1956 (August)	3,800
1959 (January)	6,000
1960 (October)	9,600
1961 (October)	13,440

Source: Anuario Estatístico

b) Median Salary in Manufacturing Industry (selected years)

	<u>1949-55</u>	<u>1955-6</u>	<u>1956-7</u>	<u>1957-8</u>
<u>Percentage Increase of Wages in</u>				
<u>Total Manufacturing Industries</u>	<u>192</u>	<u>34</u>	<u>22</u>	<u>19</u>
<u>Basic Metal Industries</u>	<u>183</u>	<u>30</u>	<u>16</u>	<u>21</u>
Machinery	163	27	15	21
Textiles	175	33	19	17
Food Products	221	48	25	14
<u>Cost of Living Increases</u>				
Rio de Janeiro	148	21	16	15
Sao Paulo	143	23	19	15
<u>Changes in Real Output</u>				
<u>Total Manufacturing Industries</u>	<u>66</u>	<u>6</u>	<u>6</u>	<u>17</u>
<u>Basic Metal Industries</u>	<u>81</u>	<u>16</u>	<u>-8</u>	<u>20</u>
Machinery	-	15	-4	8
Textiles	41	0	-12	34
Food Products	46	-12	22	10

Source: IBGE, Producao Industrial Brasileira, 1955-1958; Conjuntura Economica; Revista Brasileira de Economia, Marco 1962.

Table 38 (cont'd)

c) Short-Period Changes in Median Salaries of Workers in Manufacturing

<u>Time Period</u>	<u>Basic Metals Ind.</u>	<u>Machin-ery</u>	<u>Textiles</u>	<u>Food Prods.</u>	<u>Total</u>	<u>Cost of Living (Gb)</u>
April 1955-April 1956	9	8	11	7	13	14
April 1956-Nov. 1956	32	27	43	51	38	14
Nov. 1956-April 1957	4	2	1	-	1	7
April 1957-Nov. 1957	11	12	2	3	5	3
Nov. 1957-April 1958	5	5	8	3	6	23
April 1958-Nov. 1958	11	9	8	6	8	10
Nov. 1958-April 1959	19	22	32	39	30	20
April 1959-Nov. 1959	15	14	8	2	10	26

Source: Anuario Estadístico

d) Percentage Increase in Salaries of Federal Civil Service and Cost of Living in Guanabara

<u>Classes of Civil Servants</u>	<u>1945-8</u>	<u>1948-52</u>	<u>1952-5</u>	<u>1955-6</u>	<u>1956-9</u>	<u>1959-Jul. '60</u>	<u>Jul. '60-Dec. '60</u>
A	41	67	40	29	30	28	60
B	38	64	39	61	30		54
C	37	60	37	65	30		60
D	37	57	36	77	30		62
E	38	52	34	85	30		65
F	36	53	34	80	30		66
G	31	46	31	80	30		-
H	32	39	28	81	30		55
I	33	33	25	82	30		-
J	34	28	22	78	30		46
K	31	23	28	69	30		53
L	32	19	24	70	30		51
M	35	15	14	81	30		50
N	38	11	12	72	30		50
O	40	7	11	70	30	13	44
<u>Cost of Living</u>	28	51	72	21	85	28	15

Source: Fundacao Getulio Vargas

Note: Since 1959 a new civil service classification has existed. The proportionate increases listed since 1959 are roughly comparable to the old ones.

though real wages might have increased, they often lagged behind the increase in real output. Since the rate of increase in the employment of new workers was usually smaller than the rate of increase of output due to the capital intensity of new firms, a lag of the increase in real income behind the increase in output in various industries is an indication that the share of labor in the additional output is smaller than its share in the original total output. In other words, for a large proportion of urban workers inflation consisted of a redistribution of the increment in the real product to the producing sector. This means that workers did not necessarily suffer in their living standard, but that its increase was slower than the real national product. It will be seen that in the period 1949-55 increases in real wages lagged behind increases in real product; this lag was also discernible in 1957-8. The years 1955-6 were affected by minimum wage increases, while the 1956-7 drop in industrial production in a number of industries, partially due to balance of payments difficulties, makes our analysis difficult to be conclusive.

In part c) of Table 38 we have compared shorter period increases in median wages with changes in the cost of living. Here we have a good indication of short period lags which frequently occur and can be effective in the redistributing mechanism to work. Part d) of the table shows the frequent lags of salaries of public servants.

In an earlier part of this chapter it was made fairly clear that both the private and the public sectors benefited from the redistributive effects of the inflation. The declining share of the wage sector contributed to the large retained earnings which were used by the private sector in its investment program, while the higher investment proportion of the government in comparison to its

savings proportion suggests that through the inflationary process the government managed to transfer savings from the private to the public sector.

It is clear that the redistributive function of the Brazilian inflation was able to function because the wage earnings sector was not strong enough to insure the constancy of its share in the national product. This is shown by the lag in the readjustment of the minimum wage in the fifties. The weakness of the labor sector is partially due to the stern control the government had over labor unions in the fifties (see the previous chapter). One could also venture the hypothesis that in a newly industrializing country, with a large reservoir of rural labor, of which large numbers arrive for the first time to the urban sector every year, there exists greater possibility of inflationary redistribution. It takes new arrivals from rural areas some time to become relatively sophisticated in the ways of a purely monetary economy and get wise to the relation of general price increases which are higher than the wage increases they obtain. However, the much more frequent readjustments in the period since 1961 of the minimum wage, the more frequent strikes, and the greater independence of the labor movement from government control, would seem to indicate that events of the fifties might not be able to repeat themselves.

There is also indirect evidence that redistribution has taken place at the expense of the rural sector, especially the rural worker. There is no direct evidence, since agricultural statistics are collected on a product basis and thus there is no possibility of examining factor shares. But the very fact that until recently minimum wage legislation did not apply to rural workers would suggest that they have fallen behind the rise in the price level. It will be seen subsequently that the terms of trade between industry and agriculture

did turn in favor of the latter. This is no indication, however, that the rural working class benefited. It is generally known that in Brazil a large portion of the income going to agriculture really goes to the distributor. It is also known that the latter has had a tendency to reinvest a considerable portion of his savings in the urban sector (many of the great present-day Brazilian capitalists started off as merchants). It is also not unknown for landed proprietors to make their savings available to the industrial sector; for example, much of the early industry of Sao Paulo was started with funds from the earnings of the coffee sector.

1

Inflation and Economic Efficiency

It could be argued that even though inflation might have led to growth, it was not the best way to achieve it since inflation leads to the inefficient allocation of resources. It is generally feared that inflation will create distortions in the economy's investment because of its effects on savérg in their distribution of assets and on investors in their decisions about the structure of their investments. The former will prefer physical to financial assets and thus will "... make investments directly rather than through the capital market." The result is that the "... supply of savings for investment is distorted away from the more effective investment opportunities."²

The action of investors during an inflation leading to distortions could consist of a bias in favor of inventory investment and/or direct investment in

1. Much of this part of the chapter was originally published in an article: "Brazil: Inflation and Economic Efficiency," Economic Development and Cultural Change, July 1963.

2. Shaalan, A.S., "The Impact of Inflation on the Composition of Private Investment," IMF Staff Papers, July 1962, pp. 246-7.

projects with relatively short gestation periods. According to one authority,¹ inflation is

... likely to discourage investment in price-rigid economic overhead services, such as power, transport, and communications, by shifting the incentive to invest in the direction of price-flexible and quick-yielding sectors. A wrong disproportionality in industrial development is also nurtured, since the investment goods industries, which require a long maturation period, suffer a loss in relative profitability as compared to light industry. These induced disequilibria brought about by inflation tend to slow down or stifle the rate of growth.

Another way in which misallocations of investments are reinforced is through the appearance of negative rates of interest. This is usually due to legal limits put on the nominal rate of interest that can be charged (12 percent in Brazil), which are usually lower than the actual rate of inflation. This results in a bias in favor of short-term credit, which can lead to a distortion of investment in favor of short-gestation projects or in favor of groups with special connections in the credit world, but which are not necessarily the most efficient.

It was seen in Table 34 that Brazil's inflation since the Second World War was not steady, but tended to vary from year to year, although rates in the latter part of the fifties tended to be higher on the average than earlier. The variations from year to year were large enough, however, to make it difficult to predict the rate of inflation from one year to the next. This is an important factor to mention, since it has been claimed that many of the allocational inefficiencies associated with inflation do not necessarily hold if the rate of inflation is steady and fairly predictable. It is difficult to establish a definite positive or negative relationship between the rate of

1. Campos, Roberto de Oliveira, "Inflation and Balanced Growth," in Howard S. Ellis and Henry C. Wallich, eds., Economic Development for Latin America, London: Macmillan and Co., 1961, p. 102.

inflation and the investment proportion (i.e. fixed investment as a proportion of gross domestic product). The same is true when looking at the share of the private sector and the public sector in capital formation. Although there has been a downward trend in the former, this obviously cannot be attributed to the inflation rate.

At present time, there are no yearly sectoral investment breakdowns available. It is therefore necessary to take into account some indirect evidence about the degree of efficiency of investment allocation. The one breakdown which does exist is the division of total investment between fixed capital formation and inventory investment. This is reproduced in Table 39. The early post-war years were characterized mainly by inventory decumulations, while the 1950's were dominated by inventory accumulations, though the rate does not seem to have a close connection with changes in the rate of inflation. Thus, for example, in 1952, when there was a noticeable slackening in the rate of inflation, the proportion of inventory accumulation rose to 24 percent, while in 1956, when the rate of inflation jumped substantially, the rate of inventory accumulation remained fairly steady. The latter part of the 1950's were, of course, dominated by government accumulation of coffee inventories. Although the decade of the 1950's was thus dominated by inventory accumulation, it is difficult to say to what extent this was influenced by the inflationary climate and to what extent by the necessity of an industrializing and urbanizing country to rely on a higher proportion of accumulated stock. It should also be mentioned that due to the periodic balance of payments crises which produced different kinds of direct government controls, inventory accumulation was often influenced by expected changes in foreign exchange and other import policies.

Table 39

BRAZILIAN INVENTORY ACCUMULATION

Year	Inventory as a % of total capital forma- tion	<u>Distribution of Inventory Accumulation</u>				Total
		<u>Private</u>		<u>Government</u>		
		<u>Agriculture</u>	<u>Urban</u>	<u>Total</u>	<u>of which coffee</u>	
1947	-11 ^a					
1948	- 2 ^a					
1949	-14 ^a					
1950	-16 ^a					
1951	15	24	76	-	-	100
1952	24	27	42	31	31	100
1953	5	167	-30	37	-37 ^b	100
1954	20	36	54	10	15 ^b	100
1955	12	70	6	24	44 ^b	100
1956	12	83	2	15	7.5	100
1957	19	42	18	40	30	100
1958	12	36	-36	100	97	100
1959	19	16	3	81	74	100
1960	16	18	2	80	71	100

- a. From 1947 to 1950 the decumulation of inventory was almost entirely concentrated in the private sector.
- b. These numbers are higher than the proportion attributed to the government sector because decumulation took place in the non-coffee government sector.

Source: Computed from data furnished by the Fundacao Getulio Vargas.

Another indication of investment behavior comes from the financial balance sheets of corporations which we examined in Table 30. On the "use" side of corporate funds, we find a relatively small proportion of the funds used for inventory and there does not seem to be any discernible trend.

Besides investment inefficiencies as represented by the proportion going into inventories, the other diversions consist usually of investments in projects having a short gestation period. Thus, one would expect less investment in heavy industry and public utilities, and more investment in such items as housing. In the absence of a breakdown of investment data on a yearly basis, one could take industrial production figures as a very rough indicator. This is done in Table 40. Comparing cement and steel production with an index representing licensed areas for residential construction, it does not appear that

Table 40

PRODUCTION INDEXES
(1948=100)

<u>Year</u>	<u>Cement</u>	<u>Steel</u>	<u>Residential Construction^a</u>
1947	82	79	91
1949	115	119	110
1950	125	153	123
1951	130	167	161
1952	145	174	179
1953	183	199	199
1954	217	230	191
1955	234	231	93
1956	294	268	163
1957	287	248	182
1958	337	273	124
1959	341	301	109
1960	397	356	133
1961	421	390	114

a. This represents only construction permits. It thus might somewhat overestimate actual construction.

Source: Conjuntura Economica

an inordinate amount of investment went into the production of apartment buildings and private houses. We are not attempting to show that there was no investment designed to hedge against inflation, but only that there did not seem to exist any obvious lopsidedness in the structure of investment. It is true that certain sectors of the economy were neglected at times, especially investment in such public utilities as energy production, public transportation, and communications. But, as discussed below at greater length, inflation can be cited as only one part of the cause.

Knowing all the drawbacks of using overall capital/output ratios, we have nevertheless thought it useful to observe changes in this ratio over a period of time as one of the supporting pieces of evidence that there was no obvious

Table 41

CHANGES IN THE CAPITAL/OUTPUT RATIO

	<u>1947-52</u>	<u>1953-6</u>	<u>1957-60</u>	<u>1947-1960</u>
1. Gross Fixed Investment/GDP (current prices)	15.4	14.4	14.7	14.7
2. Gross Fixed Investment/GDP (constant prices)	13.1	13.4	14.1	13.4
3. Real Rate of Growth (yearly average)	6.1	5.4	6.7	6.0
4. Capital/Output Ratio (current prices: 1./3.)	2.52 (103)	2.67 (109)	2.19 (89)	2.45 (100)
5. Capital/Output Ratio (constant prices: 2./3.)	2.15 (96)	2.48 (111)	2.10 (94)	2.23 (100)

Source: Computed from data in Revista Brasileira de Economia, Marco 1962.

drastic misallocation of resources in postwar Brazil. We divided the postwar period into three periods: 1947-52, 1953-6 and 1957-60. For each period we found investment as a proportion of gross domestic product and we divided this proportion by the average yearly growth rate in the period. These proportions were obtained with current and with real figures (see Table 41). It will be observed that there was a slight increase of the ratio from the first to the second period, but a definite decline in the third period to levels below the ratio prevailing during the initial period. Thus, if we take the view that the capital/output ratio can be taken as an indicator of the efficiency of investment structure in the entire economy, the decline of the ratio in the period with higher inflation rates would certainly not indicate a less efficient investment structure, since this decline could be taken to mean in an oversimplified way an increase in the productivity of investment. There are obviously many drawbacks to this type of analysis. One of the most important is that investment in lumpy public utility projects will tend to raise the ratio, even

though such types of investments are of extreme importance for growth without bottlenecks. Oddly enough, investment in public utilities, especially power projects, were much higher in Brazil in the latter period examined than earlier.

In Table 41 under such capital/output ratio in parenthesis are indicated the ratio of the capital/output ratio in each period to the capital/output ratio for the period as a whole. This index indicating the deviation from the average for each period is of interest when we make a comparison between the deviation of the real and the current ratios. The fact that these deviations from the average were of roughly the same magnitude in the second and third periods examined, when the rate of inflation was higher, indicates that there were no obvious price distortions affecting the investment structure. Distortions in relative prices would certainly have affected the current price ratios in such a way as to have produced substantially different trends in the current as opposed to the real capital/output ratio.

The evidence showing that inflation does not seem to drastically affect commercial and industrial firms in their general operations and especially in their investment decisions can be complemented by some qualitative evidence made available by a member of the Sao Paulo business school. In a series of interviews with executives in various types of enterprises, the following question, among others, was asked: "Has your firm taken steps to adapt its operations to the effects of inflation?" Almost 90 percent of the respondents answered in the affirmative.¹ Table 42 contains a picture of the types of actions taken by these firms to adjust to inflationary pressures. It is noticeable that the emphasis is on measures which would not divert activities

1. Richers, Raimar, "O Empresario E A Inflacao Brasileira," Revista de Administracao de Empresas, Maio-Agosto, 1962, pp. 31-46.

into relatively unproductive channels. Very few mention an increase in inventories. Even taking into account the usual pitfalls inherent in the use of the interview method (this particular sample was not a statistical sample), the answers indicate an easy and constructive adaptation to inflationary forces. To another question, "Has inflation influenced the development of the country?" the majority answered affirmatively, and Table 42 shows the type of response. Again, we detect a fairly optimistic state of mind.¹

Table 42

EXECUTIVES' RESPONSES TO QUESTIONS ABOUT INFLATION

	<u>Percent</u> ^a
<u>Method of Adaptation to Inflationary Forces</u>	100
Adjusting prices (among other actions)	26
Adjusting prices (only action taken)	22
Rationalizing operations in order to diminish costs (only action taken)	11
Obtaining new sources of capital (only action taken)	11
Combination of means listed	11
Diminishing liquid assets (only action taken)	7
Converting money into investments (only action taken)	6
Adopting an inventory policy consistent with inflationary forces (only action taken)	3
Other means than the ones mentioned	3
<u>Influence of Inflation on Economic Development</u>	100
Predominantly positive	53
Predominantly negative	24
Partially negative and partially positive	5
No opinion	18

a. Percent of respondents (113 in all).

