SURVEY OF THE ECONOMIC DEVELOPMENT OF BRAZIL

COMPARATIVE STUDY OF ECONOMIC DEVELOPMENT OF BRAZIL & JAPAN

MARCH 1973

Prepared for

OVERSEAS TECHNICAL COOPERATION AGENCY

By

INTERNATIONAL DEVELOPMENT CENTER OF JAPAN

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INTERIM REPORT

P R E F A C E

This study was undertaken by the Overseas Technical Co-operation Agency as part of its activities financed by the fiscal 1972 budget item for Basic Overseas Pre-Investment Studies, of the Ministry of Foreign Affairs, Government of Japan. The Agency commissioned the International Development Center of Japan, a private, non-profit research institution, to carry out the work.

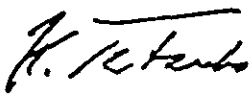
The study covers the following four items according to the agreement reached between Professor Velloso, Minister of Planning and General Coordination, and Dr. Okita, then President of the International Development Center of Japan.

1. Economic Similarities and Differences between Brazil and Japan.
2. Comparison of the Japanese Economy in 1960 and Present Brazilian Economy.
3. Identification of Possible Future Economic Problems of Brazil on the Basis of the Past Experience of Japan.
4. Possible areas of Economic Cooperation between Brazil and Japan.

This is a two-year (1972-1973) study and the emphasis is laid on items one to three in this interim report.

The International Development Center invited Professor Hajime Mizuno of Sophia University, Tokyo, to serve as deputy project manager.

It is our sincere hope that the results of this research will be useful to Brazil in planning its policies and programs for economic development.



Keiichi Tatsuke
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Overseas Technical Co-operation Agency
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LETTER OF TRANSMITTAL

Mr. Keiichi Tatsuke
Director General
Overseas Technical Cooperation Agency
The Government of Japan

Dear Mr. Tatsuke:

In accordance with the contract of November 4, 1972 concluded between the Overseas Technical Cooperation Agency and the International Development Center of Japan, the latter has undertaken and completed comparative study of the Economic Development of Brazil and Japan, and with this letter submits its interim report.

The members of the project team wish to acknowledge, on this occasion, their gratitude for the close cooperation and support provided during the teams' stay in Brazil by both the Brazilian and Japanese officials and experts concerned, as well as the staff members of the Instituto de Planejamento Economica e Social of Ministerio de Planejamento e Coordenacao Geral and Instituto de Pesquisas Economicas of Universidade de Sao Paulo. They would like also to reiterate their appreciation for the help and understanding extended to them by your agency at all times, which made possible the successful completion of this study.

Sincerely yours,

J. Kano

Jiro Kano
Managing Director

C O N T E N T S

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C O N T R I B U T O R S

(Entire report)

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L I S T O F M A J O R A B B R E V I A T I O N S

BOJ	The Bank of Japan
EPA	Economic Planning Agency (Japan)
FAO	Food and Agriculture Organization
FGV	Fundacao Getulio Vargas
IBGE	Fundacao Instituto Brasileiro de Geografia e Estatistica
ILO	International Labour Organization
IPE	Instituto de Pesquisas Economicas, Universidade de Sao Paulo
IPEA	Instituto de Planejamento Economico e Social
MITI	Ministry of International Trade and Industry (Japan)
MOF	Ministry of Finance (Japan)

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Chapter One

Objectives and Outline of the Study

The growth of the Brazilian economy has been so remarkable as to be referred to as a "Miracle of Brazil." The 1972 gross domestic product exceeded $50 billion and was the eighth largest among the Free World nations, while the per capita income in the same year exceeded $500. Reflecting this remarkable progress of the Brazilian economy, economic relations between this South American country and Japan have been steadily expanding in both strength and scope in recent years. These relations not only cover exchanges of goods, capital and technology but also in exchanges of personnel in economic fields. The Brazilian Government, which is eager to obtain cooperation from Japan in various fields so as to foster further economic development, has shown particular interest in Japan's experience in attaining economic development.

The objective of this study is to examine and compare the two economies and thereby to try to determine possible areas and means of effective Brazilian-Japanese economic cooperation, in response to the desires of the Brazilian Government.

This study has as its origin the agreement reached between the economic survey team of the International Development Center to Brazil in July, 1972 (headed by Saburo Okita, President of the said Center) and H.E. Minister Joao Paulo dos Reis Velloso of Planning and General Coordination. This

agreement prescribes that joint studies on Japan and Brazil be undertaken in the following four areas.

1. Similarities and differences between the economies of Brazil and Japan.
2. Comparison of the 1960 Japanese economy with the 1970 Brazilian economy.
3. Identification of possible problems to be faced by the Brazilian economy during the coming decade in view of the experience of the Japanese economy during the past decade.
4. Examination of possible areas of economic cooperation between Brazil and Japan on the basis of the three above points.

Based upon this agreement and having been so commissioned by the Overseas Technical Cooperation Agency, the International Development Center immediately organized a team, which compiled a preliminary report based on research and analysis conducted in Japan, forwarded that report to Brazil in advance of the visit of a survey team dispatched to Brazil by the IDCJ in November, 1972. This team held several discussion meetings with the staff members of the Instituto de Planejamento Economico e Social (IPEA) based on the preliminary report, interviewed principal economists in Brazil to clarify various issues, and exchanged opinions with such institutions as the Instituto de Pesquisas Economicas (IPE) of University of Sao Paulo, Escola de Administracao de Empresas de Sao Paulo da Fundacao Getulio Vargas, Superintendencia do Desenvolvimento do Nordeste (SUDENE), and Superintendencia do Desenvolvimento da Amazonia (SUDAM). On the basis of such discussions, further research was undertaken in Japan, of which this report is one result. The main point of emphasis this year has been the macro aspect of comparative studies of the two economies. Next year's report will probe deeper into specific areas, using a comparative approach, in order to help determine desirable fields of economic cooperation between Brazil and Japan.

This report consists of four chapters. Chapter One will explain the objectives and contents of the study. Chapter Two compares today's Brazilian economy with that of Japan as of around 1955 in five areas in a

minute and careful manner. First, various premises and reservations in the comparison of the two economies are spelled out; given next are comparisons in the areas of economic system, economic scale, economic structure and pattern of economic development of the two economies. In Chapter Three economic policies of the two countries are compared, elucidating characteristic features of Japan's economic policy during the period 1955-60 and of Brazil's post-1964 Revolution economic policy. On the basis of above comparisons Chapter Four identifies problem areas already faced by the Brazilian economy or which may be solved in the future in view of Japanese experience, and suggests desirable measures to be adopted in dealing with them. Chapter Five presents tentative conclusions based on the preceding arguments and makes some suggestions for further studies.

In compiling this report we have received cooperation from a great number of people, without which such a difficult task of international comparison would have been impossible. Our particular thanks go to Dr. Henrique Flanzer, President of our counterpart organization, IPEA (Secretary General, Ministry of Planning and General Coordination), Dr. Nilson C. Holanda, Director of Instituto de Planejamento (IPLAN), and Dr. Luiz Zottman, coordinator of the Global Planning Sector, IPEA, for assistance rendered to us by such means as providing forums for discussions and securing appointments for interviews. Dr. Zottman visited Japan in January, 1973, at the invitation of the International Development Center and took direct part in preparing this report by drafting a portion of it as well as giving us valuable comments and advice. Our hearty thanks thus first go to the staff members of IPEA. Our thanks are due also to Prof. Affonso Pastore and Prof. Jose Pastore, as well as their staff, who took active part in the discussions at University of Sao Paulo, to Prof. Hiroshi Saito of the same University, to Prof. Ary Bouzan and Prof. Yuichi Tsukamoto of Escola de Administracao de Empresas de Sao Paulo da Fundacao Getulio Vargas, to former Minister of Planning Roberto Campos, Prof. Mario Henrique Simonsen of Getulio Vargas Foundation, former Minister of Finance Octavio Gouvea de Bulhoes, who gave us a ready consent for an interview amidst their busy schedule, and to staff members of SUDENE and SUDAM, and also to members of the Japanese Embassy and Consulates in Brazil.

Chapter Two

Comparison of the Brazilian Economy Today and the Japanese in 1955

1 Pre-Conditions for the Comparison

1-1 Natural Condition

(1) Location

A large part of Brazil is within the Equator and the Tropic of Capricorn. The country extends from the Peruvian border at west longitude 23 deg. 46 min. to the Cape of Seixas at west longitude 73 deg. 59 min. and from south latitude 5 min. 16 deg. to the Uruguayan border at south latitude 33 degrees 45 minutes. It is bounded on the east by the long coast line with the Atlantic, on the west and north by Guiana (French Guiana, Surinam, and Guyana), Venezuela, Colombia, Peru, Bolivia, Paraguay, Uruguay and Argentina. The only South American countries which have no common border with Brazil are Equador and Chile.

Including Okinawa, Japan's territory is between east longitude 122 min. and east longitude 153 deg. 58 min. and between north latitude 20 deg. 25 min. and north latitude 45 deg. 31 min. consisting of the four major islands of Hokkaido, Honshu, Shikoku and Kyushu, and of about 3,600 small islands.

(2) Area

Brazil occupies the total area of 8,510,000 sq.km, amounting to 47% of the entire South American Continent, and is the fifth largest country in the world. Japan may seem a large country from the above description, but its land area is only 373,271 sq. km, which is no less than 1/23 that of Brazil. Marajo Island, in the Amazon River, alone is as large as Kyushu.

Brazil is made up of five Grande Regiao, and, administratively speaking, of 22 states, four Federal Territories and Brasilia Federal District. Among the five Grande Regiao, the Northern Region occupies 42.1% of the total area (3,580,000 sq.km), with the state of Amazonas and Para situated in it. Purnambuco and nine other administrative districts make up the North-eastern Region with the area of 1,550,000 sq.km., amounting to 18.2% of Brazil. The South-eastern Region, containing such states as Sao Paulo and Minas Gerais, is the most developed, occupying 10.8% of total area of the country (920,000 sq.km). The Southern and the Central-western Regions occupy 6.8% (58,000 sq.km) and 22.1% (1,880,000 sq.km) of the country respectively.

Japan is divided into 43 administrative prefectures, which are customarily grouped in eight blocs (Hokkaido, Tohoku, Kanto, Chubu, Kinki, Chugoku, Shikoku and Kyushu).

(3) Geographic features

Most of Brazil is covered by flat plains and hills; only 4,600 sq.km or 0.5% of the total area is mountainous (containing peaks taller than 1,200 m). In contrast, Japan's topography is extremely complex. The Japanese archipelago is surrounded by deep trenches of over 6,000 m of depth, and is the world's most unstable land masses. Most of the country is mountainous, and flat land amounts to about 16%, in which there is intense concentration of economic activities.

(4) Climate

Brazil's weather varies greatly throughout the country. About 93% of the country lies in to the Torrid Zone and the Semi-Torrid Zone, with only the remaining 7% in the Temperate Zone. The Amazon region has the average temperature of 24-26 deg., with little variation throughout the year. It has the annual rainfall of 1,700 to 3,000 mm, and is often called Inferno Verde (Green Inferno). In contrast to that, the Northeastern inland area (Sertao) has the annual rainfall of only 750 to 1,000 mm, and is called Poligno das Secas (Polygon of Drought). The Southeastern and Southern parts are temperate and have an annual rainfall of 1,500 mm; the average temperature ranges from 14 to 20 deg.

The Japanese archipelago, off the east Coast of the Eurasian Continent and oriented along a northeast to southwest axis, possesses a spine of mountain ranges in the middle of the archipelago, and weather which differs greatly depending on whether the area faces the Pacific or the Sea of Japan. Because of this and other regional differences Japan enjoys a rich variety of seasonal changes. The entire country is in the Temperate Monsoon Zone.

(5) Population

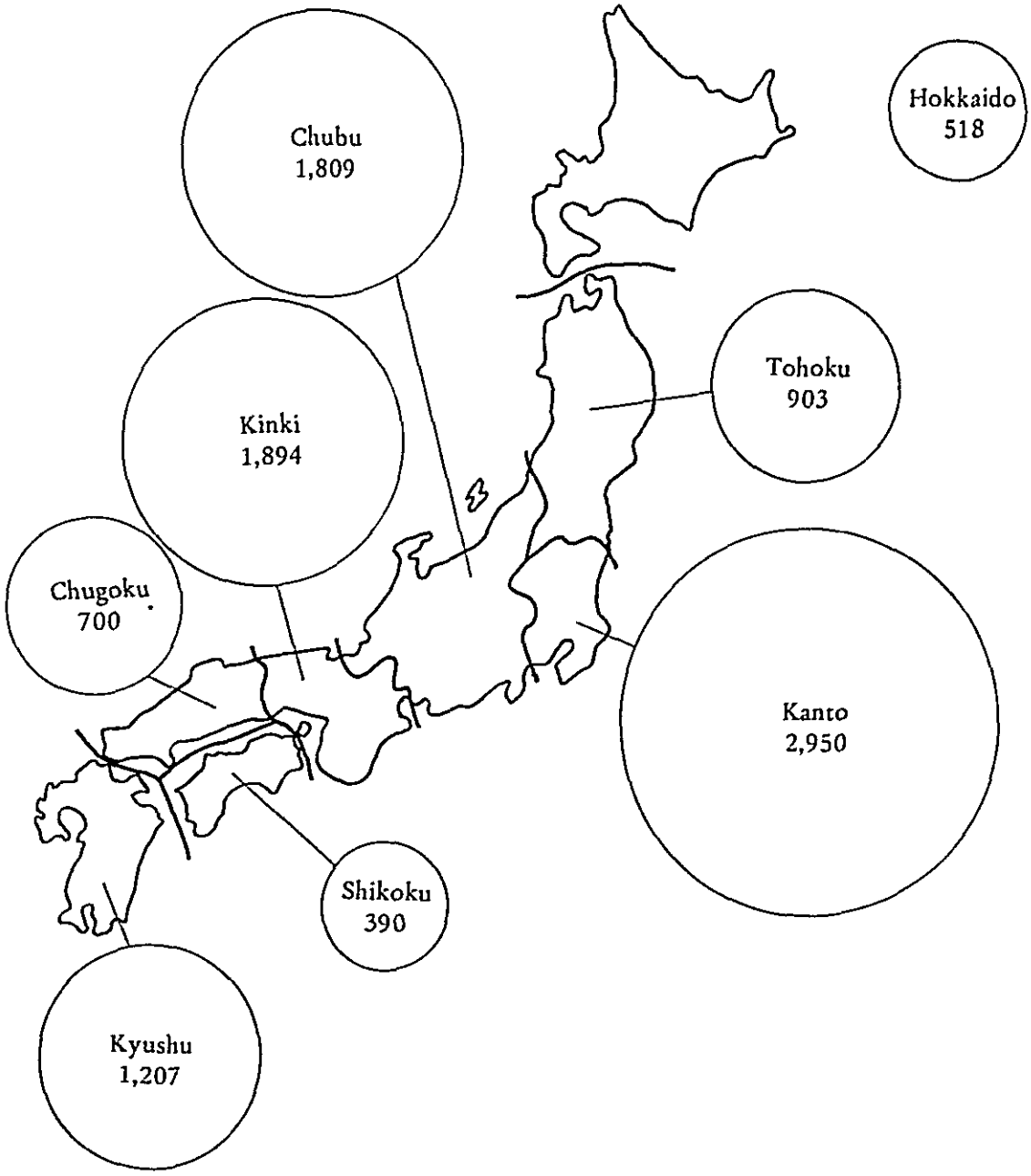
The sizes of the populations of the two countries are similar. According to the 1970 census, Brazil has the population of 94.5 million, while the Japanese population was 89.28 million in 1955 and 103.5 million in 1970; making Japan the eighth and seventh most populous country in those respective years. But the population growth rate of the two countries is quite different. While Japan's population grows at the annual average rate of 1.1% (1963-1968), the Brazilian population growth rate is as high as 2.9% per annum according to the same census (1960-70 average). It is certain that Brazil will have a bigger population than Japan in the near future.

We also see a big difference in the population density of the two countries. Japan is congested, with 278 persons per square kilometer (241 in 1955; see Fig. 2-1), while in Brazil the density is only 11 persons per square kilometer. Furthermore, most of the population is concentrated in the coastal areas, particularly in the Southeastern states around Sao Paulo (the four states of Sao Paulo, Minas Gerais, Guanabara and Rio de Janeiro have 41% of the total population), and the four administrative districts such as Amazonas are sparsely populated.

The population structure of the two countries, too, is quite different. Japan is a ethnically and racially homogeneous, and is monolingual, rarely singularly so in the world. In contrast, Brazil's ethnic composition is extremely diverse, consisting of Caucasians, Negroes, Indians, Orientals, as well as mixtures of all combinations. Ethnic classifications have varied depending on the era, region and the surveying agency, but according to the 1950 census the population is made up of 61.7% whites, 11.0% blacks, 20.5% mestizo and 0.6% yellows. The biggest group among the whites is of South European descent, including Portugeuse, Italians and Spanish, followed by Germans and Slavs. There are more than 700,000 Brazilians of Japanese

Fig. 2-1. Distribution of Regional Blocs and Population by Bloc in Japan, 1970

(Unit: 10,000 person)



Note: Total Population: 103,720,060

Source: 1970 Ministry of Autonomy

descent, who play a significant role in the Brazilian society, beyond the scale of their small number.

1-2 Differences in Stages of Economic Development

To compare the economies of Brazil and Japan, we must specify the stages of economic development and modernization of the two as given factors, in addition to natural conditions such as described above. Our comparison, however, must be tentative, because the differences between each country's stages of growth would be made clear in the process of our study.

It was only some 470 years ago that Pedro Alvares Cabral discovered, by accident, Brazil while Japan already had a class society and a loosely unified state at the beginning of the fourth century. The differing significance of history in economic development between the two countries is apparent from this contrast alone. Pre-modern institutions and traditional social structure had tremendous influence on Japan's economic development and modernization, and in some cases were obstacles to the growth of the economy following the Meiji Restoration. For instance, the tenancy system in agriculture and subcontracting system whereby small businesses were dependent upon big businesses, and characteristics of the internal organization of firms were among the remnants of such traditional institutions, and in some cases their influence persists today. But at the same time the high level of education and industrial discipline made a great contribution after the Meiji Restoration to the creation of entrepreneurs, engineers and skilled workers, fulfilling subjective requirements for economic growth. (See Chapter Four, Section One for a fuller discussion of this issue.)

Corresponding to this feature of Japanese economic growth, Brazil had traditional institutions in the form of slavery, large agricultural estates (latifundio), and the empire system. These traditional systems were not so solidly built as in Japan, but they did serve as obstacles to autonomous development, particularly in the Northeast. At this stage of our analysis it should be made clear that the influence of pre-modern institutions constitutes a point which may not be ignored in comparing the two economies.

At what time, then, should the two countries be interpreted to have started on their path of economic growth as modern industrial states?

If we examine the period of time when (1) industrial production began to increase and (2) industrial structure began to develop and change, the general conclusion for Japan is that the period started around the year 1900, or around the time of the Russo-Japanese War.[2] According to an estimate by Dr. Kazushi Ohkawa the production level of the secondary industry in 1890 was 91 million yen (in current prices), which increased to 361 million yen in 1898 (in current prices), then to 430 million yen in 1904 (in current prices). The average annual growth rate was as high as 8.9% for 1885-1904, and 7.1% for 1895-1904.[3]

What about changes in industry-wise distribution of national income? In 1878-82 primary industry had a 63.9% share and that of secondary industry was 10.5%, but in 1898-1904 the share of primary industry decreased to 47.1% while that of secondary industry increased to 21.3%. Employment structure also changed during the same period: the ratio of primary industry went down from 82.3% to 69.9%, while that of secondary industry went up from 5.6% to 11.8%. These changes amply reflect the rapid changes which took place in the industrial structure of the economy.[4]

With respect to the time period when Brazil started its economic growth as a modern industrial state, Prof. Affonso Pastore of Sao Paulo University suggests that it was the 1930s, "when we observe a rapid industrial growth."[5] Due to the Great Depression of 1929 the world market price of coffee fell rapidly, and partial suspension of coffee production as well as adoption of a policy to destroy some coffee beans already produced was unavoidable. At the same time, foreign currency was in short supply and the cruzeiro was overvalued, making imports of machines and other items more difficult, which resulted in a fuller use of existing facilities to increase industrial production. In some quarters production capacities of capital goods were expanded. As a result, industrial production at the end of the 1930s increased by 60% in comparison with that of 1929. Production of cement in particular shows a remarkable growth of eight times the 1929 level, and that of pig iron by 4.6 times the 1929 figure.[6]

However, the industrial structure underwent virtually no change between 1920 and 1940. The composition of labor force by industry[7] shows figures of 69.7% in 1920 and 67.0% in 1940 for primary industry. Figures for secondary industry in the same years show a light increase from 13.8% to

14.8% for the two years. The average annual growth rate of the entire Brazilian economy was 4.5% for 1920-29 but then declined, to 2.3% for 1929-37. The growth rate increased slightly to 2.9% for 1937-47 (during World War II), and jumped up to 5.3% for 1947-57.[8)]

It then becomes more appropriate to take the World War II period and the postwar period of strengthened import substitution industries as the period of industrialization in Brazil. Changes in the industrial structure can be seen in the share of the labor force employed in various sectors: Between 1940 and 1950 the share of labor force in primary industry decreased from 71.0% to 64.4%, while that of the secondary industry increased from 8.9% to 12.9%.

Japan in 1955 had trod the path of industrialization for about 70 years after it had made a start as a modern industrial state, while today's Brazil has come down that road only for 30 years. As has been mentioned, however, in Japan many pre-modern factors persisted even after productive activities as a modern industrial state started, and it was only after the end of World War II that a democratic industrial structure was firmly established, with such reform measures as the dissolution of the Zaibatsu land reform and formation of free trade unions.

1-3 Political Conditions

(1) Political Systems

Just as processes of economic development differ, so do processes of modernization of political system of Brazil. But political system of Brazil after 1964 and that of Japan in the postwar era can be said to be similar in the following two respects: Both (1) have strong administrative guidance and as a result (2) have a relatively stable political situation, consitency of respective economic policies and continuous economic planning.

Following the Military Revolution in 1964 there was a heavy concentration of political leadership in the Presidency, with the background support of the military. Technocrats replaced bureaucrats in drafting as well as executing economic policies. Prior to 1964, economic plans were shaken up and radically revised time and again after the wishes of the Parliament, with complete lack of continuity. After the Revolution, Parliamentary democracy in form has not prevented the administrative arm

of the State from acquiring a good amount of power and limiting the influence of the Parliament. This has made it possible for economic planning to be consistent, starting from the Programa de Acao Economica do Governo, of 1964-66, and continuing to the 10-year Plano Decenal (1967-76), the 1968-70 Programa Estrategico de Desenvolvimento, and on to the 1972-74 first Plano Nacional de Desenvolvimento. A philosophy of economic development and its methodology was presented to the nation as a "Brazilian model" to enhance national consciousness (See Chapter Three, Section Two for a fuller treatment of this subject).

Let us turn to Japan in 1955. With special procurements by the United States (for the Korean war) in the background, the national economy regained prewar economic levels by the mid 1950s, and the "end of Japan's postwar era" was hailed. This economic recovery enabled the conservative party (the present Liberal-Democratic Party) to solidify its national political base, and continue as the nation's ruling party to the present day. This stability at the level of national politics--unparalleled in other postwar powers--enabled the bureacracy to efficiently wield its abilities in administrative leadership. Not only during the period of postwar economic recovery but also in the ensuing period of rapid economic growth the Government always took the lead over the private sector. Economic development under strong Government leadership is what gave rise to the expression "Japan Inc."

