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Ajustamento para comparação feitos pelo S. M. E.

Industrialization: Past Success  
and Future Problems ✓

Most presently developed countries followed a model of development in which a gradual industrialization was the basic element in growth, structural change and creation of the whole fabric of modern institutions and of modern individuals. Countries which are developing today are, for the most part, not following this model. Brazil, which presents at once a well-known example of rapid economic growth and of persistent difficulties, is an outstanding example of a modern model of rapid development through import substitution.

Whatever success Brazil has achieved with this model was made possible by three basic factors. First, enclaves of export production had already allowed the creation of a modest industrial sector and an urbanized population with some modern institutions and attitudes. Second, the great size of the country partially counteracted the low income level and other "low-level equilibrium trap" problems, and permitted a more diversified and probably lower cost industrial development than is possible in smaller countries. Third, difficulties with the balance of payments furnished a strong economic and psychological impulse to take advantage of these favorable factors and create, in the space of fifteen years, the largest and most diversified industrial park in Latin America.

Perhaps the outstanding characteristic of the import substitution model is that it permits rapid growth to be independent of overall growth of income and consumer demand. Once in motion the process generates its own growth in demand, and can thus be self-sustaining until the structure of imports itself restricts further opportunities for new

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✓ There are three published works on this same subject to which the authors owe a two-fold debt; first, for the information gained from them; second, for added flexibility in writing this paper, which would have had to be quite different if these other works were not also available to readers. These works, by Werner Baer, Maria da Conceição Tavares and Carlos Lessa Baer, Industrialization and Economic Development in Brazil. Richard D. Irwin, 1965; "The Growth and Decline of Import Substitution in Brazil," Economic Bulletin for Latin America, ECLA, Vol. IX, No. 1, March 1964; "Fifteen Years of Economic Policy in Brazil," Economic Bulletin for Latin America, ECLA, Vol. IX, No. 2, November 1964.) are required reading for anyone interested in Brazilian economic problems.

import-substituting investment.

The rapidity of the process, the degree to which it fed on itself, and its foundation in pre-existing modernized enclaves resulted in a tremendous gap between the modern industrial segment, and the traditional sector which was left behind. The development of modern economic, social, and psychological characteristics which are normally the outcome of the gradual industrial development model did not occur in Brazil. The duality of Brazil exists not only between the city and the countryside, but also between different economic sectors, social classes, regions and institutions.

These persistent problems and imbalances, which may appear to be impediments to development, should be seen rather as the guideposts for current action and future progress.

#### I - A brief historical review

Brazilian industry from the 1850's to the early 20<sup>th</sup> century was much closer, technologically and structurally, to industry in countries which are now developed than it is today. There was significant early development in textiles, iron, shipbuilding, and cement. Brazil also had a rich endowment of most of the natural resources needed for industry. The main reasons why Brazilian industry did not develop more rapidly were two: First, the appearance of very profitable opportunities for what are now traditional commodity exports. Investment resources and talent were thus diverted from the less-profitable industrial activities. Second, the social-institutional structure did not develop in such a way as to facilitate continuing industrialization. The profitability of these primary exports created power groups who influenced exchange policy, education, labor policy, and fiscal policy in favor of their own interest- which was generally incompatible with industrialization. Only the recurring crises in the markets for these traditional exports (World War I, the 1930's, World War II and finally the mid 1950's) led Brazil to turn to industrialization as the road to further development.

Brazilian industry before the Second World War was typical of that of a country at the start of the process of industrialization. The leading sectors were traditional industries such as textiles and food products. Brazil had been a leading exporter of textiles around the turn of the century, and was again during the Second World War.

After a short period of free imports with an overvalued cruzeiro, which resulted in spending the foreign exchange reserves accumulated during World War II -- done largely as an ineffective effort to curb inflation and, again, to protect export earnings -- Brazil embarked on a de facto protectionist policy. A strict licensing system was used to limit imports. Industrialization was not a conscious high-priority goal; however, inflation combined with a fixed exchange rate made the licensing system the effective allocator of foreign exchange; imports of non-durable consumer goods were drastically curtailed; and the import-substitution process started in earnest.

The inauguration of a state-owned 500,000 ton integrated steel mill at Volta Redonda in 1946, the founding of the National Economic Development Bank (BNDE) in 1952, and the founding of the state-owned petroleum monopoly Petrobrás in 1954 were important initial steps in public investment and investment subsidies in infrastructure and basic industries. Volta Redonda was soon expanded to one million ton capacity, and together with other steel mills and other basic industries provided domestically available inputs for the automobile, capital goods and other industries. The BNDE in its early years concentrated on electric power and transportation, keeping these elements of infrastructure from lagging too far behind. Petrobrás started refineries and exploration to reduce the demand for imported petroleum and petroleum products.

Throughout the period of post-war growth, protection and public investment and investment subsidies acted in this complementary manner. Protection created a generally favorable atmosphere for import-substitution investment, while public investment and investment subsidies helped to provide the infrastructure and investments in heavy industry to complement and increase private investment. Many qualifications to this general tendency must, however, be noted.

The import licensing system in effect until 1953 resulted, among other things, in a loss of a significant potential source of public revenue. At the same time, the coffee retention policy caused another financial loss to the government. Thus the management of the external sector was far from efficient in providing government resources. During this period (1948 through 1952) investment in infrastructure lagged greatly behind what was needed, and inflation proceeded at an average rate of 11% per year.

In 1953 the import licensing system was abolished and a multiple category, exchange auction system was established as the main

means of controlling imports <sup>2/</sup>. This system, and the modified auction - tariff system which replaced it in 1957, contributed around 15% to 20% of total government revenues.

From 1954 through 1964, the system of multiple exchange rates and tariffs gave a bias to import-substitution of over 100%, measured as a percentage of the export exchange rate. <sup>3/</sup> The average import dollar cost over twice as much as the average export dollar was worth. Exports were further discouraged by the uncertainty due to fluctuations in the real export exchange rate, as the nominal rate was adjusted infrequently in the face of a continuous inflation.

The management of the import side of the foreign sector, at least, was thus providing public revenues as well as protecting import-substituting investments. From 1953 until around 1960, public investment in physical infrastructure more than kept pace with industrial growth, although it did not manage to close the initial gap completely. Investment in social infrastructure, especially education, lagged farther and farther behind, and even today is one of the most glaringly backward aspects of Brazil. On balance, public expenditures were growing faster than public revenues, and this combined with other factors to cause continued inflation. From 1954 through 1960 inflation ranged between 12% and 26% per year, averaging 20%.

The interaction between inflation and industrialization is complex, and indeed not completely understood. <sup>4/</sup> Industrialization elements which tended to feed the inflation include the following: First, inter-sectoral imbalances between supply and demand continually appeared during the rapid structural change. Imports could only partially correct these imbalances, because of limited foreign exchange availability and tariff and other restrictions placed on imports. Thus the imbalance

<sup>2/</sup> See A. Kafka, "The Brazilian Exchange Auction System," Review of Economics and Statistics, August 1965, pp. 308-322.

<sup>3/</sup> See J. Bergsman, "Brazil," in B. Balassa, Tariff Protection in Developing Countries, to appear.

<sup>4/</sup> For three interesting analyses of the Brazilian inflation, see Antonio Delfim Netto and others, Alguns Aspectos da Inflação Brasileira, Estudos Anpes No. 1, São Paulo, 1965; Mario Henrique Simonsen, Aspectos da Inflação Brasileira, EPEA, Ministry of Planning, Rio de Janeiro (mimeo); Baer, op. cit., chapter 5.

caused shifts in relative prices which, as always in a growing economy, moved upward more than downward. Second, many new industries were monopolistic or oligopolistic in structure, and since they were strongly protected from foreign competition tended to sell at high prices relative to imports. Thus the continuing substitution introduced more and more price increases as supply shifted from imports to higher-priced domestic production. Third, the inflation made cost accounting extremely difficult. Even in a competitive market structure, businessmen may tend to adopt price-leadership behavior if they don't know what their costs are. If one sees his competitor raising prices, he can't say, "I'm making money at the old price; I'll just stay there and take his customers away" if he doesn't know whether he is making profits at the old price, and is also a little bit afraid of "spoiling the market"

At the same time, inflation played several important roles in the industrialization. Perhaps the most important of these was to facilitate the transfer of resources from wages to profits and from the private to the public sector. Both of these transfers increased the resources for investment in industry and related infrastructure. In the 1949-1959 period, physical production per worker increased 90%, real wages per worker increased 26%, and wages as a percentage of value added decreased 18%. The government share in GDP went up from 17% to 20% in the same period.<sup>5/</sup> The inflation was certainly partially caused by this increase in government spending. By inflationary financing, the government could achieve its desired real expenditures more easily than the private sector, in the face of rising prices. As to the transfer from wages to profits, it surely would have been harder to keep real wages from rising faster if nominal wages had not been rising so fast. There is some evidence that this "illusion" effect, if it did exist, was discovered; in the early 1960's wages rose fast enough to make up almost all of the losses suffered during the 1950's.

It is also likely -- although we have no quantitative data to show this effect -- that the inflation increased the income of the upper-income classes relative to the lower. This would have increased the demand for many industrialized consumer products which would have

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5/ Data from Industrial Censuses of 1950 and 1960, Conjuntura Econômica, and Center for Fiscal Studies, Fundação Getúlio Vargas. In Bases Macroeconômicas do Plano Decenal (EPEA, Ministry of Planning, Rio de Janeiro, 1967) it is estimated that for the entire economy, the share of labor in production fell 8% during the 1949-59 period.

been very little consumed by the lower-income classes in any case. A similar effect of which we can be more certain is that the inflation, once established, increased the demand for consumer durable goods as a store of assets, and for inventories as a simple way to make a profit. The use of housing as a store of private assets, so often observed in inflationary situations, was somewhat suppressed by rent controls.

Around 1955, rapid and diversified industrialization became a primary conscious goal of the government. Subsidies and special treatment for both foreign and domestic investment were widely used to help attain this objective. These incentives included loans at low or negative real interest rates, tariff exemption and lower exchange rates for a significant amount of imported capital goods<sup>6/</sup> and liberal profit-remittance regulations. Foreign private investment was seen not only as a source of savings but as a source of the even more important "know-how." Another device used to facilitate new investment was the executive group (Grupo Executivo) for various industries. These groups combined planning and execution; they were formed by cabinet ministers or their representatives, and the heads of other important institutions such as the BNDE and CPA (Tariff Council). These groups had the power to implement their plans for investment and production in the various key industries such as automobiles, chemicals, shipbuilding, and capital machinery and equipment.

The subsidies to investment caused over-building, and probably increased the use of more capital-intensive technology in newly established industries. The negative-interest loans and subsidized imports of capital goods were taken advantage of in full measure. Over-capacity is hard to measure, but certainly occurred in many industries such as automobile assembly, shipbuilding, some chemicals and most traditional consumer goods. The effect of the bias toward capital-intensive technology is even harder to estimate, but the abnormally high productivity of Brazilian industrial labor (discussed below in Part II) indicates that it might have been significant.

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<sup>6/</sup> See J. Bergsman, "Brazil," op.cit.



## II Modifications in the industrial structure

### A. Industry in the economy

Brazilian industry in 1949 accounted for 26% of GDP. In 1964 this participation had reached 35%, <sup>7/</sup> - This increase, brought about by a growth of over 8% per year in industrial value added, highlights the dynamic nature of Brazilian industrial growth, which brought about one of the most rapid and radical structural modifications recently observed in an underdeveloped country.