Source: See footnote 1, p. 136

1. These results were corroborated when the author made a few personal visits to corporation officers in the Sao Paulo area. None seemed to consider inflation as among the chief problems faced by their enterprise, and some even stated that any stabilization program should be very gradual, in order to adjust the business community to a stable type of economic environment in a gradual manner.

Evaluation

We do not claim that in the investment allocation field all was perfect. The evidence examined in this chapter only shows that it is difficult to notice any drastic misallocation of resources directly attributable to inflation. It is generally known that certain types of misallocations did occur, but they were usually caused by certain types of government controls. Due to the rigid government law concerning rates on public utilities, a price can only be charged so as to assure a profit of no more than ten percent of the historical value of the investment. In an inflationary environment this obviously causes real profits to be very low, if not nonexistent, and thus investment will be neglected. It should be said, however, that such difficulties would also appear gradually in a less inflationary environment, since they stem directly from governmental policies. Government price control of public transportation is compensated by immense subsidies (often taking up almost a quarter of the government's budget), adding greatly to the inflation. However, investments in this area are either government-controlled or, as in the case of airlines, the subsidies are enough to compensate for rate losses, and thus investment is not drastically hindered. On the whole, investment in public utilities has kept pace with Brazil's growth, though it occurred in spurts (with the exception of telephones), which meant, however, that the government is involved to an increasing extent in that area of the economy.

Resource misallocations have also resulted from a number of mistakes made during the multiple exchange rate period, as for example the subsidy rates for petroleum and newsprint imports, which resulted in the squandering of much valuable exchange for goods which could have been produced domestically or saved to a larger extent.

It is sometimes claimed that in an inflation of 20 or 30 percent, a legal maximum on the rate of interest of 12 percent will lead to drastic distortions in the allocation of savings in the direction of short-term loans. This is quite true, but, as we saw in Table 30, most large firms in industry do not rely much on credits from financial institutions. The greater reliance on internal finance and on direct credits from suppliers cannot also be attributed to inflationary conditions, but should be considered as a characteristic of underdevelopment.

Another institutional factor which might have had an influence in preventing too much distortion is the rent control law which was discussed in the previous chapter. This has obviously made it less attractive to invest in housing as an inflation hedge. Also, the low investment in inventory could possibly be attributed to the difficulty of obtaining credit in a highly inflationary milieu, i.e. credit which is long enough and cheap enough for such operations. It could thus be argued that inflation has some of its own built-in guarantees against too much investment distortion.¹

Our objective in this chapter has not been to give a full-fledged defense of inflation as both the best development method and as the most efficient one. Our purpose was to show that some part of the Brazilian inflation contributed to the real growth of the country through its forced savings aspect (not necessarily at the cost of lower living standards, but through a redistribution of the increment in the national output from the consumers to the investors). We have also tried to indicate that inflation in Brazil has not drastically distorted resource allocation and that the distortions which did occur, especially in the

1. This interesting observation was first made by Professor Donald Huddle of Rice University.

public utility sector, were due mainly to institutional factors, such as the method of setting prices in the controlled sector of the economy. The latter was obviously not completely divorced from the inflationary forces, but not mainly attributable to them.

Of analytical interest are the reactions of the non-controlled sectors of the economy. Why were there so little distortions in investment? Besides the institutional explanation given above, one might also claim that inflation in a country like Brazil is very old, and the business sector has long ago learned how to adjust to price changes. Since it was both easy to adjust to price changes, and since over long periods of time prices kept ahead of certain costs, especially labor costs, investors found that inflation had little negative effects on their plans. Since external finance is small, i.e. finance through financial institutions, the problems of cash balances and the controlled rate of interest were not pressing ones. Finally, since in an economy with a history of inflation, money has never been looked upon as a store of value, and since the development possibilities of the country with its extensive markets are real and are coming into being, the real long-term return on fixed capital investment seems to have been stronger than the short-term hedge against price increases.

Chapter 6

IMPACT AND STRUCTURE OF THE INDUSTRIALIZATION PROCESS¹

co-authored with Isaac Kerstenetzky

The purpose of this chapter is two-fold: to measure the direct and indirect impact which the industrialization has had on the economy and to find an explanation for the low incremental capital/output ratio which characterized the Brazilian growth process.

Measurement of Repercussions

1. General Considerations

Traditional theory teaches us a division of labor according to comparative costs. In the past this implied a concentration of countries like Brazil on primary products. With the change in the world consumption structure, where primary materials play a decreasing role, a correct division of labor would imply a change in the industrial structure of advanced countries, which would stop producing some of the goods they at present produce. Since such a sacrifice has not been forthcoming in great enough quantity from the developed world, i.e., since developed countries have not changed their structure fast enough, according to comparative costs, underdeveloped countries were forced to adopt industrialization lines which went beyond the area which comparative advantage would normally have offered them.

In other words, industrialization has called for a balanced industrial growth, determined by domestic demand conditions. All this was pungently

1. This chapter is a revised version of an article by the authors: Baer, Werner, and Kerstenetzky, Isaac, "Import Substitution and Industrialization in Brazil," American Economic Review, May 1964.

summarized by Nurkse, who said in his famous Wicksell lecture that:¹

If in an underdeveloped country the stock of productive factors is growing, but if development through increased exports to the advanced industrial centers is for one reason or another retarded or blocked, there arises a possible need for promoting increases in output that are diversified in accordance with domestic income elasticities of demand so as to provide markets for each other locally, in contrast to output expansion for exports, which is specialized in accordance with international comparative advantage. That the increase in production for the home market in these circumstances must ultimately conform to the pattern of domestic demand expansion is indeed a platitude if not a tautology.

This implies that if a wall of protection is raised, the expansion of the industrial sector, given natural resources, will be conditioned mainly by changes in income and in the size of the market. These relationships between domestic demand and the pattern of industrial growth were recently the object of a United Nations study.² A cross-section analysis was carried out on the basis of value added, per capita income, population data, and the structure of the manufacturing sector for a sample covering around fifty countries with a wide range of levels of economic development. The results indicate how levels of per capita income and population influence the structure of the manufacturing sector.

The simultaneous growth of various industries within the manufacturing sector will, in turn, stimulate the expansion of both supplying industries and industries which are further along in the production process. Built into this mechanism we then have the backward and forward linkages which arise from the

1. Equilibrium and Growth in the World Economy: Economic Essays by Ragnar Nurkse, Edited by G. Haberler, Harvard University Press, Cambridge, Massachusetts, 1961, p. 317.

2. United Nations, A Study of Industrial Growth, New York, 1963.

interdependency (i. e., the input-output structure) of the manufacturing sector and of the rest of the economy.

The question might now arise whether a policy maker bent on maximizing the value added within the country would choose those industries which have the highest degree of linkage effects in order to maximize growth. If this is the new criterion, what happens to the traditional partial equilibrium criterion of allocating investment resources? For example, suppose we have two industries, A and B. A is less efficient than B in terms of return to the investment, but A has a greater degree of linkage effects. Which industry would be preferable if the aim is to maximize growth? On the one hand one could argue that B is preferable, since it is more efficient and more capital would be left over for other activities. On the other hand, since we are concerned with a chain of events, one should not only consider the capital invested in A or B, but rather the investments and returns induced by an initial investment in either A or B. Thus the sum of investments caused by expansion in either A or B compared to the sum of returns would thus be relevant. That is, the traditional theory of optimal investment allocation, which abstracted from externalities, was a partial equilibrium approach and was therefore of limited application from the point of view of investment planning for the economy as a whole.

An appraisal of the Brazilian industrialization can thus be made by analyzing to what extent the import substitution process and the change in the structure of the manufacturing sector were related to domestic demand, and by examining how the high rate of growth of the manufacturing sector might have been related to the high linkages in the key growth industries.

2. Measurement of Brazil's Industrialization Impact¹

We have tried to estimate the repercussion effects which resulted from the industrialization of Brazil in the postwar period. The estimates consisted of taking into account repercussions in terms of import substitution, value added, employment and linkages.

Our approach was as follows: we classified all imports according to the industrial classification used by the Brazilian Industrial Census. We then computed the import share of the total supply (value of output plus imports) of manufactured goods in 1949 and 1962.² These import coefficients were weighted by the average 1949-1962 shares of each category of total imports.

Next, we calculated for 1949 and 1962 the percent of the gross value added. Due to difficulties in making an estimate for 1962, we calculated changes of the percent of total workers employed for 1949 and 1959.³

Using data from the 1947 input-output table of the United States, we computed the indexes of dispersion (backward linkage) and sensitivity to dispersion (forward linkage), using the following formulas:

1. In developing this section we were influenced by the ideas of Hirschman, A. O., The Strategy of Economic Development; Rasmussen, P. N., Studies in Inter-Sectoral Relations, North-Holland Publishing Company, Amsterdam, 1956; and Chenery, H. B., "Patterns of Industrial Growth," American Economic Review, September 1960.

2. The 1962 estimate of output and value added was based on the results of the 1960 census, the 1961 Inqueritos Economicos (a sample survey), and data available at the present writing for 1962.

3. Due to the criterion used for the 1960 census operation, data published at this writing do not cover establishments of food industries located in rural areas. For this reason, in order to get comparability for 1949 and 1959, we had to adjust the figures for food industries in 1959.

$$U_j = \frac{\frac{1}{m} Z_j}{\frac{1}{m^2} \sum_{j=1}^m Z_j} \quad (j = 1, 2, \dots, m) \quad \text{and} \quad U_i = \frac{\frac{1}{m} Z_i}{\frac{1}{m^2} \sum_{i=1}^m Z_i} \quad (i = 1, 2, \dots, m)$$

where U_j = index of the power of dispersion, U_i = index of the sensitivity to dispersion, Z_j = sum of the two elements of the transposed inverse matrix, Z_j = sum of the column elements of the transposed inverse matrix, m = number of industries.¹

The index U_j indicating the extent of the expansion induced by industry j in the economy as a whole corresponds to an estimate of what Hirschman called the "backward linkage effect." U_i indicates the extent to which industry i is affected by the expansion of the economy at large and is an estimate of the "forward linkage effect."² Due to the type of policy encouraging vertical integration, which was described in an earlier chapter, we should not be too far off when assuming that the repercussion coefficients will work themselves out in the direction indicated and will not be substantially weakened by leakages through increased imports of needed supplies.

All this is summarized in Table 43. The table also contains the income elasticity and the population elasticity of output by sectors, taken from the

1. Rasmussen, op. cit., chapter 8.

2. The use of the United States input-output table can be justified on two grounds. First, the differences of technical coefficients of the manufacturing sector between various countries do not in our judgment significantly change the ranking of repercussions. Second, the U. S. table is particularly useful for our purposes because of the relatively small dependence of the U. S. manufacturing sector on imported inputs, i. e., the set of technical coefficients are not affected by imported inputs.

above mentioned U. N. study. The industries chosen were those which have shown the highest import substitution and also the two major traditional industries. All these measures were ranked. The one exception is the average share in total imports, which we included in order to convey an idea of the weight of each sector in the composition of total imports.

From the table we reach the following conclusions. Those industries which rank higher in import substitution are those industries with higher income and population elasticities, and also those with either high backward or high forward linkages. Because investment is treated in the input-output table as a final demand sector, the forward linkage is being underestimated, especially in the capital goods industries.

One of the most dramatic types of import substitution occurred in the motor vehicle industry and the repercussions in terms of gross value added were higher than anywhere else. It should be noted that the backward linkage ranks highest, while the forward linkage is lower (for reasons stated above). This indicates that the establishment of an automobile industry must have played a very important role in the expansion of the industrial sector from 1957 on. This conclusion is strongly supported by comments on the role of backward linkages by W. W. Rostow, who has claimed that "...in the twentieth century, the automobile has provided the most striking example of backward linkages." For example, by 1938 the automobile industry in the United States was the largest single consumer of the output of the following industries, absorbing the indicated percentages of their output: strip steel, 51%; bars, 34%; sheets, 41%; malleable iron, 53%; alloy steel, 54%; steel in all forms, 17%; gasoline, 90%;

rubber, 80%; plate glass, 69%; nickel, 29%; lead, 35%; mohair, 40%.¹

Another high import-substituted product, electrical machinery, also had a strong direct impact in terms of value added; however, the table indicates relatively low backward and forward linkage. But this has been a sector which was probably very sensitive to income and population changes.

Chemicals had also a high degree of import substitution, especially petroleum products. It also has high backward and forward linkages, and strong income and population elasticities. Machinery also shows substantial import substitution, and fairly important changes in the share of value added; however, as in this case one would expect strong forward linkages in relation to the equipment using industries, the forward linkage indicated in the table must be substantially underestimated.

Next in the rank of import substitution are Iron and Steel and other basic metals, with strong income and population elasticities of output and important backward and forward linkages. There was also some substitution in paper and paper products to a degree consistent with its rank of value added and linkages, and with strong income and population elasticities.

It can be seen that food and textiles have generally lower income and population elasticities and they therefore ranked very low in both changes in the share of value added and in import substitution, although their backward and forward linkages are not negligible.

1. Rostow, W. W., "Leading Sectors and the Take-Off," in Rostow, W. W., (ed.), The Economics of Take-Off Into Sustained Growth, St. Martin's Press, Inc., New York, 1963, p. 5. Rostow's data come from Automobile Facts and Figures, New York 1939, p. 39. He claims that the 1959 Automobile Facts and Figures indicates only slightly lower proportions.

Table 43

REPERCUSSIONS OF BRAZIL'S IMPORT SUBSTITUTION INDUSTRIALIZATION

(Changes from 1949 to 1962)

	Change in Import Content of Total Supply		Average % Share of Total Imports, 1949 & 1962		Income Elasticity of Output	Population Elasticity of Output	Change in % Share of Total Value Added		Backward Linkage		Forward Linkage		R**	
	R*	R'*					R*		R*		R*			
1. Food, beverages and tobacco	-0.25	12	12	3.87	.978	.862	-5.3	13	1.22	2	1.09	6	5.5	
2. Textiles	-3.73	9	9	2.07	1.205	1.329	-8.6	14	1.03	9.5	1.13	5	7	
3. Paper and Paper Products	-4.14	8	8	2.47	2.035	1.116	+0.8	8	1.04	8	1.68	2	4	
4. Chemicals and Petroleum Coal Products	-8.19	7	4	18.79	1.547	1.395	+3.2	2	1.14	4	1.61	4	3	
5. Non-Metallic Mineral Products	-2.58	10	11	1.19	1.157	1.014	-1.2	12	0.89	14	0.78	9	12	
(Basic Metals)	(-3.43)			(11.55)			(+2.7)							
6. Iron and Steel	-12.55	5	6	3.57	1.991	1.649	+2.6	3	1.13	5	2.32	1	1	
7. Non Ferrous Metals	-10.89	6	7	3.49			-0.9	11	1.17	3	1.65	3		2
8. Others* (Machinery)	-0.97 (-20.19)	11	10	4.49 (13.60)			+1.1 (+1.9)	5	1.10	7	0.87	8	8	
9. Metal Working Machinery	-21.58	4	3	7.35	1.984	1.312	+0.9	7	0.95	13	0.58	14	14	
10. Others	-22.74	3	5	6.25			+1.0	6	1.12	6	0.60	13	11	
11. Electrical Mach. (Transport Equipment)	-25.29 (-34.41)	2	2	6.44 (12.23)			+2.5 (+7.8)	4	1.03	9.5	0.71	11	9	
12. Motor Vehicles	-48.73	1	1	6.01			+7.2	1	1.30	1	1.01	7	5.5	
13. Others	+1.48	14	14	6.22			+0.5	9	0.98	12	0.61	12	13	
14. Other Manufacturing	+1.08	13	13	1.94	1.847	1.333	+0.0	10	1.01	11	0.72	10	10	

R* - simple ranking (ranking of ties were taken as corresponding to the average of ranks which they jointly occupy.)

R'* - % of change in import content of total supply weighted by the average percentage share of total imports.

R** - Rank of the sum of backward and forward linkages.

Sources: Computed from data in Comercio Exterior do Brasil; IRGE, Censo Industrial, Brasil, 1950 and 1960; Evans, W.D., and Hoffenberg, M., "The Interindustry Relations Study for 1947," Review of Economics and Statistics, May 1959; United Nations, A Study of Industrial Growth, New York, 1963, p. 7.

The picture which emerges from these measures, that is, from the simultaneous growth of industries which to a large extent are each other's customers, is that of a remarkably balanced growth. This is not to say that Brazil did not experience imbalances. As will be seen in the next chapter, they occurred in some areas: e.g., between the growth of industries and the lagging of certain infrastructure facilities, between the requirement for trained manpower and the dearth of training facilities, or the imbalances between the various regions, between agricultural production and the requirements of the growing population, etc. ... But it remains a fact that many complementary industries grew up simultaneously and acted as self-reinforcing factors. This was mainly due to the policies of the government discussed in chapter 3.

The pattern of the Brazilian industrialization seems to have conformed very closely to what the United Nations study found to be a "normal" pattern, that is, the expected sectoral composition of manufacturing, given per capita income, population, and degree of industrialization. Using the United Nations model, we computed the expected structure of Brazil's industry in 1962, comparing this to the actual structure. This is reproduced in Table 44. It can be seen that the actual pattern conforms very closely to the expected one.