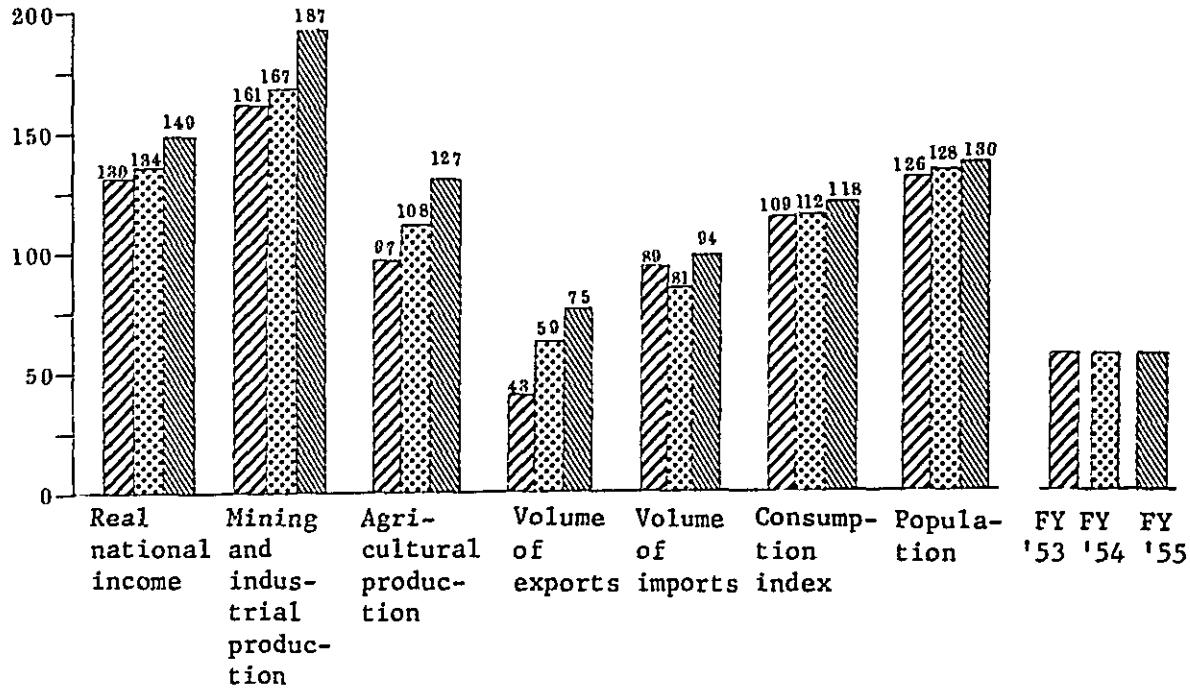
(2) Effects of World War II and the Korean War

Effects of World War II are not to be ignored in our consideration of economic development of the two countries. This war completely destroyed what Japan had built up ever since the Meiji Restoration. It made replacement, not merely renewal, of production facilities essential, as well as replacement of the nation's leaders. By 1955 almost all economic indices exceeded the prewar level (the average of 1934-36), with the notable exception of exports. The pace of Japan's economic recovery was quicker than that of other major powers (See Figure 2-3). We may point out the following as the effects of Japan's defeat.

1. The hitherto war-oriented economic energy of the nation was directed into the private sector of the economy, following the dissolution of the military apparatus.

Fig. 2-2 Indices of Postwar Recovery of the Japanese Economy

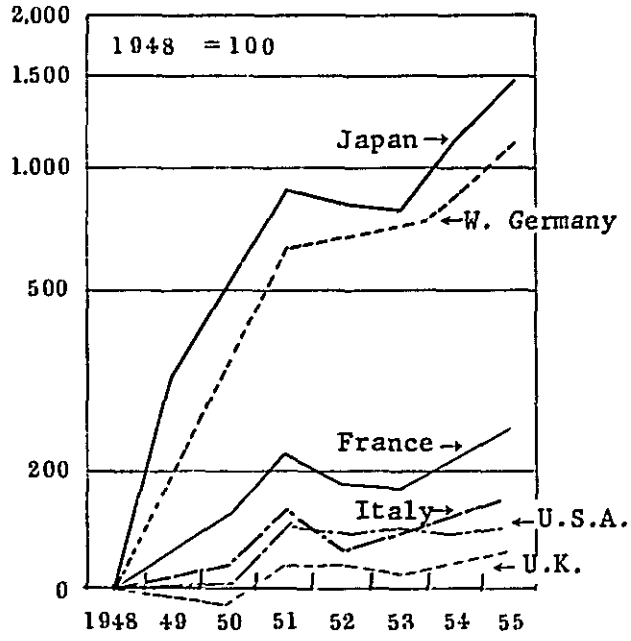
(1934-36 = 100; for agricultural production, 1933-35 = 100)



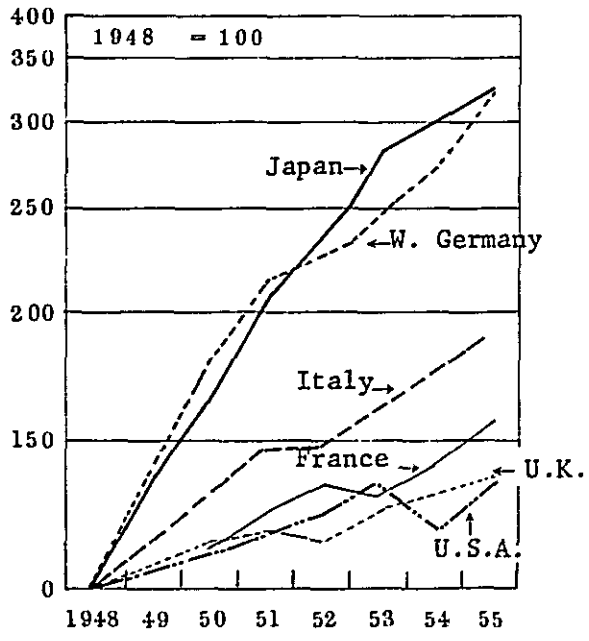
Source: EPA, *Economic White Paper for 1970*

Fig. 2-3 Rate of Economic Recovery, Selected Advanced Nations

(A) Value of exports (US$)



(B) Mining and industrial production



Source: EPA, Economic White Paper for 1970

The share of military (=defense) expenditures in the national income and in the country's ordinary accounts dropped to less than one third of the prewar level in each case. The share of military expenditures in the national income during the war was 6.9%, but went down to 2.0% in 1955; and that in general accounts fell from the prewar level of 45.4% to 12.1% in 1955.[9] We might mention in passing that the military burden on the national economy in Brazil is relatively light, amounting to about 2% of the GNP in 1970.

2. The dissolution of the Zaibatsu, land reform, of the 'Iye' system and development of labor movement, and other changes imposed and fostered by the American Occupation Forces, in combination served to modernize industrial structure. For example, dissolution of the Zaibatsu stimulated competition among firms which, with other factors, helped raise worker morale and increase effective demand.
3. With the then existing production facilities totally destroyed, introduction of modern production equipment was facilitated; there was no looking back, only ahead.
4. Forbidden to participate in the nation's political activities, by the Occupation Forces, many capable men entered the business world.

The effects of World War II were significant in the following ways in Brazil:

1. Brazil supplied the Allied Powers with industrial diamonds and natural rubber, in addition to traditional export items. Although the volume of her exports did not increase (the export index was 95 in 1949 against 100 in 1939 [10]), price increases of exports brought about more income (378 in 1949 against 100 in 1939), improving the balance of payments situation.
2. Cessation of the flow of imports from advanced countries promoted growth of domestic industries. In particular, the textile industry, machine manufacturing, and metal industries in Sao Paulo showed remarkable progress.

For example, the national Volta Redonda steel mill started production.

3. With decreased production capacities of major industrial nations, exports of industrial goods to other Latin American countries began.

As a result of such factors the share of industry in the total NDP increased from 17.4% in 1937 to 21.7% in 1947, while that of agriculture fell from 33.3% to 27.8%. Changes in the industrial structure started to appear around this time.[11)]

The Korean conflict of 1950-53 also influenced the economies of the two countries. While inflation gradually lost its force as the "Dodge Line" stabilization plan was put into effect, and the postwar recovery boom came to an end, the Japanese economy began to stagnate. It was at this time that the Korean conflict imparted a strong stimulus to the economy. Supported by 1952-53 special procurement demand, amounting to $800 million, the production reached the prewar level in one leap, the quality of industrial products was greatly improved by the need to introduce quality control (QC) methods, and business looked for expansion. But due to the fragile economic basis, another period of inflation followed, and caused various distortions in the daily life of the people.

What impacts did the Korean conflict bring to Brazil? During the conflict the world prices of major Brazilian export goods including coffee (which occupied 50% of the total exports) rose, and increased exports in money terms. But the Government anticipated a world shortage of industrial products due to the conflict and eased import restrictions, which rapidly raised imports and deteriorated the country's international balance of payments. (A considerable amount of Brazilian money fled to other countries during this period also).

(3) Relations with the United States

The two countries have much in common in their relations with the United States. The following is a summary of such similarities, in political relations, trade, capital and technology.

Political Relations: Japan signed the Mutual Security Treaty with the United States in 1951, and has depended on the American nuclear umbrella for her security. Japan has positively supported United States policy in regard to the Far East, including Korea, Taiwan and Vietnam, although she did not send troops to any of these places.

In the framework of Cold War diplomacy, Brazil also strengthened cooperative ties with the United States and supported American efforts to combat communist threats within Brazil and elsewhere in Latin America. Brazil served as a go-between in the Americas between the United States and Spanish-speaking countries and was helpful advisor for United States policy-making toward Latin America. The prototype of the Alliance for Progress in the 1960s was a handiwork of Brazil's President Kubitschek. When the United States intervened in the civil war in Dominica in 1965, Brazil played a positive role in the peace-maintaining forces of the OAS, to avoid unilateral intervention by the United States. The United States gives various types of aid to Brazil and assists Brazilian efforts for a stronger voice among the American States.

Trade: A large share of both Brazilian and Japanese trade is with the United States. As is evident from Tables 2-13 and 2-14, the two countries (Japanese of 1955) export over 20% of their totals to the United States and import over 30% from the United States. In particular, more than half of Brazil's biggest export item, coffee, goes to the United States (see Table 2-1).

Table 2-1. Destination of Coffee Exports

(Unit: 1,000 kg)

Year	United States	Total	Share of U.S. in total
1965	286	286	100%
1966	831	975	85%
1967	10,188	11,601	88%
1968	8,660	11,461	76%
1969	12,746	18,208	70%
1970	8,573	20,559	42%
1971	11,725	22,026	53%
1972	6,702	13,172	51%

Source: FGV, Conjuntura Economica, vol. 26, (Nov. 1972)

Capital and Technology: Brazil is especially dependent on United States capital and technology through such firms as GM, Ford and GE. United States capital in Brazil occupies 38% of the total foreign investment in the country. Japan was also quite enthusiastic to acquire technology in all areas of industry from the United States circa 1955, but induction of technology was kept distinct from inflow of capital. Direct investment by United States firms increased rapidly in number only after the period of rapid Japanese economic growth, or after 1965.

2. Economic Systems

As outlined above, Brazil and Japan have much in common in their economic systems despite their historically differing background. Both are capitalistic economic orders, with the principle of free private economic activities based on the market system. And in both there is a large role to be played by the Government (mixed economies), as is often the case with late starters. In Japan the Meiji Government led the private sector a century ago with such slogans as "industrial promotion" and "a rich country and strong military." The same pattern prevailed even in the postwar era after the change in the slogans from "strong army" to "industry is the nation's foundation." Economic recovery was achieved largely due to Government leadership, and also the postwar period of rapid economic growth saw the same role for the Government. Particularly during recessions the Government created effective demand through Treasury loans and investments to maintain productive activities beyond the economy's capacities. As a result, various distortions emerged in the daily life of the people, in such forms as pollution of the air, water and foods. One should note, however, that the Government intervened directly in the nation's economy before the war, while it places more emphasis on use of taxation system and "administrative guidance" after the war.

Brazil's private sector has been late in its development. And in a rather big portion of the economy has no market mechanism is functioning. The role of the Government naturally is large. With establishment of national steel mills and oil companies, and increased direct investment by the Government in Government-run enterprises, the economy may be described as "state capitalism." In this respect it may be taken as similar to that of prewar Japan.

The two countries give first priorities to development, on the foundation of capitalism and a mixed economy. In other words, they place more emphasis on growth than on distribution of income. In this respect the Japan's "Income Doubling Plan" and the Brazil Model, adopted after the 1964 Military Revolution are similar. Earlier economic planners and policy-makers of many Latin American countries saw inflation as a structural phenomenon and avoided balanced budgeting or monetary stabilization measures to avoid pressures on the life of the nation's people, and attempted to equalize income distribution in order to enlarge the domestic market, to promote industrialization and effect a change from heavy dependency upon external markets to internal development. Brazil has adopted a diametrically different economic policy since the 1964 Military Revolution and grown rapidly with introduction of foreign capital and export promotion.

Brazil sought to promote import substitution industries and did not liberalize trade and investment until 1964, after which the Government gradually moved toward liberalization. Japan, on the other hand, imposed heavy restraints on trade, currency exchange and private foreign investment, to protect domestic industries until they acquired sufficient competitive power in the international market, and it was only after 1965 that Japan entered slowly at first, the era of liberalization.

3 Economic Scale

3-1 National Wealth

Before we compare the scale of today's Brazilian economy with that of Japan in 1955, it is enlightening to observe the latent economic power of each, by observing (1) arable land, (2) natural resources, and (3) human resources, in that order.

(1) Arable Land

Brazil is 23 times the size of Japan, but the difference in the arable land of the two countries is still greater. Japan being mountainous, only about 16% of the total land, or 6,070,000 hectares (in 1955) can be cultivated. Almost no arable land is left uncultivated. Rather, rapid urbanization has decreased the cultivated land area, to 5,800,000 hectares in 1970.

According to the 1960 agricultural census, Brazil has placed under cultivation only 3.5% of her land or 29,600,000 hectares, but even this is close to five times the area of Japan's cultivated land. The land that is registered as being for agricultural use amounts to 265.1 million hectares, which comes to 31% of the total national land, or as much as 71% of the total land area is totally unattended. In particular the Amazon region occupies 42% of the total land, only 9% of which is registered as farm land. Weather conditions are not necessarily favorable, but even if a relatively small percentage of this area is utilized, its potential would be great.

(2) Natural Resources

Brazil is richly endowed with natural resources. The different minerals present underground are estimated to exceed 100. Brazil is infinitely more favourably endowed in this respect than Japan which must seek most of its materials overseas.

Only about 30 kinds of resources are presently exploited in Brazil, leaving a great majority lying unexplored. Iron ore reserves are particularly rich and are said to amount to about 80 billion tons, which would equal one-third of the world's total iron ore reserves. Japan has iron ore reserves of 30,800,000 tons (as of 1967), which is one 1/2580 of Brazil's reserves!

Brazil also abounds in manganese ore, holding more reserves than any of the country of the Free World, or an estimated 150 million tons. Japan has the manganese ore reserves of 5,700,000 tons (1967). Existence of bauxite, copper, zinc, nickel and potassium has been ascertained in Brazil, but these reserves are yet undeveloped and she presently imports copper, zinc, nickel and potassium.

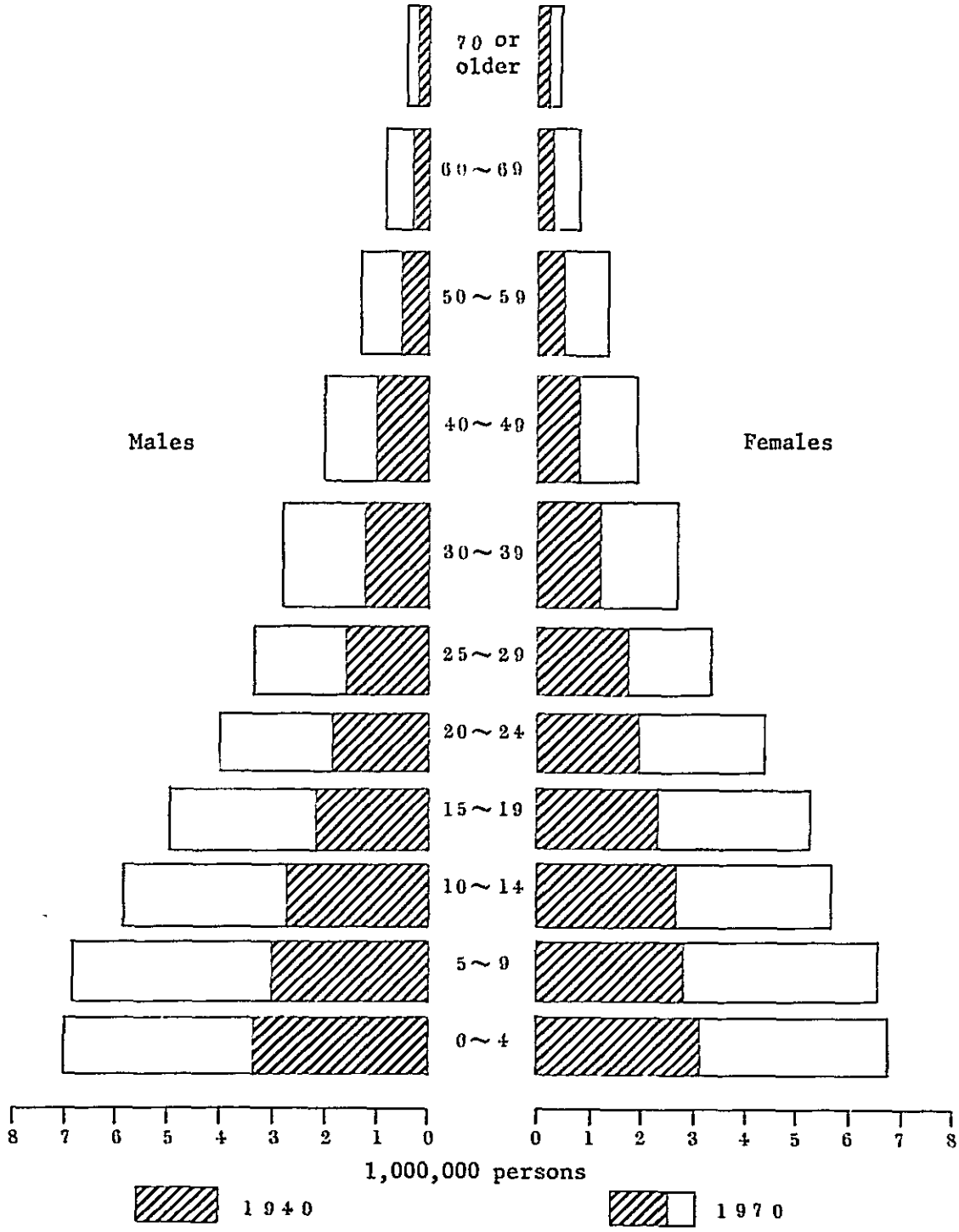
But Brazil lacks significant reserves of oil and coal, while their demand has been increasing rapidly with rapid industrialization after the 1964 Military Revolution. Oil fields have been confirmed in the two Northeastern states of Bahia and Sergipe, but domestic oil production meets only about 30% of the total domestic needs, and imports of oil are rising very rapidly. Coal is present in southern states, Rio Grande do Sul, Parana and Santa Catarina, in the amount of about 3,200 million tons (compared to Japan's coal reserves of 21,184 million tons in 1955). Domestic coal is of low grade, however, and meets only 30% of the nation's needs. The Brazilian Government plans to lower the self-sufficiency ratio of coal to 20% by 1977.

Not much power is generated by hydraulic means in Brazil due to small differences in elevation along big rivers like the Amazon. Principal hydraulic potential is provided by the Parana River (45,624,000 KW), the Sao Francisco (14,572,000 KW) and the Amazon (6,317,000 KW), totaling in 79,359,000 KW. But what presently is under development amounts to only 7.8% of the total potential, or 6,176,000 KW. Hydraulic dams under construction now will produce 10,365,000 KW, and dams now being planned should produce 20,448,000 KW, leaving 42,370,000 KW of hydraulic power unused (figure almost equals Japan's total water power potential (46,864,000 KW in 1972). In Japan, water resources have been developed to the limit of present economic feasibility and thermal power generation yields 80% of the total electricity produced. The importance of hydroelectric power is increasing as a source of energy in Brazil.

(3) Human Resources

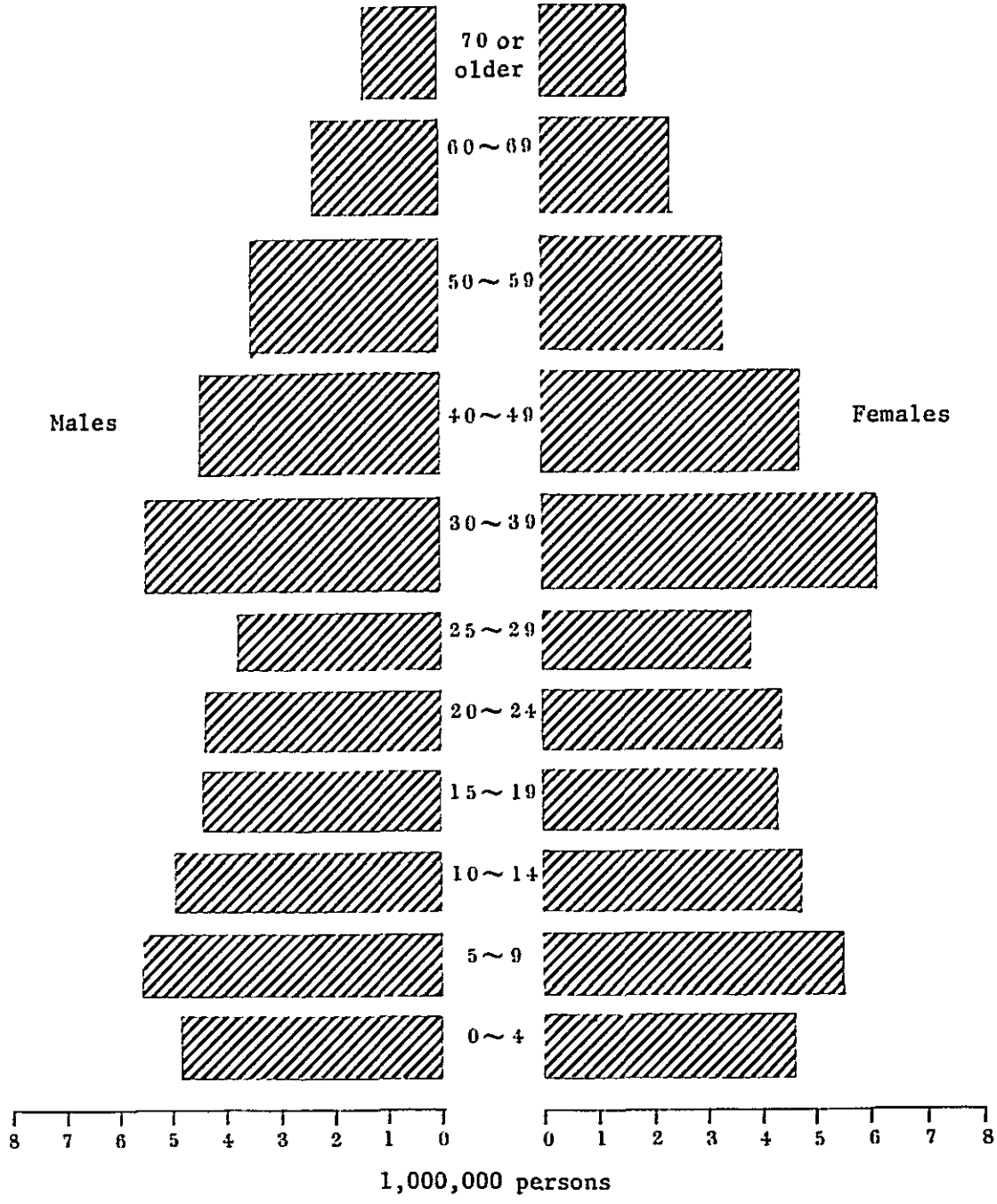
The age distribution of population in the two countries presents striking contrasts (See Figs. 2-4, and 2-5). Brazil's birth rate is 37.8 per thousand twice as high as Japan's, which is 18.6 per thousand (UN Demographic Yearbook, 1968). Brazil's is a typical pattern of high birth rate and low death rate, with the age distribution showing a pyramid-like form. Fig. 2-5 shows Japan's pattern as low birth rate and low death rate as early as 1955, with the trend being still more accelerated ever since. The 1970 statistics produce a more pronounced bell-shaped curve for age distribution.