This degree of industrialization is typical of a country with much higher income per capita than Brazil. One factor which partly explains this is Brazil's great size; when both income per capita and population are taken into account, the degree of industrialization of Brazil is only about 15% above the intercountry pattern. <sup>8/</sup>

Industry's share in employment is only about 8% of the total. As is shown in Table I, this is far below that in other countries with similar degrees of industrialization.

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<sup>7/</sup> In current prices. Prices of industrial goods went up at a slower rate than prices in general; thus industry's share in physical output rose even faster.

<sup>8/</sup> See discussion below.

Table I  
Industry's Share in Production and Employment

Country	Industrial production as percent of GDP	Industrial employ- ment as percent of total
Brazil {1949	26%	8% (*)
{1964	35	8 (*)
Argentina	34	25 (*)
Mexico	25	16 (*)
Italy	31	30
Netherlands	30	25
Canada	28	26
United States	30	26
Denmark	27	30
Norway	28	23
Greece	18	16 (*)
Spain	23	18 (*)
Ireland	19	16
Portugal	35	20 (*)

(\*) refers to economically active population.

Source: Some Factors in Economic Growth in Europe During the 1950's,  
 United Nations, 1964.

There are some statistical problems in the inter-country comparisons in Table I, the main one being that the data for some countries refer to persons actually employed, and those for others refer to the "economically active population." However, the inter-country difference is so great that the greater relative productivity of Brazilian industrial labor is beyond doubt. High-productivity workers in Brazil are a very small percentage of total employment. While in the typical developed country a high percentage of workers are employed in high-productivity occupations (industry and some services), in Brazil only a very small percentage are in these sectors. In addition, the differences in productivity among the sectors are much greater in Brazil. This situation makes growth through development of mass markets extremely difficult. The great majority of Brazilian workers are just too far below the income levels which would make them significant consumers of a rapidly growing industrial output.

The post-World War II development of Brazilian industry has only aggravated the difficulty<sup>by</sup> increasing the distance between the lower and the higher productivity sectors. This can be clearly seen in an analysis of the elements of the growth of overall productivity.<sup>9/</sup> In this analysis we divide total productivity growth into two components, called "structural" and "technological." The structural component is defined as the increase which would have occurred if productivity in each sector remained constant, with only the structure of employment changing. The technological component, defined as the part of the total increase not accounted for by the structural component, is mainly that due to productivity increases in each sector, assuming a constant structure of employment. The breakdown of the overall increase in Brazilian labor productivity into these two components is shown in Table 2.

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9/ This analysis follows the general idea of the UN analysis, Some Factors ... op. cit.

S e c t o r	Technological	Structural
Agriculture	8.1%	4.0%
Manufacturing	20.3	1.6
Mining	0.6	-
Construction	0.6	-
Electric Power	0.2	0.3
Commerce	3.0	1.7
Transport and Communication	2.7	0.8
Services	- 2.4	- 0.2
Government	- 4.6	- 0.8
Total	28.4%	4.1%

Source: Calculations based on data from Demographic Census of 1950 and 1960, and Revista Brasileira de Economia, March 1962.

Increasing productivity in a small part of the labor force, leaving the rest stagnant, is a poor kind of development. It would be better to emphasize increasing productivity through a shift in the labor force to the more productive occupations. (This is the "structural" component.) Instead of concentrating more and more capital on the same small portion of the labor force, genuine development is seen as the shift of an ever-growing percentage of the labor force away from lower productivity towards higher productivity activities. \*

A pure policy of the "technological" kind of increase in productivity is unsatisfactory in itself: it carries part of the population into the modern world and leaves the rest behind.

\* This follows one of the basic ideas in Fei and Ranis, Development of the Labor Surplus Economy, Richard D. Irwin, 1964.

Moreover, such a policy is unlikely to be self-sustaining: with most of the economy stagnant, the growing sectors will run out of markets for their products. International trade can alleviate this problem to some extent, but a continental country such as Brazil not only should, <sup>base</sup> but in fact cannot avoid basing sustained growth principally on expansion of its own domestic markets.

Thus a balance is required: some of the capital intensive, modern industrial sectors are highly profitable, have rapidly growing demand, and exert dynamic effects on other sectors. These sectors will and should grow rapidly. Most of them will not absorb much labor. On the other hand, development cannot take place without expanding the percentage of the labor force engaged in higher productivity sectors -- most of industry, and part of agriculture and services.

As shown in Table 2, most of the recent increases in productivity in Brazil have been of the "technological" type; of the overall labor productivity increase of 32% from 1950 to 1960, 20% was due to the "technological" increase in industry, and another 8% to that component in agriculture. The "structural" component in agriculture was only 1%, and in industry it was negative. The Brazilian labor force has not been shifting into the high-productivity industrial activities, and it is likely that reliance on continued productivity increases in small sections of the labor force has already reached a dead end in the contraction of the early 1960's. The weakness of consumer demand as a factor in the recession of the 60's, the abnormally high consumption of food products relative to other industrial goods, and in general the obvious existence of a strong duality between the stagnant, poor Brazil and the developing, prosperous Brazil indicate that both industry and modern agriculture must be induced to absorb labor somewhat more rapidly than in the past -- and perhaps also that the laborers should be allowed to retain a higher percentage of their productivity increases.

Perhaps one of the reasons why highly productive sectors have not absorbed more labor is that Brazil's famous cheap labor is not cheap at all -- but simply low priced. With half of the population unable to read or write, and another large group without the basic education needed even to start on-the-job training in modern industry, it may indeed be more economical to apply more and more

physical capital to a small modernized labor force, rather than to absorb more and more new workers with less capital per worker. The best way to start to spread capital over more workers may be through education. By providing today's children with the abilities and the attitudes needed to work in modern activities, we can expect these activities to be more willing to employ them.

In addition to a poorly prepared working population -- and very high fringe benefit labor costs -- government policies reduced the real cost of capital equipment. Subsidized loans, and tariff exemptions for imports of many capital goods biased the capital-labor ratio still further.

#### B. Intra-industrial developments

The structural modifications within Brazilian industry took place in the context of sustained rapid growth. The overall level of industrial activity rose an average of 7.2% per year from 1939 to 1949, 8.5% per year from 1949 to 1959, and 9.7% per year from 1959 to 1964. The average annual growth for the 25-year period was an impressive 8.3%.

The early structure was heavily concentrated on food products and textiles. These activities are still important, but have been joined by diversified chemicals, metallurgy, and machinery and equipment sectors. Paper products and rubber products, although much smaller in magnitude, have also been dynamic sectors. In the most general terms, the evolution has been more or less typical, with emphasis shifting from consumer goods to producer goods, and from traditional to modern industries. This history is summarized in Table 3.

If we aggregate to the level of consumer-oriented and producer-oriented goods, we see this structural change very clearly. Especially during the 1950's, a marked increase in the importance of producer goods occurred. This is shown in Table 4.

TABLE 3

## EVOLUTION OF THE STRUCTURE OF BRAZILIAN INDUSTRY, 1939-1964

SECTOR	ISIC	VALUE ADDED, IN MILLIONS OF 1953 U.S. DOLLARS				PERCENTAGE DISTRIBUTION				AVERAGE ANNUAL GROWTH RATES			
		1939	1949	1959	1964	1939	1949	1959	1964	39-49	49-59	59-64	39-64
Food, Beverages, & Tobacco	(20-22)	345	612	1 118	1 859	30%	27%	21%	22%	5.9%	6.2%	10.6%	7.0%
Textiles, Clothing, & Footwear	(23-24)	307	537	815	1 164	27	23	16	14	5.7	4.3	7.4	5.5
Wood, Paper, & Products	(25-27)	79	200	456	519	6	8	8	6	9.8	8.6	2.6	7.8
Leather & Rubber Products	(29-30)	26	75	181	239	3	3	3	3	11.2	9.2	5.8	9.3
Chemicals	(31-32)	124	230	723	1 386	11	10	14	17	5.6	12.2	13.8	10.2
Non-Metallic Mineral Products	(33)	61	165	356	355	5	7	7	4	10.5	8.0	nil	7.3
Metals & Metal Products	(34-38)	150	349	1 437	2 547	13	16	27	31	8.8	15.2	12.0	12.0
Others	(28,39)	54	129	247	288	5	6	4	3	9.1	6.8	3.0	6.9
Total Manufacturing	(20-39)	1 146	2 297	5 333	8 357	100	100	100	100	7.2	8.5	9.7	8.3

SOURCE: Industrial Censuses for 1939, 1949, and 1959; Industrias de Transformação - Dados Gerais - 1963/64, published by IBGE, April, 1966 for 1964. Adjustments for comparability made by the authors.

TABLE 1  
EVOLUTION BY MAJOR TYPE OF PRODUCT

SECTOR	PERCENTAGE DISTRIBUTION				
	<u>1939</u>	<u>1949</u>	<u>1955</u>	<u>1959</u>	<u>1961</u>
Consumer-oriented	80.1%	75.4%	71.6%	59.0%	56.5%
Producer-oriented	19.9	24.6	28.4	41.0	43.5
	100 %	100 %	100 %	100 %	100 %

Sources: Calculations based on same data used in Table 3.

Studying one case history can be more meaningful if we have in mind similar histories. How does the evolution of Brazil's industrial structure compare with the experience of other countries? For comparison, we shall use the results of a study published by the United Nations<sup>10/</sup> which shows that a strong relation exists between the structure of industry in a given country, and the per capita income and population of that country. In other words, if we know only the levels of per capital income and population, we can do a pretty good job of predicting the level of value added in each branch of industry.

The existence of this relationship does not imply that the levels of income and populations cause the levels of industrial production to be as they are. Nor does it imply that, for any particular country, the pattern of industrial activity should be as predicted. Natural resource endowments, demand patterns, trading relationships, and other factors may and do cause actual country patterns to differ from the average inter-country tendency.

Apart from country peculiarities, the normal evolution of the pattern of industrial production over time may not follow the path predicted by the cross-section study. Variance between time

10/ A Study of Industrial Growth, 1963. Sales No 63.II B.2



series and cross-section behavior is common in economic activity; savings functions are a common example. The data in the UN Study are consistent with the possibility that the cross-section pattern is shifting over time<sup>11/</sup>. Thus, even the "normal" evolution of value added in a sector may not be that predicted by inserting time-series of the incomes and population variables and deriving time-series of industrial value added from the equations based on the cross-section.

Another of the problems which occurs when time-series behavior is compared to cross-sections is that of changing relative prices. Relative prices have shifted significantly in Brazil in the last few decades, and the patterns of growth look quite different if one attempts to hold relative prices constant. The correct way to treat this problem is not perfectly clear, but we believe the best way is to let relative prices vary. The major reason for this is that there was no correction made for different relative prices among the observations in the original UN Study.

These problems of possible time-shifts in the cross-section pattern and changing relative prices imply that the changes over time - that is, the growth rates - apparently predicted by the results of the UN Study may not really represent the average inter-country tendency. The absolute magnitudes predicted for one year are also subject to some difficulties. The most serious of these is probably the choice of an exchange rate for "value added"; another is differences in the industrial classifications. We have tried to minimize the distortions from these sources, but must point out that a significant margin of uncertainty remains. We hope to reduce errors in interpretation by analysing absolute position and changes over time together, as well as in the light of other information not dependent on the cross-section comparison.