Capital/Output Ratio and Sectoral Growth Rates

It was already noted that Brazil's growth was characterized by a low capital/output ratio. Let us briefly try to account for this. The overall increment capital/output ratio (ICOR) is a weighted average of sectoral ICORs. Thus, the level of the ICOR of the sector (sectors) which is (are) growing most rapidly will have a dominant influence on the over-all ICOR. Unfortunately,

Table 44

BRAZIL: VALUE ADDED BY MANUFACTURING
(in 1953 US\$ million)

	<u>Actual Pattern</u>		<u>"Normal" Pattern</u>		<u>Residuals*</u>
Food, Beverages & Tobacco	1,468	(21.0)	1,154	(16.5)	+314
Textiles	769	(11.0)	936	(13.4)	-167
Clothing and Footwear	224	(3.2)	306	(4.4)	- 82
Wood Products	349	(5.0)	285	(4.1)	+ 64
Paper and Paper Products	210	(3.0)	148	(2.1)	+ 62
Printing and Publishing	196	(2.8)	185	(2.7)	+ 11
Leather Products	70	(1.0)	58	(0.8)	+ 12
Rubber Products	140	(2.0)	85	(1.2)	+ 55
Chemicals & Petroleum					
Coal Products	923	(13.2)	904	(12.9)	+ 19
Non Metallic Mineral Products	419	(6.0)	375	(5.4)	+ 44
Basic Metals	398	(5.7)	675	(9.7)	-277
Metal Products	1,712	(24.5)	1,723	(24.7)	- 11
Other Manufacturing	112	(1.6)	157	(2.3)	- 45
TOTAL MANUFACTURING	6,990	(100.0)	6,990	(100.0)	- 1

Sources: For "Actual Pattern" see footnote 2 on page 144. "Normal Pattern" was computed from the model found in A Study of Industrial Growth, United Nations, New York, 1963.

* Residuals = Actual Pattern - Normal Pattern.

Parentheses = percentage distribution.

for Brazil we do not have sectoral ICORs. We believe, however, that the evidence from many other countries substantially documents our case.

In Table 45 we have listed for a number of countries the rate of growth of the gross domestic product and its components, the over-all ICORs, and, for those countries where available, the sectoral ICORs. An examination of these data shows that the over-all ICOR is strongly influenced by the ICOR of the most rapidly growing sector (or sectors).

For example, in the case of Greece, Ecuador, and India, although the ICOR in the industrial sector is higher than in agriculture, the over-all ICOR is relatively low. This is because in those cases it is the agricultural sector which might be contributing to the lowering of the ICOR, since total output is growing faster than the industrial sector. In Colombia and Portugal, the ICOR of industry is smaller than that of agriculture, but the over-all ICORs are relatively high. Here the explanation lies in a fast growing tertiary sector with a high ICOR. In Argentina the over-all ICOR is the highest of those listed; it is caused by an unusually high ICOR in the industrial sector due to unused capacity.¹

Our conclusion for Brazil is that the low over-all ICOR must be due to a low ICOR in the industrial sector, which is also the most rapidly growing sector. It is clear from Table 45b, which contains an index of sectoral ICORs for eight

1. "...In a succession of years dating from the late nineteen forties, industry operated well below capacity levels partly because the absence of growth in the fuel, electrical power and transport sectors, when combined with acute balance of payments difficulties, created severe shortages throughout the economy; thus the level of manufacturing production attained by 1954 did not exceed the level previously reached in 1948. At the same time, however, investment intended partly to overcome the sectoral bottlenecks depressing output in the economy as a whole continued to rise." U. N., World Economic Survey, 1959, p. 74.

Table 45a
Rates of Growth and Incremental Capital/Output Ratios

	Growth (percentage per annum) of				I.C.O.R.							
	Period	GDP	Agriculture	Mining & Manufacturing	Other	Period	Overall	Agriculture	Industry		Basic facilities	
									Total	Manufact.	Transp. Comm.	Electric and Water
Norway	'52-'60	3.4	-0.1	3.8	4.0	Index, 1955* (power&util.=100)	9.8	55	16	n.a.	37	100
Denmark	'52-'60	3.8	1.4	4.3	4.1		7.3					
United Kingdom	'52-'60	2.7	2.2	3.0	2.6		6.5					
Belgium	'52-'59	2.6	2.1	3.1	2.7		5.0					
United States	'52-'60	2.6	(1.5)	(3.0)	n.a.		5.0					
France	'52-'60	4.2	2.5	4.8	4.2		4.0					
Italy	'52-'60	5.9	2.4	8.8	5.5	*	3.6					
Germany (Fed.Rep.)	'52-'60	7.2	1.9	8.9	6.6	Index, 1955(power & Util.=100)	2.8	29	11	n.a.	91	100
Portugal	'53-'60	4.9	1.0	6.4	5.9	'52-'57	4.0	3.7	1.7	1.6	11.3	7.2
Austria	'52-'60	5.8	2.7	7.0	5.8		3.8					
Venezuela	'52-'60	7.2	4.7	7.8	7.0		2.1					
Turkey	'52-'60	4.7	2.7	4.8	7.0		1.5					
Greece	'52-'60	6.2	4.3	8.1	6.2	'50-'58	2.2	0.6	1.7	1.7	8.6	8.1
Philippines	'52-'60	5.7	2.9	9.3	7.0		1.0					
Burma	'54-'60	4.6	3.0	15.5	5.5		3.0					
Colombia	'52-'59	4.5	3.4	6.4	4.6	'45-'53	3.7	4.5	2.6	2.8	4.6	n.a.
Ecuador	'52-'60	4.7	3.5	4.8	5.8	'50-'55	2.3	1.7	2.7	3.1	4.7	5.7
Thailand	'52-'60	5.2	4.1	4.3	6.4		2.8					
Brazil	'52-'60	6.0	4.7	9.9	3.5		2.3					
India	'52-'59	3.0	2.3	2.9	3.9		2.2	0.9	2.6	n.a.	6.5	n.a.
Chile	'52-'59	3.2	-0.2	7.6	3.1		4.2					
Argentina	'52-'60	1.9	1.7	2.4	2.0	'50-'55	15.0	3.5	37.9	n.a.	33.6	n.a.
Algeria	'52-'57	8.8	3.3	6.4	11.3		2.5					
Jamaica	'54-'59	8.0	5.6	22.4	12.9		2.9					
Korea (Rep. of)	'54-'60	4.8	4.9	19.4	5.7		2.6					
Nicaragua	'52-'59	4.6	3.3	5.1	5.6		3.5					
Nigeria	'52-'56	3.7	2.4	6.1	3.9		2.8					

Sources; UN, World Economic Survey 1959; UN, Yearbook of National Accounts Statistics; Reddaway, W.B., The Development of the Indian Economy
Economic Report to the President; Revista Brasileira de Economia.

* Only sectoral ICORs are presented as indexes.

Table 45b

Sectoral Differences in Capital/Output Ratio,
Index of Incremental Capital/Output Ratio
 (median for eight countries; index, power and utilities = 100)*

Power and utilities	100
Transport, Communications, and storage	65
Agriculture	39
Industry	26
(Manufacturing)	(24)
Trade and Services	18

Source: UN, World Economic Survey, 1959.

* Canada, Denmark, W.Germany, Japan, Italy, Netherlands,
 Norway, United Kingdom, United States.

industrial countries, that the industrial ICOR, especially the manufacturing ICOR, has been relatively low in comparison to power, transportation, agriculture, and communications. There is no obvious reason to assume that the relative position of the manufacturing ICOR would be substantially different in Brazil.

An examination of factor proportions in Brazilian industry can also give us a clue about the low ICOR. At this writing the best information concerning factor combination is installed capacity per worker by principal industry groups. Table 4b contains this information for Brazil for the census years 1950 and 1960, and we have compared this with similar information for the United States Census of Manufacturers of 1939 and 1954.¹

Installed power capacity per worker in Brazil is low relative to the United States. In many cases the U. S. figure of 1954 was almost double that of Brazil in 1960, even though the Brazilian installed power capacity per worker rose noticeably over the 1950-1960 decade. It is true that these data are not exactly comparable, especially since for many categories the United States produces a greater variety of goods, many of them being of a more capital intensive nature (for example, aircrafts in the transportation goods category). It should, however, also be pointed out that the Brazilian data possibly overstate somewhat the capital intensity of production. This is due to the fact that because of periodic power shortages many firms have invested in special electric generators in order to protect themselves against shortages.

1. The United States Census of Manufactures of 1954 was the last one to have information in installed power capacity by industry groups.

Table 46

INSTALLED POWER CAPACITY PER WORKER IN BRAZIL AND U.S.
(HP per worker)

	<u>Brazil</u>		<u>United States</u>	
	<u>1950</u>	<u>1960</u>	<u>1939</u>	<u>1954</u>
Non-Metallic Minerals Pds.	1.52	2.88	#	#
Fabricated Metal Pds.	3.90	4.13	3.86	5.95
Machinery (excl. el.)	1.86	2.86	4.87	6.24
Electric Machinery	2.14	2.57	4.11	3.49
Transport Equipment	2.88	3.99	5.37	6.81
Wood Products	3.46	4.22	7.09	8.85
Furniture	1.30	1.91	2.99	3.31
Paper and Paper Pds.	7.17	8.38	11.5 ^o	18.95
Rubber Prds.	4.89	7.40	8.19*	9.42*
Leather Prds.	2.31	2.96	1.41	1.57
Chemicals		8.29	13.65**	28.58**
Pharmaceutical Prds.		4.54		
Perfumes, Soap, and similar Products	2.97	2.09		
Plastic Products		3.59		
Textiles	1.65	2.44	3.39	4.85
Clothing, shoes, etc.	.46	.61	na	na
Food Products	3.05	4.83	7.03	6.59
Drinks	2.31	3.74		
Tobacco	.52	.54	1.14	2.94
Printing and Publishing	.98	1.24	2.38	1.95
Miscellaneous	1.27	1.44	2.13	4.15
Petroleum & Coal Prods.	#	#	22.38	45.65
Stone, Clay & Glass	#	#	11.33	11.68
Instruments & Rel. Products	#	#	1.94	5.94

* U.S. figure includes plastics.

** U.S. figure means Chemicals and Allied Products.

Not only are not all categories completely comparable, but some categories are impossible to compare directly.

Sources: IBGE, Censo Industrial, Brasil, 1950, 1960; United States, Census of Manufactures, 1939, 1954.

From the evidence in Table 4Q, we come to the tentative conclusion that the technology used in Brazil's new industry was relatively labor intensive. This does not necessarily mean that the core technology, especially of heavier industry, was drastically different from what it would be in more developed countries. Although at this writing not enough data are available to prove it, it is our impression from personal observations that in many cases the low capital/labor ratio is due to activities peripheral to the firm (e.g., the handling of materials) which in Brazil is more labor intensive than in the United States or Western Europe.

If we accept the above evidence as indicating that Brazil's industrialization followed relatively labor intensive lines, we have another explanation for the low capital/output ratio. With labor productivity rising, with a large pool of labor to draw from, and with labor intensive techniques at the core and/or at the periphery of the industrial unit, the low ICOR prevailing in Brazil becomes understandable.¹

Conclusions

In earlier chapters we had mentioned the high rate of growth which accompanied or resulted from the country's industrialization policies, and we had also remarked on the drastic changes which had occurred in the structure

1. Some people have been struck by the continuance of a low ICOR in the late fifties and early sixties, especially in view of the fact that the share of government in investment rose substantially and investment activities in infrastructure, which usually has a higher ICOR, was greater. A possible explanation is that a substantial amount of the investment in the mid-fifties was indirectly productive activities. For a large plant to work at full capacity usually takes a few years. Thus, it was only in the late fifties and early sixties that the fruits of the investment of the mid-fifties became fully available, perhaps swamping the tendencies towards a higher capital/output ratio which the increased infrastructure investment would cause.

of the economy in a relatively short period of time. The analysis in this chapter has thrown some light on these events. Due to the type of protectionist policies encouraging vertical integration, a fairly well balanced industrial growth took place. Industries with high linkages were stimulated and the linkages worked themselves out within the economy. This explains the rapid spread of the industrialization which resulted in a short time period of time in industry becoming the principal contributor to the gross domestic product. The high growth rate resulting from the investment in industry was in part due to the more labor intensive techniques used, and in part due to the working out of the linkages.

Chapter 7

DISEQUILIBRIA AND BOTTLENECKS IN THE BRAZILIAN ECONOMY

The process of industrialization in Brazil has created a number of disequilibria of a sectoral and regional nature. Some of these disequilibria were already inherent in the Brazilian economy at the beginning of the period under review, but were accentuated by the rapid rate of industrialization in the fifties and early sixties. Other disequilibria were more or less the direct result of the lack of adequate over-all planning as the industrialization policies were instituted. It will be the task of this chapter to identify some of the more prominent of these disequilibria and to see to what extent they have created or are creating bottleneck areas which might impede the further growth of the economy. The disequilibria which we shall examine are that of industry versus agriculture, the regional disequilibrium, the lag of infrastructure behind the requirements of the growing industrial sector, and the neglect until the early sixties of exports.

The Agricultural Disequilibrium¹

On the surface, it would not seem that Brazil suffered from an imbalance between the growth of the urban and agricultural sectors. The data in Table 47 show that while the rate of increase of industrial production was substantially ahead of the rate of increase of agricultural production, the latter was not stagnant, but grew at a rate which until the late 1950's was satisfactorily ahead of the rate of population growth. But even on such an aggregative level,

1. For the presentation and analysis contained in this section I gratefully acknowledge the help of Dr. Julian Chacel, who generously made available some of the results of his researches on Brazilian agriculture.

Table 47

a) INDUSTRIAL AND AGRICULTURAL OUTPUT INDEXES
(1953=100)

<u>Year</u>	<u>Industrial Prod.</u>	<u>Agric. prod. (total)</u>	<u>Agric. Prod. for Dom. Cons.</u>	<u>Foodstuffs for Dom. Cons.</u>	<u>Volume of Crop Output</u>	<u>Volume of Livestock Output</u>
1947	60	79	76	76	82	69
1948	67	85	83	83	86	88
1949	74	90	87	86	91	83
1950	82	94	92	92	93	82
1951	88	94	94	93	92	87
1952	92	98	94	95	99	100
<u>1947-52*</u>	8.9	4.4	4.2	4.6	3.9	7.7
1953	100	100	100	100	100	100
1954	109	108	112	108	105	117
1955	120	117	115	112	118	113
1956	128	114	121	117	111	122
<u>1953-56*</u>	8.6	4.5	4.9	5.4	3.6	6.9
1957	136	125	127	125	125	126
1958	158	128	124	125	129	123
1959	178	133	129	130	138	124
1960	197	138	135	138	147	121
1961	219	149	145	144	154	136
<u>1957-61*</u>	12.7	4.5	3.3	3.6	5.5	2.0

*Average yearly growth rates (geometric)

b) GEOMETRIC YEARLY GROWTH RATES OF SELECTED AGRICULTURAL PRODUCTS 1954-1961

<u>Growth of Herds</u>		<u>Slaughter of Herds</u>		<u>Crops</u>	
Cattle	3.1	Cattle	2.2	Rice	6.9
Pigs	5.0	Pigs	3.4	Potatoes	3.6
Sheep	1.4	Sheep	.7	Sugar Cane	5.7
Goats	2.9	Goats	2.0	Black Beans	1.8
				Manioc	3.5
				Corn	3.6
				Wheat	0.0

Sources: Conjuntura Economica; Appendix B of this volume; Servico de Estatistica da Producao.

it should be noticed that the rate of growth in the late fifties and early sixties was barely ahead of the population growth rate of the 1950's, which was slightly over three percent. It should be noticed that the rate was particularly low in agricultural production for the domestic market.

An examination at a more disaggregative level will reveal substantial bottleneck areas. It should be kept in mind that while the average yearly growth rate of the population in the 1950's was slightly over three percent, the rural population increased by only 1.6% per year, while the urban population expanded at a yearly rate of 5.4%. This high rate of growth in the urban area has resulted in two types of bottleneck problems. The first results from problems of supplying urban areas, i.e., the problem of transporting the increased food output to areas where it is needed. The second problem results from the different income elasticity of demand for foodstuffs in urban centers as opposed to the countryside.

Let us examine the second bottleneck problem first. It is generally known that the expenditure pattern on food of the urban population is different from that of the rural population. This is especially true as the income of the average urban dweller rises. The rate of increase of demand for animal proteins -- especially meats and dairy products -- is larger than the rate of increase of demand for such traditional items of consumption as rice and beans. It is quite clear from Table 47 that the production of livestock in the fifties was substantially smaller than the increase of the urban population.¹ The relative

1. Data in Table 47 are based on statistics collected by the Servico de Estatistica da Producao. Since the reliability of these data has often been questioned (see Appendix I), it would be preferable to use agricultural census data. Unfortunately, at this writing detailed information for the 1960 agricultural census are not available. Only information for cattle in 1960 was available. We have estimated that the increase of cattle between 1950 and 1960 was at an average yearly rate of 1.8%.

shortage of the type of food products increasingly consumed by the urban sector is also revealed by the relative rise of various types of food prices. It is clear from Table 48 that there was a substantial shortage of food products of animal origin, since their price rose much faster in relation to other food prices in the latter fifties and early sixties.