Fig. 2-4 Composition of Brazil's Population by Age Group, 1940 and 1970



Source: IBGE, Anuario Estatistico do Brasil

Fig. 2-5. Composition of Japan's Population by Age Group, 1955



Source: Prime Minister's Office; Japan Statistical Yearbook

According to the 1970 census, Brazilians under the age of 15 number 41.6% of the total population (compared to Japan's 33.6% in 1955), providing a source of heavy pressure on the national economy and social overhead capital requirements. In particular population increase has been rapid among the low income bracket, contributing to greater discrepancies in income distribution.

For our present purpose, we take people over 15 and under 70 as constituting the productive population. The share of the productive population in Japan was 63.3% in 1955 and increased to 72% in 1970, but it is rather low in Brazil (56.3% in 1970). The share of the economically active population in the total population[12] was 44.3% in Japan in 1955 and went up to 51% in 1970, but in Brazil it is as low as 31.7%. A particularly big difference may be observed in the employment rate among the female population; Japan's 33.7% in 1955 against Brazil's 13.1% in 1970. We must take into account here, however, the fact that nearly 30% of the Brazilian population is outside of the market economy and exists on the subsistence level.

A large youthful population can place a heavy burden on the economically active population, but also means a rich and vigorous potential labor force, while Japan and other advanced countries face the problems of aging of the working population and a grave labor shortage. One must, however, consider the quality of the labor force as well as its quantity, particularly in view of the today's rapid technological progress. The illiteracy rate in Brazil (the ratio of the illiterate to the total population of over 15 years of age) was 56.2% in 1940, 50.7% in 1950 and 39.5% in 1960. Through the PROMOBRAL campaign to eliminate illiteracy which started in 1964, the same ratio was further reduced to 33.1% in 1970. But this still is grossly different from the situation in Japan, where a high standard of education has long prevailed and the illiteracy rate is 2.2% (See Chapter Four, Section 1).

As will be described later, Brazil has wide social differences among various social groups, while in Japan class discrepancies have been eliminated since the Meiji Restoration and particularly after the World War II and high social mobility is a general phenomenon.

3-2 GNP and Per Capita National Income

The 1971 Brazilian GNP was US$44.4 billion (the 1972 estimate is US$50.0 billion), ranking eighth in the Free World, after Canada. But its per capita GNP is US$465 (1972 estimate:US$520), which is lower than in Chile and Cuba.

Such a state of affairs is similar to Japan's in the latter half of the 1950's. Within a decade after defeat in World War II, the GNP recovered to the eighth place in the Free World, but per capita GNP was very low. Soon thereafter, however, Japan's GNP exceeded that of West Germany (in 1968), ranking second in the Free World, and even reached US$227.4 billion in 1971. But its per capita national income is as low as US$1,768, the thirteenth or fourteenth in the world and amounting only to 43% of the United States' per capita national income.

Comparison of the two economies in macro indices shows a 15-years difference in the stages of economic development. Table 2-2 shows the post-1964 Revolution Brazilian economy (1966-70 average) to be similar to that of Japan in the period when economic independence was achieved (1953-57). The populations are almost the same--89,000,000. The GNP of Brazil, taking the average of 1966-70, is US$30,456 million against Japan's US$24,620 million in this period. Since we must take into account the deflated dollar in our calculations, the Brazilian GNP in terms of the 1953-57 dollar value is US$22,728 million, slightly lower than the Japanese figure. Per capita GNP for both countries is on about the same level.

The real rate of economic growth was 7.4% for Japan during the period of attainment of economic independence and average 7.5% for Brazil, between 1966 and 1970. The per capita real growth rate must take into account the bigger Brazilian population increase rate, however.

Here we must not overlook the fact that over 80% of Brazil's GNP accrues from the four Southern industrial states. In further analyzing the content of the same level of GNP with Japan's (see Tables 2-3 and 2-4). This is due to a pattern characteristic of Brazilian economic development since the late nineteenth century, namely heavy concentration in Southern and Southeastern states, like Sao Paulo, which is the principal coffee producer. Particularly after 1930, industrialization was largely concentrated in Sao Paulo and Rio de Janeiro. And

Table 2-2. Comparison of Economic Scale and Growth Rate

	BRAZIL		JAPAN			
	1961-65	1966-70	1947-52	1953-57	1958-64	1965-70
Stage			Reconstruction	Achievement of Economic Independence	High Growth--Transfer to Open Economy	Open Economy--Growing Foreign Reserves
Population (million)	76.50	84.49	88.23	89.12	94.38	100.89
GNP (million US$)	17,947	30,456 (22,728)(1)	9,332	24,620	53,038	136,684
GNP per capita (US$)	235	340	106	276	562	1,355
Average real growth rate	4.5%(2)	7.5%(2)	11.6%(3)	7.4%	10.7%	10.8%
Average real growth rate per capita	1.2%(2)	4.3%(2)	9.7%(3)	6.1%	9.6%	9.6%

Notes: 1. At constant US dollar prices in 1953
2. GDP
3. 1948-52 average

Source: UN, Statistical Yearbook

Table 2-3. Economic Scale of Brazilian Major Industrial States

	Brazil (1968)	Sao Paulo, Minas Gerais, Rio de Janeiro, Guanabara		Japan (1955)
Net domestic product (million US$)	17,728(2)	14,789(2)	83.4%	19,686(2)
Population (million)	89.38(2)	36.61(3)	41.0%	89.28(2)
Net domestic product per capita (US$)	198	404	-	220
Persons employed (million)	5.30(1)	3.70(1)	69.8%	-
Area (sq. km)	8,512(2)	2,000(2)	23.5%	370(2)
Population density (per sq. km)	10.5	18.3	-	241.3

Source: (1) FGV
(2) UN
(3) Estimate from 1970 Census

historically, the economies of most developed Northeast suffered setbacks throught the 1950's, due partly to frequent and severe droughts. The four states of Sao Paulo, Rio de Janeiro, Guanabara and Minas Gerais have only 23.5% of the area but possess 41% of the population and 70% of the employed labor force of the entire country. Their economic activities account for as much as 83.4% of Brazil's total NDP.

The per capita income (based on NDP) of these four states far exceeds the national average, and is almost twice as much as Japan's per capita income (NDP) in 1955. The vastness of the country, with its unmeasurable potentials requires more social overhead capital and investment and expenditures in transportation than present resources

Table 2-4 Economic Activities of Brazilian Major Industrialized States

	Sao Paulo		Guanabara		Rio De Janeiro		Minas Gerais		Sub-total		Brazil	
Agriculture		%		%		%		%		%		%
Coffee (1,000 Cr$, 1970)	644,448	43.6	-	-	2,656	0.2	377,398	25.5	1,024.502	69.4	1,477,219	100
Sugar cane (1,000 Cr$, 1970)	597,100	37.8	168	0.01	108,776	6.9	126,405	8.0	832,449	52.7	1,578,945	100
Raw cotton (1,000 Cr$, 1970)	462,276	34.4	-	-	374	0.03	51,292	3.8	513,942	38.3	1,343,567	100
Industry												
Sugar (1,000 Cr$, 1969)	11,076	40.9	1,636	6.0	3,255	12.0	2,687	9.9	18,654	68.9	27,087	100
Paper (1,000 ton, 1970)	607	56.2	26	2.4	60	5.6	40	2.7	733	67.8	1,081	100
Steel (1,000 ton, 1970)	1,386	25.7	27	0.5	1,652	30.6	2,059	38.2	5,124	95.1	5,390	100
Petroleum (1,000 m , 1970)	2,287	24.8	329	3.6	2,778	30.2	972	10.6	6,366	69.1	9,209	100
Energy												
Electric power (1,000 kw, 1970)	3,602	32.1	238	2.1	1,235	11.0	3,276	29.2	8,351	74.3	11,233	100
Foreign trade												
Export (MCr$)	3,654	33.7	872	8.0	126	1.2	1	-	4,653	42.9	10,845	100
Import (Mcr$)	6,121	47.4	3,832	29.7	64	0.5	45	0.3	10,062	78.0	12,904	100
Internal trade (by ship)												
Export (MCr$, '69)	79	4.7	483	28.9	-	-	-	-	562	33.6	1,672	100
Import (MCr$, '69)	229	13.7	193	11.5	14	0.8	-	-	436	26.1	1,672	100

Source: IBGE, Anuário Estatistico do Brasil

can pay for, and in many ways is a source of inefficiency in economic activities. Japan, on the other hand, is a very "efficient" society with 100 million people living on one-sixth of the combined area of the four Brazilian industrial states in the South. However, this heavy concentration recently has produced diseconomies of many sorts in various areas, such as pollution of all kinds.

3-3 Production Capabilities of the Key Industries

(1) Agriculture

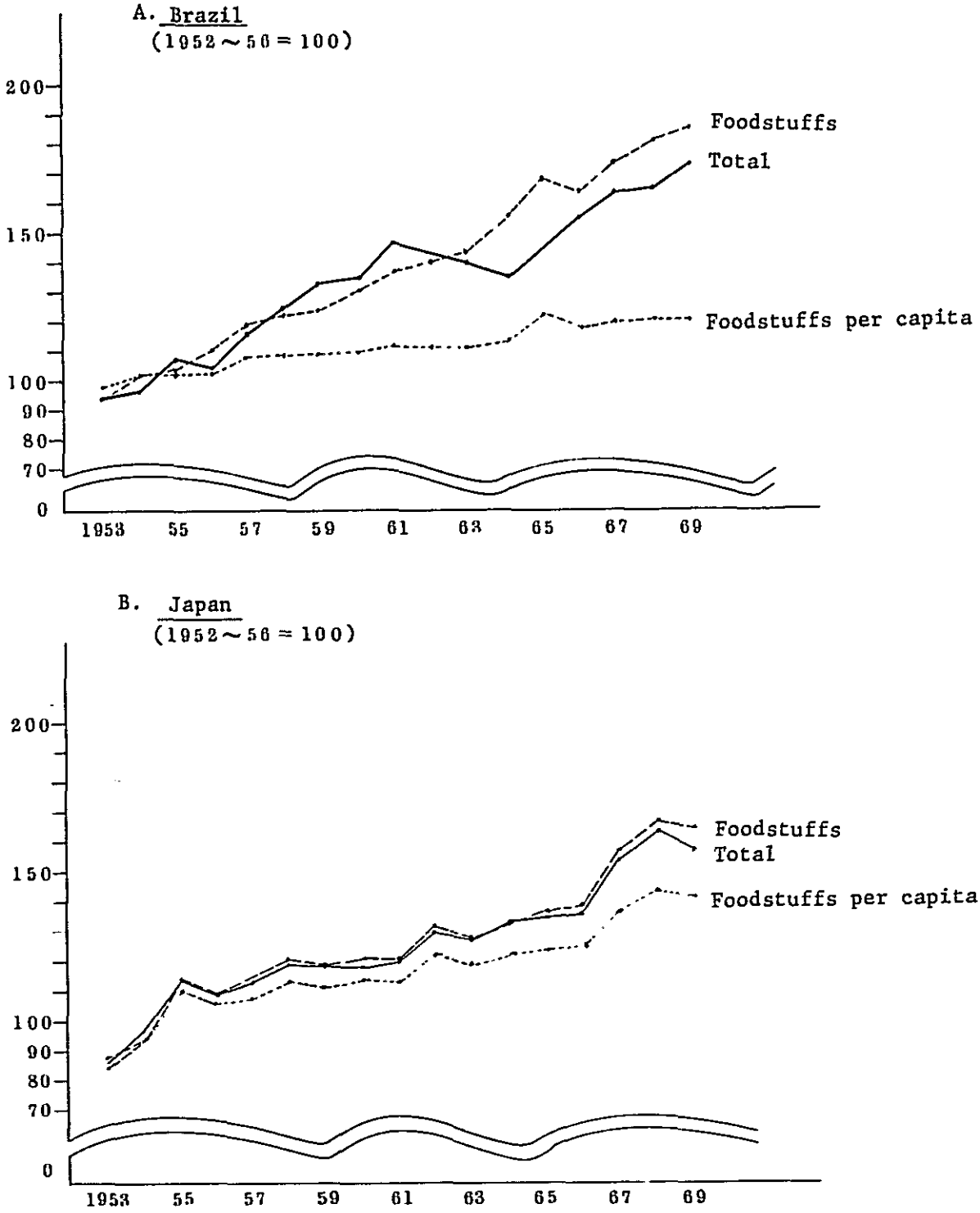
Although the over-all growth rates of 1966-70 for Brazil and 1953-57 for Japan in real terms are very similar, as has been mentioned, growth of agriculture in Brazil exceeded that of Japan. Due to poor harvests caused by unfavorable weather, the average annual growth rate of Brazilian agriculture for 1966-70 was lower than that for 1961-65 (5.7% in real terms). Average annual growth rate for 1966-70 was 3.1%, as against Japan's 1953-57 agricultural growth rate of 2.7% (in real terms).

As can be seen from Fig. 2-6, foodstuff production increased more rapidly than the over-all agricultural production in both countries. One notes that Brazil's higher population growth rate offests her per capita increase in foodstuff production.

Table 2-5 compares production of staple agricultural products in Brazil and in Japan. Brazil, with vast area, naturally utilizes more cultivated land for every item of production, and Brazil out-produces Japan in every item except rice, which occupied about 45% of Japan's total agriculatural production as of 1955. But in terms of agricultural productivity Japan generally fairs better, especially for crops conducive to intensive cultivation. Rice is typical: taking the average of 1952-56, Japan produced 1.8 times of Brazil's output on 33% less land, making Japanese per hectare yield of 2.6 times that of Brazil.

The same applies to livestock breeding and livestock products. The number of horses in Brazil exceeds 9,000,000 (as of 1969/70); (this and figures cited below according to FAO statistics) against Japan's 1,000,000 (the average of 1951/52 to 1955/56),

Fig. 2-6. Trend of Agricultural Production Indices



Source: FAO, Production Yearbook

Table 2-5. Comparison of Agricultural Production

	Brazil	Japan	
	1970	1952-56 average	1970
Wheat: Cultivated area	1,790	680	229
Production	1,800	1,454	474
Yield	10.1	21.4	20.7
Maize: Cultivated area	10,900	47	46
Production	16,000	75	148
Yield	14.7	16.1	32.2
Rice: Cultivated area	4,630	3,108	2,923
Production	7,600	13,498	16,479
Yield	16.4	43.4	56.4
Sugar cane: Cultivated area	1,672	4(2)	13
Production	75,247	105(2)	759
Yield	450	292(2)	584
Tomato: Cultivated area	41(3)	12	20
Production	700(3)	154	787
Yield	173(3)	127	394
Orange:			
Cultivated area	-	-	--
Production	3,200	585	3,000
Yield	-	-	-
Coffee: Cultivated area	2,571	-	-
Production	12,835	-	-
Yield	-	-	-
Tea: Cultivated area	5	35	50
Production	50	650	898
Yield	-	-	-

Notes: Units. Cultivated area: 1,000 ha.
Production: 1,000 m/t.
Yield: 100 kg/ha.

(1) 1969/70; (2) 1952/53 - 1956/57; (3) 1969

Source: FAO, Production Yearbook

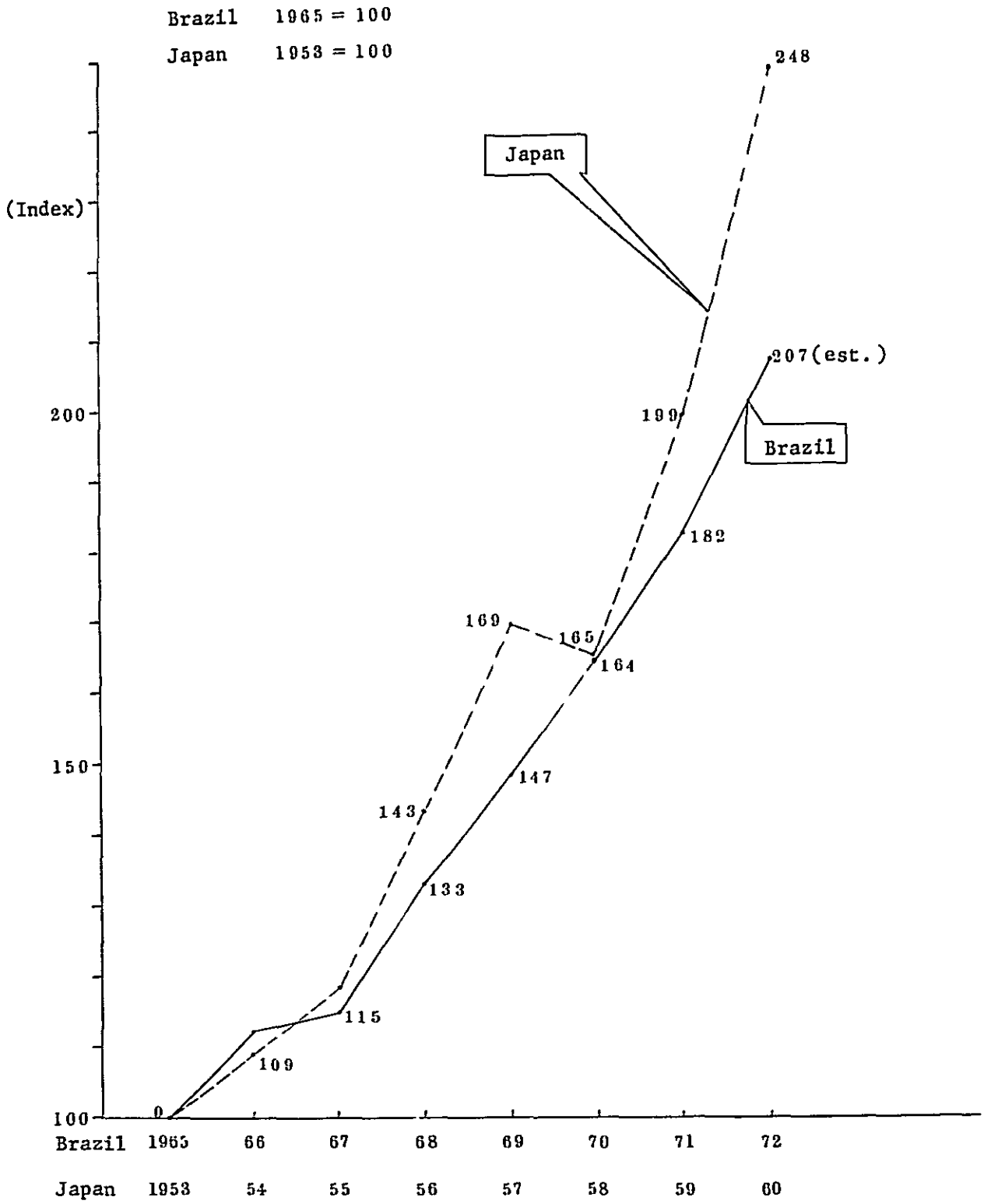
or nine times that of Japan. The production of milk in Brazil is 7,318 metric tons in 1970 against Japan's 885 metric tons as the average of 1952-56 and 4,804 metric tons in 1970, far exceeding that of the latter. But in terms of per head of cattle, in production of milk Japan has a much better record, as compared to Brazil's 470 kilograms in 1969, Japan's per head milk production is 2,738 kilograms in 1952-56 and has continued to increase, reaching 4,330 kilograms in 1969.

Differing productivity comes from differing cultivation methods, due to differing natural conditions, but also from differences in the use of fertilizer and the degrees of mechanization. Although Brazil cultivates five times as much land as Japan, she uses only 1,644 metric tons of nitrogenous fertilizer (1970; FAO statistics), amounting to 32% of the average use of the same fertilizer in Japan in 1952/53 to 1956/57 (5,139 metric tons). The amount of phosphate fertilizer used in Brazil (2,366 metric tons) comes close to that of Japan (2,752 metric tons as the average of 1952/53 to 1956/57), but in terms of amount used per unit of farm area, use of this fertilizer naturally is much less in Brazil. One must note, however, that massive use of fertilizer in Japan has caused pollution of food and water by chemicals, causing considerable concern.

(2) Manufacturing

Fig. 2-7 shows the trend of Brazil's manufacturing production index with the base year as 1965, superimposed on Japan's manufacturing production index with a 12-year time lag (1953 as the base year). Although Japan's rate of growth in manufacturing is higher than Brazil's, their paths are very similar. We may say that Brazil and Japan are very similar in macro-economic indices and also in their two manufacturing production indices, with a time lag of 12 to 15 years. Table 2-6 further shows the similar time lag of 15 to 20 years in the output of such basic industries as iron and steel and cement. The 1972 pig iron production of Brazil was 6,500,000 tons (6,010,000 tons in 1971), which is about the same level as Japan's 1951 production (See Table 2-6). Brazil's production of pig iron, ferro-alloy,

Fig. 2-7 Trend of Industrial Production Indices



Source: FGV, Conjuntura Economica; MITI

Table 2-6. Comparison of Production of Major Manufacturing Products

	Brazil	Japan		
	1971	1951	1955	1971
Crude steel (1,000 m/t)	6,012	6,502	9,408	88,560
Iron & ferro-alloys (1,000 m/t)	4,740	3,227	5,426	74,640
Aluminum (1,000 m/t)	48.7	369	57.5	802.8
Cement (1,000 m/t)	9,660	6,548	10,563	59,460
Caustic soda (1,000 m/t)	135.6	325	502	2,892
Synthetic rubber (1,000 m/t)	782	—	—	759.6
Passenger vehciles (1,000 m/t)	363.0	3.4	13.4	3,715.2
Commercial vehicles (1,000 m/t)	152.4	351	469	2,104.8
Auto tires (1,000 m/t)	9,420	—	—	64,956
Power generation (1,000 kWh)	48,264	47,729	65,193	379,116

Source: UN, Statistical Yearbook

aluminum and cement in 1971 can be compared to Japan's 1951-55 production of the same items. But chemicals seem to be lagging behind other sectors, as seen in Brazil's caustic soda output in 1971, which came to less than a half of Japan's 1951 production level (135,600 tons).