Having stated all these qualifications, we present on the following pages nine graphs which show the behavior of selected sectors, relative to the behavior predicted by the UN Study. Each graph shows the deviations from the predicted values as percentages of the predicted values. In Table 5 we present a comparison of the predicted and actual structures for 1949 and 1964, and in Table 6 a comparison of predicted and actual growth during the 1949-64 period.

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<sup>11/</sup> See the Study, pages 43-52.

CHART 1

DEVIATIONS FROM INTER-COUNTRY PATTERN  
FOOD, BEVERAGES, AND TOBACCO

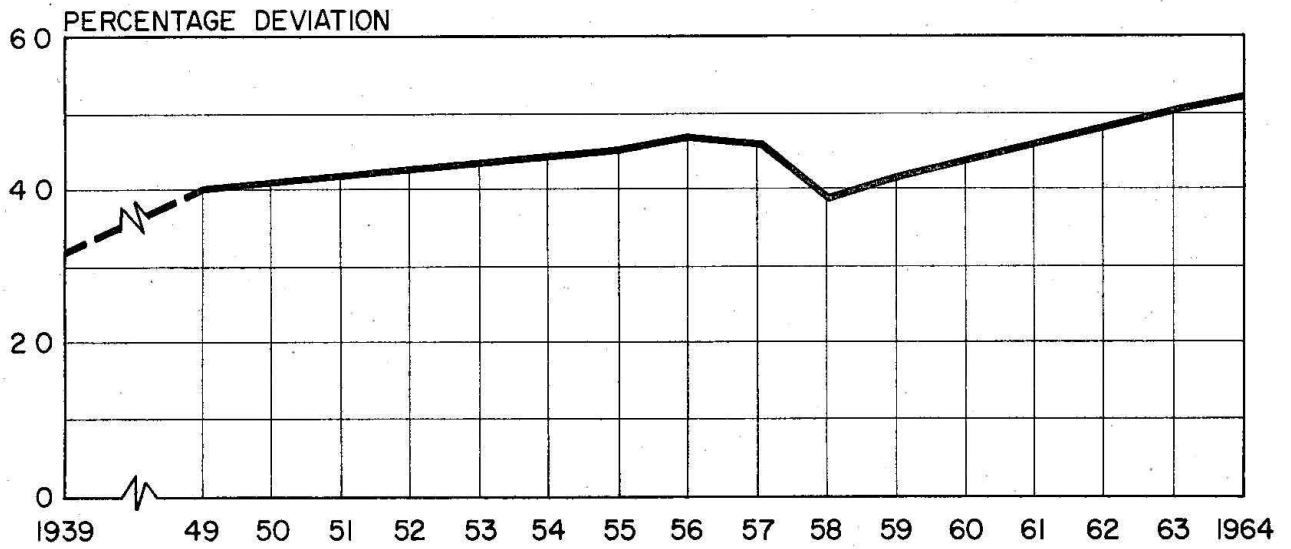


CHART 2

DEVIATIONS FROM INTER-COUNTRY PATTERN  
TEXTILES

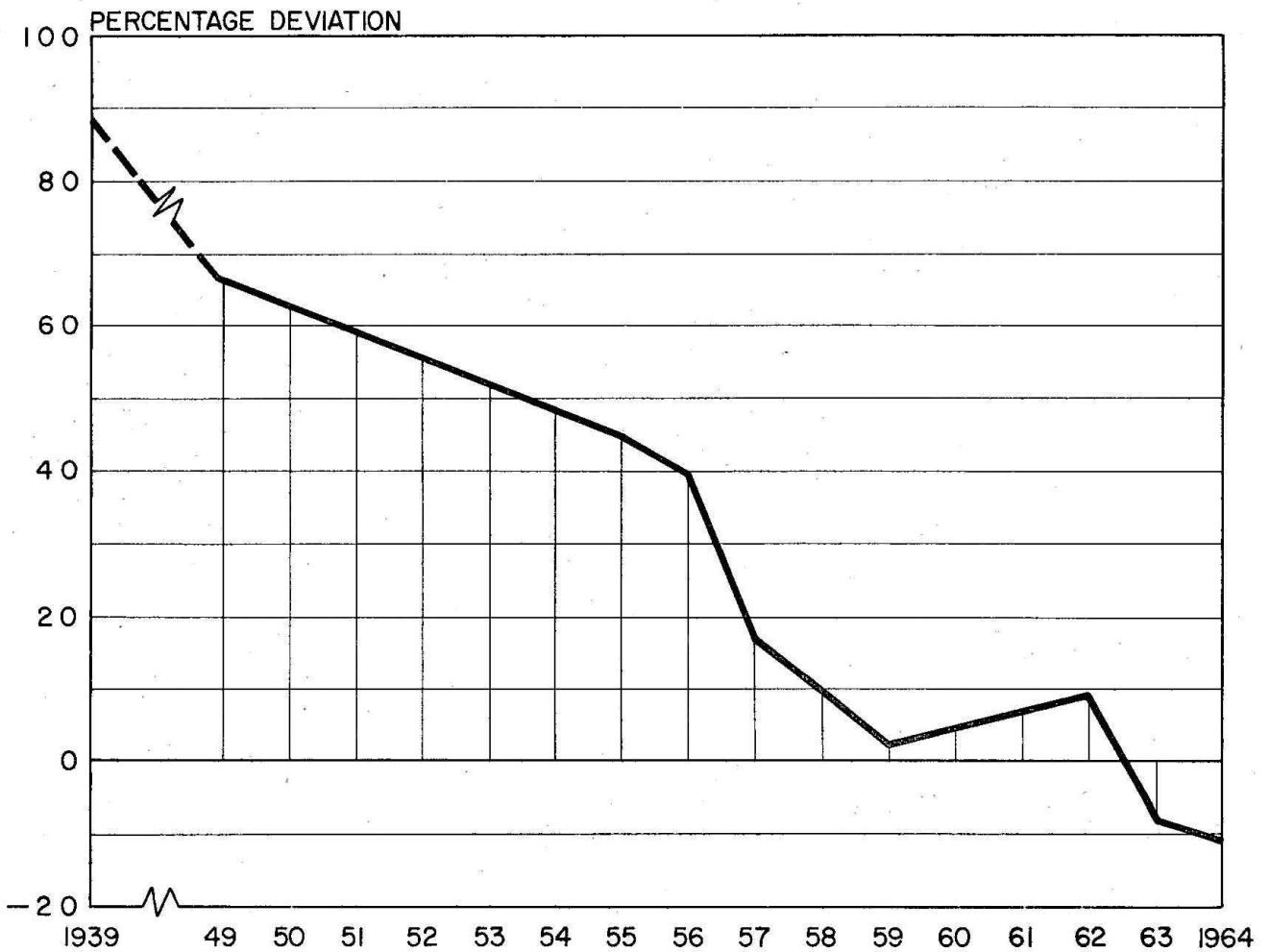


CHART 3

### DEVIATIONS FROM INTER-COUNTRY PATTERN RUBBER PRODUCTS

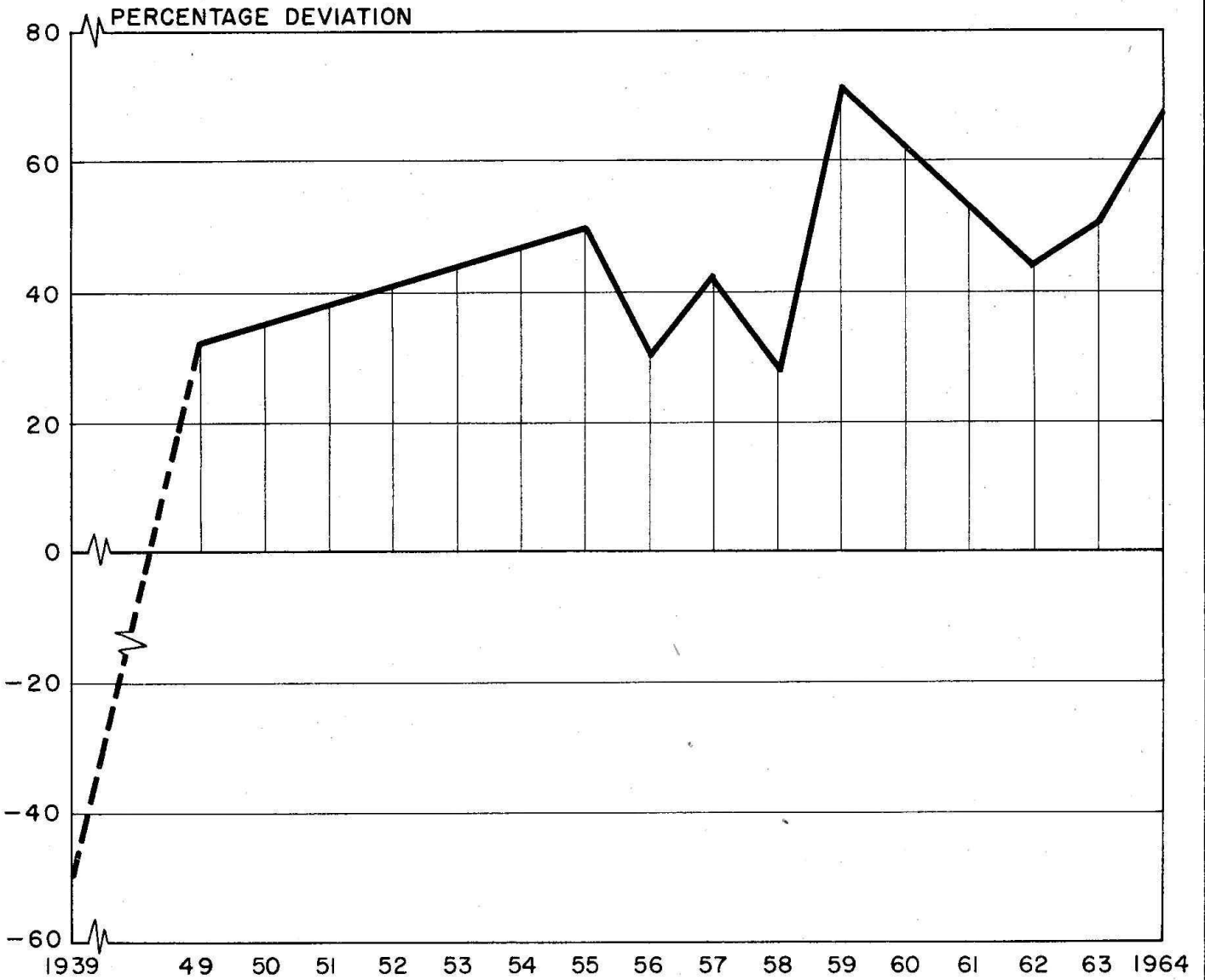


CHART 4

### DEVIATIONS FROM INTER-COUNTRY PATTERN CHEMICALS

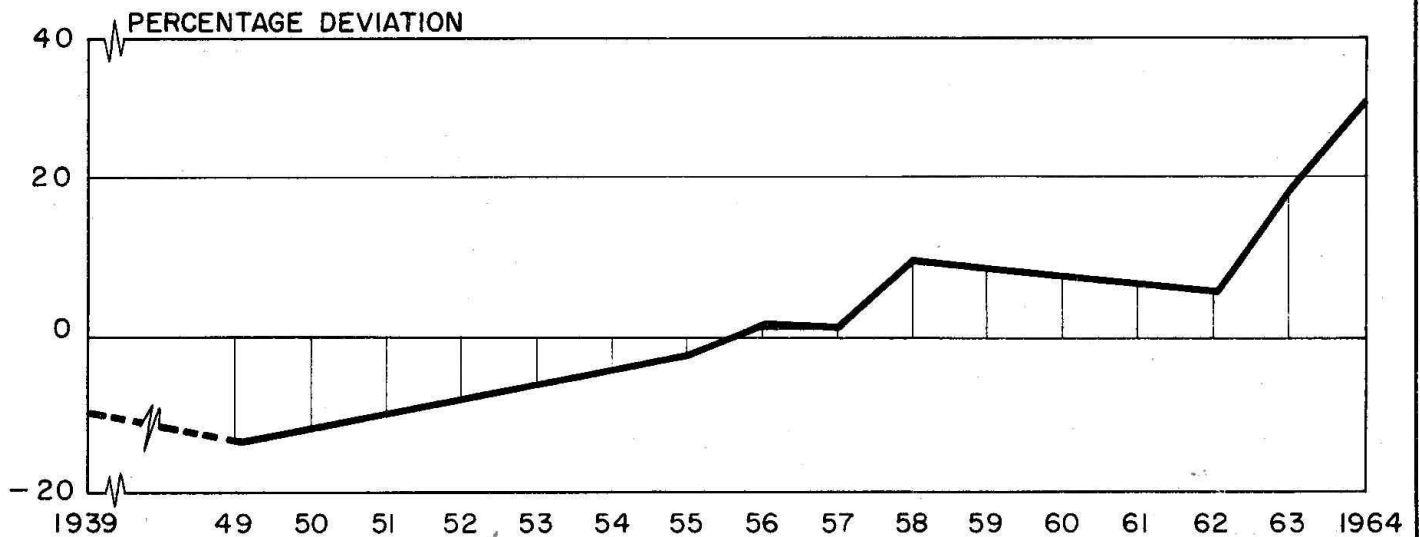


CHART 5

DEVIATIONS FROM INTER-COUNTRY PATTERN  
NON-METALLIC MINERAL PRODUCTS

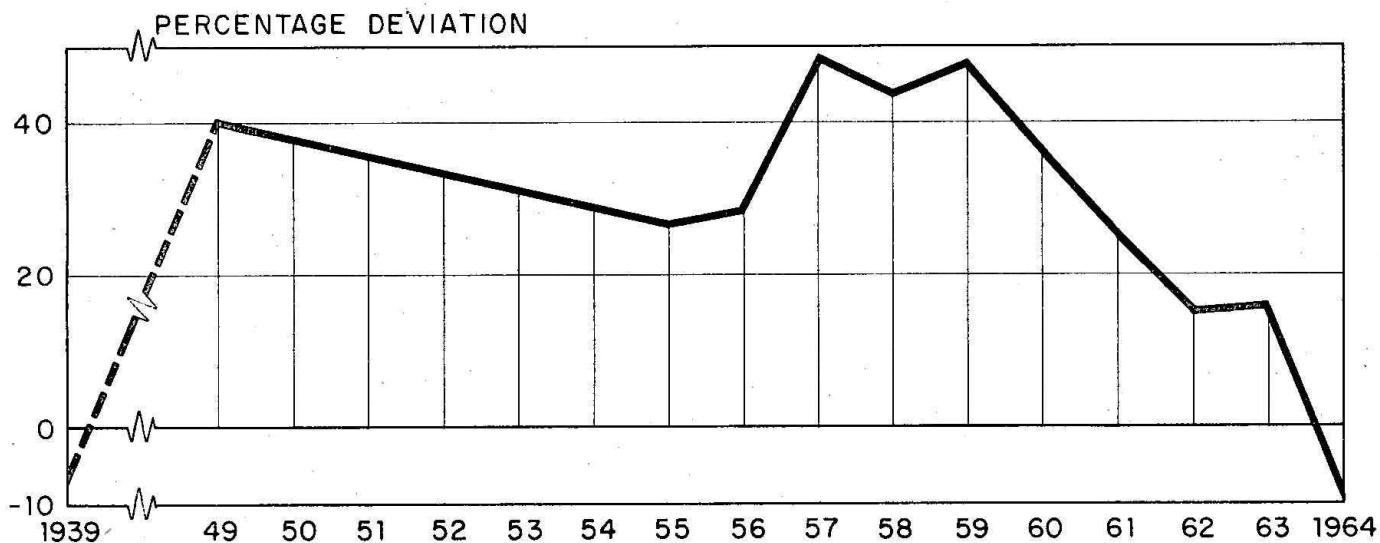


CHART 6

DEVIATIONS FROM INTER-COUNTRY PATTERN  
BASIC METALS

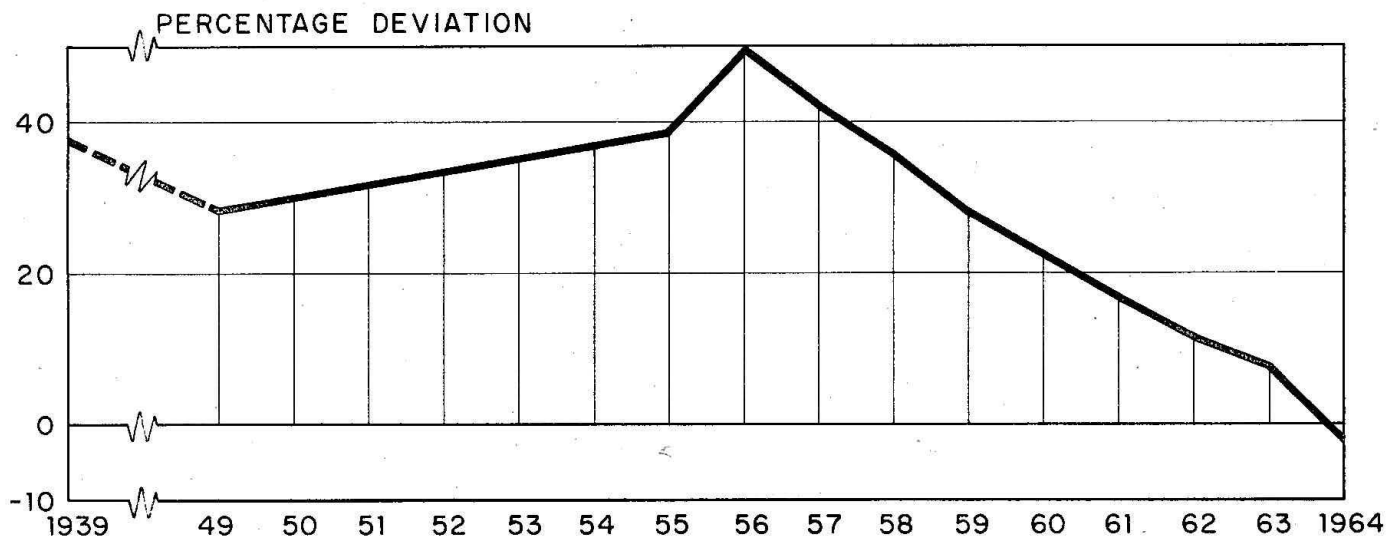


CHART 7

DEVIATIONS FROM INTER-COUNTRY PATTERN  
METAL PRODUCTS

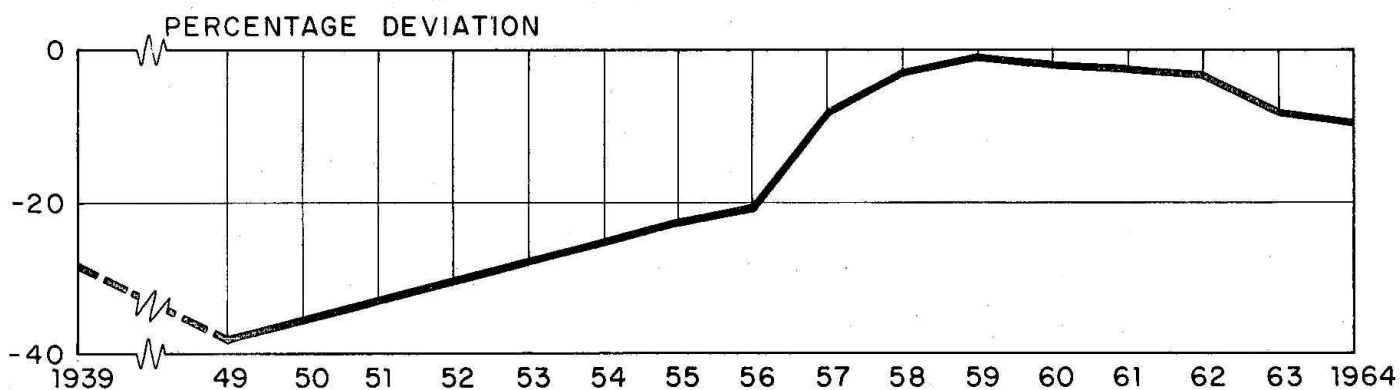


CHART 8

DEVIATIONS FROM INTER-COUNTRY PATTERN  
 CONSUMER GOODS AND PRODUCER GOODS

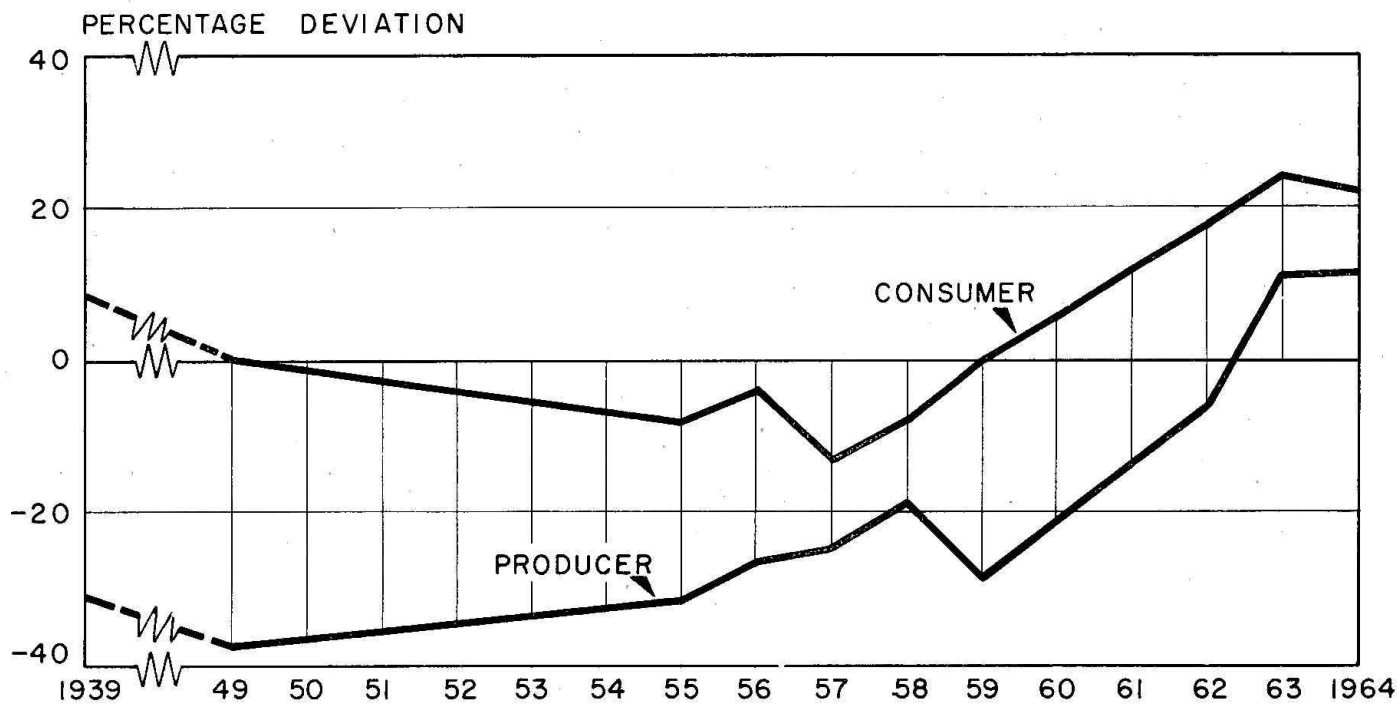


CHART 9

DEVIATIONS FROM INTER-COUNTRY PATTERN  
 ALL MANUFACTURING INDUSTRY

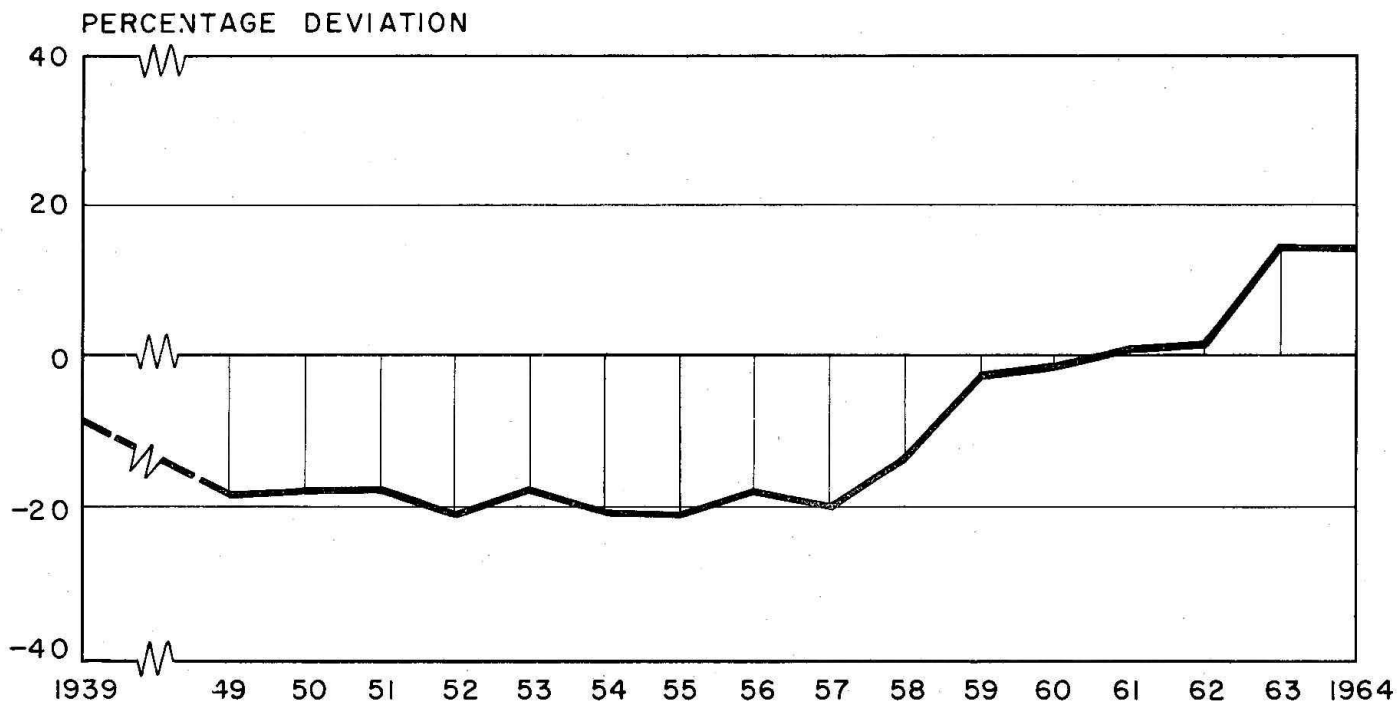


TABLE 5  
ACTUAL AND PREDICTED INDUSTRIAL STRUCTURE

SECTOR	1949		1964	
	ACTUAL	PREDICTED	ACTUAL	PREDICTED
Food, beverages and tobacco (20-22)	27%	22%	22%	15%
Textiles ( 23 )	19	14	10	8
Clothing and footwear ( 24 )	4	5	3	4
Wood products (25-26)	6	4	4	4
Paper and products ( 27 )	2	2	2	2
Printing and publishing ( 28 )	4	3	2	3
Leather products ( 29 )	1	1	6	7
Rubber products ( 30 )	2	2	2	1
Chemicals (31-32)	10	14	15	14
Non-metallic mineral products ( 33 )	7	6	4	5
Basic metals ( 34 )	6	5	9	10
Metal products (35-38)	10	18	21	25
Miscellaneous ( 39 )	2	2	1	2
<b>Total (20-39)</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>
<b>Total, million dollars</b>	<b>\$ 2 295</b>	<b>\$ 2 845</b>	<b>\$ 8 620</b>	<b>\$ 7 420</b>

SOURCE: "Predicted" values calculated by the authors from the equations in the UN Study. Actual values from same sources as Table 3.

TABLE 6  
ACTUAL AND PREDICTED SECTORAL GROWTH, 1949-61

SECTOR	AVERAGE ANNUAL GROWTH RATE		PERCENTAGE DIFFERENCE
	ACTUAL	PREDICTED	
Food, beverages and tobacco (20-22)	7.7%	6.9%	12%
Textiles ( 23 )	4.9	9.2	- 47
Clothing and footwear ( 24 )	6.9	8.1	- 15
Wood products (25-26)	5.2	9.6	- 46
Paper and products ( 27 )	9.5	12.3	- 23
Printing and publishing ( 28 )	4.2	9.5	- 56
Leather products ( 29 )	5.5	7.3	- 25
Rubber products ( 30 )	9.4	7.8	20
Chemicals (31-32)	12.8	8.8	45
Non-metallic mineral products ( 33 )	5.2	8.2	- 37
Basic metals ( 34 )	12.4	14.1	- 12
Metal products (35-38)	15.2	12.1	26

SOURCE: See Table 5.

Now that we have taken apart the evolution of the structure of Brazilian industry, we will try to put it back together and see if we have any insights left over. We will start with the overall picture and then discuss some sectors individually. The high level of aggregation limits the analysis, and much of what we say will be hypotheses rather than proven conclusions.