Table 48

AGRICULTURAL PRICES
(1953=100)

<u>Year</u>	<u>Cost of Living</u> (Guanabara)		<u>Food Prods.</u> (excl. cof.)	<u>Wholesale Prices</u>		<u>All* Food Pr. Stage of Production</u>
	<u>Total</u>	<u>Agric.</u>		<u>Of Vegetable Origin (excl. cof.)</u>	<u>Of Animal Origin</u>	
1947	56	52	49	49	35	36
1948	58	55	56	60	43	43
1949	61	58	59	62	45	49
1950	67	63	57	56	51	60
1951	75	71	64	59	68	71
1952	87	85	84	78	90	85
1953	100	100	100	100	100	100
1954	122	121	116	112	122	131
1955	151	151	141	134	155	142
1956	182	187	171	172	170	163
1957	212	215	195	192	191	173
1958	243	246	211	204	216	185
1959	338	357	301	310	271	246
1960	437	466	411	357	508	331
1961	583	627	561	458	755	441
1962	884	1,015	903	777	1,157	726
1963	1,507	1,680	1,512	1,342	1,815	1,153

*All Food Products: Stage of Production -- represents prices received by producer.

Source: Conjuntura Economica.

The other problem behind the agricultural bottleneck is caused principally by Brazil's archaic methods of distributing its agricultural product. Its principal cause is the lack of investment in social overhead facilities, such as more adequate roads to link the countryside with the cities, and, more importantly, the dearth of storage facilities for agricultural products in major urban areas.

It has been estimated that the loss of output of agricultural products due to the lack of adequate marketing facilities was as high as twenty percent.

An indirect measure of the marketing bottleneck is the difference in the rate of increase of prices paid to farmers and the prices paid by the consumers. This can be observed in Table 48 by comparing the price index of food products in the cost of living with the price index of food products at the "stage of production" (last column), which indicates changes in the prices received by producers. It can be seen that the increase of the price of food products (reflecting prices paid to farmers) rose 19 times in the period 1950 to 1963, while the food item in the cost of living index (reflecting prices paid for food at the consumer level) rose 27 times in the same period.

The increase of relative agricultural prices is, however, not only due to the lack of social overhead facilities, it is also the result of inefficiency of agricultural production. There has been little investment in agriculture to increase its productivity. The structure of land holdings in the traditional areas around the cities has not changed to conform with requirements of modern agriculture and in most areas there has been little attempt to change the technique of agricultural production through more intensive use of the land, use of fertilizers, more modern machinery, etc.... Table 49 shows that productivity in most areas has been stagnant, and in some cases has even fallen. Except for cotton, potatoes, coffee and sugar, where a slight increase in productivity took place in the 1950-1960 period, the increase in the production of all other crops was due to the expansion of land under cultivation.¹

1. The low productivity of Brazilian agriculture is even more striking when international comparisons are made. For example, in 1960 the yield per hectare (100Kg/ha) was 16.2 in Brazil, 37.5 in the U.S., 21.3 in Mexico and 33.9 in Argentina for rice; for corn it was 12.9 in Brazil, 32.4 in the U.S., 17.0 in Argentina; for potatoes it was 56 in Brazil, 196 in the U.S., 50 in Mexico, 86 in Argentina; for wheat, it was 6.3 in Brazil, 14.3 in the U.S., 26 in France, and 13.3 in Argentina; for cotton, 0.5 in Brazil, 5.2 in the U.S., 1.9 in Argentina.

Table 49

YIELD PER HECTARE OF SELECTED CROPS (Kg/ha)

	<u>1950</u>	<u>1951</u>	<u>1955</u>	<u>1956</u>	<u>1959</u>	<u>1960</u>
Cotton	443	400	490	448	510	549
Rice	1,638	1,618	1,488	1,366	1,529	1,617
Bananas	1,479	1,465	1,313	1,385	1,400	1,389
Potatoes	4,787	4,827	5,029	5,413	5,454	5,398
Cocoa	554	416	429	420	381	347
Coffee	402	394	419	287	495	436
Sugar (Tons/ha.)	39	38	38	39	41	42
Black Beans	690	692	662	611	651	676
Oranges (fruits/ha)	78,100	80,188	83,636	80,864	75,125	74,481
Manioc	13,089	12,358	12,934	13,000	13,374	13,121
Corn	1,287	1,309	1,190	1,167	1,258	1,298
Wheat	816	584	921	967	515	625

Source: Servico De Estatistica Da Producao Do Ministerio Da Agricultura.

The reason for this low productivity is that until recently there has been little pressure to engage upon intensive agriculture, using more fertilizer and increased mechanization. Although the use of fertilizers has risen in the 1950's, it mostly offset declines in fertility and in few areas did it actually serve to increase the productivity of the land. There has also taken place a substantial increase of tractors, but still in the early sixties the area cultivated per tractor was 400 hectars in Brazil, as against 8 in Great Britain, 17 in West Germany, 38 in the United States and 80 in Canada.¹

The bleak productivity picture has been offset, to a certain extent, by the existence of vast agricultural frontiers in Brazil, which gave the country the opportunity to increase agricultural output without making substantial investments in new techniques to increase the productivity in traditional areas, or without having to resort to drastic agrarian reforms in those areas. This way out, however, has been at the cost of substantially increasing costs. The newly

1. A Economia Brasileira E Suas Perspectivas, Maio 1963, Edicoes APEC, Rio de Janeiro, Brasil, p. 268.

cultivated areas are further away from the consuming centers, which means that increased agricultural production can only be obtained through increased costs due to the higher transportation costs involved. Also, given the inefficient marketing system, the developing of more remote agricultural frontiers further complicates the distribution problem. It has thus been claimed that this inefficient way of increasing agricultural production in Brazil has substantially and unnecessarily contributed to the inflationary pressures.

There can be no doubt that the lagging of the agricultural sector was principally due to its low priority in the postwar industrialization era. This low priority is quantitatively reflected in the small proportion of funds allocated to agriculture in the activities of the development bank during its first decade of existence. In the years 1952 to 1962 only 4% of the bank's local currency loans went to the agricultural sector, while 1.7% of its foreign exchange loans were made available to the latter. The main source of agricultural credit has always been the Banco do Brasil. But even here one can find fault. Most of its loans are of a short-term nature and do not discriminate in favor of newer crops whose demand is increasing more rapidly in the cities.

A large part of the difficulty in agriculture has also been the structure of land holdings. Table 50 represents Brazil's agrarian land holding structure in 1960. It conveys an unequal distribution of land and, considering the concept for holdings used is not property, but establishment, the table even understates the degree of inequality of land holding. It should also be noted that the larger properties have a much larger proportion of their lands uncultivated than the smaller ones. This table does not really convey the true nature of the problem. In a country of continental proportions, the land-holding structure of a number of subregions have to be examined in order to come to some conclusion

Table 50

BRAZIL'S AGRARIAN STRUCTURE
1960

<u>Area Classes</u>	<u>Holdings</u>		<u>Total Area</u>		<u>Cultivated Area</u>	
	<u>Number</u>	<u>Percentage</u>	<u>Hectares (1,000)</u>	<u>Percentage</u>	<u>Hectares (1,000)</u>	<u>Percentage</u>
Less than 10 ha.	1,499,545	44.88	5,923	2.23	3,960	13.31
10-49 ha.	1,221,448	36.55	28,599	10.78	9,613	32.30
50-99 ha.	273,100	8.17	19,099	7.19	3,690	12.39
100-199 ha.	157,550	4.71	21,807	8.22	3,157	10.61
200-499 ha.	116,717	3.49	35,989	13.55	3,805	12.79
500-999 ha.	40,582	1.21	28,495	10.73	2,113	7.10
Over 1,000 ha.	2,885	0.98	125,538	47.30	3,421	11.50
Total	3,341,827	100.00	265,450	100.00	29,759	100.00

Source: Servico Nacional do Recenseamento.

concerning the relation between land holdings and agricultural productivity.¹ There can be no doubt that the land holding patterns in Northeastern Brazil are not conducive to changes in the type of agriculture in the area and/or changes in agricultural productivity. In many parts of Northeast Brazil one finds the typical difficulties of a latifundio-absentee ownership type of agriculture. In the extreme South of the country one finds the opposite type of problem, the area being dominated by

1. At this writing the detailed agriculture census for Brazil, with subregions is not yet available. For an analysis of the land-holding pattern in various regions in 1950 see: Nicholls, William, H. "Perspectiva Estatística da Estrutura Agrária do Brasil," Revista Brasileira de Economia, Junho de 1963.

small types of European farms, where continuous subdivisions have taken place due to the inheritance pattern. These minifundios are, however, often of quite uneconomical sizes. In areas such as Minas Gerais, Western Sao Paulo, and Mato Grosso, where cattle farming takes place or where soils are poor (unless they can be artificially treated,) and where the population is scarce, the latifundio system is not necessarily as inefficient as in the Northeast of the country. In other words, it is impossible to generalize about what would be the ideal landholding pattern in the country.

Methods of dealing with the problem vary from region to region.

Until the 1960's there was little planning or even discussion about changes in the structure of agriculture. It is only since 1961 that there has been widespread talk and some agitation for agricultural reform. The pressure for land reform is partially due to the social inequities resulting from the pattern of land ownership in certain parts of the country and which have found political outlets in the 1960's, and partially due to the problems created by food shortages in urban areas which have also resulted in social tensions. At this writing no comprehensive agrarian reform program has been formulated., i.e. one which deals with methods of expropriation, compensation, redistribution of land, rural credit and technical help to new agricultural units. Except for a decree passed in March 1964, giving the federal government the right to expropriate land 10 kms. on each side of federal roads, railways, and irrigation projects, not much concrete progress has been made.

Due to its extensive uncultivated areas, Brazil's initial industrial spurt did not encounter agriculture as a bottleneck. It is, however, generally recognized that further industrial growth would be severely hampered if no breakthrough were made in agricultural productivity near the principal consuming centers. The rise of food prices relative to other goods not only creates social tensions in the urban centers, but it also unnecessarily contributes to inflationary pressures. Also,

since increased prices are absorbed by the middlemen, the rising terms of trade in favor of agriculture does not result in increased profits for the producer who would thus automatically be stimulated to increase his output and his efficiency. Finally, with the increasing strength of the labor unions, having increasing success in demanding higher real wages for industrial workers, continuously rising food prices will increase the real cost of industry. This might either result in a slowdown of industrial expansion in a capital intensive direction, increasing the difficulty the country faces in absorbing the rising urban populations.

The Brazilian economist Julian Chacel has correctly pointed out that unlike other countries where an agrarian reform was a prerequisite for industrialization, Brazil could industrialize for a long time without any drastic agrarian changes.¹ This was especially due to the country's vast agricultural frontier which provided it with considerable flexibility. The initial industrialization spurt has, however, focussed attention to the backwardness of the agrarian sector, since continued industrial growth will depend to a large extent on agrarian reform. In a sense, one could say that given the social pattern prevailing in Brazil prior to the second world war, an industrial spurt was needed to attain or make possible a drastic change in the economic-social relationship in the countryside.

The Regional Disequilibrium²

Brazil's industrialization effort was concentrated in the Central-Southern part of the country. Already before the second world war economic growth was concentrated

1. Dr. Chacel made these remarks in a talk given to the Latin American Economic Problems Seminar of Yale University on March 19, 1964.

2. Most of this section originally appeared in an article "Regional Inequality and Economic Growth in Brazil," Economic Development and Cultural Change, April 1964. For an historical analysis of Brazil's Northeastern economic problems see: Hirschman, A.O., Journeys Toward Progress, The Twentieth Century Fund, New York, 1963, ch. 1. A comprehensive survey of the Northeast was also given by Stefan H. Robock in his book Brazil's Developing Northeast: A Study of Regional Planning and Foreign Aid, The Brookings Institution, Washington, 1963.

principally in that area, while other parts of the country conspicuously lagged behind. The postwar industrialization spurt has tended to accentuate regional inequalities. Since the most important of the stagnant regions has always been the Northeast of the country, because it contains one quarter of the country's population, we shall concentrate in this section on the imbalance between the Central-South and the Northeast in the postwar era.

We shall begin by outlining various explanations that can be advanced for differential regional growth rates in a large industrializing country. This will give a framework in which to examine the actual disequilibria prevalent in the Brazilian case.

1. Theoretical Explanations

Reasons for initial inequalities in regional wealth are not usually difficult to explain. Hicks has given a most succinct description of the circumstances amounting for initial growth advantages of some sections of a country when he says that "... particular places within a country where wealth can grow most easily are marked out by geographical advantages, proximity to minerals or sources of power, or to areas particularly suitable for specialized crops; alternatively they may have naturally good communications, so that though their sources of supply are at a distance, they can be supplied from many sources rather easily."¹ It is, of course, the structure of demand which will determine which of these favored areas will be the first to grow. It has thus generally become recognized that the

1. Hicks, J.R., Essays in World Economics, Oxford, At the Clarendon Press, 1959, p. 163.

development process implies of necessity interregional (or even international) inequalities in growth rates.¹

Once unequal rates of growth develop they will tend to perpetuate themselves, or the disparity in growth rates might even increase because "... as industry and trade become more concentrated in a particular center, they themselves give rise to that center an advantage for further development."² New firms will tend to settle in the already growing regions, unless there is some special reason to go to another region, because external economies will make investment in those regions more remunerative. Such external economies consist of a more readily available source of skilled labor, a wide variety of already available auxiliary goods and services which do not have to be imported, etc. Although the initial reason for the faster growth of such a region might have been some geographical advantage, "...it is perfectly possible that they may lose their geographical advantage, and yet they continue to grow, through this advantage of concentration. They grow, that is, by an internal economic momentum."³

Although the growth momentum is usually cumulative in the dynamic area, it could under certain conditions spread some of its dynamism to other areas. In other the growth of the dynamic area can act as a centrifugal force in certain circumstances, but, it could also act as a centripetal force and drain the

1. Hirschman also stresses the fact that "Whatever the reason, there can be little doubt that an economy, to lift itself to higher income levels, must and will first develop within itself one or several regional centers of economic strength," Hirschman, A.O., The Strategy of Economic Development, p. 183. This idea has also been stressed in many of the writings of Perroux who talks in terms of "growing poles" ("Pole de croissance"); see for example: Perroux, Francois, "Note Sur La Notion de 'Pole de Croissance," Economie Appliquée, Tome VIII, 1955, Numéros 1-2, Janvier-Juin, pp. 307-20.

2. Hicks, op. cit., p. 163.

3. Ibid.

marginal areas of any growth potential they might have had. Let us examine some of the centrifugal and centripetal forces. Growth can be transmitted from the dynamic to the static region through three basic channels: the movement of goods, of capital, and of labor.

Growth transmissions through trade takes place when the dynamic region is not self-sufficient, leading to part of the incremental wealth being spent in another complementary region. Capital will have an incentive to move from the dynamic to the stagnant area only in case a vital source of supply to the former needs development. Such movement might actually create new centers of self-generating growth. With the exception of such an incentive, it would seem that the dynamic center will act centripetally as far as capital is concerned, for with all the available external economies, rates of return on investment will probably be much higher in the growing than in the stagnant area.

One would also expect labor mobility to be in the direction of the growing area. It is most likely that productivity and earnings of labor are higher in the latter than in the stagnant area and that labor will therefore move from the stagnant to the growing area. It is obvious, however, that the margin of difference in labor remuneration will have to be enough to overcome the inertia due to change of patterns of living involved in the movement. On the positive side, labor movement might ease the pressure in the stagnant area and even raise per capita output, especially if there existed a considerable amount of disguised unemployment in the area. Such a movement might also benefit the dynamic center by keeping a steady labor supply on hand, thus preventing labor costs from rising too fast.

Hicks warns, however, that labor "...movement will not take place at all easily unless someone is prepared to spend a good deal on the provision of houses

and other facilities." Thus, labor movement will necessarily involve a considerable capital investment and "... most successful movements of labor have been to some extent organized movements, which have themselves involved quite an amount of capital investment."¹ Labor movement can also be a considerable drain on the stagnant region because there is usually a greater tendency for the younger, more vigorous, and better trained or trainable individuals to move.² Finally, it could also be argued that if the growing area does not attract labor fast enough from other regions, this might ultimately make these regions seem more attractive to capital than previously. It is, however, more likely that relatively lower wages in the stagnant areas will be offset by lower labor productivity and higher costs in other fields, such as transportation, power, etc..

If the dynamics of the situation is such as to result in centripetal forces being dominant, equity considerations might force the government to undertake public action to redress the regional imbalance. To what extent can this be done without impairing seriously the growth rate of the dynamic area? Public policy measures of geographical redistribution can be achieved through fiscal policy and/or direct official measures like tax credits to encourage firms to settle in the more backward areas. Hicks, however, claims that such measures are "... most successful when they are moving with, not against, the economic tide. It is not difficult to induce the economic forces to move a little further, or a little faster, than they would have done without 'interference'; but to dispense altogether with their aid is a much harder job."³

1. Hicks, op. cit., p. 165.

2. This question has been developed by Okun, Bernard, and Richardson, Richard W., "Regional Income Inequality and Internal Population Migration," Economic Development and Cultural Change, January 1961.