What of consumer durables? Brazil produces many automobiles, exceeding Japan's 1955 production level and reaching the 1959-60 level, when motorization started in Japan. One characteristic feature in this area is Japan's emphasis on commercial vehicles in her development of a domestic automobile industry, whereas Brazil concentrates more on passenger cars. Electric appliances such as refrigerators (700,000 units produced in 1972) are produced in greater number than in 1955 Japan.

3-4 Infrastructure

Transporation methods of the two countries differ greatly, due to such geographical factors as the size of the area, presence of rivers and jungles, and mountain ranges, causing differing degrees of significance of infrastructure (See Table 2-7). In Japan as of 1955 the major means of inland transportation was rail, and it was only in the 1960s that full-fledged construction of inter-urban roads for automobiles started. Brazil, on the other hand, has a longer total railways length, but in terms of railways' capacity to transport passengers and goods, she lags far behind, assigning only limited significance to railways much less than to trucks as a means of transportation. Due to such projects as the Transamazonica Highway, total road length is increasing and one out of 34.7 people has a car, three times as many cars as 1955 Japan, when only one out of 103.3 people had a car.

Table 2-7. Transport and Communications

	BRAZIL	JAPAN	
RAILWAYS	1970	1955	1970
Total length (km)	32,102 (1)	26,080(2)	27,104(2)
Passenger-km (million/annum)	12,350	117,562	288,133
Net ton-km (million tons/annum)	17,525	41,240	62.652
OVERLAND TRANSPORTATION			
Totalroad length (km)	826,425(3)*	———	995.282(3)*
Rate of paved roads (%)	3.8	———	10.8
Passenger vehicles in use (1,000)	2,002.6*	153.3	8,779.0
Commercial vehicles in use (1,000)	656.1*	710.8	8,706.0
Population per vehicle	34.7	103.3	5.9
MARITIME TRANSPORTATION			
Seaports handling over 1,000,000 tons of cargo	10(1)	35(4)**	121(4)
Merchant fleets (1,000 gross registered tons)	1,722	3,735	30.509
Goods loaded (1,000 m/t)	39,970	7,712	41,937
Goods unloaded (1,000 m/t)	28,073	36,713	435,875
CIVIL AVIATION			
Kilometers flown (1,000 km)	95,406	10,867	224,128
Passenger-kilometers (1,000)	4,384,771	329,112	16,430,650
Cargo ton-kilometers (1,000)	168,728	3,912	389,231
COMMUNICATIONS			
Telephones in use (1,000)	2,001	2,595	26,233
Telephones per 100 persons	2.2	2.9	25.1

Notes: * 1969 ** 1954

Source: UN, Statistical Yearbook; but for (1) IBGE, Anuario Estatistico do Brasil; (2) Prime Minister's Office, Japan Statistical Yearbook; (3) IRF, World Road Statistics; (4) Ministry of Transportation, Japanese Port and Harbor Statistics.

Table 2-8. Energy

	Brazil	Japan	
	1970	1955	1970
Total energy production (in million tons of coal equivalent)	1965	4950	54.86
Total energy consumed (in million tons of coal equivalent)	4405	65.87	331.90
Energy consumed per capita (kg)	472	740	3,210
Electric power			
Installed capacity (1,000 kw)	11,233	14,512	68,311
Production (1,000 kwh)	45,460	65,193	359,490

Source: UN, Statistical Yearbook

Transportation by sea presents big differences between the two countries. Japan's maritime shipping capacity was completely destroyed during World War II, but a shipbuilding program was vigorously promoted after the war with heavy subsidies from the Government. As of 1955, however, capacity had reached only 70% of the prewar level (3,735,000 tons in 1955 against 5,007,000 tons in 1935), but even this was twice today's Brazilian gross tonnage. For a trading nation like Japan shipping is extremely important. Japan regained the prewar level of marine transportation capacity in 1958, but rapidly increasing trade brought about a low load rate of around 45%. The greater Brazilian goods loaded shown in the Table 2-7 seems to be due to a big proportion of crude materials such as ore in exports. From this viewpoint also it must be said that the development of the maritime infrastructure is retarded in Brazil, because there are only ten ports that can handle more than a million tons.

Brazil's air transportation today is more advanced than that of Japan in 1955, flying nine times the total distance carrying 13 times as many passenger-kilometers, and carrying 50 times as many cargo-kilograms, as 1955 Japan. This is due not only to the wide area but

also to the consequent development of domestic air routes.

Per capita consumption of energy is an important index of the industrial and productive power of a nation. It was 472 kg in coal equivalents in Brazil in 1970, amounting to 64% of the 1955 Japanese level. Weather and other natural features may have some bearing on this, but it is safe to say that Brazilian industrialization is behind the stage arrived at by Japan in 1955 at least as measured by the index of energy consumption (see Table 2-8).

4 Economic Structure

We have observed many similarities in terms of economic scale of the two countries at the two periods of time chosen for our comparison. But similar macro-indices do not necessarily mean that there will be similar structure of the economies. Differing natural conditions and historical experiences should naturally produce noteworthy differences in economic structure. In this section we will analyze (1) structure of agricultural, manufacturing and tertiary industries, (2) dependency on overseas factors with respect to markets, capitals and technology, respects to markets, capitals and technology, (3) relations between the Government and the private sector, (4) relations between savings and investment, and (5) income discrepancies among regions, between urban and rural areas, and among classes, as well as discrepancies among various sizes of firms. Such analyses will clarify similarities and differences between the economic structure of Brazil and that of Japan.

4-1 Industrial Structure

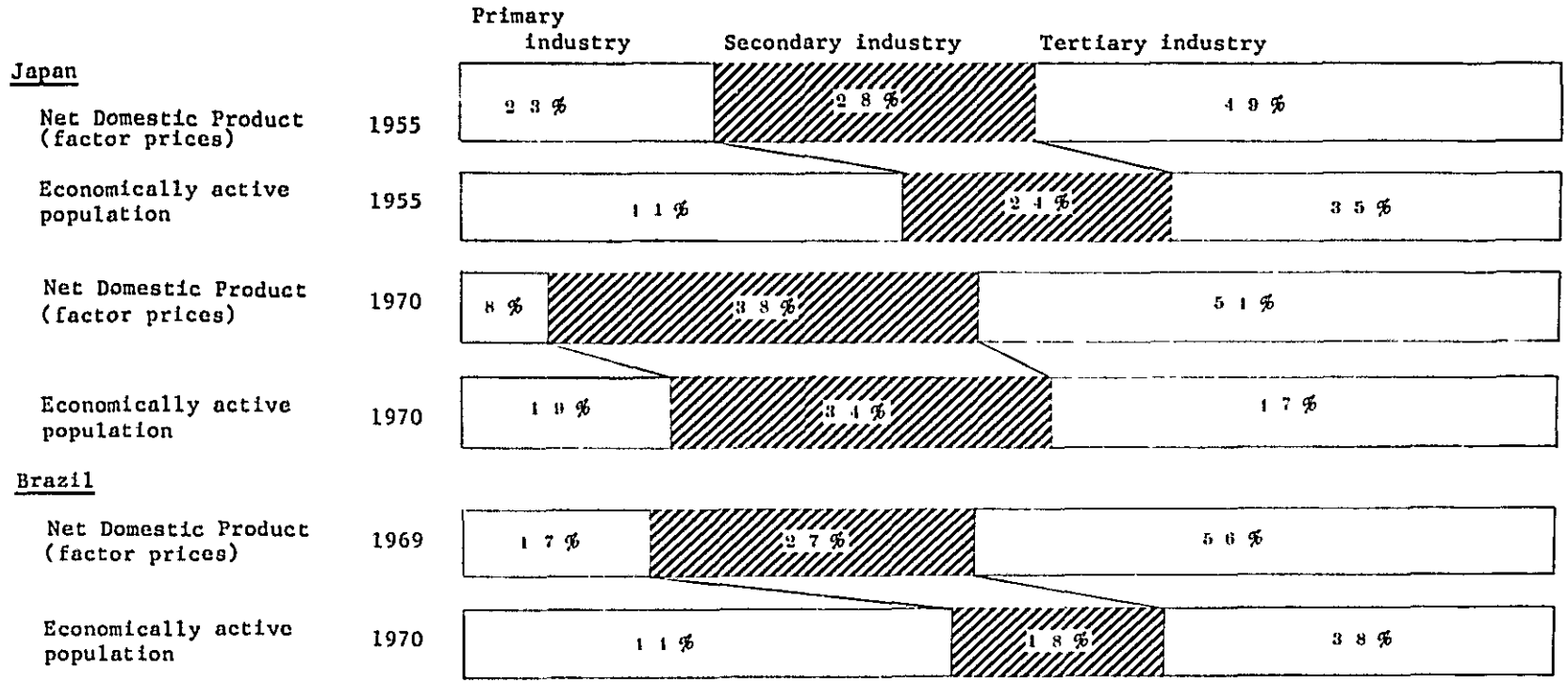
(1) Agriculture vs. Manufacturing

Fig. 2-8 shows shares of primary industry (agriculture, forestry and fishery), secondary industry (manufacturing and mining, construction) and tertiary industry (transportation, communications, commerce, banking, housing and services)[13] in the Net Domestic Product (NDP) and economically active population. This gives a more advanced stage, after the fashion of Colin Clark, to the Brazilian industrial structure in NDP as of 1969 than to that of 1955 Japan. The share of primary industry in Brazil is 17%, while that of Japan as of 1955 is as high as 23% (both NDP). It took another three years for Japan to lower the share of her primary industry to the Brazilian level (17.8% in 1958). But the share of the secondary industry in 1958 exceeds that of Brazil, being 32.6%.

In terms of the composition of Brazil's economically active population in 1970, 44% is engaged in primary industry while only 18% is engaged in secondary industry. Japan, on the other hand, has 41% of the economically active population in primary industry and 24% in secondary industry.

Brazil has a bigger income discrepancy between agriculture and manufacturing than does Japan. Against the baseline figure of 100 for per capita production (NDP over economically active population) of those engaged in secondary industry, those working in primary industry gain only 26 while the Japanese counterparts gain 34 as of 1955 and 38 as of 1970. Japan's industrial development, especially that of the period prior to the war, to a great extent was accomplished at the expense of peasants. Funds for industrial investment were obtained from the agricultural sector through such means as land taxes. Rural areas provided cheap factory labor because the custom of primogeniture and low status of women made children other than the eldest son redundant. Further, because a large percentage of the population was engaged in agriculture, the rural market absorbed large quantities of various products.

Fig. 2-8. Industrial Structure



Notes: Primary industry: Agriculture, forestry, fishery
Secondary industry: Mining, manufacturing, construction
Tertiary industry: Electric power, gas, transportation, communications, commerce, banking, housing, services, others.
For Brazil, public utilities such as electric power and gas are considered as secondary industry in calculation of the economically active population.

Sources: UN; ILO; FGV Conjuntura Economica; Bank of Japan, Economic Statistics Annual

After 1955 the flow of agricultural population to other sectors of the economy accelerated. In 1955 14.9 million Japanese were engaged in agriculture but their number dropped to 13.1 million in 1960 and to 10.85 million in 1965, registering a decrease of 4 million people within a decade in agriculture. The high degree of concentration of rural youth, who left the farms after completing compulsory education weakened the labor structure in rural areas. With the decline of the agricultural population the share of primary industry in the total national income declined steadily, from 23% in 1955 to 15% in 1960 and to 8% in 1970.

As in Japan, the role of agriculture in industrialization is also great in Brazil. Capital accumulated through export of agricultural products, such as coffee, has paid for industraillization. Peasants and farmers (immigrants and their descendants) are also the source of the new entrepreneurial class. The Northeastern Region is a perennial source of cheap labor, as well as a source of industrial materials and the market for domestic products.

Agricultural exports occupy nearly 70% of the total exports, and therefore are an important source of foreign currency. Commercial and transportation activities depend heavily on farm products and it can be said that the agricultural sector directly influences 50% of the Brazilian economy. This is a conspicuous feature of the Brazilian economy in comparison with that of Japan, which has witnessed a steady lowering of the food self-sufficiency rate.

The Brazilian Government has made great efforts to modernize agriculture in order to exploit Brazil's land and labor resources. In doing so, the Government has placed much emphasis on three areas: (1) improvement of productivity through introduction of new and improved species and application of technology, as well as through mechanization, (2) increasing the area of land under cultivation through development of frontier lands and improvement of infrastructure, and (3) increased financial assistance to the agricultureal population.

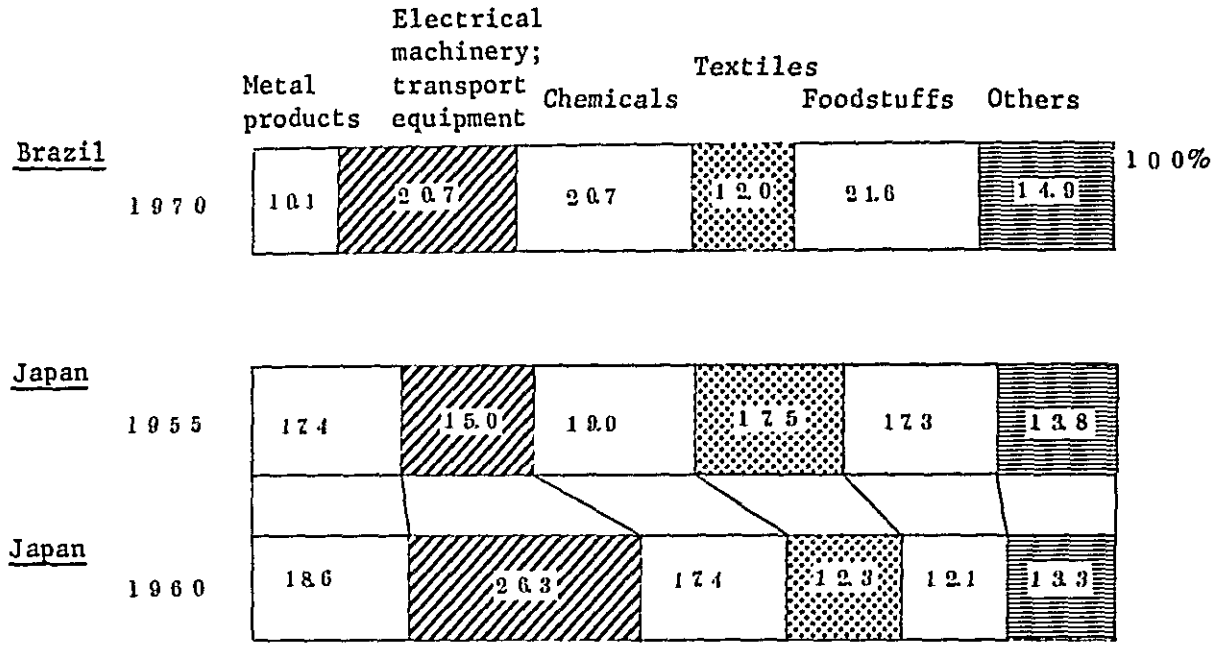
The last item is carried out by such institutions as the Superintendencia do Desenvolvimento do Nordeste (SUDENE), Superintendencia do Desenvolvimento do Amazonia (SUDAM), and special program such as Programa de Integracao Nacional (PIN), and Programa de Redistribuicao de Terras e de Estimulo a Agro-industria do Norte e do Nordeste (PROTERRA).

Turning to secondary industry, as can be seen from Fig. 2-8, the share of secondary industry in Brazil's NDP differs little from that in 1955 Japan. But closer examination of the composition of secondary industry reveals that the share of mining is unexpectedly small (1.4%); the share of the construction industry similarly is unexpectedly small (5.2%); and manufacturing occupies as much as 93.4% of secondary industry's total production. In Japan in 1955 the share of mining was 6.7%, and that of construction 14.8%, with a smaller figure for manufacturing than in Brazil.

Fig. 2-9 gives the composition of the manufacturing sector. Much is in common between today's Brazil and the Japan of 15 years ago, and this corresponds to the similarities in production figures of basic industries, as pointed out in Section 3-3 of this Chapter. However, the share of metal products, such as steel, is relatively low and that of the textile industry is lower than that in 1955 Japan. The share of foodstuff processing is high, as may be expected of Brazil. The higher share of machines, electric appliances and transportation equipment than that of 1955 Japan is ascribable to the high number of automobiles produced.

The share of the heavy and chemical industry in Brazil is 51.5% (for our present purpose it is the sum total of metal products, machines, electric machinery and appliances, transportation equipment and chemicals), and is the same as that of Japan in 1955 (51.4%). Like the case of Japan, chemicals and steel is the motive force of economic development. The chemicals and c[illegible] can be also drawn from Fig. 2-10 describing the movement of industrial production indices by industry. The only notable difference is the low rate of growth of machinery (general), which was a central force of development in Japan.

Fig. 2-9 Composition of Production of the Manufacturing Industry, Brazil and Japan
(Value of total industrial production = 100; unit: percent)

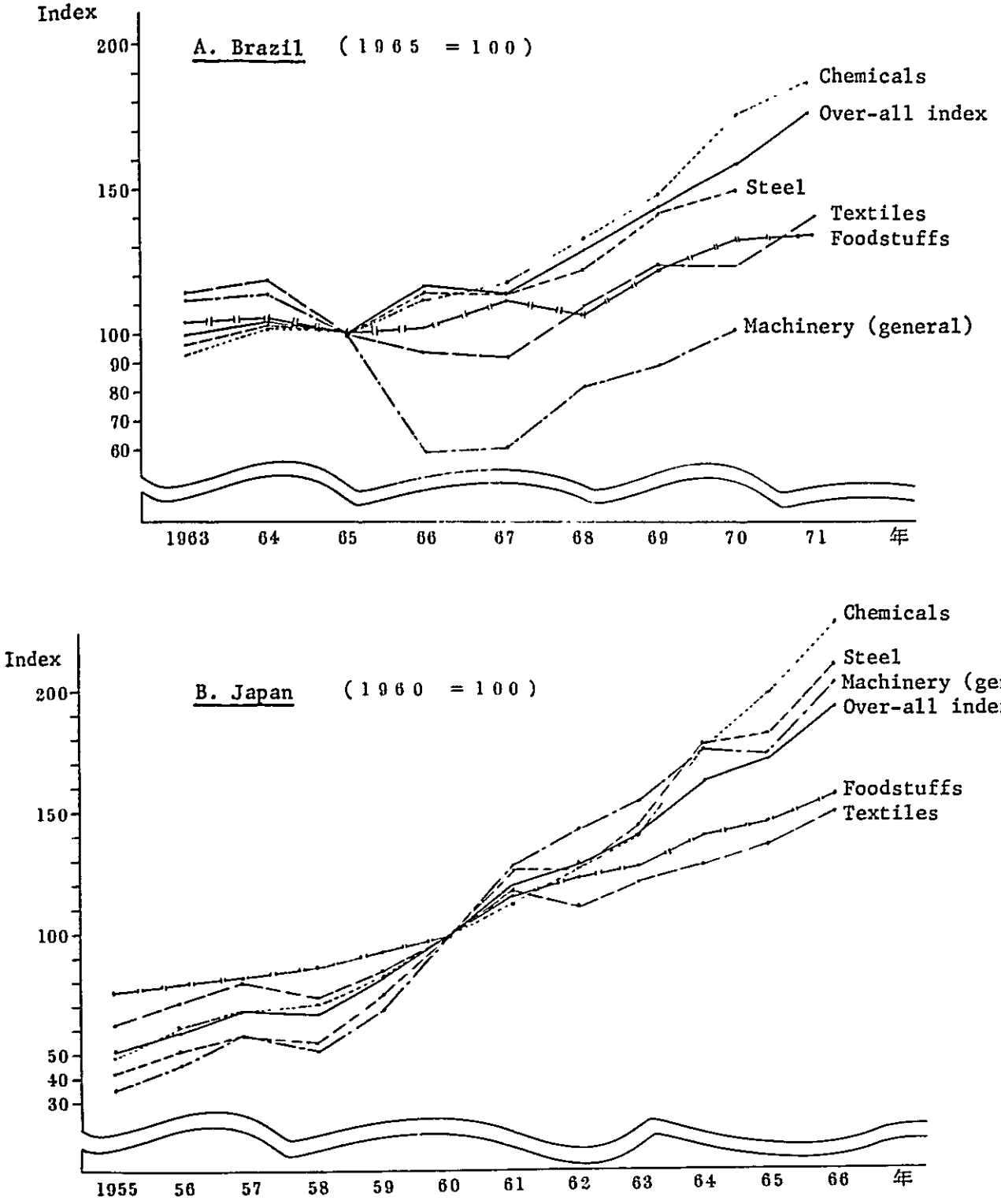


Source: MITI, Industrial Census; IBGE, Anuario Estatistico do Brasil

The size of the manufacturing industry and its composition in Brazil is similar to that of Japan except for being 15 years behind, as has been shown. But the importance of the manufacturing industry to the entire national economy is greatly different.

The high growth of the postwar Japanese economy is attributed to the rapid increase in equipment investment, or to the rapid increase of industrial production motivated by investment demand. Large-scale investment in equipment and modernization brought about a remarkable increase in productive capacities and also actual production, but on the other hand it often led to production capacities which exceeded demand, and overproduction. The postwar Japanese business cycle therefore is mainly due to the ups and downs of inventory investments. Due to Japan's trade pattern of buying materials from abroad, processing them in Japan and then exporting finished products, industrial production is closely related to imports and exports (see Fig. 2-12).

Fig. 2-10. Trend of Industrial Production Indices by Industry



Sources: APEC, A Economia Brasileira e Suas Perspectivas and Prime Minister's Office; Japan Statistical Yearbook

In contrast to this, hitherto Brazilian business cycles have been due largely to trends in agricultural exports, and industrial production has had relatively small impact. The inventory was

Cr$	490	million	in 1964 (in market price ferms),
	1,360	million	in 1965,
	-12	million	in 1966,
	524	million	in 1967, and
	712	million	in 1968,

demonstrating violent changes. These figures, however have very low credibility. The inventory occupies only 4% of the total capital formation even in 1968 (in Japan, 19.8% in 1955 and 11.2% in 1970), and no effects of changes in inventory have been observed as yet. The situation seems to be that of being able to sell all that can be produced. The share of industrial goods in total exports is 27.6% (1972 estimate), influencing rather little the overall balance of payment.

(2) Production vs. Service Sectors

Referring to Fig. 2-8 showing industrial structure, the share of tertiary industry in Brazil's NDP is 56%, higher than that of Japan even in 1970, not to mention in 1955. But the proportion of tertiary industry in the economically active population of Brazil is 38%, more than twice the share of the secondary industry.[14] In relation to the number of those engaged in tertiary industry, the share of this sector in the NDP must be said to be unusually high in comparison with the case of Japan in 1955. But in the case of Brazil the relatively important weight of tertiary industry does not mean an advanced stage of industrial structure exists. Fig. 2-20, which shows industrial structure by region for Brazil, indicates that the share of tertiary industry in the economically active population is highest in the Southern Region (42.6%), and lower in the Northern Region (31.4%) and in Northeastern Region (27.5%). But the share of tertiary industry in terms of net production in each region is highest in the Northern Region (60% as of 1962-68 average), where development is lagging behind most, and lower in the Southern Region (52.6%) and the Northeastern

Region (49.3%) in that order.