### Total Manufacturing

The sustained, strong growth of industry in Brazil is justly a well-known and much-discussed phenomenon. As we noted earlier, growth averaged over 8% per year for the entire 25-year period, with the rate rising more or less steadily throughout. This is an experience that few presently less-developed countries have matched.

If we compare this performance with that predicted by the UN Study (Chart 9 above), we see that the actual growth rate was actually less than would be expected for a country with Brazil's income and population during the 1940's, and barely equal to the expected rate from 1950 to around 1955-57. Only since the mid-50's has Brazilian industry grown faster than "normal". And if we can believe our exchange rate, only around 1960 did the level of industrial activity reach "normal" - it was around 20% below normal from 1949 through the mid-50's.

Brazil's industrialization, viewed in this light, does not appear excessive or overdone. A thorough evaluation of every policy which affects industrialization, and of every relevant investment, would surely disclose some wise decisions and some not so wise. But the evidence we have here indicates that the overall level of industrial activity reached in the early 60's was appropriate for a country the size of Brazil.

### Consumer goods - Producer goods

The relative importance of consumer-oriented goods and producer-oriented goods gives a similar impression. (Chart 8 above) Both followed the trend of the total; consumer goods were more or less at the level of the international pattern, rising steeply since the mid-50's to about 25% above the "normal" level in 1963-64. Producer goods were well below the "normal" level until the early 60's, and in 1963-64 were only about 10% above it.

This means that the declining importance of consumer goods and growing importance of producer goods was quite consistent with the typical behavior of other countries. Moreover, relative to average inter-country tendencies, Brazil's consumer-goods industries appear to be relatively more important than her producer-goods industries. This may be partly due to the higher relative price



of consumer goods, which receive far more tariff protection than producer goods.<sup>12/</sup>

### Food, beverages, and tobacco (ISIC 20-22)

Production in this sector has been consistently above the "normal" level, with a slightly rising trend. We can speculate on two principal causes for this greater-than-expected activity. The first is the relatively good performance of Brazilian agriculture, which has provided a very elastic (i.e., easily expandable) supply of raw materials. A second, less certain, is that a relatively high degree of income inequality may be hidden behind the average income per capita figures for Brazil. If income distribution is more skewed in Brazil than in countries with similar incomes and populations, we would expect the consumption of food products to be relatively higher.

In a study of the relative efficiency of various Brazilian industries, we found that many branches of this sector ranked very high. The overall view of this sector is thus one of efficient production, adequate raw material supplies, and perhaps a stronger demand than Brazil's average per capita income would indicate.