3. Hicks, op. cit., p. 166.

One obvious redistributive measure is for the government to expand its building of social overhead capital in the stagnant region, financed either by a curtailment of its activities in the dynamic area or by increasing the tax burden of the latter. The first method could be harmful to the continued growth of the dynamic region because of the bottlenecks in social overhead capital that might appear. If the expansion of government investment in the stagnant region should be financed by additional expenditures based on increased taxation in the dynamic area, the harm to the latter will depend on the tax structure. If it is progressive in nature, the source of capital and the incentive to invest might be substantially reduced, leading to a diminishing rate of growth in that region. But if the tax structure is regressive, which is the case in many underdeveloped countries, the effect might be less harmful or even neutral. In this case, the finance of development in the stagnant region would come from a curtailment of consumption in the dynamic region. Under certain circumstances this would be a healthy phenomenon, though growth in the latter region could be curtailed if decreased consumption would be of such a magnitude as to affect the investment incentive.¹

Finally, as will be seen presently in the analysis of the Brazilian case, the overall policy of the central government, especially in response to such problems as a weakening of the country's foreign trade position, can be such as to cause results unfavorable to a more equitable distribution of income

2. The Degree of Regional Inequality in Brazil

The extent of regional inequality in Brazil can be gauged from the first three tables in this section (Tables 51, 52, 53). While the Northeastern region con-

1. Hirschman gives an excellent description of many other policy problems that may arise in distributing public investment between regions; see Strategy, op. cit., pp. 190-5.

tains 25 percent of the population, it only earns 10 percent of the national income; and while the South has 35 percent of the population, it earns 50 percent of the national income. It should be noted that changes between 1947 and 1959 were very slight, although they did tend to accentuate the inequality between the two principal regions of the country.¹ These differences in regional wealth are impressive even if the qualification is added that the Northeast is more rural, that it therefore has a larger non-commercial sector, and thus has an actual real income (including goods which do not enter the market economy) which is somewhat higher than indicated here.

Table 53 gives another notion of regional inequality as measured by the proportion of the average per capital income of each state of the national average per capita income. It is quite obvious from just a glance at the data, that most of the extremely low proportions occur in the Northeast, most of whose states have per capita income averages below 50% of the national average, while the state of Guanabara, consisting mostly of the city of Rio de Janeiro, has an average income over 300% of the national average (it can be assumed that the average for just the metropolitan area of Sao Paulo is much greater than the figure indicated for the entire state of Sao Paulo). Table 53 also has a column indicating the national average per capita gross domestic product in current dollars, thus giving a rough indication of the actual magnitudes involved. It could even be shown

1. By "principal regions" is meant the Northeast, which includes the states of Maranhao, Piaui, Ceara, Rio Grande Do Norte, Paraiba, Pernambuco, and Alagoas. The other region for later analytical purposes consists of Rio Grande do Sul, Santa Catarina, Parana, Sao Paulo, Guanabara, Rio de Janeiro, Espirito Santo, Minas Gerais. The latter states will later be dubbed as the Center-South; in the first tables they are divided into South and East. The states of Bahia and Sergipe, though part of the "East" in the initial tables, will be considered as part of the Northeast in the subsequent dichotomous analysis.

Table 51

REGIONAL DISTRIBUTION OF THE BRAZILIAN POPULATION
(in percentages)

	<u>1947</u>	<u>1949</u>	<u>1957</u>	<u>1959</u>	<u>1960</u>
North*	4	4	3	3	3
Northeast	25	24	24	25	24
East	36	36	35	35	34
South	32	33	34	34	35
Middle West*	3	3	4	3	4
Total	100	100	100	100	100

Source: Computed from Anuario Estatístico Do Brasil, 1961.

* North includes the states of Amazonas and Para; Middle West, the states of Mato Grosso and Goias. States in other regions are mentioned in footnote 1, p173. The four territories are not included.

Table 52

REGIONAL DISTRIBUTION OF NATIONAL INCOME
(percentages)

	<u>1947</u>	<u>1949</u>	<u>1957</u>	<u>1959</u>	<u>1960</u>
North	2	2	2	2	2
Northeast	11	11	10	10	11
East	37	37	36	36	34
South	48	48	50	50	51
Middle West	2	2	2	2	2
Total	100	100	100	100	100

Source: Computed from data of the Fundacao Getulio Vargas.

that the per capita income difference between the Northeast and the South is relatively higher than the difference between the South and some of the highly industrialized Western European countries.

Table 53

PER CAPITA INCOME BY STATES
(percent of national average)

	<u>1947</u>	<u>1953</u>	<u>1956</u>	<u>1957</u>	<u>1958</u>	<u>1959</u>	<u>1960</u>
Amazonas	94	67	76	78	72	66	68
Para	65	54	61	60	54	53	56
Maranhao	33	33	31	31	31	34	34
Piauí	37	25	25	28	26	28	29
Ceara	44	33	37	41	30	41	45
Rio Grande do							
Norte	53	41	46	48	40	52	57
Paraíba	43	37	41	42	38	46	54
Pernambuco	63	55	53	61	62	61	60
Alagoas	46	41	43	48	50	49	51
Sergipe	53	50	50	54	55	56	55
Bahia	53	46	46	48	50	51	56
Minas Gerais	77	80	81	82	75	75	71
Esp. Santo	67	83	80	76	66	65	64
Rio de Janeiro	100	101	107	97	96	95	95
Guanabara*	330	308	316	308	321	311	291
Parana	103	121	94	98	105	110	111
Sao Paulo	184	192	181	176	179	176	178
Santa Catarina	101	90	89	87	89	86	90
R.G. do Sul	122	120	130	125	118	116	120
Mato Grosso	79	114	110	84	94	71	78
Goiás	46	65	59	54	54	57	55
National Average							
Per Capita Gross							
Domestic Product							
in US Dollars	225**	257	279	298	312	321	340

Sources: Computed from Fundacao Getulio Vargas and Survey of the Brazilian Economy, 1960, Brazilian Embassy, Washington, D.C.

* Formerly the Federal District.

** for 1948.

Table 54

THE STRUCTURE OF BRAZIL'S REGIONAL ECONOMIES
(percent of income of region)

<u>1947</u>	<u>North</u>	<u>Northeast</u>	<u>East</u>	<u>South</u>	<u>Middle West</u>	
Agriculture	29	37	25	33	49	
Commerce	18	21	18	14	13	
Industry*	24	13	17	22	10	
Services	11	16	17	13	13	
Transport & Communication	8	5	8	8	6	
Financial Intermed.	1	1	3	2	1	
Rents	1	1	3	3	1	
Government	8	6	9	5	7	
Total	100	100	100	100	100	
 <u>1960</u>						
Agriculture	25	47	26	33	60	
Commerce	17	15	15	10	6	
Industry*	26	11	21	27	8	
Services	11	12	12	10	8	
Transport & Communication	8	6	8	7	6	
Financial Intermed.	2	2	3	3	3	
Rents	1	1	4	4	2	
Government	10	6	11	5	7	
Total	100	100	100	100	100	
 <u>1960 (Percent of total production in sector)</u>						<u>Total</u>
Agriculture	2	15	27	51	5	100
Commerce	3	13	40	42	2	100
Industry*	2	5	32	60	1	100
Services	2	12	38	47	3	100
Transport & Communication	2	9	40	47	2	100
Financial Intermed.	1	5	39	53	2	100
Rents	1	4	35	59	1	100
Government	3	8	48	39	2	100

Source: Computed from Fundacao Getulio Vargas, Revista Brasileira De Economia, Marco, 1962.

* Industry means manufacturing industry, public utilities and construction.

Table 54 gives an idea of the difference in the structure of the economy of the various regions over ten postwar years. The resulting picture is not surprising. Agriculture, commerce and services make up a relatively larger share of regional income in the less developed areas of the Northeast than in the industrializing South. The share of manufacturing in the latter is substantially greater than in the Northeast. The respective shares were 22 and 13 percent in 1947, and 27 and 11 percent in 1960. It is also obvious from the table that no matter how large a sector may loom in the relative share within the region, all the sectors of the Northeast are much smaller in their relative national share than those of the Center-South states. The higher internal shares of commerce and services in the Northeast than in the South also reflect the relative backwardness of the area, implying greater reliance on menial service tasks and a relatively inefficient distribution system.

The Census of 1950, which is the last one published, also gives information on the difference in the structure between the most stagnant and the most dynamic region of the country.¹ In the Northeast a smaller proportion of the population is active than in the Center-South, 31 percent in the former and 34 percent in the latter.² Of this active population over 70 percent are engaged in agriculture in the Northeast, as compared to 51 percent in the Center-South. The holding of land per person occupied in agriculture was 1.3 hectares in the Northeast as

1. At this writing the full demographic and agricultural census for 1960 was not available. Although the last full Census figures refer to 1950, the relative differences indicated still remain valid.

2. Economically active means all persons over 10 years of age which are occupied, excluding non-remunerated domestic activities. In judging these figures one should keep in mind that persons in the South are trained a longer time, and therefore come into the job market at an age substantially higher than 10.

against 2.4 hectares in the Central-South, and the capital invested in agriculture in the former was much smaller than in the latter. In 1950, "... for each hectare of cultivated land in the Northeast, there were 6,300 cruzeiros of fixed capital, against 23,000 in the Center-South."¹ Finally, the much smaller degree of capital intensity in manufacturing industry is shown by the fact that in 1950, to each Northeastern "... working person corresponded 1.55 HP installed in industries against 2.34 for the Center-South."² These observations should make it clear that the relative poverty of the Northeast is due to a combination of a comparative scarcity of good land, smaller accumulation of capital, smaller proportion of the population engaged in economic activities, and to this should be added a smaller amount of education, general training, and poorer health condition of the population. An indication of the difference in training existing in the two regions can be gauged from the fact that the proportion of illiterates in the Northeast was 75% as compared to less than 50% in the South Center (with a much lower proportion in such states as Guanabara and Sao Paulo). Finally, unmentioned so far, is the periodic recurrence of droughts in the Northeast, which severely hamper basic development because scarce development funds are channeled into short-run relief measures.

3. Internal Population Migration

It can be seen from Table 55 that the yearly population growth rate in the areas of interest to us has been increasing over the last decades. The very high

1. Conselho De Desenvolvimento do Nordeste, A Policy for the Economic Development of the Northeast, 1959, p. 9; this will be referred to from now on as CODENO. This was the basic analytical document (which, in turn, was based on even earlier work done by the Northeastern Development Bank's research section) which led to the formation of the present agency concerned with the development of the Northeast, SUDENE, Superintendencia Do Desenvolvimento Do Nordeste.

2. Ibid.

Table 55

BRAZIL: AVERAGE YEARLY GROWTH RATES OF POPULATION
By Principal Geographical Regions
 (percentage growth rates)

	<u>1900-10</u>	<u>1910-20</u>	<u>1920-30</u>	<u>1930-40</u>	<u>1940-50</u>	<u>1950-60</u>
North	3.57	3.64	2.41	-1.84	1.76	1.99
Northeast	2.72	3.14	1.89	1.13	2.07	2.35
East	2.48	2.61	1.72	.24	1.68	1.93
South	3.81	3.76	2.42	2.49	2.59	3.05
Middle West	3.94	3.89	2.50	2.86	3.21	3.71
Total	2.14	2.12	2.04	2.30	2.40	3.10

Source: Anuario Estatístico do Brasil, 1939/40, 1956, 1960.
 Data computed from original data in source.

rate in the South, over three percent, is due to migration from the Northeast. According to the Census data, the Northeast lost 642,579 in the 1930-40 decade due to net emigration, and 936,500 in the 1940-50 decade; while the Center-South had a net gain of 975,000 in 1930-40 and 576,000 in 1940-50 due to net immigration.¹ The importance of these numbers becomes clear when placed against the fact that the absolute population increase in the Northeast in 1940-50 was 1,151,340 and in the Center South 3,639,292. Thus, internal population migration has prevented the Northeastern population from growing at an explosive rate in relation to its meager resources. These trends continued in the 1950's.

1. O Brasil Em Numeros, IBGE-Conselho Nacional De Estatística, 1960, p. 11. These data are based on the Census of 1940 and 1950, and might exaggerate matters slightly. On the questionnaire the individuals were asked to state their place of birth, not where they resided at the time of the last Census.

The stimulus to this movement was partially the better opportunities in the Center-South and partially the general degree of open and/or disguised unemployment and the recurrent droughts of the Northeast. Not enough data is available to judge whether the migrants are the more skilled and talented ones of the Northeast, who would thus also constitute a net drain on the region. It is known, that the best talent in the professional groups have migrated South and thus have caused substantial shortages of managerial personnel and government administrators in the Northeast.

4. Interaction Between the Northeast and the Center-South

Although the disparities in income levels and rates of economic growth are basically attributable to certain "natural phenomena," it has been claimed that the general economic policies of the government aimed at industrialization of the country behind a wall of import restrictions, has led to an aggravation of the disparities at the worst, and to an erasing of the beneficial effects due to redistribution efforts through the fiscal mechanism, at best. In order to grasp the arguments behind these assertions, it is necessary to look at the external economic relations of the Northeast.

On Table 56 are listed the foreign trade position of the Northeast and the proportional distribution of exports and imports for the country. The average value of exports from the Northeast rose from US\$ 165 million in 1948-9 to US\$ 232 million in 1959-60, while during that time the average value of imports of the Northeast fell from US\$ 97 million to US\$ 82 million. During many of the postwar years the Northeastern foreign trade surplus was enough to cover the deficits incurred by the rest of the country in its trade balance, and, at times, was even large enough to cover other deficits in the balance of payments.

Table 56

a) FOREIGN TRADE OF NORTHEASTERN BRAZIL
(in millions of US Dollars)

	<u>Exports</u>	<u>Imports</u>	<u>Balance</u>
1948	197.6	93.2	104.4
1949	133.0	100.3	32.7
1950	174.1	86.9	87.2
1951	197.6	166.4	31.2
1952	114.5	173.3	-58.8
1953	169.6	95.3	74.3
1954	235.4	86.9	148.4
1955	238.5	86.2	152.3
1956	163.9	97.7	66.2
1957	212.1	131.9	80.2
1958	246.1	94.4	151.7
1959	216.1	79.3	136.8
1960	247.7	85.3	162.4

Source: CODENO, p. 20; and Banco do Brasil, Relatorio, 1960.

b) REGIONAL PERCENTAGE DISTRIBUTION OF EXPORTS AND IMPORTS

	<u>Exports</u>		<u>Imports</u>	
	<u>1947</u>	<u>1960</u>	<u>1947</u>	<u>1960</u>
North	2.4	1.7	1.3	1.2
Northeast	9.8	7.7	6.4	4.5
East	22.2	39.2	42.6	33.9
South	65.6	48.3	49.6	60.3
Middle West	.1	.3	-	-

Source: Computed from various issues of Banco do Brasil, Relatorio.

The increased foreign trade surplus of the Northeast was due primarily to the general industrialization policies pursued by the central government. Since the Northeast was not industrializing at as fast a rate as the South, the structure of its import demand was oriented more towards goods against which restrictions were rather heavy. Thus, "... the Northeast did not use the total of foreign exchange earnings generated by its exports. About 40 percent of such foreign earnings were transferred to other regions of the country."¹

1. CODENO, p. 18.

Since the Northeast was deprived of the use of its earned foreign exchange to import goods it needed from abroad, it had to turn to the Center-South's new high cost industries for its supplies. This has meant, in effect, that the Northeast's terms of trade declined, causing a resource transfer effect within Brazil which Prebisch so often mentioned in connection with the total position of Latin America vis-a-vis the developed world.¹

Table 57 reproduces interregional trade figures in the postwar period. It can be seen that the Northeast has had perennial deficits with the rest of the country, mainly the Center-South, and that these deficits have been growing in the latter part of the fifties.

Table 57

VALUE OF NORTHEASTERN TRADE WITH THE CENTER-SOUTH
(in millions of Cruzeiros)

	<u>Exports</u>	<u>Imports</u>	<u>Balance</u>
1948	4,069	5,541	-1,472
1949	4,579	6,630	-2,051
1950	5,349	7,141	-1,792
1951	6,843	8,298	-1,455
1952	6,687	8,159	-1,472
1953	7,975	10,792	-2,817
1954	10,804	12,871	-2,067
1955	13,495	16,477	-2,982
1956	19,845	19,692	153
1957	17,892	21,078	-3,186
1958	16,878	22,732	-5,854
1959	21,857	26,699	-4,842
1960			

Source: CODENO, p. 121; and Banco do Brasil, Relatorio. These dates refer to coastal shipping between states.