Analyzing tertiary industry further, in terms of net production, public utilities such as electricity and gas in addition to transportation and communication, occupies 16.3% in Brazil (Japan's share was 18.4% in 1955), commerce occupies 22.9% (Japan, 33.2%), and public services occupy 16.8% (Japan, 9.6%). Finance, insurance and real estate occupy 15.9% (Japan, 13.8%), and services 28.1% (Japan, 25.0%). The number of people employed in each of the these tertiary industries is shown in Table 2-9. [15] Brazil in 1970 has, in comparison with

Table 2-9. Composition of Tertiary Industry, Brazil and Japan (Economically active population)

(unit: 1,000 persons)

	Brazil		Japan			
	1970		1955		1970	
Commerce	2,624	23.4%	6,011	43.7%	11,397	46.0%
Transportion & Communication	1,259	112	2,027	14.8	3,239	13.1
Services	5,831	520	5,701	41.5	9,399	38.0
Others	1,496	133	3	—	717	2.9

Note: Employees of public utilities such as electric power and gas companies are not included in this table.

Source: ILO, Yearbook of Labour Statistics

Japan in 1955 (1) a smaller share of people in commerce, parallel to commerce's smaller share in the NDP, and (2) a larger ratio of people in services (including in this case public services). The service industry in Japan served cushion the shocks of business cycles to a great degree in the past, and it was only after the rapid economic growth hit the ceiling that the services industry started to attract much attention. In contrast, surplus labor, which could not be absorbed in agriculture and industry, is absorbed in the services sector in Brazil, and the services sector functions a gathering place

for the latently unemployed. This tendency is particularly strong in the poorer regions of the North and Northeast.

Thus, tertiary industry, particularly services, is expanding to an unusual degree, placing strong pressure on production. To measure this pressure, we have calculated the ratio of the tertiary industry to primary and secondary industries combined; it is 0.79 for Brazil in 1969, 1.04 for Japan in 1955, and still low, at 0.83, in Japan even in 1970 when the industrial structure has allegedly become more advanced.

4-2 Sectoral Economic Relations

(1) Domestic vs. Foreign

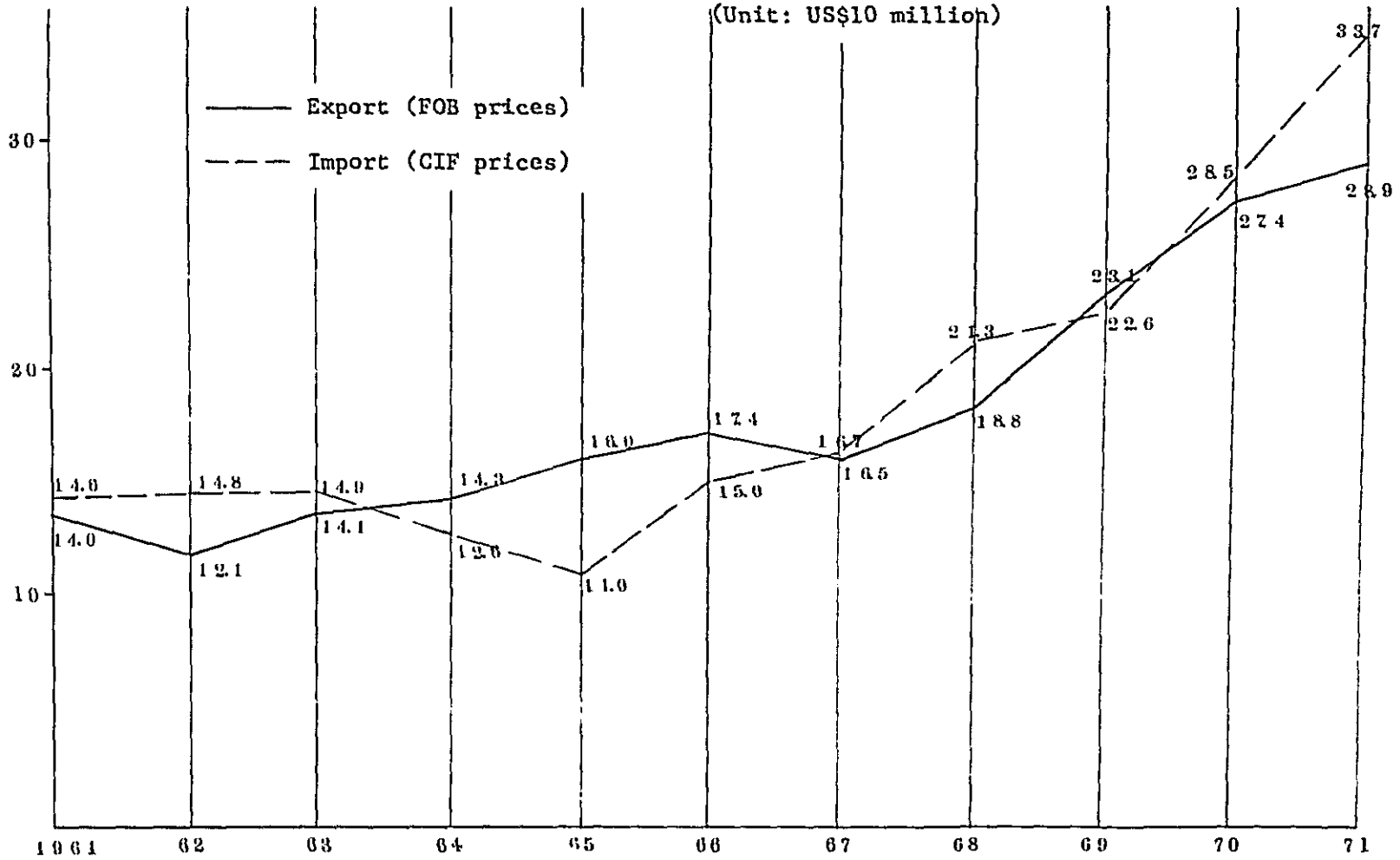
In this portion of our study we attempt to identify characteristic features of the economic structure in terms of sectoral relations by examining the extent that the Brazilian and Japanese economies depend on the world economy for (1) markets for agricultural and industrial goods and sources of intermediate and capital goods, (2) capital supply, and (3) technology.

1) Trade

In 1970, Brazil exported US$2,740 million worth of goods and imported US$2,850 million.[15] Exports were a little lower than Japanese exports of US$3,230 million in 1956, and imports roughly equalled Japan's imports of US$2,860 million in 1957. While Japan's foreign trade amounted to about 11% of her GNP around 1955, Brazil's exports comprise 7.2% of her GNP and her imports comprise 7.5%. These figures indicate that Brazil's trade plays a lesser role in her national economy than is the case for Japan. In 1970 the share of exports and imports in GNP in Japan came to 11.2% and 9.9% respectively.

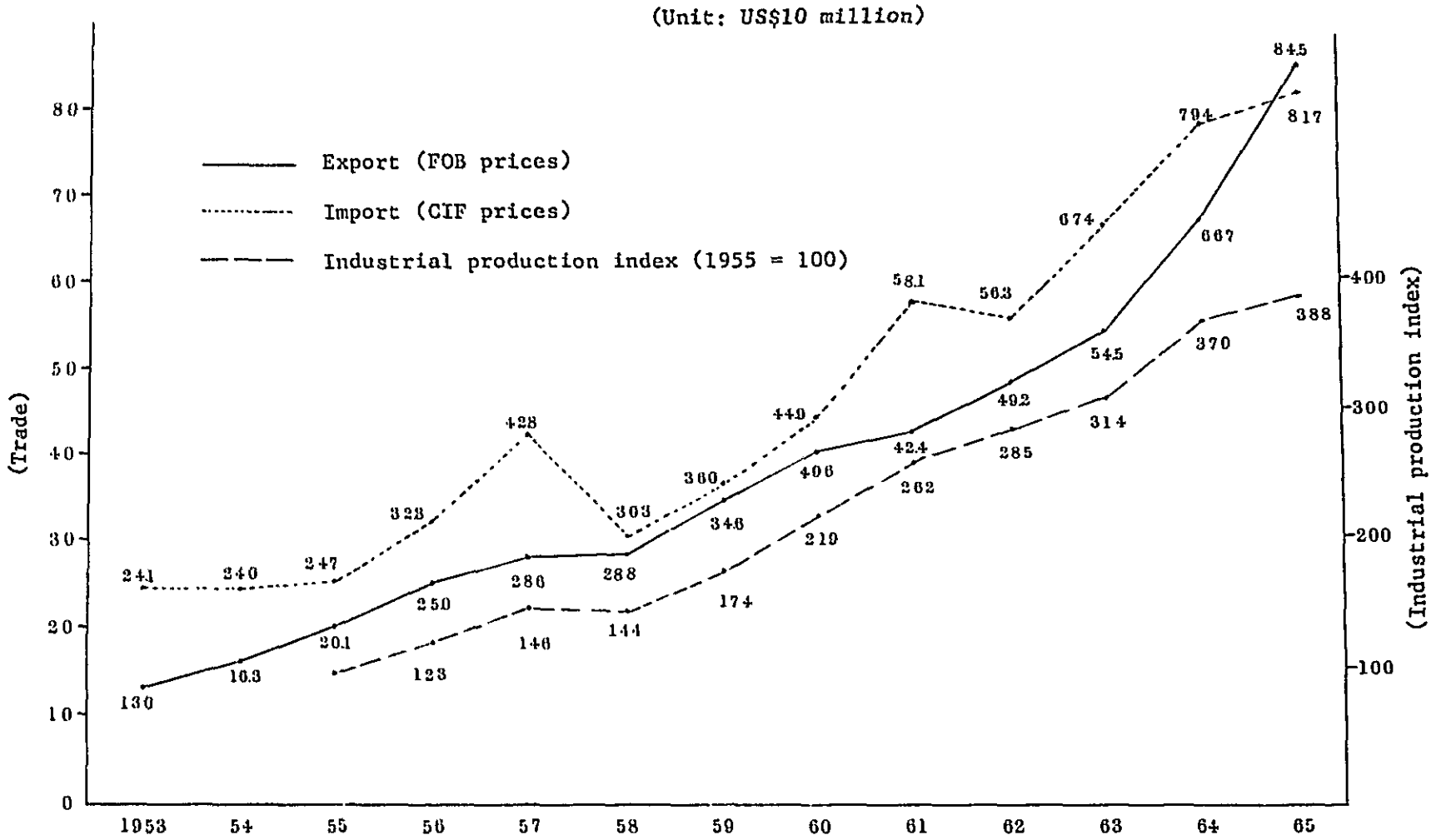
Fig. 2-12 shows the movement of Japan's trade since 1953. During the two periods of 1953-57 (attainment of economic independence) and 1958-64 (high growth), imports always exceeded exports. With little natural resources, Japan had to increase imports of materials to increase industrial production. This is why the growth of industrial production followed a pattern very similar to the trend of imports.

Fig. 2-11. Trend of Brazil's Trade



Source: UN, Yearbook of International Trade Statistics

Fig. 2-12 Trend of Japan's Trade



Source: UN, Statistical Yearbook

Since Japanese exports do not always rise in step with Japan's high economic growth--or overseas demand for Japanese goods does not necessarily grow as fast as the Japanese economy--the more rapid the Japanese economy grows, the bigger her trade deficit becomes. In 1960 the invisible trade balance showed deficit (see Fig. 2-16 and Table 2-19) and thereafter the deficit in trade had direct impact on over-all balance of payments. With foreign reserves lower than $2 billion, the international payment situation can become the constraining factor, can prompt adoption of a tight money policy to restrain growth of industrial production, and lead to more restraints on imports. Trade then was the key to business cycles. The 1958 rock-bottom recession and the 1963 recession were caused by this mechanism. But since 1965, equipped with higher productivity following the rapid growth period and strengthened competitiveness of Japanese products abroad, plus the fixed exchange rate of the yen (US$1 = 360 Yen) which further promoted exports, the trade balance has been in Japan's favor by a big margin, which has tilted the general balance of payments also in Japan's favor by doing more than absorb the invisible trade deficits.

Let us turn to Brazil's trade (see Fig. 2-11). Her trade pattern following the 1964 Military Revolution is apparently different from that prior to that Revolution. Brazil had striven to promote import substitution industries since the end of World War II, like other Latin American countries, and achieved the annual average growth rate of 7% in real terms in 1957-61, due to the growth of import substituting industries. Imports were controlled through heavy import duties and other means to protect domestic industries, and this worked to favor a balance in trade. But by around 1964 the limit to growth attainable through promotion of import substitution had been reached, and since 1967 the policy has been replaced by emphasis on stronger competitive power and export promotion. Under-utilized facilities were put to use, fiscal incentives were given in the form of corporate tax benefits, and import duties were exempted for materials, intermediate goods and machines. As a result, (1) both imports and

exports increased rapidly, and (2) since 1970, imports of crude oil and machines have made total imports exceed total exports. According to estimates of 1972 trade, exports should amount to US$3,987 million for an increase of 38% over the previous year, and imports should be US$4,220 million (FOB prices) or an increase of 25% over 1971. The balance will be a deficit of $233 million. Brazil's trade pattern has come to show some resemblance to that of Japan in the past.

Since 1966 Brazilian-Japanese trade has been increasing. Although its significance as a proportion of total trade is not very great (Brazil's exports to Japan amounted to only 5.3% of her total imports. See Tables 2-13 and 2-14.), it increased by 4.5 times between 1966 and 1971 (See Table 2-10).

In spite of the similarity in the trade pattern, its composition is entirely different between the two countries. We note the following characteristics of import commodity composition (see Fig. 2-13):

(1) Japan is a typical materials importing country. Materials monopolized 87% in 1955, and 70% in 1969, of total imports of primary products, such as food, crude oil and raw materials.

(2) Two-thirds of Brazil's imports is occupied by chemicals, industrial products, machinery and transportation equipment. Brazil is a capital goods importer.

(3) Each country has a low self-sufficiency rate for crude oil, imports of which occupy 12 to 13% of their respective total imports.

Let us see how Brazil and Japan depend on foreign countries for imports of principal import items. Japan produced rice for up to 95% of her domestic demand in 1955-57 on the average, but depended on imports for 45% of her wheat. Also, 63% of her soybeans and 96% of her sugar must be imported. As to important mining products, Japan must import 97% of her oil (1955), 100% of aluminum and nickel, 92% of iron ore (1960) and 51% of coking coal. Brazil can produce only 30.1% of her oil consumption (1971), and 57.4% of coal. A great percentage of Brazil's needs of industrial goods must still be

Table 2-10 Trend of Brazil-Japan Trade and Its Commodity Mix

Imports from Japan (CIF) (Unit: US$1,000)

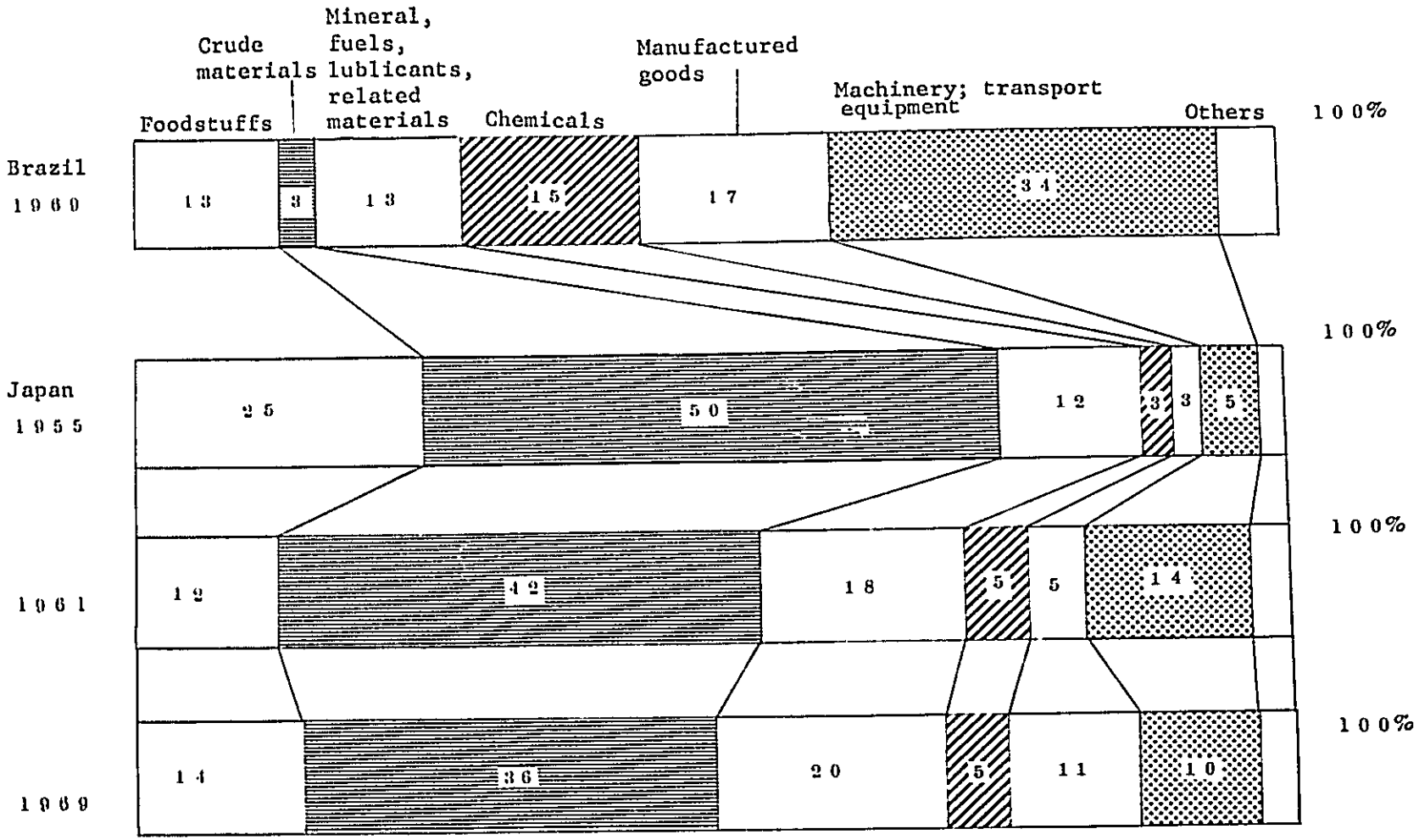
	1966	1967	1968	1969	1970	1971
Live animals	-	0	0	0	0	-
Raw materials	-	3.0	5.5	3.6	4.5	-
Foodstuffs		-	0.2	0.2	0.2	-
Chemical products	-	4.5	5.0	8.4	15.3	-
Machinery & machinery parts	-	15.2	33.4	41.9	86.2	-
Processed manufactures	-	15.5	18.1	36.6	53.6	-
Other manufactures	-	6.5	10.9	11.8	17.9	-
Gold, currency & other special transactions	-	5.6	0.1	3.1	0.1	-
Total	44.5	50.5	73.1	105.7	177.8	225.0
Percent of total imports	(3.0%)	(3.0)	(3.4)	(4.7)	(6.2)	(6.7)

Exports to Japan (FOB) (Unit: US$1,000)

	1966	1967	1968	1969	1970	1971
Live animals	-	-	-	-	0	-
Raw materials	-	33.0	39.8	73.1	93.9	-
Foodstuffs	-	12.9	14.9	26.9	40.4	-
Chemical products	-	0.1	0.4	0.7	0.7	-
Machinery & machinery parts	-	-	1.3	-	-	-
Processed manufactures	-	9.9	0.7	1.6	9.7	-
Other manufactures	-	-	-	-	0.1	-
Gold, currency & other special transactions	-	-	1.4	2.9	0.1	-
Total	44.1	56.0	58.6	105.3	144.9	158.0
Percent of total exports	(2.4%)	(3.4)	(3.2)	(4.6)	(5.3)	5.4

Source: IBGE, Anuario Estatistico do Brasil 1970 - CACEX

Fig. 2-13 Composition of Imports by Type of Commodity (CIF; %)



Source: UN, Trade Statistics

Table 2-11. Brazil's Dependency on Imports of Industrial Manufactures (1969)

	Domestic market	Imports	Import dependency ratio
Traditional industries	(Cr$ 1,000,000)	(Cr$1,000,000)	
Textiles	8,159	71	0.9%
Foodstuffs (excluding beverages)	2,254	6	0 3
Printing & publishing	1,692	18	1.1
Total (including others)	31,187	263	0.8
Intermediate goods			
Metals	9,517	1,152	12.1
Wood and wool products	1,418	3	0 2
Rubber and rubber products	1,626	19	1.2
Chemical products	15,352	1,604	10.4
Total (including others)	34,290	3,098	9.0
Capital goods			
Machinery	5,437	1,746	32.1
Electric equipment	5,283	692	13.1
Transport equipment	8,200	708	8.6
Total (including others)	18,920	3,146	166
Grand total (including others)	85,755	6,866	8.0

Source: IBGE, Produção Industrial, and other sources

imported. Machinery (32.1%), electric machinery and equipment, and chemicals are also conspicuous for their high dependency rates, as can be seen from Table 2-11.

Concerning exports, there is a complementary relationship between Brazil and Japan (see Fig. 2-14):

(1) Among Japan's exports, industrial products, machinery, transportation equipment, chemicals and other heavy industrial goods occupied 74% in 1955, and 79% in 1969. The shares of machinery and transportation equipment have shown particularly large increases through the 1950s and 60s, primarily due to soaring exports of ships.

(2) A high share in Japan's exports for sundry goods, such as toys, is characteristic. These goods are produced mainly by small business.

(3) Brazil still is a primary products exporter, seeing as 89% of her exports were foodstuffs and raw materials in 1969.