### Textiles (ISIC 23)

The textile industry, as is well known, presents a dramatic picture of a once-healthy, but now sick industry. Before and during the Second World War, Brazil was one of the world's principal producers and exporters of textiles. Today a significant part of the industry is extremely inefficient and produces almost exclusively for domestic consumption, at high prices permitted by a tariff which until March 1967 averaged over 200%<sup>13/</sup>.

There seems to be no natural or fixed technological reason for the decline and present state of the textile industry. A few Brazilian producers are able to export. The value of Present production is more or less at the level of the international pattern, but this is partially a statistical phenomenon due to high product prices .

The industry can really be thought of as composed of two parts. One produces synthetic and high-quality natural textiles,

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<sup>12/</sup> See J. Bergsman, "Brazil", op. cit.

<sup>13/</sup> Brazil's textile industry has been frequently studied. See the EPEA Diagnóstico and the studies cited there.

for higher - income domestic consumption and for export. Most firms in this part of the industry are either quite young, or have recently invested heavily in modern equipment. The other part of the industry produces lower-quality natural textiles, in conditions of great relative inefficiency. This part is faced with weakening demand and overcapacity because of the shift in demand to synthetics and because of decreasing or stagnant purchasing power of the lower-income groups. Many firms in this part of the industry are trapped in a vicious cycle of low sales, low profits, and inability to finance the modernization needed to increase sales and profits.

Customs tariffs on textiles (and on clothing) were higher than in any other sector - averaging 200%. In the revised tariff schedule adopted in early 1967, the tariffs still average about 100%. Lowering this extreme barrier to competition would probably be a good idea in conjunction with the re-equipment and reorganization program which has already been started.

#### Rubber Products (ISIC 30)

A large part of the recent growth of this sector is due to growing demand for tires for Brazil's automobile industry.

#### Chemicals (ISIC 31-32)

Normally one of the most dynamic sectors in any developing economy, Brazil's chemical sector has grown even more rapidly than normal. Analysis of this extremely heterogeneous sector is very difficult at this level, but one may note generally low tariff protection, preferential treatment of investment by the government, and a relatively mature and efficient consumer-oriented branch of the sector (soaps, pharmaceuticals, etc.).

Basic Metals (ISIC 34) and Metal Products (35-38)<sup>1/1</sup>

Both Basic Metals and Metal Products have been tending towards the "normal" level of production. The Basic Metals sector had been above the normal level, probably reflecting Brazil's natural comparative advantages, principally in iron and steel. The iron and steel sector is one of the most efficient of Brazil's industries, relative to international patterns; non-ferrous metals are relatively inefficient but rapidly becoming more efficient. The Metal Products sector, which includes all capital and consumer durable goods, electrical and transportation equipment, and semi-finished metal products as far back as foundry products and forgings, has been below the "normal" level but has recently caught up. This recent growth is in large part the automobile industry, started in the mid 50's.