1. See my article "The Economics of Prebisch and ECLA," Economic Development and Cultural Change, January 1962.

These developments have led the Northeastern development authorities to conclude that "... by supplying foreign credits to the Center-South, the Northeast has been contributing towards the development of the former, with a factor which is scarce for Southerners, capacity for importing."¹ Also, with a growing deficit of the Northeast vis-a-vis the Center-South in trade and "... as the Center-South exports to the Northeast are made up chiefly of manufactured merchandise, whereas raw materials have much more weight in Northeastern exports, it is proper to surmise that the discrepancy favoring the Center-South is still greater, if the barter is measured in terms of the volume of employment created for both regions."²

The foreign export surplus of the Northeast resulting from the industrialization policy centered in the South, which has led the Northeast to buy in the South instead of abroad at less favorable terms of trade, implies a transfer of capital from the poor to the richer section of the country. It has been claimed that the magnitude of the capital transfer implied can be estimated. In Table 58 are listed the index of Brazilian export prices and the wholesale prices, excluding coffee. The ratio of the first to the latter indicates the terms of trade for the region on the assumption that only domestic goods can be purchased with export earnings.³ Since the period up to 1953 was one of stable exchange rates, column C reflects fairly adequately the loss in purchasing power of the Northeast. After that date, however, the ratios had to be corrected for changes in the exchange rate. This has been done in the last column. Thus, in the period 1948-60, instead of the price ratio falling from 100 to 10, it only fell to 48. The latter really means that "... foreign

1. CODENO, p. 19.

2. Ibid.

3. Although prices of exports and imports are measured in dollars and prices of internally traded commodities in cruzeiros, the ratios are significant, since we are interested in relative changes.

exchange proceeds which the Northeast did not spend for imports, but used for buying in the Center-South, suffered a drop in purchasing power of the magnitude indicated.¹

In Table 59 we measure the actual transfer of assets. The first column contains the net earnings of foreign exchange by the Northeast. This is multiplied by the index of buying power of foreign earnings in the Central-South region, as computed in the previous table. We thus obtain an approximation of the actual buying power of net foreign exchange earnings and the difference between this and the initial foreign exchange earnings (the last column), reveals the amount of assets transferred South.

Table 58

ESTIMATE OF PRICE RATIOS FOR TRADE, RELATED TO FOREIGN EXCHANGE
INCOME SPENT BY THE NORTHEAST IN THE CENTER-SOUTH

Years	<u>A</u> Price Index of Exports of Brazil	<u>B</u> Whole Prices (excluding coffee)	<u>C</u> A/B Ratio	<u>D</u> Exchange Rate In- dex	<u>E</u> C) Corrected by D)
1948	100	100	100	100	100
1949	86	105	82	100	82
1950	78	108	72	100	72
1951	96	130	74	100	74
1952	106	147	72	100	72
1953	98	169	58	112	65
1954	84	213	39	169	66
1955	85	252	34	225	77
1956	88	307	29	255	74
1957	89	352	25	255	64
1958	83	403	20	255	51
1959	79	575	14	406	57
1960	73	756	10	481	48

Source: CODENO, p. 23; also computed from data in Conjuntura Economica and IMF's International Financial Statistics.

1. CODENO, p. 24.

Table 59

ESTIMATED TRANSFER OF ASSETS FROM NORTHEAST TO CENTER-SOUTH
THROUGH TRADE

Years	<u>A</u> Net Northeastern Foreign Trade Income	<u>B</u> Index of Buying Power from foreign Income in Center- South	<u>C</u> $\frac{A \times B}{100}$	<u>D</u> Transfer of Assets A-C
1948	104.4	100	104.4	-
1949	32.7	82	26.8	5.9
1950	87.2	72	62.8	24.4
1951	31.2	74	23.1	8.1
1952				
1953	74.3	65	48.3	26.0
1954	148.4	66	97.9	50.5
1955	152.3	77	117.3	35.0
1956	66.3	74	49.1	17.2
1957	80.2	64	51.3	28.9
1958	151.7	51	77.4	74.3
1959	136.8	57	78.0	58.8
1960	162.4	48	78.0	84.4

Source: CODENO, p. 23; also computed from data in Conjuntura Economica and IMF's International Financial Statistics.

In the period examined it appears that over 413 million dollars of capital assets were transferred, or an average of 38 million a year. Thus, the transfer of assets to the Center-South took place because the price at which the Northeast sold its foreign assets rose less than the price of the merchandise it bought in the South-Center.

There is no obvious flow of capital between the Northeast and the Center-South, when one discounts the capital transfer implied in the above analyzed price deterioration. The large internal trade deficits of the Northeast, especially the ones in 1953 and in the last years examined, reflect federal aid to relieve the effects of drought conditions and the recent attempts of SUDENE,

the development agency for the Northeast, to put development plans into effect. It has been observed, however, that in times of drought, there is a considerable private capital migration to the richer areas. For example, in 1953 the Federal government spent 1.6 billion Cruzeiros more than it collected from the Northeast. But in that year, net inflow of capital amounted to only a little more than one billion. It can therefore be surmized that substantial private capital outflows must have taken place.¹

A further burden on the Northeastern economy, which SUDENE officials have not discussed explicitly, is the effect of the exchange system. For the imports which come into the Northeast, importers have to pay fairly high rates relative to rates for "subsidized" imports like capital goods. Proceeds of these rates have been used by exchange rate authorities to prop up the coffee economy, which is centered in the South. Excess balances from the exchange rate system also increased the capacity of the Banco do Brasil to make loans, a high proportion of which are made in the South. The degree of "taxation" of the Northeast implied in this operation can be estimated in the following way. In column A of Table 60 we have listed the value of imports of the Northeast in cruzeiros and in the next column we have listed the dollar value of these imports. Dividing A by column B, we obtain the actual exchange rate paid by importers. In column D are listed the exchange rate of exports for the type of goods exported by the Northeast. Multiplying the dollar value of imports by the latter, we obtain (in column E) the cruzeiro value of imports if the exchange rate for imports had been the same as that of exports. Subtracting this

1. CODENO, p. 26.

Table 60

LOSSES OF THE NORTHEAST INCURRED THROUGH THE EXCHANGE
RATE SYSTEM

<u>Years</u>	<u>A</u> Value of Imports (Millions of CR\$)	<u>B</u> Value of Imports (Thousands US\$)	<u>C</u> A/B	<u>D</u> Exchange Rate for NE-Types Exports	<u>E</u> BxD	<u>F</u> A-E Losses due to Exchange Rate System
1955	43,830	87,292	43.87	37.06	3,235	595
1956	4,933	98,933	49.86	43.06	4,260	673
1957	6,782	131,928	51.41	43.06	5,681	1,101
1958	6,340	94,357	67.19	43.06	4,063	2,277
1959	8,537	79,292	107.66	76.00	6,026	2,511
1960	10,147	85,308	118.94	90.00	7,678	2,469

Source: Computed from data in Banco do Brasil, Relatorio, 1960 and 1957; and IMF, International Financial Statistics.

value from the value of actual cruzeiros spent, we obtain an estimate of the loss of purchasing power which goes to support the sagging Southern coffee sector and the operations of the Banco do Brasil. If this type of calculation is taken into account, the fiscal transfer of resources from the South to the Northeast becomes even smaller than already estimated.

5. Transfers Through the Fiscal Mechanism

Although some capital transfer has occurred through the federal fiscal mechanism, it has been argued that this has not been large enough to redress the balance. First of all, it seems that the tax structure has not done enough to put a heavier burden on the fast growing region. In Table 61 it will be noticed that although the relative burden of taxes in the Northeast has been lower than in the rest of Brazil, the burden of the tax in the latter (i.e. tax as a proportion of income) has not been rising over the last decade, even though its income has been increasing more rapidly. The relative stability of the tax

proportion also holds if taxes are broken up between federal and state-municipal taxes; the absolute proportion of the former in the Northeast, however, is much lower. The lack of change in proportion in the Center-South as its income has risen is due to the regressive nature of the federal tax structure. If the income tax were more progressive and more important, the dynamic part of the country might take on an increasing proportion of the tax burden. Not enough information is available, however, to judge the effect such a progression of the tax might have on the further growth of the dynamic region.¹ It will be seen

Table 61

TAX BURDEN ON NORTHEAST AND THE REST OF BRAZIL
(percentage of regional income)

<u>Years</u>	<u>Total Fiscal Burden</u>		<u>State and Municipal</u>		<u>Federal Burden</u>	
	<u>Northeast</u>	<u>Other</u>	<u>Northeast</u>	<u>Other</u>	<u>Northeast</u>	<u>Other</u>
1948	12.1	19.9	7.4	9.6	4.7	10.3
1949	11.7	20.7	7.2	10.4	4.6	10.3
1950	11.6	19.5	7.3	10.0	4.3	9.5
1951	13.7	22.9	8.5	11.5	5.2	11.4
1952	13.4	22.0	8.2	11.0	5.2	11.0
1953	13.1	21.7	8.1	11.0	5.0	10.7
1954	13.1	21.6	8.4	10.9	4.7	10.7
1955	12.9	19.5	8.7	10.7	4.2	8.8
1956	12.8	21.5	8.3	11.1	4.5	10.4
1957						
1958	13.0	17.6	8.7	9.0	4.3	8.6
1959	11.9	25.7	8.1	13.4	3.8	12.3
1960	14.5	26.9	10.7	14.7	3.8	12.2

Source: CODENO, pp. 42-3; and computed from Anuario Estatístico do Brasil, and Revista Brasileira de Economia, Marco 1961 and 1962.

1. One should also be reminded that these proportions are all quite low as compared to the burden of the tax in relation to national income (not GNP) in countries like the US, UK, or Canada. The central government tax burden as a proportion of national income ranges from the low twenties in the US and Canada to the low thirties in the UK; and for local taxes from roughly 6 or 7% in the latter to over 15% in Canada.

shortly that total federal fiscal policy tends to transfer resources to the Northeast even under present circumstances. It could be argued therefore that if this occurs under a regressive tax structure, redistribution will not take place at the expense of a slower rate of growth in the dynamic region of the Center-South.¹

It was mentioned previously that the federal government acts as an instrument of income transfer from the Center-South to the North-east, though much of this simply offsets the opposite movements of private capital, the terms of trade effects of shifting imports from abroad to the Center-South, and the foreign exchange system effect. For many years, however, the expenditures of the government have been mainly for the purpose of relieving drought conditions. Such expenditures do little to increase the productive capacity of the region. It is difficult to judge the extent of the income transfer through the federal fiscal system. It was seen in a previous chapter that the 1946 Constitution puts the federal government under obligation to spend a minimum of three percent of its revenues in the Northeast. Expenditure increases have been faster than income increases in the region, but there is no complete survey available about federal expenditures by regions. Northeastern development authorities claim, however, that it can "... be taken for granted that such outlays exceed substantially the revenues collected there."² An estimate made for 1953 claims that the federal government spent 4.1 billion cruzeiros in the Northeast, which exceeded revenues from the latter by 1.6 billion cruzeiros. The amount spent in the Northeast for that year amounted to 4.7 percent of tax receipts from the

1. It should also be noticed in Table 61 that state and municipal taxes form a greater proportion of the Northeastern tax burden. Since these taxes are even more regressive in nature than federal taxes, a case could also be made for internal regional tax reforms. Thus, a progression of the tax structure would not necessarily hurt growth, but would put a greater burden on the land-owning income groups which tend to predominate in the upper income brackets of that region.

2. CODENO, p. 45.

rest of Brazil. It has further been estimated that the latter "... resources transferred by the Federal Government represented 40 percent of its outlays in the Northeast, 20 percent of the overall public expenditures ... and 3.3 percent of the whole Northeastern regional income."¹

6. Concluding Remarks and Some Comments on the Current SUDENE Program

From the evidence presented it would seem that the dynamics of Brazilian regional inequalities work mainly in a centripetal way. Private capital moved to the Center-South. Very little private capital goes to develop sources of supply in the Northeast. The internal balance of trade is unfavorable to the Northeast, which means that there is no net spread of wealth to the latter via the movement of goods; on the contrary, it was shown that the terms of trade effect of shifting imports from abroad to the Center-South was detrimental to the Northeast. The movement of the people to the South was beneficial in relieving the population pressure, but with them went some of the best talents needed for future development purposes. Evidence could also be mustered to show that the multiple exchange rate system had adverse effects on the Northeast. The industrialization policy of the government has thus caused a substantial transfer of assets to the South, mitigating the amount of regional income redistribution achieved through the fiscal system. Finally, many of the central governmental funds were used for emergency relief purposes, thus not really increasing the productive base of the Northeastern region.

Some calculations have even shown that not only did the growth of the real income of the stagnant region fall behind the growth of the real income of the dynamic region, but in the late fifties it actually fell. The calculations on

1. Ibid.

Table 62 should only be taken as a very rough piece of indirect evidence. The South includes seven states, while the North includes more than the usual Northeastern area. The estimate of the real income for the South was made in a special survey and the Northern income is the balance between that estimate and the national real income estimate.

Table 62

ESTIMATE OF REAL INCOME GROWTH BY REGIONS
(1949 = 100)

<u>Year</u>	<u>North*</u>	<u>South*</u>	<u>Year</u>	<u>North*</u>	<u>South*</u>
1947	87	87	1955	118	151
1948	96	95	1956	124	152
1949	100	100	1957	129	165
1950	103	106	1958	124	185
1951	105	113	1959	111	213
1952	108	123	1960	107	232
1953	109	127			
1954	122	135			

* South - includes Parana, Rio Grande do Sul, Santa Catarina, Sao Paulo, Mato Grosso, Goias, Minas Gerais; North - includes the rest of the country.

Source: Computed from material available at the Fundacao Getulio Vargas and material published in the Revista Brasileira de Economia, Marco 1962.

SUDENE has worked out a Five-Year Plan¹ which counts on a net transfer of funds from the Center-South to the Northeast and also on funds supplied by the United States. The basic aims of the plan are as follows:

- a) Intensification of industrial investments with a view to creating sources of employment in urban areas. For example, a special tax incentive law was passed (article 34 of SUDENE) permitting Southern corporations to use 50% of taxes due the federal government if that sum is invested in the Northeast. (It is too early at this writing to ascertain the effects of this law).

1. SUDENE, The Bases of Development Policy for the Northeast of Brazil and Scheme of SUDENE's Five-Year Plan, Recife, 1961.

b) Changing of the agrarian structure of the humid coastal area of the Northeast, aimed at a more intensive utilization of the land, so as to increase the productivity of the sugar economy and allow the establishment of family units specialized in food production. Much of the latter is at present imported from the South.

c) Progressive change in the economy of the semi-arid zones, by increasing productivity and bringing it more into line with ecological conditions; and

d) Shifting of the agricultural frontier, so as to integrate the humid land of Southern Bahia and Maranhao into the economy of the region and opening up through the latter State a highway of access to the Amazon.

It is obvious that the aims of the plan are to change the structure of the Northeastern economy in order to make it more resistant to adverse natural and economic forces that have continually drained it of its strength. By intensifying the industrial base of the region, not only will more employment opportunities be created, but the region will fall into line with the general pattern of the Center-South. This might stop the terms of trade drainage of capital discussed in this section. A rearrangement of the agricultural pattern will make the region more resistant to drought and less dependent on the importation of expensive food supplies. SUDENE itself is currently struggling with the problem of training a staff, giving general higher professional training and opportunities to local talent in order to prevent it from moving out of the region. It is establishing a scale of priorities for social overhead capital projects needed to fulfill its plans and to attract capital (e.g. the great Paulo Affonso dam was finished a few years ago and since 1963 SUDENE, with AID help, has been busy carrying out a project to build relay lines in order to bring the power of the dam to various sections of the Northeast). Finally, the agency is engaged in moving the rural population of the drought-stricken areas to more cultivable areas and is trying to change the agricultural production pattern to suit the various soil conditions and needs of the region. (E.G. it is experimenting in a number of colonization schemes

and a number of pilot cooperatives have been established. At this writing SUDENE did not have the adequate land reform powers to hasten changes in the agrarian structure). It remains to be seen how SUDENE will succeed in stemming and even reversing the adverse tide that has so long plagued the Northeast of Brazil.

Some Other Disequilibria

1. Electric Energy

Unlike agriculture, electric energy has not been a constantly neglected sector. We have shown in previous sections of this monograph that most of the planning efforts were made with a view towards expanding power facilities, which was always considered to be a most important infrastructure prerequisite for industrialization. It was also seen in the chapter on the financing of the postwar growth that the development bank's policy was to offer a large proportion of its resources for the development of electric energy. In spite of this, Brazil has not been without its bottleneck problems in this important sector.

In the early fifties, especially in 1953, there were acute power shortages which actually affected the rate of growth. Part a) of Table 63 compares the growth of manufacturing industry output with the output of the electric energy industry. It should be kept in mind that the latter also serves the growing consumer needs. The table clearly shows a lag in electric energy production behind the growth of manufacturing industry. As a matter of fact, the output of the former fell between 1951 to 1953. This difficulty was partially the cause of substantial investment programs in the 1950's.¹ Throughout the fifties and early sixties there have been production difficulties in the industrial regions. The principal reasons

1. Most of the investment of the 1950's was done by public authorities. Due to controlled rates which have lagged behind inflation, there has been no expansion of private public utilities in the field of energy, and the trend in the 1960's was towards the nationalization of these entities.