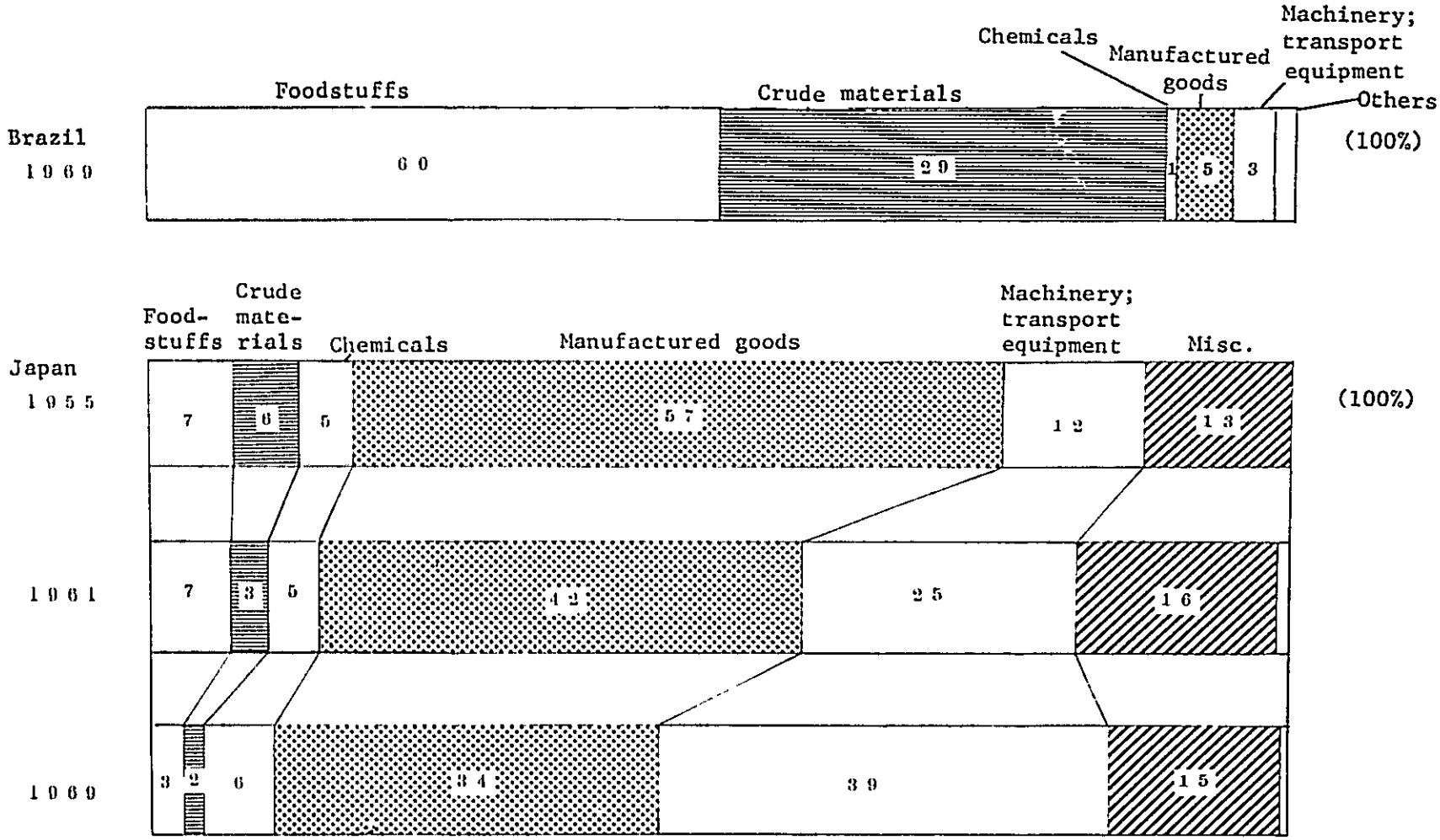
Table 2-12. Composition of Brazil's Exports (Major Commodities)

(Unit: percent)

Commodity	1947/51 average	1957/61 average	1967/71 average
Coffee	52.2	56.0	37.4
Raw cotton	12.0	4.0	6.2
Cocoa bean	5.0	6.8	4.4
Iron ore	0.4	3.4	6.8
Sugar	0.9	4.2	5.0
Total	70.5	74.4	59.8

Source: Relatorio do Banco do Brasil, S.A.

Fig. 2-14. Composition of Exports by Type of Commodity (CIF; %)



Source: UN, Trade Statistics

As can been seen from Table 2-12, however, the ratio of traditional export items in Brazil's exports is falling, showing the tendency of a shift from a mono-culture export pattern to a more diversified export pattern. According to estimates of 1972 trade, industrial exports increased by 38% over the previous year and occupied approprimately 18% of total exports. But competitiveness of industrial goods is not sufficiently strong yet. We must note that a future increase of industrial goods exports will not lower the importance of primary products exports to the Brazilian economy. Eighty percent of the total iron ore production of 27,157,000 tons (1970, the same for below), or 21,734,000 tons was exported, and 43.4% of manganese production of 2,011,000 tons was geared also for overseas consumption. 963,000 tons of coffeebeans, or 63.8% of the total production, and 60.9% of cacao bean is being exported.

In comparing trade partners of Brazil and Japan, we obtain the following results (See Tables 2-13 and 2-14).

(1) The two countries depend heavily upon the United States. Their trade with the United States amounts to 27.4% of exports (Japan=1955) and 28.5% of imports. However, the items of trade are different: Japan's main import items are wheat and cotton, while Brazil imports machinery and other materials needed for industrial expansion and modernization. Japan used to export toys, sewing machines, and other products of small-scale enterprises in around 1955, and today's Brazil exports coffee. Both Brazil and Japan have trade deficits with the United States.

(2) The share of trade with the European Community and EFTA amounts to 38% of the total trade of Brazil, while Japan trades little with West European countries. This difference is due to the fact that Japan and West Europe compete with each other in similar export products, while Brazil has complementary relations with West Europe in terms of trade

Table 2-13. Value of Exports by Region (FOB, unit: US$1,000)

Brazil

	1970	%
Japan	144,940	5.3
Other Asia	98,017	3.6
EEC	770,469	28 1
EFTA	351,886	12 8
Other Europe	247,995	9 1
Soviet Union	21,237	0 8
United States	676,058	24.9
Other North America	48,311	1.8
Other Central & South America	302,946	11.1
Africa	4,551	0 2
Oceania	58,784	2.1
	3,000	0.1
Total	2,738,922	1000

Japan

	1955	%	1970	%
Asia	841,382	41.8	6,032,890	31.2
EEC	81,800	4.1	1,303,110	6.7
EFTA	90,189	4.5	1,059,009	5.5
Other Europe	33,292	1.7	660,389	3.4
Soviet Union	2,076	0 1	340,932	1.8
United States	456,202	22 7	5,939,819	30.7
Other North America	82,776	4.1	1,154,717	6.0
Brazil	33,422	1.7	166,731	0 9
Other Central & South America	115,282	57	429,375	2.2
Africa	205,581	10 2	1,423,324	74
Oceania	68,598	3.4	801,957	4.2
Total	2,010,600	100.0	19,317,687	100.0

Source: UN, Statistical Yearbook and APEC, A Economia Brasileira e Suas Perspectivas

Table 2-14. Imports by Regions (CIF US$1,000)

Brazil

	1970	%
Japan	177,844	6.2
Other Asian countries	175,093	6.2
EEC	630,052	22.1
EFTA	351,629	12.3
Other European countries	90,854	3.2
Soviet Union	3,491	0.1
United States	918,108	32.2
Other North American Cts.	81,628	2.9
LAFTA	309,759	10.9
Other Central-South American Countries	12,039	0.4
Africa	83,001	2.9
Oceania	4,798	0.2
合 Total	2,849,243	100.0

Japan

	1955年	%	1970	%
Asia	901,983	36.5	5,553,484	29.4
EEC	95,134	3.8	1,116,863	5.9
EFTA	59,865	2.4	750,412	4.0
Other European countries	18,910	0.8	206,409	1.1
Soviet Union	3,054	0.1	481,038	2.5
United States	773,923	31.3	5,559,579	29.4
Other North American	248,167	10.0	1,326,503	7.0
Brazil	59,278	2.4	217,853	1.2
Other Central South American Countries	44,699	1.8	757,736	4.0
Africa	62,955	2.5	1,098,671	5.8
Oceania	203,344	8.2	1,812,195	9.6
Total	2,471,430	100.0	18,881,168	100.0

Source: UN, Statistical Yearbook and APEC, A Economia Brasileira e Suas Perspectivas

structure, as well as close historical and geographical relations.

(3) Trade with other Latin American countries, like the LAFTA nations, amounts only to about 11% of Brazil's total trade, while Japan has a much closer trade relation with other Asian countries: 42% of her exports go to Asia (1955), and 37% of her imports come from Asia (1955). Brazil has a competitive relation with the rest of Latin America, while Japan has a complementary relation with the rest of Asia. We must note, however, that the share of Asia's trade in Japan's trade is falling as a general trend.

After 1960, Japan became more positive about the issue of trade liberalization. Until then her policy was that of protecting domestic industries through such means as exchange controls. Japan's trade was completely controlled by the American Occupation Forces for some years following the end of the war. In 1947 private trade was partially reopened, and on April 1, 1949, the exchange rate was fixed at 360 yen to a dollar. In 1960 a plan for liberalization of trade and currency exchange was advanced. In April, 1964 Japan became an Article 8 nation of IMF, and joined the OECD, committing herself not to exercise exchange controls in trade, including invisibles unless granted permission by the IMF. As of April, 1960, the trade liberalization ratio was only 42%, and it was in August 1963, that Japan attained the level of trade liberalization of other advanced nations (90% liberalization).

2) Introduction of Foreign Capital

In promoting rapid industrialization, which Brazil is presently doing, investment in equipment must be increased, to realize a high rate of growth. As will be studied below, Brazil has a high propensity to consume, has a low level of private savings as compared with Japan, and is willingly introducing capital from overseas to close the gap created by insufficient domestic capital accumulation. Furthermore, as former Planning Minister Roberto Campos points out,[16)]

Table 2-15. Introduction of Foreign Investment in Brazil

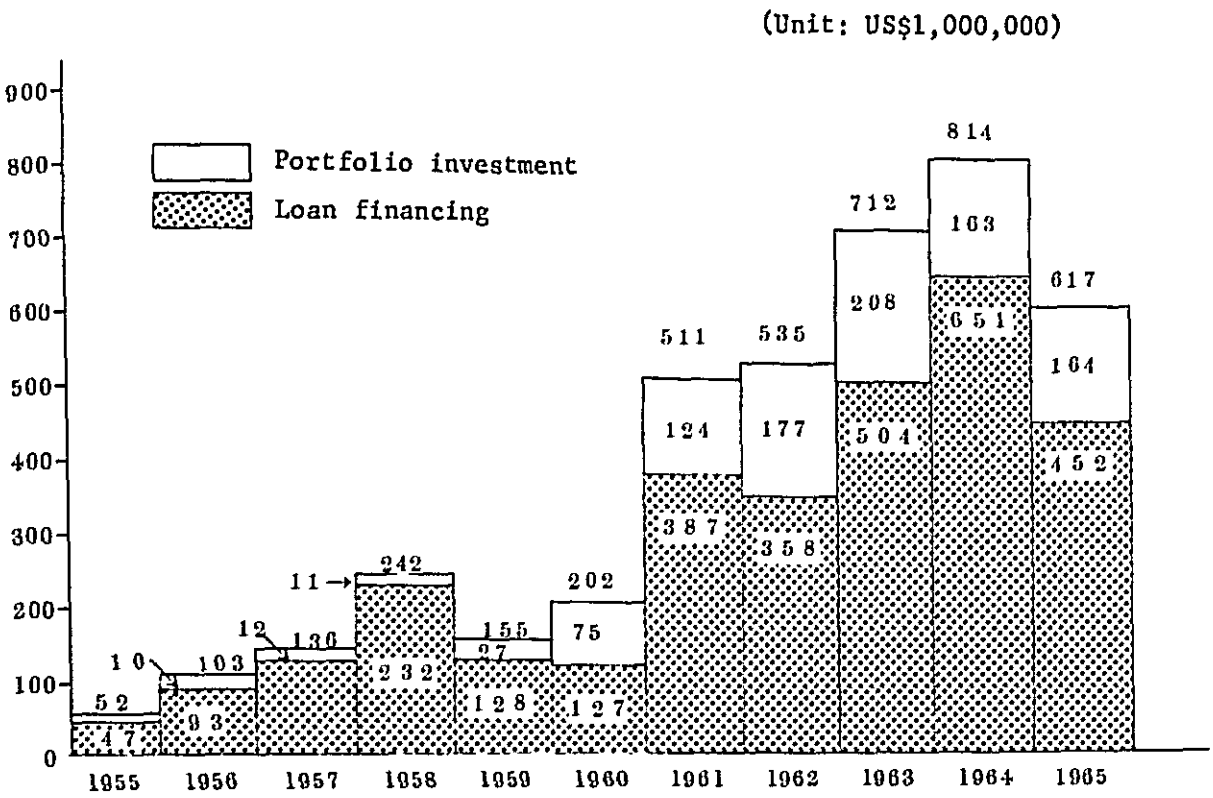
(Unit: US$1,000,000)

	Value of foreign investment				(B) Foreign loans	(A) + (B)
	Net investment	Reinvestment	(A) Total	Accumulated investment		
1960	99	39	138	2.571	494	632
61	108	39	147	2.718	793	940
62	69	63	132	2.850	562	694
63	30	57	87	2.937	482	569
64	28	58	86	3.023	403	489
65	70	84	154	3.177	489	643
66	74	85	159	3.336	490	649
67	76	39	115	3.451	362	477
68	63	48	111	3.562	996	1.107
69	136	64*	200	3.762	1.284	1.484
70	122	64*	186	3.948	1.505	1.691
71	125	64*	189	4.137	2.535	2.724

Note: * estimate

Source: FGV, Conjuntura Economica, vol. 26, Nov., 1972

Fig. 2-15 Japanese Induction of Foreign Capital (Authorization Base)



Source: BOJ, Japanese Economic Statistics

foreign capital is highly valued "not only for its quantitative importance, but also for its qualitative aspects of (1) its introducing technology into Brazil, as a general tendency, and (2) its improving the payment balance."

As a result Brazil induced as much foreign capital as US$186 million in the form of direct investments, and US$1,550 million in the form of loan financing, totalling US$1,691 million (See Table 2-15). Since Japan in 1955 accepted only US$52 million of foreign capital in portfolio investment (See Fig. 2-15), Brazil is inducing 32.5 times

as much foreign capital as 1955 Japan. In 1968 the inflow of foreign capital into Japan exceeded US$1,600 million (It was $1,837 million if portfolio investment is included).

It is estimated that the percentage of foreign capital in the total fund procurement of industry in Brazil should be about 7.1% in 1970, as can be seen in Fig. 2-18. The same percentage for Japan was 27% in 1955 and merely 1.3% in 1960.[17)]

Brazil has continued to increase the inflow of foreign capital after 1970, and an especially high rate of increase for portfolio investment has been observed. By March, 1973, Brazil's accumulated outstanding balance of debts to overseas had grown to US$7,200, half of which must be repaid by 1975.

Japan took the policy of keeping foreign capital out of the country for a rather long time after the end of the war. It was only in 1967 that a forward-looking posture was adopted for the first time regarding direct investment. That year, Phase One of the capital liberalization policy was put into effect, with gradual steps to be followed year by year in the same direction. It is characteristic of Japan that (1) the share of portfolio investment is small, and (2) of the Japanese firms in which direct investment is made the biggest group is that of corporations capitalized at less than 50 million yen.

In contrast, Brazil takes a lenient attitude toward foreign capital, permitting it to be active in most areas of the economy, including agriculture and commerce. Brazil's late-starting industrial bourgeoisie has maintained complementary--not a competitive--relationship with foreign capital.

Only in four areas are some restraining factors in operation regarding capital from overseas. They are as follows.

(1) exploitation, refining and sales of oil and natural gas, monopolized by PETROBRAS

(2) Capital participation in commercial banks, investment banks and other financial institutions is limited to one-third of the total capital

(3) Communications, such as radio and television broadcasting, and

(4) Acquisition of real estate.

The principal sector of foreign capital activities is the manufacturing industry, which is 61.8% (data are for 1971) of the total foreign capital invested in Brazil.[18] Particularly noteworthy are the petro-chemical industry, occupying 21.5%; transportation equipment, mainly the automobile industry, occupying 13.9%; and communications equipment, occupying 9%. The sources of investment, by country, are, in the order of importance, United States, 37.7%; West Germany, 11.4%; and Canada, 10.1% with Japan providing 4.1% of the total foreign capital in Brazil.

3) Introduction of Technology

Introduction of foreign technology has grown very rapidly for both Brazil and Japan. Technological innovation is essential for advanced stages of economic growth, and for technological "have-not" countries, introduction of foreign technology, such as for production processes, is necessary. As can be observed in Table 2-16, Brazilian imports of technology (as contracted in 1969) amount to 0.28% of her GNP and 4.5% of her total imports. Japan's import of technology in 1955 amounted only to 0.08% of her GNP and 0.8% of her total imports, being a far lighter burden than was the case in Brazil. This is due to (1) the fact that Japan's level of technological achievement was already rather high and there was sufficient basis for indigenous development, and (2) the fact that inflow of foreign technology was rigorously controlled until 1968, when technological liberalization was effected. Until 1968, Japanese firms intent on concluding or revising a technical assistance agreement in order to introduce technology from alien investors were required to obtain authorization under the Foreign Capital Act if the terms of the contract or the period of payment exceeds one year, and were required to obtain permission under the Foreign Exchange Act in other cases.

Turning to the acquisition of technology by industry, the steel industry received 18.5% of the total Brazilian technological induction

Table 2-16 Trade in Technology

	Brazil				Japan*				
	A. Introduction of tech.		A	A	B. Introduction of technology			B	B
	Payments (US$million)	Rates of increase	G N P	Imports of goods	No. of case	Payments (US$million)	Rates of increase	G N P	Imports of goods
1954年					185	20	—	0.08	0.8
55					310	33	166.7	0.12	1.0
56					254	43	30.3	0.14	1.0
57					242	48	11.6	0.15	1.3
58					378	62	29.2	0.17	1.7
59					588	95	97.9	0.22	2.1
1960					601	113	18.9	0.21	1.9
61					757	114	0.9	0.19	2.0
62					1,137	136	19.3	0.20	2.0
63					1,041	156	14.7	0.19	2.0
64					958	167	7.1	0.19	2.0
65	42.5	—	0.17	4.5	1,153	192	15.0	0.19	2.0
1966	45.8	7.8	0.18	3.5	1,295	239	42.1	0.19	2.0
67	62.7	36.9	0.23	4.3	1,744	314	25.9	0.21	2.4
68	70.2	12.0	0.24	3.8	1,629	368	35.3	0.21	2.4
69	90.8	29.3	0.28	4.5	1,768	433	28.3	0.21	2.3
70									

Note: * Fiscal year for Japan

Sorce: For Brazil, IPEA, Transferencia de Technologia no Desenvolvimento Industrial do Brasil; for Japan, Science and Techonology Agency, Annual Report of Technical Transfer

in terms of the number of cases (1,665 cases in 1969), the chemical industry 12.3%, machinery 12.1%, electric and communications equipment 11.6%, transportation equipment 10.7%, and heavy-chemical industry more than 60%. Concerning Brazil's induction of technology, the situation has been as follows.[19] The emphasis placed on technical

Form	Percent of total cases	Percent of total payments
Technical assistance	48.0	68.0
Licensing	11.5	9.0
Use of trademark	14.7	6.1
Technical	18.9	12.2
Elaboration of project	6.2	4.7

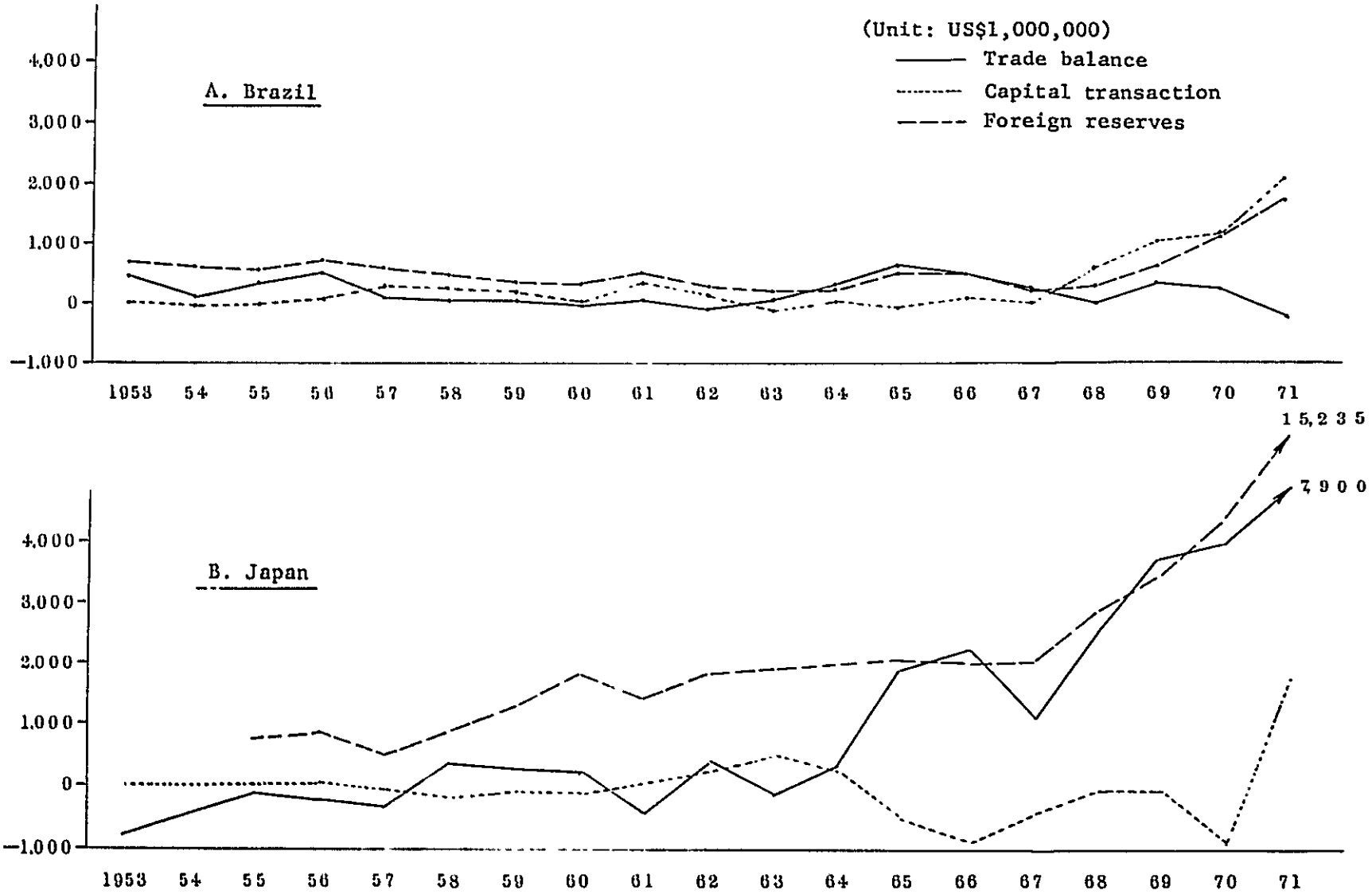
assistance and services is obvious.

Concerning the sources of Brazil's technology, the United States and West Germany, occupying 31.4% and 31% respectively in terms of payments, are most important, followed by France, 8.5%, and Italy, 6.5%. Japan occupies 4.2% in this regard. Japan often separated the induction of capital from the induction of technology, but Brazil often introduces them together.

4) Balance of Payments

Until around 1964, Japan's trade balance registered large deficits, which were offset by invisible trade and capital balance (see Fig. 2-16 and Table 2-17). Trade deficts were due to increase of imports of crude materials, machinery and technology--all necessary for rapid economic growth, as has been discussed--which exceeded total exports. The balance of international payments was a constraint to growth during this phase. What raised this ceilling of balance of payment to above the capability of the Japanese economy during 1950-55 was the income from special procurement related to tensions and the American military presence in the Far East. Procurements amounted to US$590 million in 1951, and more than US$800 million in both 1952 and 1953, which transformed the invisible trade balance to a favorable one

Fig. 2-16. Trend in Holdings of Foreign Reserves



Source: see Table 2-17.