In the drive to industrialize, imports of capital goods were often permitted with low or zero customs duties, and with other special benefits as well. This naturally retarded the domestic industry. At present, the domestic industry is reasonably well developed, and with the recent "Buy Brazilian Act" limiting special treatment for imports, the whole metals - metal products sector will probably grow quite rapidly.

Many aspects of the structural changes become clearer when we aggregate to a classification by use: consumer durables, consumer non-durables, intermediate goods, and capital goods. The evolution of production according to this scheme is shown in Table 7. The outstanding aspects are the growth in importance of capital goods and consumer durables, and the maintenance of the position of intermediate goods. This points up the integrated nature of the import-substitution process which constituted the major basis of industrial development; not only finished goods but also the components and raw materials were produced more and more in Brazil.

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<sup>1/1</sup> There is a significant difference between the Brazilian and the ISIC classifications of these two sectors, and we have adjusted the original data as best we could. The difference is that many activities in ISIC 35 are included in the Brazilian sector "Metalúrgica". We are indebted to Walter Ferri for pointing this out to us.

TABLE 7

STRUCTURE OF INDUSTRIAL PRODUCTION BY USE

	1949	1955	1959	1964
CONSUMER DURABLES	4.1%	6.8%	14.9%	10.5%
CONSUMER NON-DURABLES	58.6	52.2	44.1	46.0
INTERMEDIATE GOODS	32.1	35.2	29.4	32.0
CAPITAL GOODS	5.2	5.8	11.6	11.5
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	100.0	100.0	100.0	100.0

SOURCE: Basic data from 1949 and 1959 Industrial Census, Industrial Register for 1955, Dados Gerais. (op. cit.) for 1964.

The non-durable consumer goods industry, as shown in the comparisons with international patterns mentioned above, was already well developed at the start of this period. The rapid growth of the durable consumer goods and capital goods industries indicates that growth was led by two elements which had little to do with the overall growth of income and purchasing power in the economy. These elements were import substitution, and public investments and investment subsidies. The import substitution affected every industrial sector, and almost completely eliminated imports in most. The public investment and subsidies were important in electric power, roads, railroads, and basic industries such as steel, petroleum, chemicals, non-ferrous metals, heavy machinery, automobiles, and shipbuilding. The complementary actions of the import substitution process, with an already substantial industrial tradition and importable "know-how," and the public investment and investment subsidies made possible in fifteen years a structural change which took many decades in countries now developed.

The changing industrial structure must be studied in conjunction with the import-substitution process, which gave it its main impulse and also its internal logic. The import substitution model has two important aspects: the increase in domestic production as a percentage of total supply, and the qualitative effects which stimulate the change in the structure of imports and total supply.

All imports as a percentage of GDP fell from an average of 16% in 1947-49 to 9 1/2% in 1962-64. The participation of industrial products in total imports fell from 87% in 1953 to 58% in 1965.<sup>15/</sup> Especially outstanding in this switch from industrialized to non-industrialized products is the behavior of fuels and lubricants. Refined petroleum products fell from 21% of total imports in 1953 to 5% in 1965, while crude oil increased from virtually zero in 1953 to 30% of total imports by 1965. Industrial growth was sufficiently rapid and diversified to reduce even the absolute value of industrialized imports liberating foreign exchange needed to provide non-industrialized raw-material imports. This could only have happened with the "big push" type of industrialization on a broad front. On the other hand, this continuing reduction of the import structure towards an ever-larger quantity of a few basic raw materials which Brazil as yet cannot supply causes increasing rigidity in import demand and makes industrial

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<sup>15/</sup> Data from national accounts, and from IBGE, Números Índices Anuais dos Preços e das Quantidades no Comércio Exterior e de Cabotagem. This latter source for detailed import statistics unfortunately goes back only as far as 1953.

production in a way even more dependent on capacity to import.

In Table 8 we show the interaction between the changes in the structure of production and those in the structure of imports. Only imports of industrialized products are considered. Chart 10 gives a visual idea of the results.

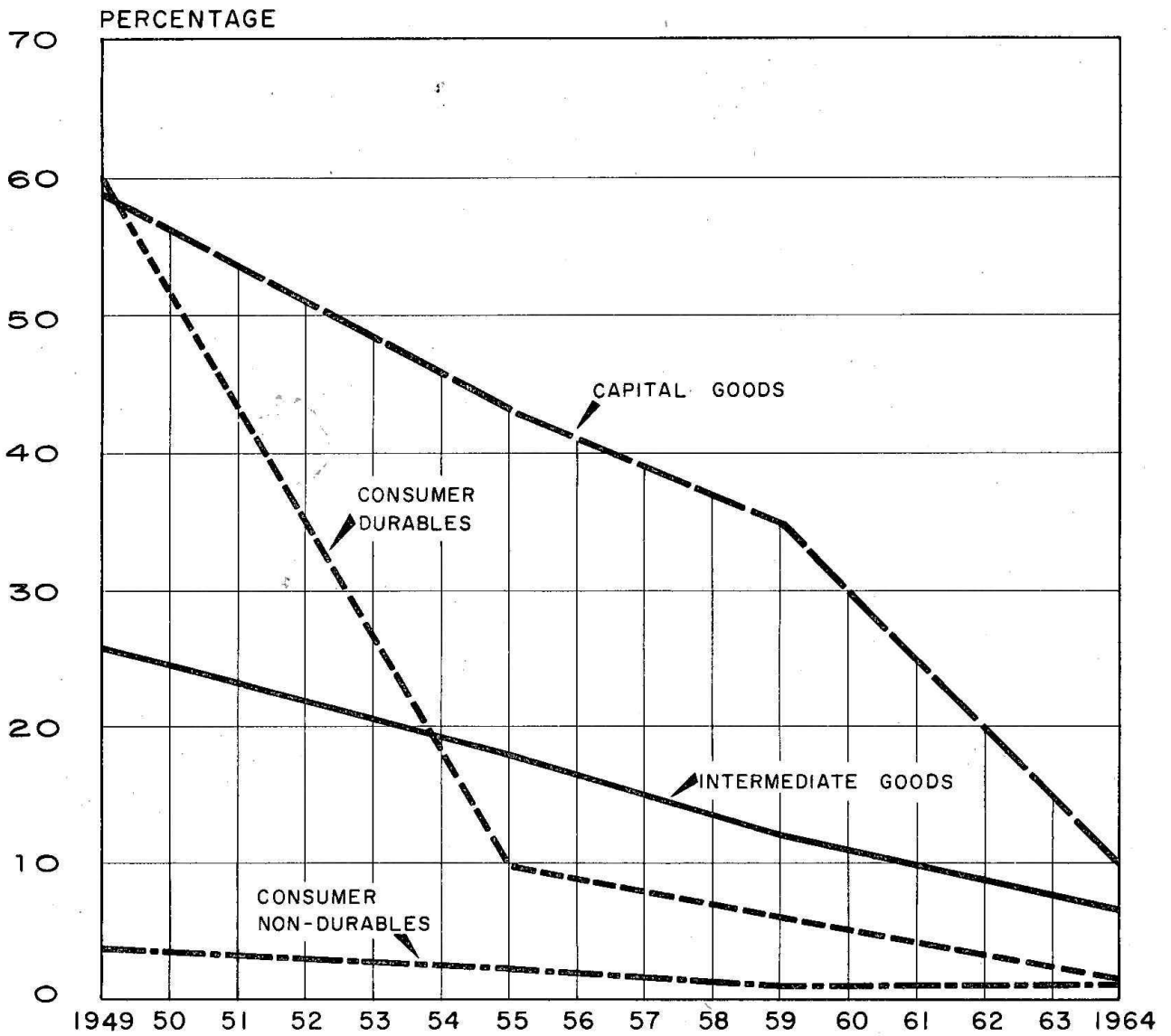
TABLE 8  
STRUCTURE OF IMPORTS AND DOMESTIC PRODUCTION OF  
INDUSTRIAL PRODUCTS, BY USE

	CONSUMER GOODS		PRODUCER GOODS		ALL INDUSTRIAL GOODS
	durables	non-durables	intermediate	capital	
A. Imports (billion cruzeiros of 1955)					
1949	8.9	5.4	18.2	15.8	48.3
1955	2.1	4.5	22.6	13.7	42.9
1959	2.9	2.8	21.2	29.2	56.1
1964	1.5	3.9	18.6	8.7	32.7
B. Domestic Production (billion cruzeiros of 1955)					
1949	4.9	140.0	52.1	9.0	206.0
1955	19.0	200.9	104.0	18.0	341.9
1959	43.1	258.0	159.6	59.5	520.2
1964	93.8	319.5	261.2	79.7	754.2
C. Imports as Percentage of Total Supply					
1949	60.1%	3.7%	25.9%	59.0%	19.0%
1955	10.0	2.2	17.9	43.2	11.1
1959	6.3	1.1	11.7	34.5	9.7
1964	1.6	1.2	6.6	9.8	4.2

Sources: Imports from IBGE Números Índices, op. cit. Gross value of industrial production from Industrial Census, Registro Industrial and Indices of Physical Production from Conjuntura Econômica. Imports of 1949 projected backward using data in "the Growth and Decline..." op. cit.

CHART 10

# IMPORTS AS PERCENTAGE OF TOTAL SUPPLY OF INDUSTRIAL PRODUCTS



The reduction of imports as a percentage of total supply is especially striking when only industrial goods are considered, as in Table 8 above. The data for 1964 are somewhat distorted because the recession which started in 1963 affected import demand more than demand for domestic products; the capital goods imports for 1964 especially is an abnormally low figure. The picture is nevertheless clear: Brazil imports far fewer industrial products than she used to, and at present there is little room left for future substitution, except in capital goods.

We can distinguish, in a rough way, three stages within the 1949-64 period. During the first, the outstanding progress in import-substitution was made in consumer durables. Consumer non-durables had already been almost completely substituted; by the late 1950's, most durables as well were produced domestically.

As imports of consumer goods were reduced, the import-substitution process entered the second phase: completing the establishment of Brazil's broad, highly integrated, and almost self-sufficient industrial park. Thus, both domestic production and imports of capital goods increased rapidly during this period (roughly 1955-59). Domestic production of intermediate goods also expanded at a rapid pace; so rapid that imports remained at a more-or-less constant absolute level.

The third phase started around 1959, when the investments made during second phase entered into full-scale operation. This phase showed a marked decline in total industrial imports as a percentage of total imports, as imports of more and more unprocessed raw materials were needed by the new industrial structure.

Until the early 1960's, the process of progressive vertical integration and self-sustaining growth can be seen. The investments of the 1950's indeed had high linkage effects and constituted the simultaneous creation of both demand and supply for a wide variety of industrial products. As Baer concluded, "The picture which emerges ... from the simultaneous growth of industries which to a large extent are each other's customers is that of a remarkably balance growth... Many complementary industries grew up simultaneously and acted as self-reinforcing factors." <sup>16/</sup>

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<sup>16/</sup> Baer, op.cit., page 142.



We have seen that Brazilian industrial growth since World War II was largely a process of import substitution -- that is, that this growth was not limited by growth in demand for industrial products, but to a great extent represented a shift to supplying the total amount of demand by domestic production rather than by imports.