Table 63

a) GROWTH OF MANUFACTURING AND ELECTRIC ENERGY PRODUCTION
(1949 = 100)

<u>Year</u>	<u>Manufacturing Production</u>	<u>Electric Energy Production</u>	<u>Year</u>	<u>Manufacturing Production</u>	<u>Electric Energy Production</u>
1947	80.3	88.9	1955	166.4	130.5
1948	90.1	94.4	1956	176.7	147.6
1949	100.0	100.0	1957	186.5	166.9
1950	112.7	105.8	1958	217.7	185.8
1951	119.0	118.5	1959	245.7	198.8
1952	125.4	105.0	1960	271.8	217.1
1953	137.1	101.4	1961	301.9	237.9
1954	150.0	114.1			

Source: Revista Brasileira de Economia, Marco 1962.

b) CONSUMPTION AND INSTALLED CAPACITY OF ELECTRICITY IN
THE RIO-SAO PAULO AREA

<u>Year</u>	<u>Consumption</u>	<u>Installed Capacity</u>
1953	100	100
1954	119	140
1955	123	149
1956		
1957	142	160
1958	147	163
1959		
1960	173	189
1961	190	204

Source: Computed from data in Desenvolvimento & Conjuntura and Anuario Estatistico.

c) TOTAL USAGE AND SELF-PRODUCED ELECTRIC ENERGY OF
MANUFACTURING INDUSTRY
(in 1,000 kwh)

<u>Year</u>	<u>Total</u>	<u>Self-Produced</u>	<u>Self/Produced/ Total</u>
1950	2,087,489	179,503	8.6
1958	3,141,970	628,068	16.6

Source: Computed from data in Genso Industrial, 1950, IBGE; and Producao Industrial Brasileira, IBGE, 1958.

were the long gestation period of some of the principal power projects, the lag in the installation of electrical distribution systems once the power projects were terminated. In part b) of Table 63 we can see that the consumption of electricity in the industrial area Rio-Sao Paulo increased at a rate not far behind installed capacity from 1953 to 1961, and it should be remembered that 1953 was a year of extreme power shortage.

Another indication of power shortage is the tendency of many industrial firms to build their own generators in order to protect themselves against shortages. The fact that the proportion of self-produced energy increased relative to total usage of energy by the manufacturing sector (see part c) of Table 63 in the period 1950 to 1958 is also an indication of bottlenecks.

In general, however, power bottlenecks were not severe enough to hamper production over the long run. In 1964 new power supplies from the installations at Furnas and other projects substantially relieved the pressure.

2. Education

All evidence indicates that education has lagged behind the general development of the country. It has been estimated that in 1962 the illiteracy rate between the ages of 10 to 19 was 51% for the entire country.² For men over the age of 20 in urban areas the rate was 14% and in rural areas 40%; while for women in urban areas the rate was 15% and in rural areas about 61%. These rates alone, however, do not indicate the dimensions of the problem. The level of education of the population is very low relative to the requirements of a modernizing society and little has been done up to the early sixties to remedy the deficiencies.

1. Ribeiro, Paulo de Assis, "A educacao E O Planejamento," Revista Brasileira de Economia, Dezembro De 1962, pp. 89-90.

In Table 64 we have collected some data to show the severe lag in the country's educational system relative to the economic growth of the country. Part a) of the Table gives an estimate of the educational level of people occupied in various economic sectors. It can be seen that even in the tertiary sector only 30 percent of men had finished elementary school and 45% of women. Part b) of Table 64 shows that the yearly rate of growth of students finishing elementary schools in the 1950's was 2.6 percent (remembering that the population growth rate was 3.1% and that urban population growth rate was 5.4%), while the rate of growth of students matriculated in elementary school was 3.6% and the rate of growth of elementary school teachers was 5.1%. It can be seen that even in secondary schools the rate of growth of graduating students was not high enough to make up for previous deficiencies (again in industrial training schools the rate was smaller than the population growth rate).

The low priority of education in the 1950's is obvious when one considers that only 9.5% of total federal expenditures went into education and research in 1950 and in 1960 this total was down to 6.1% (see Table F-3 in Appendix III). Local and state governments spent about 11 to 12% on this item in the period examined, thus expenditure on education of all level of governments as a proportion of all expenditures was roughly ten percent. Part c) of Table 64 shows governmental expenditures at the three levels of education. It is quite clear that given the needs of the lower educational levels, the proportion of expenditures devoted to primary education are too small. Although no breakdown for state and municipal education expenditure is available to the author, it is known that a large proportion of state and local expenditures are directed towards the lower educational levels, though some states, like Sao Paulo, also support higher educational institutions.

Table 64

a) EDUCATIONAL LEVEL OF POPULATION IN MAIN SECTORS
OF ECONOMIC ACTIVITY (1962)
(percentages)

<u>Sectors</u>	<u>Percent of people employed having finished the following education levels:</u>					
	<u>Primary</u>		<u>Secondary</u>		<u>Higher Education</u>	
	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
Primary	5.0	4.0	0.1	-	-	-
Secondary	20.3	39.1	4.2	2.6	0.9	-
Tertiary	30.0	45.0	16.0	25.0	8.0	5.0

Source: Ribeiro, Paulo de Assis, *op. cit.*, p. 89. This is based on an estimated work force of 20.9 million men and 3.6 million women.

b) YEARLY RATE OF GROWTH OF STUDENTS GRADUATING FROM:
(in period 1950-1960)

<u>Higher Education</u>		<u>(Absolute Numbers)</u>			<u>(Absolute Nos.)</u>	
		<u>1950</u>	<u>1960</u>		<u>1950</u>	<u>1960</u>
Agronomists	6.9	(171)	(332)	<u>Agricultural Schools</u>	11.4	(1796)
Engineers	4.9	(961)	(1550)	<u>Primary Schools</u>	2.6	
Medicine	3.7	(1070)	(1540)	<u>Students Matricula-</u>		
<u>Secondary Schools*</u>	7.2	(60,048)	(120,125)	<u>ting in Primary</u>		
<u>Commercial Schools</u>	6.1	(16,457)	(29,734)	<u>Schools</u>	3.6	
<u>Industrial Schools</u>	2.5	(2,825)	(3,624)	<u>Teaching Staff of</u>		
<u>Teacher's Training</u>				<u>Primary Schools</u>	5.1	
<u>Schools</u>	8.4	(10,114)	(22,714)			

Source: Anuario Estadístico.

* University preparatory

c) EXPENDITURES ON EDUCATION IN 1960
(in millions of CR\$)

Federal	15,359	<u>Federal Breakdown</u>	
States	32,158	Primary Education	1,520
Municipal	<u>4,392</u>	Secondary Ed.	3,905
Total	51,909	Higher Ed.	8,111
		Other	<u>1,823</u>
		Total	15,359

Source: Special data made available to author by the Ministry of Education.

No prolonged explanation is needed here to show that education is a bottleneck situation for the further smooth development of the country. It will result in severe shortages of trained manpower in the growing industrial sector, possibly leading to reductions in the potential growth rate, and it will also result in higher costs to industry which have to spend resources in teaching unskilled and unschooled labor and suffer for years due to lower labor efficiency. It should also be emphasized that we only mentioned the obvious quantitative disequilibria, without going into the outmoded teaching methods prevalent throughout the educational system which do not give the students the modern training needed for productive work in various sectors of the economy.

Conclusions

We have by no means exhausted the disequilibria which appeared or made themselves felt more severely in the postwar industrialization process. For example, the whole stress in the industrialization period up to the 1960's has been on import substitution and very little has been done to drastically change the structure of exports (see Chapter 3), i.e. until 1964 no policies were formulated to incentivate the export of manufactured goods. It became fairly obvious by the early sixties that with the dim outlook for Brazil's traditional exports it would become vital to change the export structure. It became a vital matter because import substitution could not be carried beyond a certain point and the country would have to rely on the importation of petroleum and other capital goods for which foreign exchange would have to be earned. Also, by the end of 1962 the country's outstanding external debt amounted to over 3.5 billion US Dollars, half of which were due by the end of 1965. With export earnings amounting to US\$ 1.4 billion in 1961, imports US\$ 1.3 billion, a service deficit of about US\$.4 billion and debt repayments due, it is obvious that the country would have to make an effort

to develop new sources of earnings (the year 1961 was chosen because the last full balance of payments figures were available for that year; it does represent the typical long-run situation).¹

We have also neglected to analyze carefully the disequilibrium existing in the country's transportation network. Although substantial investments occurred during the postwar period, there was little coordination in allocating funds to various types of transportation systems. Although transportation does not present a severe bottleneck area at the present time (with the exception of the inefficient system of coastwide transportation) more rational allocation in the future could decrease inefficiencies in the country's distribution system.²

The industrialization process was carried out in such a manner as to neglect some areas of investment. The most outstanding neglected sectors were agriculture and education. We have shown that reforms and investments in those sectors will be needed in order not to hamper further growth. The increased geographic disequilibrium, while not necessarily a bottleneck for further growth, represented an equity problem (and possibly a political disequilibrium problem) which had to be resolved in order to continue the industrialization policies. The other disequilibria represented economic irritants rather than bottleneck areas, since investments in power facilities and in transportation was never completely neglected.

1. Although substantial private capital inflows could help to cover deficits, these are not to be relied on over longer periods.

2. For a longer analysis of Brazil's transportation system see: A Economia Brasileira e Suas Perspectivas, APEC, Rio de Janeiro, Maio 1963, ch. III, Second Part, "O Sistema Nacional de Transporte," pp. 139-204.

Chapter 8

EPILOGUE

The analysis of this monograph was based principally on the period 1947 to 1961. There are a number of reasons for this time limitation. First, at this writing only rough general estimates of national accounts are available for 1962 and 1963, without any of the necessary breakdown for analysis in depth. Second, 1961 marks the end of an era, which was characterized by a rapid industrialization drive, a neglect of the non-industrial sectors (agriculture, education, etc.), high rates of inflation which partially served to redistribute income from the consumer to the producer classes. By the early sixties the sectoral imbalances and the demands of labor and other groups affected by the inflation were such as to require drastic reforms, and thus further growth could only take place under quite different rules.

In 1961 Brazil achieved one of its highest growth rates, 7.7 percent. The following two years were marked by substantial declines in the growth rate. Preliminary estimates are that the real growth rate of the gross domestic product was 3.7% in 1962 and only 2.1% in 1963. Thus, with a population growth rate of 3.1%, the per capita income actually fell in 1963. In the same period inflation attained the alarming rate of over 50% in 1962 and over 80% in 1963.

The immediate cause of the stagnation since 1961 seems to be the continuing condition of political crisis under which Brazil has lived since the resignation of Janio Quadros in August 1961. Quadros had been elected with the broad backing of the Brazilian population. He was already beginning to grapple firmly with the

problems of socio-economic reforms and seemed to be getting the inflation rate under control. Due to congressional resistance to his reform program he resigned. Joao Goulart, the vice-president, who had been elected by substantially less than 50% of the popular vote, was allowed to take office only with a substantial curtailment of his power, having to share power with a newly created system of parliamentary government. The year 1962 was marked by continuous bickering between congress and the president, and therefore by lack of firm leadership. The year was also dominated by a heightened degree of political agitation against foreign capital and demands to control it. In October 1962 a profit remittance law was passed designed to control and severely limit the remission of profits by foreign enterprises. They were allowed to remit only 10% of the original value of their investment.

In January 1963, a plebiscite took place which returned to the presidency its full power. However, Goulart did not exhibit firmness in dealing with the country's problems. In the realm of inflation, for example, his weakness resulted in his giving in to the demands of both the unions and the business community, i.e. readjusting wages with much greater rapidity and in greater leaps than previously, and shying away from credit restrictions or from the elimination of subsidies on the imports of fuel and newsprint. The result was a runaway inflation of a very unproductive nature, since it scarcely redistributed income shares from the consumers to the investors.

Goulart was aware of the need for fundamental socio-economic reforms, but he never came to grips with the issues. He used the reform issue as a demagogic weapon, agitating for reforms without really formulating concrete programs for land, tax, and other reforms. He played one socio-economic class against the other, ultimately losing control of the situation. He was overthrown on April 1, 1964.

It is no wonder that in such a climate of political agitation investors, both domestic and foreign, drastically curtailed their activities. The inflow of private autonomous capital declined from US\$ 713 million in 1961 to US\$ 470 million in 1962, and US\$ 240 million in 1963. Although no data on investment for the years 1962 and 1963 are available at this writing, the contraction of investment activities is reflected in a fall of the rate of increase of manufacturing activities from over 12% in 1961 and 9% in 1962 and 1.9% in 1963. The slowdown was also in part due to severe power shortages in the Rio-Sao Paulo area, partially caused by severe droughts in 1963 and partially by infrastructure shortages and breakdowns. There was also the influence of many strikes in 1963, reflecting the increased political agitation and the loss of control over the labor unions by the government.

It is my impression that the political and economic crisis of Brazil in the early sixties is in part the result of the very success of the industrialization effort of the 1950's. The growth of the modern industrial sector has put into bold relief the backwardness of agriculture, education, the government's administrative machinery, etc. The backwardness of these sectors is at present threatening the continued growth of the country. The success of the industrialization has made many social groups aware of existing inequities in the country's socio-economic system, and demands for the redistribution of incomes both via agrarian reform and via the protection of the wage earning groups' real income in the inflationary process are increasingly politically powerful.

Brazil's leaders are clearly in a dilemma. On the other hand, many socio-economic reforms are needed in order not to impede the further growth of the country. On the other hand, many reforms are needed for equity purposes, but

might endanger further growth; i.e. especially the insistence of wage earning groups for higher shares of the country's gross domestic product.

Goulart's two years in office have only served to sharpen the conflicts and his successors are still faced with the need for many basic reforms. Unless they meet this need, the stability of their regime will be seriously endangered. The distributive dilemma, i.e. the need for both high rates of economic growth and a greater equity in the distribution of income, could be met in the next decade by substantial inflows of foreign capital and by a massive aid program from the United States and other countries. I would not be surprised if within a decade and a half, assuming this external aid, Brazil will have built itself a large enough base which would permit it to achieve both high rates of economic growth and social justice simultaneously.

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APPENDIX I

Brazil's National Accounts and Other Economic Statistics:

An Appraisal

National Accounts:

Brazil's national accounts are prepared by the Instituto Brasileiro de Economia of the Fundacao Getulio Vargas. They are published yearly in the March issue of the Revista Brasileira de Economia. Estimates for the national accounts, sectoral and regional income distribution, and indexes of real output have been available on a yearly basis since 1947.

The Instituto estimates national accounts from primary statistical material furnished by IBGE (Brazilian Institute of Geography and Statistics), SEP (Statistical Service of the Ministry of Agriculture), SEEF (Statistical Service of the Ministry of Finance), SUMOC (Superintendency of Money and Credit), and the various social security institutes. With the exception of the Census years, statistical information available on a yearly basis is not enough for the preparation of national accounts. To surmount some of the difficulties which arise the Instituto has been using extrapolations based on the Censuses of 1940 and 1950. At this writing not enough of the 1960 Census information is available for correcting the intracensus series. Although such extrapolations are often of a precarious nature, many improvements have been made over time, and every year whole series are recalculated whenever new data are available. These recalculations have often substantially changed earlier estimates, especially in the section on capital accounts and indexes of real output.

Sources and Estimates: Agriculture

The agricultural estimates are obtained on a product basis. Each municipio (Brazilian equivalent of a county) has an agent of the Servico

de Estatística da Produção of the Ministério da Agricultura. This agent is supposed to report at certain intervals an estimate of the area under cultivation, types of crops produced, the volume of production and the value of output in each category. Depending on the area, the "agent" is either an agency, with better trained personnel, or simply an untrained individual, who engages in sheer guess work in reporting on output, area under cultivation, etc.

It has been shown that the estimates of the agricultural sector are not very reliable. In a symposium on Brazilian statistics held in 1958, Dr. Mauricio Reis reproduced in an appendix to his article on primary production statistics a comparison between agricultural production data in three states as estimated by the yearly agricultural reporting service and as coming from the Census in the year 1949.¹ Tabulating his results, we get the following picture:

Percent	Number of Times when Estimate Was <u>Larger</u> than Census	Number of Times when Estimate was <u>Smaller</u> Than Census
0-100%	17	94
100-1000%	138	18
1000% and more	<u>64</u>	<u>--</u>
Total	219	112

A similar procedure was followed by Dr. Amaro da Costa Monteiro, who made comparisons for various states and products for the 1959 Census. It would seem that there is a greater tendency to over than to underestimate. Census figures are more reliable, since they are based on the collection of information from all agricultural establishments. It has also been shown that the greater divergence between SEP and Census figures occur at the end of a decade, when there is an accumulation of errors in the yearly estimates

1. I. Seminario de Estatística, Anais, (9 a 19 de dezembro de 1958), Rio de Janeiro, Maio 1959, Mauricio Reis, "Documento básico sobre Estatísticas de Produção Primária", pp. 388-440.

and the past trends established by earlier censuses become less and less valid.