Table 2-17. Balance of Payments

(Unit: US$ million, ▲ minus)

		1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970	1971
JAPAN	Trade balance	▲790	▲427	▲53	▲131	▲402	369	362	268	▲558	401	▲166	377	1,901	2,275	1,160	2,529	3,699	3,963	7,900
	Services	563	347	258	72	▲188	90	23	▲100	▲383	▲420	▲569	▲784	▲884	▲886	▲1,172	▲1,306	▲1,399	▲1,785	▲1,748
	Transfer of payments	21	29	22	25	▲30	▲195	▲23	▲25	▲41	▲29	▲45	▲73	▲85	▲135	▲178	▲175	▲181	▲208	▲254
	Net capital transactions	▲174	40	78	27	115	92	▲274	▲71	10	279	574	341	▲476	▲872	▲306	▲30	23	▲867	1,832
	(Long-term capital transactions)	▲141	26	▲24	25	38	96	▲214	▲55	(▲11)	(172)	(467)	(107)	(▲415)	(808)	(812)	(239)	(155)	(1,591)	(▲1,161)
	Errors and omissions	2	13	▲19	11	1	37	57	33	20	6	45	10	▲51	▲45	▲75	84	141	271	▲53
	Over-all balance	▲379	2	285	1	▲503	393	143	105	▲952	237	▲161	▲129	405	337	▲571	1,102	2,283	1,374	7,677
	Gold and foreign exchange reserves			738	941	524	861	1,322	1,824	1,486	1,841	1,878	1,999	2,107	2,074	2,005	2,891	3,496	4,399	15,235
BRAZIL	Trade balance	424	148	320	437	107	65	72	23	113	89	112	344	655	438	213	26	318	232	346
	Services[o]	▲355	▲338	▲308	▲369	▲358	▲309	▲373	▲459	▲350	▲339	▲269	▲259	▲362	▲463	▲527	▲556	▲630	▲815	▲978
	Transfer of payments	▲14	▲5	▲10	▲11	▲13	▲4	▲10	4	15	39	43	55	75	79	77	22	31	21	12
	Net capital transactions	59	▲18	3	151	255	184	182	58	288	181	▲54	82	▲6	124	27	541	850	1,015	1,832
	(Investment)	(22)	(11)	(43)	(89)	(143)	(110)	(124)	(99)	(108)	(69)	(30)	(28)	(70)	(74)	(76)	(61)	(124)	(108)	(124)
	(Loans and financings)	(44)	(109)	(84)	(231)	(319)	(373)	(439)	(348)	(579)	(325)	(250)	(221)	(363)	(508)	(530)	(583)	(1,053)	(1,440)	(2,042)
	Errors and omission	▲98	10	12	▲14	▲171	▲189	▲25	10	49	▲138	▲76	▲218	▲31	▲25	▲35	▲1	▲20	92	35
	Over-all balance	16	▲203	17	194	▲180	▲253	▲154	▲410	115	▲346	▲244	4	331	153	▲245	32	509	545	555
	Gold and foreign exchange reserves	650	521	508	671	509	465	366	345	470	285	219	245	484	425	199	257	656	1,187	1,723

Source: IMF, International Financial Statistics, FGV, Conjuntura Economica, Vol. 26, Nov., 1972, BOJ, Economic Statistical Annual, Ichiro Nakayama (ed.), Nippon Keizai Jiten (Dictionary of Japanese Economics), 1973, p. 654

by big margin. Even after the Korean conflict, special procurements brought US$560 million to Japan in 1955 and US$480 million in 1958 (see also Chapter Three, Section 1).

Special procurement demand subsequently decreased and payments for maritime transportation and royalties for technology increased, and in combination caused a deficit in invisible trade around the middle of the 1960s. The trade balance, on the other hand, became favorable around 1965 on the solid basis of international competitiveness built up during the procurement boom.

Brazil presents an entirely different picture before and after the 1964 Military Revolution. After World War II ended, exports of agricultural products helped maintain a favorable trade balance on a continuous basis, but the balance in invisibles remained in deep deficits due to transportation costs and interest payments. The over-all result from the 1950s and until around the middle of the 1960s was a slight deficit in the general payment balance. Inflow of foreign capital did not increase much owing to Brazil's inflation and unstable political situation. But following the Revolution, and particularly after 1968, political stability and the policy of offering guarantees to foreign capital served to bring about a rapid increase in the flow of capital from abroad, and tilted the capital balance greatly in favor of this country. Also, promotion of manufacturing industries raised the rate of import hike faster than that of export increases in 1971 and 1972, causing the trade balance to severely deteriorate. The invisible trade balance also registered large deficits due to profits remitted abroad by foreign ventures in Japan, amounting to US$420 million (1971) and payments of transportation costs (in balance) of US$270 million (1971). Large-scale inflow of capital barely made the maintenance of favorable general balance possible. Brazil's foreign reserves amount to $1,723 million, next only to those of the United States and Canada in the Americas.

(2) Private vs. Government

The role of the Government is great both in Brazil and in Japan. The size of Japan's Central Government's budgets has increased at the

same as or a higher rate than that of economic growth. This applies also to Brazil after 1964. During the five-year period of 1966-70 the expenditure (nominal) of the Brazil's Central Government increased by 3.44 times, faster than the rate of GNP (nominal) during the same period, which was 3.30.

In order to compare the scale of the fiscal programs of the two countries, let us examine the relations between Government expenditures and GNP (see Table 2-18). In 1970 the expenditures of the Central Government in Brazil amounted to 11.3% of her GNP, a percentage comparable in scale with that of Japan as of 1955 (general account amounting to 11.8% of Japan's GNP at that time). With respect to local governments, the Brazilian states used Cr$15,446 million (including transfer payments from the Central Government) in 1969, and counties spent Cr$4,125 million (including transfer payments from state governments). Total local governments'expenditures amount to 1.33 times as much as that of the Central Government, and the combined expenditures of the Central and local Governments as much as 26% of Brazil's GNP. Japanese local Government spend 1,136,900 million yen (general account of local fiscal expenditure) in fiscal 1955, which is 1.12 times as much as the ordinary account expenditures of the Central Government. With the combined expenditures of the Central and local governments amounting to 25% of Japan's GNP at the time (including overlapping portions of the Central and local fiscal expenditures), her burden of Government spending is about the same as Brazil's.

The accounts of the Japanese Government are divided into the General Account and Special Accounts.[20] Corresponding to this division, the national budget also consists of a General Account budget and 43 Special Account budgets, which are submitted to the Diet (Parliament) together with the budgets of 14 Government-affiliated agencies. The Special Accounts are primarily for specific government-financed programs and the administration and holding of special funds. For example, Special Accounts for Government enterprises include accounts for the Mint, National Forest Service, Postal Service, Flood Control, etc., and Special Accounts for insurance

Table 2-18. Fiscal Scale

	Brazil (Cr. 1,000,000)					Japan (General account: 100,000,00 yen)				
	Revenue	(A) Expenditure	(B) Balance	A/GNP	B/GNP	Revenue	(C) Expenditure	(D) Balance	C/GNP	D/GNP
1951年						895	750	156	13.9	2.7
52						1.078	874	205	14.3	3.3
53						1.219	1.017	202	14.3	2.8
54						1.185	1.041	144	13.4	1.9
55						1.126	1.018	108	11.8	1.3
1956						1.233	1.069	163	11.0	1.7
57						1.400	1.188	212	10.7	1.9
58						1.454	1.322	122	11.6	1.1
59						1.597	1.495	102	11.6	0.8
60						1.961	1.743	218	11.2	1.4
1961	371	509	▲ 138	12.6	▲3.4	2.516	2.063	452	10.8	2.4
62	566	847	▲ 281	13.0	▲4.3	2.948	2.557	391	12.1	1.8
63	1.051	1.556	▲ 505	13.1	▲4.2	3.231	3.044	187	12.4	0.8
64	2.129	2.857	▲ 728	12.5	▲3.2	3.447	3.311	136	11.5	0.5
65	3.007	4.500	▲ 593	12.4	▲1.6	3.773	3.723	50	11.6	0.2
1966	5.010	6.490	▲ 587	12.3	▲1.1	4.552	4.459	93	12.1	0.3
67	6.814	8.039	▲1.225	11.4	▲1.7	5.299	5.113	186	11.7	0.4
68	10.275	11.502	▲1.227	11.6	▲1.2	6.060	5.937	123	11.5	0.2
69	13.053	14.709	▲ 750	11.2	▲0.6	7.109	6.918	191	11.5	0.3
70	19.104	19.932	▲ 738	11.3	▲0.4	8.459	8.188	271	11.5	0.4
71	26.980	27.653	▲ 672	11.7	▲0.3	9.414	9.414	0	12.0	—

Note: GNP for 1970 and 1971, Brazil, calculated from Pecora, José Flavio; Desenvolvimento de Economica Brasileira (Trabalho apresentado no Seminário Sobre a Economia Brasileira no Toqnio 1973)

Source: For Brazil, FGV, Conjuntura Economica, vol. 26, Nov. 1972; for Japan, BOJ, Economic Statistics Annual

include accounts for Welfare Insurance, Seamen's Insurance and Earthquake Reinsurance. There are also Special Accounts for management (Foreign Exchange, National Schools, National Hospitals, etc.), for public investment and loans (Industrial Investment, Finance for Urban Redevelopment, etc.) and to consolidate funds (National Debt Consolidation Fund, Allotment of Local Allocation Tax and Transferred Tax, etc.)

The total amount allotted for Special Accounts came up to 1,726,600 million yen (expenditures and settled accounts) in 1955, or 1.7 times as much as the General Account, and 16,724,100 million yen in 1970, or twice as much as the General Account of the same fiscal year. The Japanese Government also has a 'hidden source' of financial funds called the Fiscal Investment and Loan Program (FILP) mainly based on postal savings, which the Government may use without direct approval by the Diet. Great amounts of loans and investments are extended from this source to Government agencies, special corporations and local governments. The Trust Fund Bureau of the Ministry of Finance is the body in charge of allocations from this fund, which amounted to 297,800 million yen in fiscal 1955 and 3,579,900 million yen in fiscal 1970 (as being budgeted at the beginning of the fiscal year. Among the principal sources of FILP funds are (1) postal savings by individual Japanese, and Trust Fund Bureau's money from welfare pension and national pension payments, (2) postal life insurance, (3) funds from the Special Account for industrial investment, and (4) public bonds and debts. Among the purposes of FILP are (1) to supply low-interest funds to the private sector, (2) to make loans to and invest in Government projects, and (3) to give subsidies to local Government. Together with funds provided by such other Government agencies as public corporations, finance corporations and banks, the total sum of the money that the Government handles, including both the General and the Special Accounts, amounts to 26% of the GNP, indicating the giant role the Government plays in economic activities of Japan.

Brazil, on the other hand, provides for various tax exemptions, or fiscal incentives (incentivos fiscais). The 1971 fiscal incentives amounted to Cr$4,872 million,[21] which consisted of:

Income tax exemptions	Cr$2,430 million	(49.9%)
Other tax exemptions	Cr$2,442 million	(50.1%)
by SUDENE	Cr$753 million	(15.5%)
SUDAM	Cr$331 million	(6.8%)
SUDEPE	Cr$159 million	(3.3%)
EMBRATUR	Cr$65 million	(1.3%)
IBDE	Cr$289 million	(5.9%)
PID	Cr$95 million	(1.9%)
PIN	Cr$682 million	(14.0%)
MOBRAL	Cr$29 million	(0.6%)
Others	Cr$39 million	(0.8%)

Financial assistance are extended through Government financed banks as Banco Nacional de Desenvolvimento Economico (BNDE), and Banco Nacional de Habitacao (BNH).

Concerning revenues, we obtain the following results from a comparison of revenue resources between 1970 Brazil and 1955 Japan (see Table 2-19).

(1) 83.2% of Japan's revenues in 1955 (Central Government's General Account) is secured as tax revenue, while the same rate for 1970 Brazil comes up to 96.5%. Great portions of revenues in both countries thus are derived from tax.

(2) State tax revenues in Japan amount to 11% of the GNP, while the same comes to 12.7% of the GNP for Brazil. If local taxes are added to the state tax, the sum of taxes amounts to 14.9% of GNP for Japan and 19.5% for Brazil.[22] Tax burdens of both Japanese and Brazilians are thus heavy.

(3) Japan concentrates on direct state taxes, but Brazil concentrates on indirect taxes. The ratio of indirect taxes to direct taxes (direct taxes=100) is 89 for 1955 Japan and 183.3 for 1970 Brazil.

Table 2-19. Tax Burden

	Brazil	Japan(2)		
	1970	1955	1960	1970
	100 million Cr$	100 million yen	100 million yen	100 million yen
National tax	185.3	9,369	18,015	77,077
National tax/ GNP	12.7%	10.9%	11.6%	10.9%
National tax/ National Revenue	96.5%	83.2%	91.9%	91.9%
Indirect tax/ Direct tax	183.8%(1)	89.0%	84.1%	59.8%
Composition of main tax revenue: Income tax	26.4%	50.2%	53.5%	64.1%
Composition of main tax revenue: Imports tax	7.2%	2.9%	6.1%	5.1%
Composition of main tax revenue: Commodity excise tax	45.9%	2.9%	4.6%	4.7%
Composition of main tax revenue: Gasoline excise tax	15.4%	2.7%	5.7%	6.4%

Notes: (1) 1969 (2) Fiscal year for Japan

Source: For Brazil, APEC, A Economia Brasileira e Suas Perspectivas; for Japan, BOJ, Economic Statistics Annual.

(4) Among various kinds of tax revenue, income tax occupies 50.2% (personal income tax, 29.6% and corporate income tax, 20.6%) in 1955 Japan, while income tax revenue (personal and corporate combined) amounts only 26.4% (corporate tax amounts to 37.8% of the total income tax) and commodity tax (industrial products tax) amounted to 45.9% of total tax revenues in 1970 Brazil. Although the rate of income taxes has been rising in recent years, indirect taxes are still prominent and impose relatively heavy burdens on low income groups.

Fiscal deficits in 1967 and 1968 exceeded Cr$1,200 million, as can be seen in Table 2-18. But the situation is being slowly improved due to (1) the increase in the number of taxpayers as a result of the 1965 tax system reforms, (2) strong efforts to reduce tax evasions, and (3) efforts toward balanced spending principally by the Comissao de Programacao Financeira. This has made it possible for the Government to issue bonds and open market operations have been in effect since 1970. The following is the amount of Government securities issued for the years 1967-71, according to Banco Central do Brasil.

	Fiscal deficits (Cr$1,000,000)	Debts from Central Bank (Cr$1,000,000)	Government Securities (Cr$1,000,000)
1967	1,224.7	699.0	525.7
1968	1,226.7	1,078.9	147.8
1969	755.8	-1,025.6	1,781.4
1970	738.3	-832.5	1,570.8
1971	672.3	-3,363.8	4,036.1

For Japan, we see that the Government ceased to issue deficit bonds following 1947, because deficit bonds had been issued during World war II to pay for military expenses. But when a recession developed due to over-production in 1965, Government bonds were issued in the fiscal 1966 budget in the amount of 730,000 million yen, and were followed by continual issuances in ensuing years.

(3) Savings and Investments

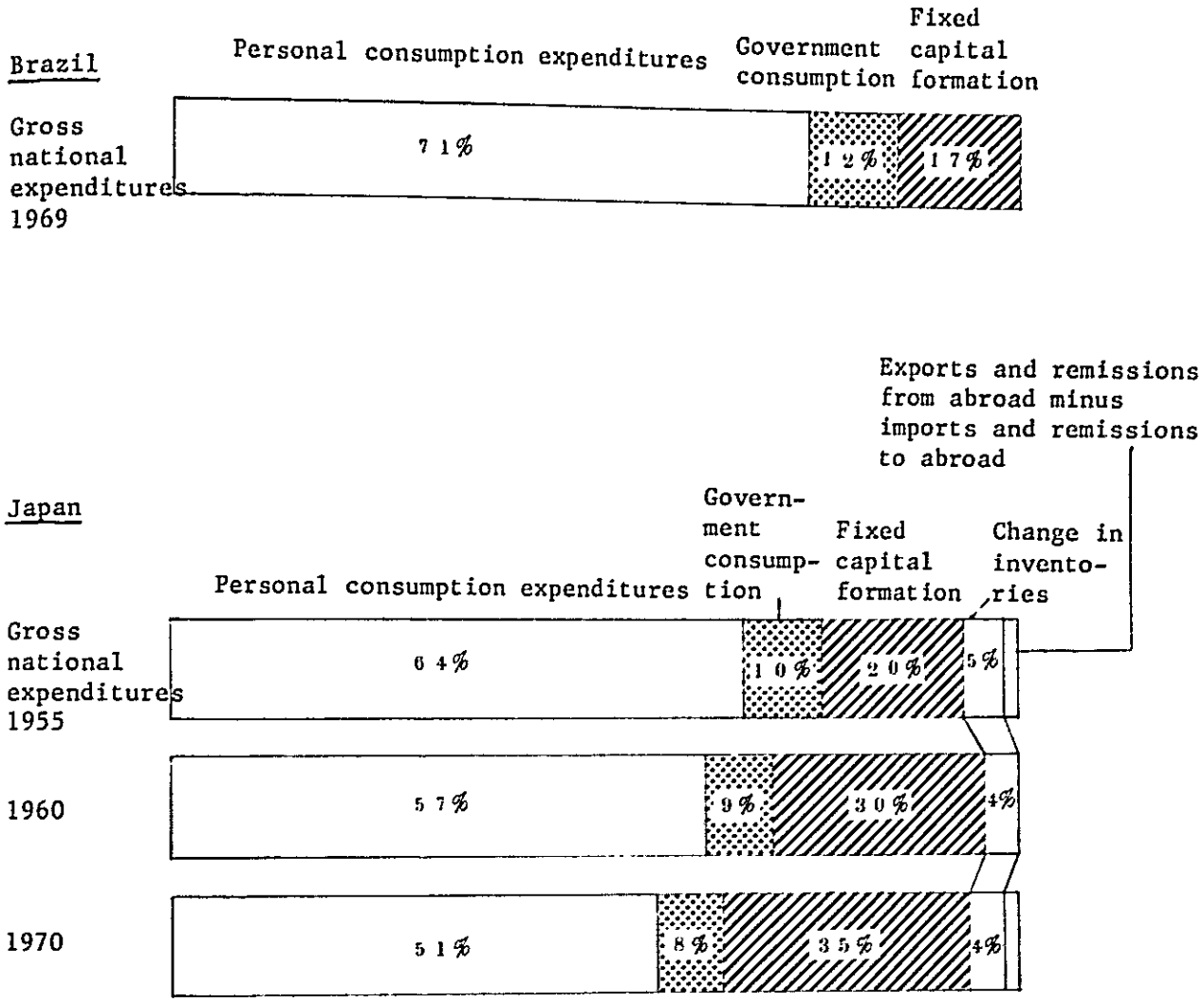
The total capital formation in Brazil in 1969 amounted to Cr$21,950 million (with no increase of inventories that year, according to statistics of the Getulio Vargas Foundation), occupying 16.6% of Gross National Expenditures (GNE) of that year (see Fig. 2-17). The same figure for Japan as of 1955 was 2,207 billion yen, or 25.6% of the GNE. The ratio of total capital formation to GEN increased annually, to 34.1% in 1960 and 39% in 1970. In this spectacular amount of total capital formation (to be precise, it is the total fixed capital formation, excluding inventory increases) lies one of the secrets of Japan's high economic growth. The Japanese devoted their activities totally to capital formation instead of spending their fruits of labor on personal consumption.

Since total savings equals total investment retrospectively, the Brazilian rate of savings to GNE comes up to 17%.[23] It is informative to also study private disposable income (which is the total of private expenditures and private savings), by which we may learn that the Brazilians direct 88% of their income to consumption (See Table 2-20), while the corresponding figure for the Japanese was 86.6% in 1955, with lowering propensity to consume in ensuing years until it fell below 80% in 1970. Since value judgments on consumption or savings depend on national characteristics, climate, way of life and other factors, easy comparisons are not recommendable. Still, the Japanese may be said to have a more vigorous savings orientation.

But such policy as monetary correction, new measures to encourage savings, and relatively high interest rates have brought about a higher savings rate in recent years, and capital flight caused by domestic inflation has been eliminated, according to Brazilian sources.

Table 2-21 shows the relations between total capital formation and total savings in Brazil and Japan. As has been already discussed, the Government has played a big role in the economic development of Japan, causing Japan to be termed an example of "state capitalism".

Fig. 2-17. Composition of Gross National Expenditure, Brazil and Japan



Source: UN, Yearbook of National Account Statistics, and BOJ, Economic Statistic Annual (both for each year)

Table 2-20. Personal Income and Its Disposition

	Brazil	Japan		
	1969年	1955年	1960年	1970年
Personal income	13,036 (Cr$ million)	853 (billion yen)	1.864 (billion yen)	9.310 (billion yen)
Disposable income of person	108.642 (Cr$ million)	6.382 (billion yen)	10.686 (billion yen)	45.602 (billion yen)
Average propensity to save*	12.0%	13.4%	17.4%	20.4%
Marginal propensity to save*	18.5	45.3	224	26.1
Average propensity to consume*	880	866	82.6	796
Marginal propensity to consume*	81.5	54.7	776	73.9

Note: Asterisk signifies ratio to personal disposable income.

Source: Centro de Conta Nacionais FGV; and EPA

We now see in this table that private investment amounts to 51.8% (1955) of Japan's total capital formation and 67.1% (1955) of total domestic capital formation (which is the total of private investment and Government investment combined). The rate of Government investment is 25.4% and 32.9% respectively. Japan in 1955 also had private savings at a comparable level, occupying 48.6% of total savings (in net terms, excluding provisions for the consumption of fixed capital it is 75.7%), and Government savings occupying 17.1% of her total savings (in net terms it is 26.6%), showing that private sector played a central role in equipment investment and also in savings which provided the basis for that equipment investment.