Being largely independent of growth in final demand, rapid industrial growth could proceed in the face of rather slow rises in real disposable personal income. In fact, the slow rise in real wages in all sectors aided industrial growth exactly by restricting demand for consumer goods and permitting more investment. Higher nominal wages would probably have been largely absorbed by inflation; it is doubtful that the government would have sacrificed its real share in expenditure, but real investment would probably have fallen somewhat in response to higher nominal wages.

We have also seen that the import substitution was wide and deep. Imports of industrial products of virtually all types fell to almost zero, and virtually all components of these products came to be produced in Brazil. Thus the process sustained itself throughout a long period; it created and satisfied its own demand, at least from 1947 through about 1961. One cost of this integrated industrial structure is increased susceptibility to cyclical behavior: weakness in demand now affects domestic activity instead of imports. An offsetting benefit, of course, is reduced dependence on export earnings. This net saving in foreign exchange on merchandise account was partially counter-balanced by a rise in short-term obligations, as well as in payments of interest and profits. These rose to levels which have repeatedly caused problems in the 1960's.

The extensive import substitution did create a few very high-cost industries. This had some interesting negative effects; for example, the "linkages" and/or external economies effects were counter-productive in these cases, as high-cost domestic production took the place of imports, thus raising costs, contributing to the inflation, and allowing the establishment of inefficient plants which are still problems and obstacles to future growth.

Industrialization on a broad front, granting widespread tariff protection, investment subsidies, and tariff exemption for "essential" inputs which had to be imported, was easier to sell politically and psychologically than narrower efforts might have been.

Since the mid-1950's, there was a strong public consciousness of industrialization, and there was less of an impression of unfairness because virtually all industrialization efforts were receiving public subsidies. Adverse reaction from the large agricultural sector was partially reduced by subsidized imports of tractors, fertilizers, and other agricultural inputs, as well as by separate policies for coffee and cocoa, two of the main export crops.

The automobile engine has been described as a complicated, basically bad design which can perform well only with an even more complicated set of compensating devices such as the carburetor, variable ratio transmission, flywheel, highly refined fuel, starter motor, etc. The Brazilian economy entered the 1960's with one of the biggest and most diversified industrial parks of the under developed world, which was kept going with the aid of an equally well-diversified and extensive set of distortions in relative prices. These distortions (caused principally by tariffs, other protective devices, and investment subsidies to certain sectors at certain times) protected both infant and mature industries, allowed the establishment of a few manufacturing processes which should never have been installed as they were and some others which should have been postponed, and allowed efficient industries either to earn high profits or to become less and less efficient.

It is easy to point out specific mistakes after the fact; it is even easy to suggest some modifications in policy which clearly would have avoided the greatest inefficiencies. It is much harder to compare the actual results with those which might have come from a totally different policy which would not have included industrialization; on balance one tends to think that the industrialization as it was done was better for Brazil than no industrialization at all, or than what might have resulted from a policy of non-interference with a market that was far from "perfect." Brazil's industrialization through import substitution compares favorably to the experiences of most other underdeveloped countries in at least one important respect: Brazil succeeded in severely limiting industrial imports -- in fact, in reducing them in absolute amount while the economy grew at 6% per year for 15 years. In other countries -- Argentina and India are good examples -- a less complete industrialization is only increasing demand for imported industrial products, and aggravating balance of payments problems. Brazil's very extensive and almost completely vertically integrated growth had a cost in the few very inefficient industries

which were established. Given the inherent uncertainty and deficiencies in knowledge needed to plan efficient industrial growth, it is difficult to conclude that in fact Brazil could have been better off today if more selective policies had been adopted, and the risk of failing to reduce import demand had been increased.

The discussion in this section has all been on the level of the main aspects and broad effects of industrialization. If we drop to a more tactical level, we observe that the instruments were more or less well chosen and efficiently used. The goals of extensive, diversified, and rapid industrialization and relaxation of balance of payments problems were achieved. The tariff-multiple rate system worked much better than systems in other countries which rely principally on quantitative restrictions and licenses; the "monopoly profit" went to the government rather than to the importer, and somewhat more flexibility was permitted. On the other hand, a more uniform structure of protection with a lower maximum level would probably have avoided the worst inefficiencies while still inducing virtually all the other substitutions. Public investment and investment subsidies complemented the protective system where necessary, and resulted in many efficient heavy industries and much of the necessary infrastructure; on the negative side these subsidies to capital probably increased both the capital intensity of industry and capacity beyond the optimal points. Tariff exemptions for required imported inputs, the many ways in which the inter-ministerial Executive Groups oiled the bureaucratic machinery, and the welcoming climate for foreign investment all helped to create a strongly supportive climate for new industries. Brazil did not exhibit the "We need you but we don't like you" attitude toward industry, seen in some other countries, which seems to result only in even higher-cost operation.

IV - The crises of the 1960's, and choices for the future

The year 1962 was the last year of sustained industrial growth. The average annual industrial growth rate during the fifteen year period 1948-62 had been 9.8%, without ever falling below 5% in any single year. The contrast since 1962 is shown in Table 9 below:

TABLE 9  
INDUSTRIAL GROWTH

PERIOD	ANNUAL GROWTH IN INDUSTRIAL PRODUCTION
1948-62	9.8 %
1962	8.2
1963	0.
1964	5.0
1965	4.7
1966	12.1

Source: Fundação Getúlio Vargas.

The net stagnation during the three-year period 1963-65 was caused by a combination of factors, some acting throughout the period and others only at times. We believe that four factors explain the decline in growth:

- 1 - The reduction in opportunities for continued import substitution.
- 2 - Foreign exchange problems, particularly a sharp drop in foreign private investment.
- 3 - Political instability.
- 4 - End of the high priority given to industrial growth in setting government policies.

1. Reduced opportunities for import substitution.

By the early 1960's, most industrial products were supplied from domestic sources. Continued scope for import substitution of

industrial goods rested almost exclusively in the capital goods and chemicals sectors. The structure of total supply in 1949 and 1961 is shown in Table 10 below: (See also Table 8 above)

TABLE 10  
IMPORTS AS A PERCENTAGE  
OF TOTAL SUPPLY OF  
MANUFACTURED GOODS

S E C T O R	1949	1961
Basic metals	22%	12%
Machinery	64	46
Electrical and communication equipment	45	17
Transport equipment	57	19
Chemicals and pharmaceuticals	29	17
Non-metallic mineral products	10	4
Paper and products	10	7
Rubber and products	1	15
Wood products	1	1
Textiles	6	1
Clothing	-	-
Food products	4	2
Beverages	2	3
Tobacco, printing and publishing, furniture, and leather products	<u>2</u>	<u>1</u>
<b>Total</b>	<b>16%</b>	<b>10%</b>

Source: ECLA, "The Growth and Decline..." op. cit., page 40.

Most of the metals imports were cases where Brazil did not have sufficient ore deposits which could be exploited economically. Most of the chemicals represent processes where the scale of the domestic market was far too small to permit economic production. With the significant exception of capital goods, technical factors had by 1961 placed severe limitations on the rate of future industrial growth through import substitution.

Continued development at a pace faster than that of the growth of internal demand came more and more to depend on exports. These were limited in part by high manufacturing costs (notably in consumer durables, some chemicals, rubber, textiles, and clothing), in part by an export exchange rate which was both discriminatorily low and also subject to considerable uncertainty in real terms due to the inflation, and in part by the general absence of an export mentality on the part of most Brazilian manufacturers.

## 2. Drop in foreign private investment.

The high levels of foreign private investment in the late 1950's started to fall off in 1962, and dropped very sharply in 1963. The overall picture is shown below in Table 11:

TABLE 11  
DIRECT FOREIGN PRIVATE INVESTMENT  
(annual average)

PERIOD	AMOUNT
1947 - 54	US\$ 13 million
1955 - 61	102
1962	69
1963	30
1964	28

Source: SUMOC bulletins.

Total levels of investment in the economy as a whole were not noticeably affected by the fall in direct private foreign investment. In industry, however, this foreign investment has been important both in amount and also as a dynamic force which created new industries and thus more demand for other new products, and which induced and required a significant amount of complementary domestically financed capital formation. Unfortunately, no detailed estimates of investment by sector of destination exist. We can make a rough estimate that annual gross investment in industry was about one-third of total investment, or about \$ 1,100 million per year. Thus just the amount of the fall in foreign investment, which was directed principally to industry, must have been significant. The indirect effects were probably even more so. The decline in foreign private investment was itself probably due largely to declining opportunities for import substitution, and the institutional aspects discussed under points 3 and 4 below.

Total foreign exchange availability does not appear to have been a problem for industry during the early 1960's. Imports of industrial inputs - raw materials and intermediate goods - rose throughout the period of the decline in industrial growth 17/

3. General political instability, and 4. Lower priority given to industrial growth.

Some of the effects of those two causes can be separated, but it seems easier to discuss them jointly.

The high priority given to industrial growth gave way to other goals starting with the administration of President Jânio Quadros, at the beginning of 1961. As a study by ECLA concluded:

"...the swelling proportions assumed by the inflation problem (in 1961-63) shifted the centre of attention from industrial development to the control of the inflationary process... No longer were exchange, monetary and fiscal measures placed at the service of industrialization without due thought..." 18/

The annual rate of inflation rose above 30% for the first time in 1961. It increased steadily through 1964, as shown in Table 12.

17/ There are three sources of estimates of these data. Both the ECLA data (Statistical Bulletin for Latin America, Vol. II, No 1, 1965, pp 226,7) and the Brazilian Census Bureau data (IBGE, Numeros Indices..., op. cit., page 12) show imports of industrial inputs steadily rising. The index published by the Getúlio Vargas Foundation in Conjuntura Econômica shows imports of industrial inputs falling 13% in 1962, and rising 27% in 1963.

18/ ECLA, "Fifteen Years..." op. cit., page 199.

Table 12  
ANNUAL RATES OF INFLATION  
 (GDP implicit deflator)

PERIOD	ANNUAL RATE
1955 - 60	20%
1961	35
1962	49
1963	72
1964	91
1965	57
1966	38

Source: National Accounts, Fundação Getúlio Vargas.

The political situation did not permit a coherent, continuous anti-inflation program. From time to time, partial measures were taken, without much success or lasting effect. Quadros resigned the Presidency after only seven months, in August 1961. A short crisis, caused by opposition to the succession of Vice President João Goulart, was resolved by allowing Goulart to assume the Presidency with reduced powers. Goulart lacked both a stable political base and a coherent economic policy. He tried to consolidate and increase his power by catering first to one group and then to another. He adopted some measures aimed at supporting growth, some to combat inflation, some to increase real wages, some for agrarian reform, etc., with the resulting total effect being contradictory at any one time, and vacillating during time. He succeeded neither in stabilizing prices nor in sustaining economic growth. The poor economic results of 1963 (which included stagnation in industry and a run-away inflation), and his demagogic and left-leaning political style finally proved to be too much for the more conservative power groups in Brazil, and Goulart was ousted in March 1964 by a military coup with wide support from urban middle class, business and land holding interest.

Whatever utility the inflation or inflationary policies may have had in the 1950's seems to have disappeared as the rate increased in the 1960's. Wage increases in industry, which had been held well below productivity increases during the 1950's, reached 18% in 1963,



and another 9% in 1954.<sup>19/</sup> A stabilization program was attempted during March-May of 1963. The program relied mostly on credit and government deficit control; wages kept rising throughout the period. In any case the short-lived attempt probably caused more harm by its upsetting effect on expectations and current business operations than it did good.