From the above evidence one might at first conclude that the errors in the agricultural data have tended to overestimate the contribution of agriculture to the national product (especially toward the end of an intercensus period). The extent of this is at present almost impossible to estimate and, as will be seen below, other sectors of national accounts would tend to underestimate their respective contribution to the national product, thus offsetting the tendencies in agriculture.

Sources and Estimates: Non-Agricultural Sector

The non-agricultural part of the national accounts are collected on a factor payments basis. Let us look at them in the following order: rents, "mixed" or miscellaneous entrepreneurial remuneration, profits, interest and wage payments.

Rents. Basic information comes from taxes on rents. According to law, there is a tax on rents collected by each municipio. The latter reports on the amount of such taxes collected. Since taxes on rents are proportional (the proportion varying from municipio to municipio), rents paid can be calculated from the total amount of taxes received. Figures for the 1950 census on the number of apartments and houses have been used as a test for accuracy.

Mixed Remuneration of Work and Capital. This item includes three categories: income of people engaged in the liberal professions, income received by administrators of large enterprises, and remuneration of individually owned and operated enterprises.

An estimate of the total remuneration of the liberal professions is obtained by projecting the numbers at the rate obtained between the 1940 and the 1950 demographic censuses and by taking the average salary estimated for 1950, which is increased by the rate of increase of the cost of living.

The latter is a very weak part of the estimate. Ideally, a survey of the remuneration of various types of professional groups would be more satisfactory, especially in view of the fact that the relative price of professional services has changed at a different speed as compared to cost of living estimates. The product of these two data for each year gives the total yearly remuneration.

The second item, income received by administrators of large enterprises, is derived by obtaining the number from the last demographic census. This is multiplied each year by the average salaries in the upper brackets of the 1948 Census of the Social Security Agency, adjusted for increases in the cost of living. Corrections are introduced for manufacturing enterprises, where estimates on work remuneration comes from the Registro Industrial.

The last item, remuneration of individually owned and operated enterprises, is based on the taxable income of the latter.

Profits. All firms make declarations about profits for income tax purposes to the Divisao do Imposto de Renda of the Ministerio da Fazenda. Profits are probably understated due to the probable underreportage of many firms.

Interest. The law provides for a maximum of 12% which can be charged as interest. In the highly inflationary milieu of Brazil, it is not surprising that this law is often circumvented by "service charges" and other arrangements. Some economists have estimated that the actual amount of interest paid is three to four times as large as that reported.

Wages and Salaries. In this sector the sources vary for each type of employment.

a) Public Administration: does not include remuneration in directly productive activities of the government. Data are taken from the balance sheets of the federal, state, and local governments, and from the balance

sheets of the autarquias (principally the different types of government-run social security funds). This item also includes certain payments in kind, e.g. furnishing of uniforms and good food.

b) Commerce: Until 1952, 7% of the salaries were paid to the Instituto de Aposentadoria e Pensoes dos Comerciarior, and from this information it was easy to calculate the total. From 1953 on, rules were changed and contributions had only to be made on a percentage basis up to 5 times the minimum salary. Up to 1955, adjustments were made based on proportional relationships between the higher and the lower salaries as these came forth in the latest census. Since 1955, the method used has been the following: the number of persons employed is furnished by the Divisao de Atuaria do Instituto de Aposentadoria e Pensoes. The average salary by which the latter is multiplied is based on the old method, i.e. for 1955), and since then, projections based on this datum were made based on average wages and salaries in manufacturing and wholesale trade.

c) Industry: Sources used are the industrial census, the Registro Industrial (annual) and the monthly Inqueritos Economicos. The Registro covers a sample of industrial establishments, excluding civil construction and public utilities. Since the non-Census sources do not have the same rigorous follow-up of inquiries as the Census, there might be some underestimation for data made up of non-census information. The Inqueritos included until 1954 establishments situated in the municipios containing the capital of each state, and having sales over CR\$ 200,000.- a year. Since 1955 there are also included municipios which, according to the last census, are the most important industrial municipios of the state.

Estimates use a combination of these sources. The industrial census of 1950 is used as a benchmark, especially the proportions of various types of

firms. The latter are applied to the data in the Inqueritos to get estimates for the 1946-52 period, and to the Registro data for the 1952-8 period. The most recent statistics come only from the Inqueritos (the Registro having ceased publication), which furnish only the average salary of the workers, and not of total employees. Thus, total average salary is estimated by applying the previously observed proportions between workers' salaries and other employee payments.

d) Services: This item includes remuneration for domestic services, imputed remuneration for religious organizations, and services in hotels, restaurants, hospitals, education, etc. For the first two items, the average minimum salaries were used, adjusted for cost of living indexes of municipios of the capital of each state. The number of individuals was obtained from the 1950 Demographic Census and was projected. The last item, miscellaneous services, was obtained in the same manner as b).

e) Financial Intermediaries: For banks and investment companies the number of employees was obtained from the Instituto de Aposentadoria e Pensões dos Bancários and the Caixa dos Funcionários of the Banco do Brasil. Average remuneration is obtained from direct inquiries. For the Caixas Economicas (savings banks), information was supplied by the Conselho Superior das Caixas Economicas. For insurance companies, the Instituto de Resseguros do Brasil consolidates information received by the insurance companies.

f) Transport and Communications:

1. Maritime: A number of different methods were used over the years. For 1947-52, the number employed was estimated by using the results of the demographic census of 1940 and 1950, i.e. the average rate obtained is used. For salaries, the results of the census for the IAP dos Marítimos for 1948 was used. Since that time, it was assumed that salaries changed only as

minimum salaries for maritime workers were changed by decree. Between 1953 and 1959, estimates were made from the balance sheets of a number of companies, obtained by the Departamento de Acidentes do Trabalho do Instituto de Aposentadoria e Pensões dos Marítimos. Two companies are mainly involved -- Loide Brasileiro and the Companhia Nacional de Navegação Costeira, which account for most of Brazil's coastal shipping. Since 1957 a sampling method has been used.

2. Road Transport: From 1947 to 1955 the estimate was based on contributions made to the Instituto de Aposentadoria e Pensões dos Empregados em Transporte e Cargas. Since the Census of Social Security of 1948 made available a distribution of members according to the amount contributed and to the proportion this was of total payments received, a proportion could be derived and applied to other years. From 1956 to 1959 the number of persons employed was derived from the Departamento Atuarial do IAPETC. Average salary was estimated by a sampling method applied to receipts of payments to the Accident Department of the same institute. An adjustment was made to make previous data comparable.

3. Rail Transport: The data is furnished by the Departamento Nacional de Estradas de Ferro.

4. Urban Transportation: In the period 1947-52 the data of the 1948 Census were projected through information from the Caixas de Aposentadoria e Pensões. Data for 1953-9 was received directly from enterprises. From federal units where no information was available, adjusted data from enterprises in neighboring states were used. All this refers to salaries. For the number of employees, IBGE data were used.

5. Air Transport and Telecommunications: For 1947-54 estimates for salaries were made from contributions to the Caixas de Aposentadoria dos Serviços Aéreos e de Telecomunicações. From 1955 on, estimates were based

on the enterprises' balance sheets and on the records of payrolls.

Gross National Product: I have described how the national income is estimated. To the latter is added an estimate of depreciation in order to obtain the GNP. The estimate is based on the 1950 Census and on a survey made by Conjuntura Economica, and amounts to 5%. This indirect way of estimating depreciation is due to the dearth of information on the depreciation allowance of firms. Standard depreciation accounting, which is based on historical money costs, presents difficulties in an inflation where the price of equipment is continually rising. Revisions might be made as soon as full information from the 1960 Census becomes available.

Capital Formation: From the yearly statistics of Brazil it is not possible to obtain direct estimates for gross fixed capital formation. Only two direct estimates are feasible: one for 1949 which is based on the Census, and the other for 1958, based on the Industrial Register (Registro da Producao Industrial). Extrapolation from these two estimates have been used for the other years; they are used proportionately to an index number combining the consumption of raw materials and the importation of capital goods.

Estimates are prepared in the following way:

1. Information for the production of capital goods was obtained from the Industrial Census of 1949 and the Industrial Register of 1958. Values were adjusted in order to account for trade mark-ups.
2. Information on the imports of capital goods was obtained from the records of the SEEF (Statistical Service of the Ministry of Finance).
3. Information on new government construction was obtained from the balance sheets and budgetary forecasts of the Federal, State and Municipio governments.

Public fixed investment is obtained directly from government balance

sheets and business fixed investment is calculated as a residual. The latter also includes fixed investment by government enterprises (mixed companies).

Inventory Changes: There are three types of estimates: agriculture, the urban business sector, and the government sector.

Agricultural inventory changes are related to changes in livestock. Data are obtained from the Statistical Service of the Ministry of Agriculture. Urban estimates are derived from data of the Inqueritos Economicos. Government inventories consist of changes in the agricultural products purchased by the government (such as coffee), and the data come from the Banco do Brasil and SUMOC.

Foreign Transactions: SUMOC is responsible for the preparation of the balance of payments, which is published in US dollar form. The superintendency also makes a special cruzeiro estimate which the Instituto uses for its estimation of the national accounts. The exchange rate used to make this conversion is a weighted average of the rate paid to Brazilian exporters during one year.

Government: Government consumption and investment data are taken directly from the balance sheets of the federal, state and municipio governments. Since there are many governmental units, it is not possible to have all balance sheets in time to estimate the national accounts for the year. This is especially true for some of the state and municipio governments for which preliminary estimates are prepared on the basis of budgetary information. The degree of error is, however, relatively small.

Net Private Savings: This item contains retained earnings and personal savings. Corporate retained earnings are obtained from the balance sheets of corporations. Personal savings are derived from the increase in time and savings deposits, the increase of the technical reserves of insurance

and capitalization companies, and the increase of the holdings of central bank notes by the nonbanking sectors.

Consumption: Personal consumption data are a residual item and are obtained by subtracting capital formation, government consumption, and exports and imports from GNP.

Estimate of Real Output: Brazilian economists were faced with a number of problems in constructing this index. For example, there is the problem of selecting adequate base years when there are rapid structural changes in the economy. The latter problem has been partially overcome by the use of a moving base chain index. It was impossible, however, to change the base for each of the postwar years due to lack of adequate information. Different weights were calculated for the years 1949, and for every year from 1952 to 1958. Although this considerably improved the index, it did not entirely eliminate distortions.

The index is made up of the weighted average of seven sectoral indexes of real output. Each sectoral index is obtained by the chaining series with the moving base being as follows:

<u>Period</u>	<u>Base Year</u>
1947-1952	1949
1952-1953	1952
1953-1954	1953
:	:
:	:
:	:
1958-1959	1958
1959-1960	1958
:	:
:	:

The index of real output is a weighted average of seven sectoral indexes. The weights correspond to the share of each sector in the net domestic product.

Index of Agricultural Output: This consists of a weighted average of

the index of crop output, animal production and the output of vegetal extraction. The weights correspond to the proportion of the value added of each product in the base year. The index of crop production consists of a chain of Laspeyre indexes which include 50 different items and thus cover 98% of the value of crop output.

The index of animal production is the weighted average of the index of meat production, of increases in the existing livestock, and of the output of animal products (milk, butter, cheese, eggs, etc.). The index of vegetal extractive production consists of a chain of Laspeyre indexes which combine 14 different products.

The weaknesses of these indexes lie principally in the collection of basic agricultural information. The estimates include non-marketed goods, i.e. subsistence agriculture, since field estimates include total production in each area.

Index of Industrial Output:² This is made up of four main subindexes: manufacturing industry, mineral extraction, civil construction, and electric power generation. The index is obtained from a chain of moving bases. Due to the lack of adequate statistical information, the weights of civil construction and electric power generation have not been brought up to date. For the whole series, the weights used for them correspond to the 1950 Census. Civil construction and electric power generation correspond to 7.5% and 7.4% respectively. The balance of 85.1% is distributed among the various manufacturing sectors and the mineral extractive industry according to their proportion of value added in the various base years.

For manufacturing industry up to 1955 the index of real output was

2. For details see Revista Brasileira de Economia, Marco 1962; also Kerstenetzky, Isaac, "Estatísticas Industriais", in Relatorio Final, Comissao Nacional De Planejamento, 1962.

calculated for the following sectors: non-metallic minerals, metal working, paper, rubber, leather and hides, chemicals, textiles, food products, beverages, tobacco and publishing and printing. However, the index also reflects the output of other sectors. After 1955 the following specific indexes were added: machinery, electrical and communications equipment, transportation equipment, furniture, wood, footwear and clothing, and miscellaneous items. These indexes were weighted according to value added in each base year.

The index for the mineral extractive industry is a Laspeyre index which combines the output of petroleum, iron ore, manganese ore, salt, coal limestone, gold, silver, etc.

The civil construction index is based on licensed areas in the capitals of the federal units. It also includes adjusted data from the states. Electric power generation index is a simple index based on the statistics of kwh production.

The trade index is a weighted average of the industrial index, the agricultural index and the index of the quantum of exports and imports. The weights used are according to the proportion of total sales of each sector.

The transportation and communication sectors consist of the following subindexes: an index of railway services (based on the records of actually transported tons/km, passenger kms and animal kms); an index of sea transportation services (based on statistics of transportation weights); index of highway transportation service (based on the number of trucks and buses in existence); index of air transport (transported passenger kms); index of telegraph services (number of words transmitted by the national telegraph); and an index of mail services (corresponding to the volume handled by the national post office). These subindexes are weighted according to the proportion of wages paid in 1949 to each sector.

For the government sector, the index is based on intra and extrapolations based on the demographic census of 1940 and 1950. Adjustments should be made in the near future for the 1960 census. The extrapolations for intercensal years is based on the number of public functionaries.

The index for rental services is based on two subindexes for the urban and rural sectors. The former is obtained by deflating the money value by the cost of living index of the states of Guanabara and Sao Paulo, while the latter is based on the population growth in the rural sector.

The weighting for obtaining total real income is based on the percentages obtained for the gross domestic product at factor cost.

Evaluation: What are the possible biases inherent in the methodology described above? One of the principal questions which could be raised concerns the whole problem of import substitution industrialization. This implies that many goods produced within Brazil which were formerly imported are produced at a higher cost than abroad. Thus, their price within Brazil is higher than previously imported goods. This will give an upward bias to the growth picture, since relative values are used in order to weight the real growth indexes. There seems to be little, however, which can be done to correct for this.

Brazilian Price Statistics:

Cost of living indexes are collected in three centers: the state of Guanabara (i.e. mainly the city of Rio de Janeiro), the municipio of Sao Paulo, and the city of Porto Alegre. The index for Guanabara is collected by the Fundacao Getulio Vargas. The weights used are based on a consumer survey of 36 families of workers at the naval base and 27 families of functionaries of the Fundacao. This was undertaken in 1952 (for details see Conjuntura Economica, Marco 1958). In 1962-3 a new and more broadly based consumer survey was undertaken by the Fundacao. It is therefore most likely

that by 1964 a new and more up to date cost-of-living series should be introduced. For example, the weight for rent in 1952 was 20%. Due to a law in which rents cannot be raised as long as the same tenant lives in the same apartment, the weight of this item has fallen drastically in the last dozen years. Similar distortions occurred with other items.

The cost of living index for Sao Paulo is collected by the Divisao de Estatistica e Documentacao Social of the Prefeitura of the Municipio of Sao Paulo. The Rio Grande do Sul indexes are collected by the Instituto de Estudos e Pesquisas Economicas of the Economics Faculty of the University of Rio Grande do Sul.

Wholesale price indexes, also presented monthly in the Conjuntura Economica, are produced by the Fundacao Getulio Vargas. The basic source of various prices are the price quotations in the commodity exchanges, mainly Rio de Janeiro, but also in various other regions for products originating mainly in a particular part of the country. The weights used are based on the relative value of output of various products in the last census year, i.e. the value added in order to avoid double counting.

An insurmountable difficulty also appears in these indexes due to the heavy import substitution that has taken place. An imported product will not be counted directly in the price index. When the product ceases to be imported due to protection and a new high cost domestic substitute appears, the jump in the wholesale price index which results does not show up, since the item will only be included once it is produced domestically. The rate of growth of the price increase subsequently will, of course, follow a more normal pattern. Thus, considering that during the past dozen years a considerable amount of import substitution went on, one could say that the rise in the wholesale price was really greater than the one indicated by the published indexes.

General Comments:

The basic difficulty with Brazilian statistics lies with the method in which they are collected rather than with the way in which they are processed for national accounts or price statistics. We have already mentioned the weaknesses of agricultural data. But in general, one has the impression that statistics are collected and presented in a fairly routine sort of way, without any concern about the uses to which they will be put. For example, to get information on cement or iron and steel output, three or more different forms are sent to the producer asking basically for the same information. This multiplication of the work of the producer results in a substantial retardation of the information which gets to the statistical bureau (IBGE). Often the methodology of collecting information, or of handling the information collected, or of the coverage, changes abruptly and this makes comparison hazardous. Also, these changes are not always fully reported. For the policy maker, the main concern is the slowness with which statistics appear, making planning an even more complicated affair than it already is.