The year 1963 was also marked by wide-spread strikes and labor unrest, and severe power rationing (caused by a draught) in the Rio-São Paulo region and one can only wonder why industrial production did not fall, rather than remain at the 1962 level as it did.

One of the causes of the drop in foreign private investment, mentioned above, was a new law controlling profit remittances. This law went into effect in September of 1962. Remittances were limited to 10% of officially registered capital, and royalty payments to foreign parent firms were prohibited.<sup>20/</sup> There was some nationalization of foreign investments in power and transportation during the Goulart administration, and the whole political tone of the government was hostile to foreign capital.

The government which replaced Goulart, starting in April 1964, gave first priority on the economic front to controlling the run-away inflation. The traditional means of controlling credit, government deficits, and salaries were used. The goal was to achieve relative stability only after about three years, to avoid the hardships which would have resulted from a more rapid program. Nevertheless, even the "gradualist" stabilization of 1964 to the present (June 1967) was no exception to the rule that stabilization has negative effects on growth in the short run. At this time there are indications that 1967 may mark the return of more-or-less normal economic results in Brazil: inflation under 30% per year, and industrial growth of at least 5 or 6 per cent.

This concludes our discussion of the four major factors which we believe to be proximate causes of the decline in industrial growth in the 1960's. Before entering directly into the discussion of alternatives for the future, we would like to discuss a more general problem, which lies behind many of the factors discussed above and

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<sup>19/</sup> EPEA, Diagnóstico Preliminar, São-de-obra, Preliminary version, page 241. Wage and productivity data from Registros Industriais, IBGE. Wages deflated by cost of living index for São Paulo from Conjuntura Econômica.

<sup>20/</sup> Law No. 4131, Sept. 3, 1962.

which some Brazilian economists think may be a crucial problem in the future. This problem, as it applies to industrial growth, is the problem of demand.

Already in 1961, import substitution of industrial products had reduced the potential for rapid future growth based on demand for imported products. (This is shown in Tables 8 and 10 above.) Although we cannot be sure, we believe it likely that industrial growth in the 1960's would have fallen short of that in the 1950's, even if the other disturbing factors discussed above had been present. Moreover, foreign private investment was in large part motivated by the government's policy to substitute domestic production for imports; foreign firms which had been exporting to Brazil were faced with the choice of producing in Brazil or simply losing the market. <sup>21/</sup> We believe it probable that foreign private investment would have fallen below the very high levels of the late 1950's, simply because of reduced investment opportunities in appropriate sectors. If Brazil is able to maintain a more or less stable and healthy economic and political environment, the future may cast some light on these questions.

Another cause of a possible demand problem lies in the distribution of income. There is some evidence - inconclusive at best - that weakening consumer demand has already played a role in the decline of the early 1960's. This evidence is of two types: the structure of the decline in production, and real levels of salaries, disposable income, and personal consumption. Domestic production of consumer goods fell by an average of 1.3% per year in the three-year period 1963-65. Imports of consumer goods, which are not very significant even as a whole, also fell slightly in the same period. <sup>22/</sup> This means that the per capita total supply of industrially produced consumer goods fell by an average of over 4% per year for the three years 1963, 64, and 65. The only significant part of this fall which can be attributed to a supply constraint is the stagnant level of industrial production of agricultural raw materials in the one year 1963.

The second type of evidence of possible demand problems is

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<sup>21/</sup> See Lincoln Gordon and Ingebert Grommers, United States Manufacturing Investment in Brazil: The Impact of Brazilian Government Policies 1946-1960. Harvard, 1962, page 13.

<sup>22/</sup> Data on production from CEPAL, Brazil 1966, Rio de Janeiro, March 14, 1967, page 38. Data on imports from IBGE, Numeros Indices... op. cit.

the prolonged squeeze on wages and personal consumption throughout the 1950's and 60's. Average salaries in industry, as we have mentioned earlier, rose only by about 2 or 3% per year throughout the 1949-1964 period. <sup>23/</sup> Personal consumption per capita rose by less than one-half of one percent per year between 1950 and 1964. As a percentage of total domestic expenditure, personal consumption fell from about 77% in the late 1940's to a range of 68-71% in the 1951-59 period, and fell again to a range of 64-66% in 1960-64. <sup>24/</sup>

None of this is conclusive. But the long continued squeeze on wages and consumption as a whole, when coupled with the fall in per capita consumption of industrialized consumer goods in the early 1960's, suggests that industrial growth might have continued more strongly if there had been faster-growing consumer demand to take the place of import substitution as a leading factor.

As a basis for analysing possible courses of industrial growth in the future, the point of the preceding discussion is that:

- The chief dynamic element in the past was import substitution;
- import substitution can no longer play this dynamic role;
- Brazil has not yet found a policy which will create or support other dynamic factors to provide further rapid growth.

This does not mean that no room exists for additional import substitution. Import substitution may still play two significant roles: First, a diminished continuation of its past dynamic role, as the domestic market expands and new activities become possible at economic scales of production. Second, as one available means of avoiding or by-passing future balance of payments problems.

The importance of these effects will depend on decisions to be taken concerning minimum levels of productivity to be required in new activities. Government policy since 1964 has moved towards requiring domestic industry to be ever more competitive in international markets. Tariffs have been reduced; competitive price has come to play a more important role in obtaining protection under the Law of Similars,

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<sup>23/</sup> Average wages from Industrial Census of 1950 and 1960, and Registro Industrial for other years. Deflated by cost of living index for São Paulo.

<sup>24/</sup> Data from national accounts. Deflated by cost of living index for São Paulo. Personal consumption is estimated as a residual in the national accounts, and is perhaps more subject to error than other estimates.

and there is serious thought now of relaxing the extreme requirements for high domestic content in automobiles and other products. There seems to exist a general consensus that overall productivity in industry should be increased.

This greater emphasis on productivity and competitiveness is, of course, of great importance if exports of industrial products are to be increased. In the short run, industrial exports cannot be expected to play an important role. They are presently a very small part of either total exports or of total industrial production. (about 6% and 2% respectively). A very great proportion of Brazilian industry is far from being able to compete in international markets, both because of its own low productivity and because of institutional restrictions arising outside of Brazil. In the longer run, Brazil should look more and more to exports of industrial goods, both as a source of foreign exchange and as a dynamic internal element. Imports as a percentage of GNP cannot be much further reduced. Exports, in the long run, must therefore grow at a rate at least equal or nearly equal to that of GNP. The current low level of industrial exports is all the more reason to start immediately on measures to increase this level.

On balance, however, the continental dimensions of Brazil as well as the reduced possibilities for additional import substitution and the difficulties of increasing industrial exports indicate that the key to future industrial growth must be the domestic market. How is this to be done?

Much of the current thinking about future industrial growth seems to fall into one of two models. <sup>25/</sup> We will describe these two alternatives in a simplified and perhaps extreme form. One emphasizes public spending as a leading factor. It implies increasing government investment and consumption, with government activity not only throughout infrastructure (power, transportation) but in manufacturing industry as well. It emphasizes favorable conditions for investments, rather than increased productivity. The alternative model emphasizes consumer demand as the leading factor. It implies a constant or reduced participation of the public sector in total demand. The emphasis is on increased consumer purchasing power and productivity improvements.

To a certain extent, actual policy can be a mixture of these two models. For example, current government policy seems to imply an increased emphasis on public investment, but also involves reduced

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<sup>25/</sup> For an early discussion along this line, see ECLA, "The Growth and Decline..." op. cit., pages 56-59.

tariff protection and more emphasis on cost-cutting. But in many aspects the two models are mutually inconsistent. The basic conflict is one of income distribution; the first model implies more for government and for capital, and the second implies more for the private sector, and labor in particular. The first model probably implies - at least in the short run - turning the internal "terms of trade" against agriculture. The second model, because of the large percentage of agricultural workers in the labor force, implies turning the internal terms of trade in favor of agriculture. The first is likely to lead to a much more autarkic economy than the second.

The first model, which might be called the "investment" model, requires the lesser change from the import substitution model of the past. The major break is that in the past, demand was present before domestic supply, in the form of imports. In the "investment" model, new demand comes from increasing public spending and from investments in general. Even if the resources for this spending can be gathered, it is not clear whether this model can be self-sustaining in the long run.

The second model, which might be called the "consumption" model, is a much sharper break with the import substitution model of the past. Given the present structure of the Brazilian economy, the "consumption" model appears to offer greater chances of being self-sustaining, but presents great difficulties in reaching the starting point. How to transform Brazilian industry from a highly-protected to a more competitive, lower cost set of producers? How to increase the income, the productivity, and thus the purchasing power of the mass of agricultural workers?

We believe that something like the "consumption" model offers better prospects for Brazil in the long run. Our reasons are three: First, this type of development seems to be more likely to be self-sustaining. Second, it appeals more to our sense of equity. Third, and perhaps most important, it seems to offer greater chances of reducing the tremendous gap between the modern Brazil and the underdeveloped Brazil. We fear the social effects of continued rapid development for a small part of the country, leaving the rest behind. The "investment" model would imply such a continuation; the "consumption" model implies a reversal. It implies seeking widespread productivity increases in the mass of Brazilian workers in all sectors, rather than heavy investment and rapid productivity increases for a small part of the labor force.

If it be accepted that the long-run goal is a "consumption model" type of industrialization, how can such a goal be reached? To

get from the present industrial - and total economic - structure to a mass-consumption structure requires a transition period, during which many policies from the "investment" model would be used. These policies would be changed through time as widespread productivity increases made a consumer-led growth feasible.

Initially, resource allocation should focus on providing the complementary capital needed for these productivity increases. This complementary capital would include physical infrastructure, where the greatest lacks seem to be in communications, agricultural warehousing and marketing facilities, and transportation. It would include social infrastructure, where the greatest deficiencies are in education and health. Improvements in education are, indeed, probably the most important requirements for attaining the widespread productivity increases required for the "consumption" model. 26/

In industry, policies would be oriented to a gradual, but steady and expected decrease in protection; programs to assist business in meeting stronger competition; and probably removal of the subsidies to the purchase of capital goods which have probably biased technology toward more capital intensive forms. The reduction in protection has already been started in 1967, with a reduction in tariffs, elimination of the special category of imports, and greater attention to competitive price in granting protection under the Law of Similar. The government should attempt, wherever possible, to counter demands for restoring higher protection with proposals to assist in improving efficiency and lowering costs of production. Some such programs are already underway and others are in the planning stage; examples are the subsidized loans for replacing obsolete equipment in the textile industry, and the planned Productivity Center which will offer training and technical assistance in various techniques of management and administration, mainly to smaller firms in traditional industries. Removing subsidies to purchases of capital goods would imply increases in protection to certain capital goods which are now virtually unprotected, and eliminating tariff exemption for certain importers of these goods. (Continued subsidies to capital equipment for agriculture may still be a good idea; the above applies more to capital goods for industry and

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26/ For studies of the deficiencies in the sectors mentioned in this paragraph, the reader is referred to the EPEA Diagnósticos on those subjects, published by the Ministry of Planning of the Government of Brazil in 1966 and 1967.

Transportation.)

There are many difficulties, political as well as economic, in attaining this kind of development in Brazil. But development consists of more than ten more years of rapid growth of GNP. São Paulo and the Northeast, favelas and luxury apartments in Copacabana, offer contrasts which are not only undesirable, but indeed unstable. Brazil has created the most modern and diversified industrial park in Latin America. Perhaps the new direction should be to increase the number of Brazilian this industry serves. Such a goal appears not only to be equitable, but also to offer the best chances for self-sustaining economic and social development.