Table 2-21. Gross Savings and Capital Formation

	Brazil(Cr$ million)	Japan (Billion yen)	
	1969	1955	1970
Gross domestic fixed capital	21.949 (100.0%)	1.705 (77.3%)	24.922 (86.6%)
Private sector	14517 (66.1)	1.144 (51.8)	19.148 (666)
Government sector	7.432 (33.9)	561 (254)	5,774 (201)
Increase in inventories	—	421 (191)	3,133 (109)
Net lending to the rest of the world	—	82 (3.7)	709 (25)
Gross capital formation	21.949 (1000%)	2.207 (1000%)	28,764 (1000%)
Provisions for the consumption of fixed capital	6591 (300%)	791 (358%)	9.571 (333%)
Savings of corporate enterprises	13.036 (594)	222 (100)	4.758 (165)
Savings of persons		853 (386)	9310 (324)
General savings of government	1.182 (54)	377 (171)	5,410 (188)
Others	1.140 (52)	▲35 (▲16)	▲285 (▲10)
Gross savings	21.949 (1000%)	2.207 (1000%)	28,764 (1000%)

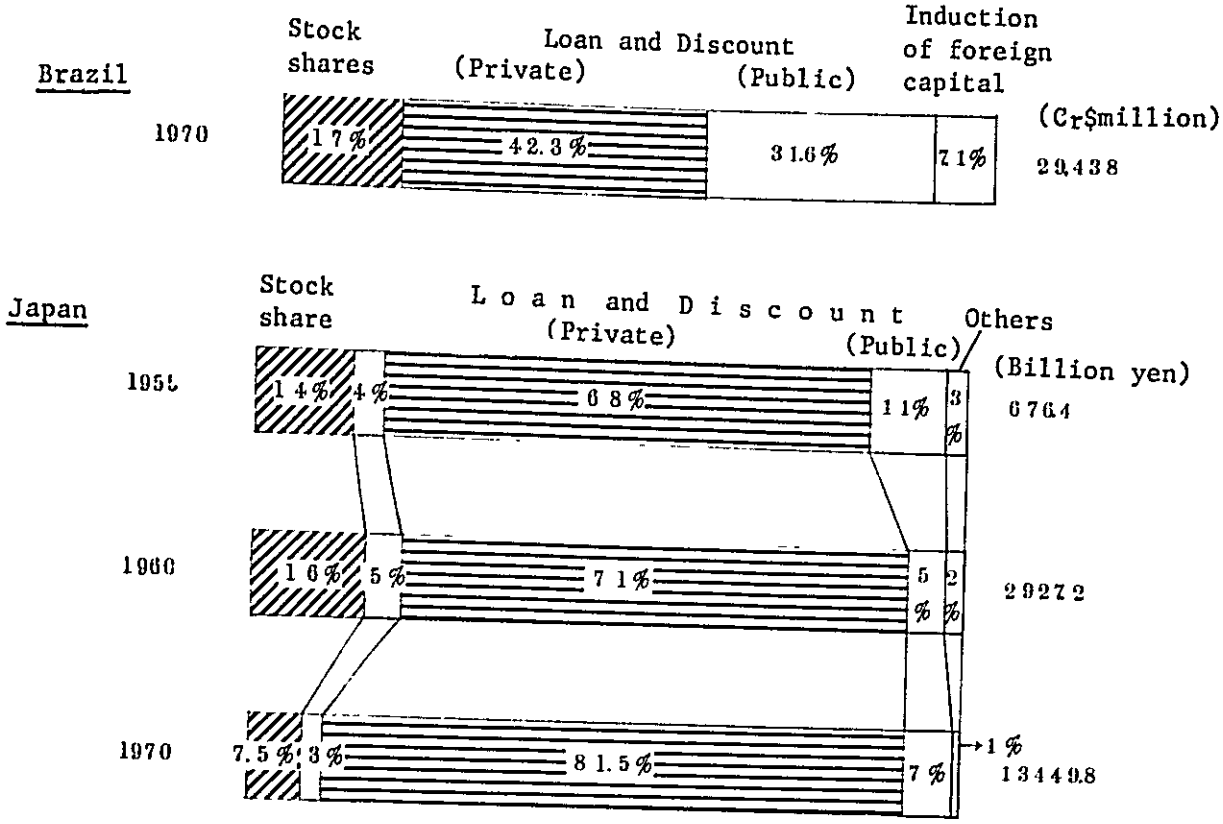
Source: FGV, Conjuntura Economica, vol. 26, Nov. 1972; BOJ, Economic Statistics Annual

The Brazilian ratio of private investment and Government investment in total capital formation is 66 to 34. Regarding savings, private savings occupies 59.4% of total savings (in net terms, excluding provision for the consumption of fixed capital and foreign savings, it comes to 91.7%), leaving only 5.4% (in net terms 8.3%) for Government savings. There is some doubt, however, as to how accurately these figures represent the real situation in Brazil. As has been mentioned, the calculation of savings statistics itself presents some cause for controversy. Among other reasons to doubt the credibility of these figures are (1) Government enterprises and related corporations, such as the Federal Railways (more than half its shares are owned by the Government), ELETRO-BRAS (electric power), EMBRATEL (communications), and PETROBRAS (oil), are not included in calculating investment and savings, (2) fiscal incentives, accruing from special tax exemption measures in investment in SUDENE, SUDAM, fishery, afforestation, tourism, and others, are not included in the Government savings, although they should be included, and (3) the data for forced savings are not taken into consideration, although they also should be considered.

Prof. Affonso Pastore of Sao Paulo University estimates that about 60% of the total savings is Government savings, and that about 60% of total investment is private investment, and gives the following reason for his estimates. He states that private savings are collected at Government financial institutions through forced savings measures such as the Program for Social Integration (PIS) and should amount to 60% if taken up by channels of their collection and not by the source.[24)]

Fig. 2-18 shows how industrial funds are procured in both countries. In eight years following the end of the war Japan plunged into the period during which she attained economic independence, and came to require huge amount of funds for modernization of production equipment, mainly in big businesses. In the prewar era 70% of industrial funds were supplied by stock issues, corporate bonds, or both, but in 1955 the portion of funds procured by stocks issues dropped to 14%.

Fig. 2-18. Net Supply of Industrial Funds



Source: Estimated from Boletim do Banco Central do Brasil and others; BOJ, Economic Statistic Annual

Instead of stocks and corporate bonds, financial institutions such as banks have come to serve as the source of industrial funds. Loans provided by such private financial institutions as "city banks" which have numerous branches in various parts of Japan and mutual loans and savings banks amounted to 68%, and were on the rise during the 1960s and 70s. Government banks, such as the Japan Development Bank, provided 11% of the total industrial funds, in addition to 3% in the form of Treasury loans and investments by Trust Fund Bureau.

Financial institutions extended their loans to the limit of their capacities in order to meet the demand for industrial funds, until

their ratio of loans to deposits outstanding became 85.5% in 1955. When they could not meet the demand, they resorted to borrowings from the Bank of Japan. As a result, management difficulties were encountered by banks due to over-loans on one hand, and the financial constitution of business firms was also weakened through over-borrowing (See Table 2-22). Unlike such stable funds as stocks and industrial debentures, borrowings from banks weaken corporate financial structure, and make them more dependent on banks. For the total of 544 major enterprises in Japan, 46.4% of their funds come from borrowings as of the latter half of 1955 (See Table 2-22), and as a result the ratio of owned capital in their balance sheets was lowered to 38% of the total of liabilities and capital combined (See Table 2-23), which fell to 18.6% in 1970. Table 2-24 shows the profit and loss situation of main enterprises, revealing pressures on corporate profits by financial costs (net) amounting to 3.2% of gross sales.

How does Brazil compare to Japan in these respects? The principal method of industrial funds procurement in Brazil is, again, borrowings from financial institutions, but the rate of only 42.3% of the total funds secured, considerably lower than that of Japan. The rest of the funds are mainly supplied by such Government financial agencies as the Banco Nacional de Desenvolvimento Economico (BNDE) and the Banco do Nordeste (BNB), whose loans accounted for 31.6% of the total industrial funds procurement. Foreign capital provided 7.1% and stock issues 17% of the funds needed (See Fig. 2-18). Invigorated production activities and improvement of the stock market helped to increase sharply the number of instances of increases in corporate capitalization, as can been seen in Table 2-25, but it still does not rid financial institutions of the problem of over-loans. The ratio of loans to deposits in commercial banks increased to 65.2% in 1965 and to 96.8% in 1971.[25)]

As in Japan, the trend is for indirect financing. But when we look at firms (4,502 major firms, as of 1968), we find that they secure only 34.8% of their funds by borrowings and the portion of internal funds such as retained profit and depreciation is as high

Table 2-22. Uses and Sources of Funds in Major Corporations

	Brazil		Japan		
	1968		1956 latter half	1970 latter half	
	4.502 (Cr$ million)	(%)	524 (%)	474 (100 million yen)	(%)
Uses of funds	20,573	1000	1000	43,941	100.0
Equipment funds	10,152 (1)	493(1)	48.7	22,113	50.3
Inventory funds	2,131	10.4	22.5	6,032	13.7
Cash, deposits	587	2.9	28.8	4,787	10.9
Others	7,703	37.4		11,029	25.1
Sources of funds	20,573	1000	1000	43,941	1000
Internal funds	10,168	49.4	21.8	13,998	31.9
Depreciations	2,355	11.4	6.9	9,274	21.1
Retained profit	3,317	16.1	14.9	4,724	10.8
Others	4,496 (2)	21.9(2)	–	–	–
External funds	10,405	50.6	78.2	29,943	68.1
Borrowings	7,168	34.8	46.4	23,496	53.5
Stock issues and others	3,237	15.7	31.8	6,447	14.6

Note: Japanese corporations usually settle balance of account twice a year.
(1) Include the revaluation of fixed assets by Correcao Monetaria (Cr$ 4,496 million 21.9% of uses of funds)
(2) Revaluation of internal funds by Correcao Monetaria.

Source: BOJ; Analysis of Major Corporation Management, FGV, Conjuntura Economica, Feb. 1970

Table 2-23. Financial Statements of Main Industrial Corporations

	Brazil (Cr$ million) 1968		Japan (Billion yen) 1955 latter half		1970 latter half	
No. of companies	4,502		544		474	
Assets	70,916	(1000)	4,988	(1000)	50,977	(1000)
Current assets	34,870	(49.2)	2,356	(472)	28,879	(567)
Cash on hand & deposit	2,180	(3.1)	319	(64)	5,011	(9.8)
Inventory	6,997	(9.9)	871	(175)	6,769	(13.3)
Other assets	25,693	(362)	1,166	(233)	17,099	(33.4)
Fixed assets	36,045	(508)	2615	(524)	21,967	(431)
Liabilities and Capital	70,916	(100.0)	4,988	(1000)	50,977	(100.0)
Liabilities	37,916	(53.5)	3,094	(620)	41,473	(81.3)
Bank loans (long & short term loans)	7,419	(105)	1,452	(29.1)	18,256	(35.8)
Other liabilities	23,236	(328)	1,642	(32.9)	23,217	(45.5)
Accumulated depreciation	7,261	(102)	—	—	—	—
Capital	33,000	(465)	1,893	(38.0)	9,504	(18.6)
Nominal capital	24,733	(34.9)	548	(11.0)	4,822	(9.5)
Other capital	8,267	(11.6)	1,345	(270)	4,682	(9.1)

Note: Japanese corporations usually settle balance of account twice a year. Figures in parentheses are percentages

Source: FGV, Conjuntura Economica, Feb. 1970; BOJ, Analysis of Major Corporation Management

Table 2-24. Income Statements of Major Japanese Corporations

	1955 latter half		1970 latter half	
No. of companies	544		474	
Sales	5,649	(1000)	56,535	(1000)
Material costs	3,409	(60.6)	38,357	(67.8)
Labor costs	614	(10.9)	4,310	(7.6)
Depreciation	192	(3.4)	1,770	(3.1)
Financial expenses	179	(3.2)	1,914	(3.4)
Other expenses	1,043	(18.5)	8,132	(14.4)
Profits before taxes	192	(3.4)	2,052	(3.6)
Taxes	76	(1.3)	684	(1.2)
Profits after taxes	116	(2.1)	1,368	(2.4)
Dividends	69	(1.2)	534	(0.9)

Note: See note, Table 2-23.

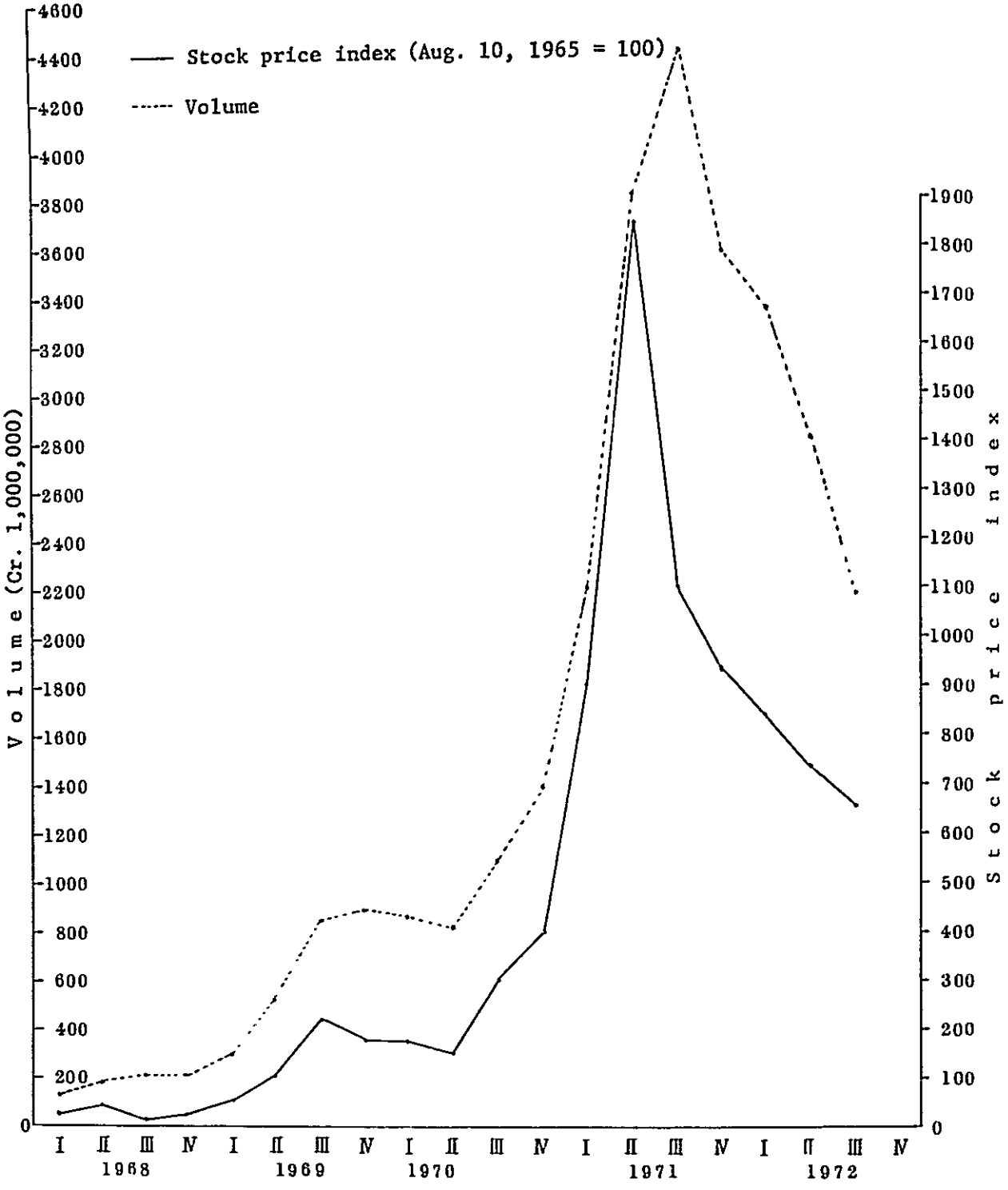
Source: BOJ; Analysis of Major Corporation Management

Table 2-25. New Capitalization by Listed Company

	Brazil (Cr$ million)	Japan (Billion yen)
1955年	26	86
1956	80	229
1957	55	240
1958	49	197
1959	107	230
1960	121	425
1961	164	796
1962	306	672
1963	526	456
1964	2,203	571
1965	6,180	136
1966	5,933	220
1967	9,035	221
1968	12,027	350
1969	22,515	509
1970	20,696	742
1971	29,055	566

Source: FGV, Conjuntura Economica, Vol. 26, Nov. 1972; Coordinating Committee for New Capitalization (Zoshitō-Chosei Kondankai)

Fig. 2-19. Trading on Rio de Janeiro Stock Exchange



Source: I P E A

as 49.4%, higher than that of Japan (See Table 2-22). A look at their business conditions (Table 2-23) reveals that owned capital occupies 34.9% of the sum total of liabilities and capital, and bank loans occupied 10.5% of the sum; this can be said to reflect a healthy state of financial affairs in these firms.[26)]

4-3 Regional Discrepancies, Urban-Rural Discrepancies, Income Discrepancies and Discrepancies by the Size of Firms

In this portion of our study we review the three types of discrepancies--regional discrepancies, urbanization (discrepancies between urban and rural areas), and income discrepancies (discrepancies among various strata)--and compare them with the situation in Japan. We will also give some attention to the industrial structure of Brazil from the vewpoint of discrepancies of the size of firms (or so-called dual structure of industry), which is a characteristic feature of the Japanese economy.

(1) Regional Discrepancies

It is said about Brazil's five regions that "Brazil contains representatives of all the cultural stages through which man has passed during the last millennium".[27)] These five regions demonstrate different stages of development. Accordingly they face different kinds of problems and require different economic policies. In Japan also, in the process of rapid industrialization some areas did not benefit greatly from progress in development, resulting in controversies and prompting various sorts of regional development programs and ideas, from the 1950 Comprehensive National Land Development Act, to the 1962 Special Areas Development Program to the Prime Minister Kakuei Tanaka's plan for "remodelling of the Japanese archipelago." But the issue in Japan was not that of development problems among areas at different stages of development, as is the case in Brazil. Rather, the problem is presented as one of both overpopulation and underpopulation due to urban concentration of population, stimulated by advancing industrialization.

The development stages in each of the five regions may be summarized as follows.

(1) The Southeast: In terms of geographical area this region occupies only 11% of the nation, but it harbors about 40% of the population. In spite of such distortions as urban-rural and income disequilibria, both agriculture and industry have been rather well industrialized and modernized and account for over 60% of the total domestic product.

(2) The South: A large proportion of the population is composed of imigrants of European descent. Livestock breeding and agriculture are the principal industries. A high economic living standard has been attained. Educational levels are higher in this region than in the rest of Brazil. Iron and copper ore, and coal, are being mined and explorations are made through the Southern Economic Development Agency (SUDESUL).

(3) The Northeast: It is this Region where Brazil's economic growth began, centered on the sugar industry. After the decline of the sugar industry, no success was achieved in reforming the industrial structure. Although possessing 30% of the entire population, this region produces only 14.4% of Brazil's Net National Income, and per capita income is low, at US$207. As a new policy for economic growth, emphasis should be placed on modernization of traditional agriculture and promotion of manufacturing industries. The Northeast Brazilian Development Agency (SUDENE) is the key organization for development policy.

(4) The North: This is the jungle zone of the Amazon, with hardly any traces of civilization. Some tropic agricultural products such as pepper are being produced, mainly by Brazilians of Japanese descent, and this is helping earn foreign currency, but, generally, both agriculture and industry are not well developed. Economic exploration of this region is nothing less than a war against the tropical

Table 2-26. Industrial Distribution by Regions

	Area	Population (1970)	Gross domestic production (factor cost), Average 1962/68				Per capita income compared with Brazilian average
			Total	Primary industry	Secondary industry	Tertiary industry	
North	4 2.0	3.9	2.0	2.0	1.3	2.3	5 1.3
North-east	1 8.2	3 0.4	1 4.8	2 3.6	6.7	1 4.0	4 8.7
"South"	3 9.8	6 5.8	8 3.2	7 4.4	9 2 0	8 3.7	1 2 6 4
Brazil	1 0 0.0	1 0 0.0	1 0 0 0	1 0 0 0	1 0 0 0	1 0 0.0	1 0 0 0

Note: "South" includes Southeast and Central-West.

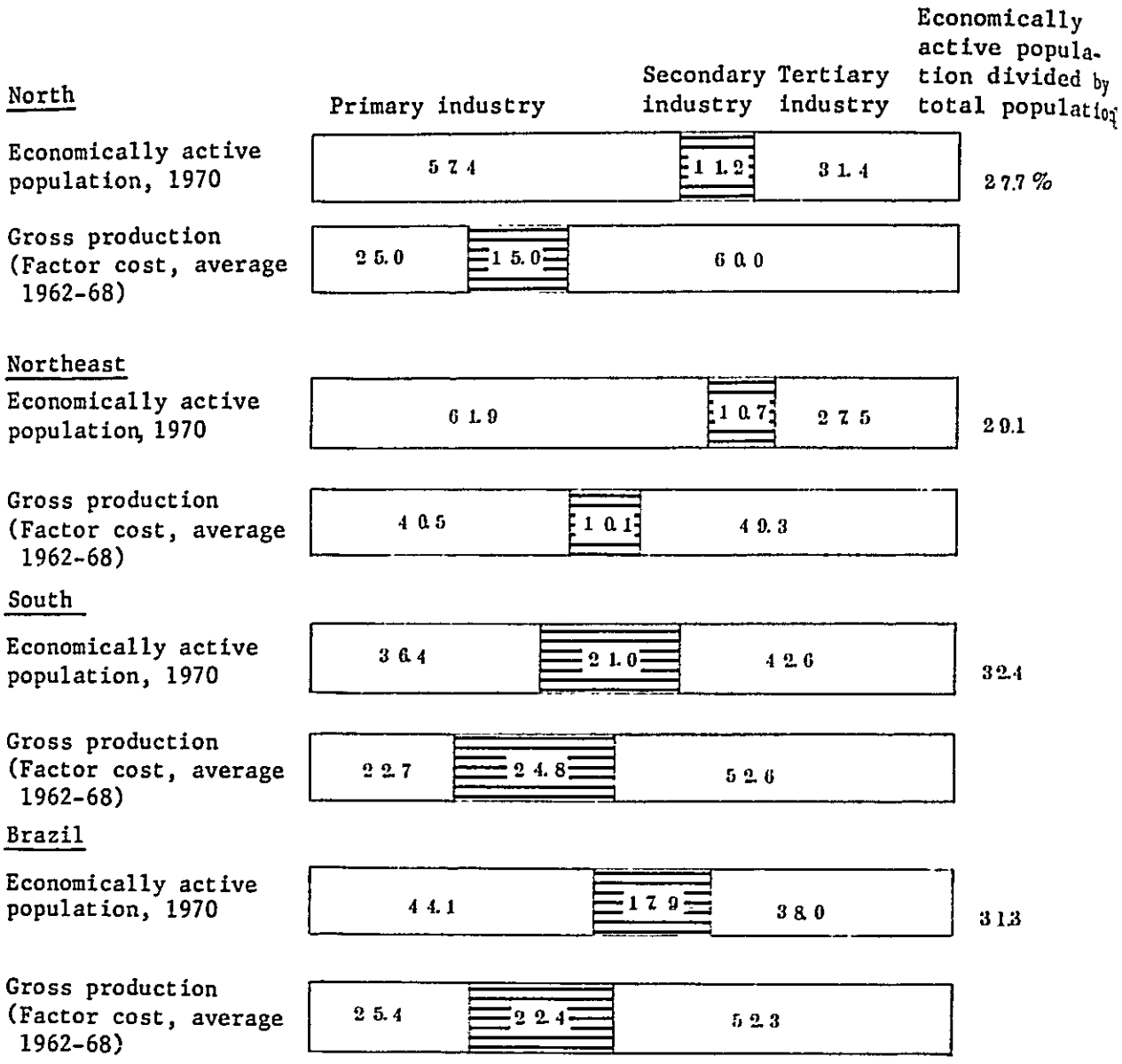
Source: Ministry of Planning and General Coordination, Diagnoses on Income Inequalities in Brazil, 1972.

nature. The Amazon Development Agency (SUDAM) serves as the principal organization for development.

(5) The Central-West: This is second only to the Amazon Region as an underpopulated area, development is retarded. Sporadic modern agriculture is observable, mainly in livestock breeding. The stimulus provided by the growth and development of Brasilia will benefit full development projects in this region.

Table 2-26 classifies these five regions into three groups, the "South" (comprising the Southeast, the South and the Central-West) which there is need for redevelopment, and the North, where there is need

Fig. 2-20. Industrial Structure by Regions



Note: See Table 2-26.

Source: See Table 2-26.

for general development due to underpopulation. The North, (or Amazon Zone), occupies 42% of Brazil's entire area in geographical terms but has only 3.9% of her population, with only 2% of Brazil's total economic activities. In sharp contrast, the Northeast occupies 18.2% of Brazil's geographical area while claiming 30.4% of her total population. It only has 14.8% of the nation's total economic activities and has a low per capita income, 48.7% of the national average, or one third of that of the "South".

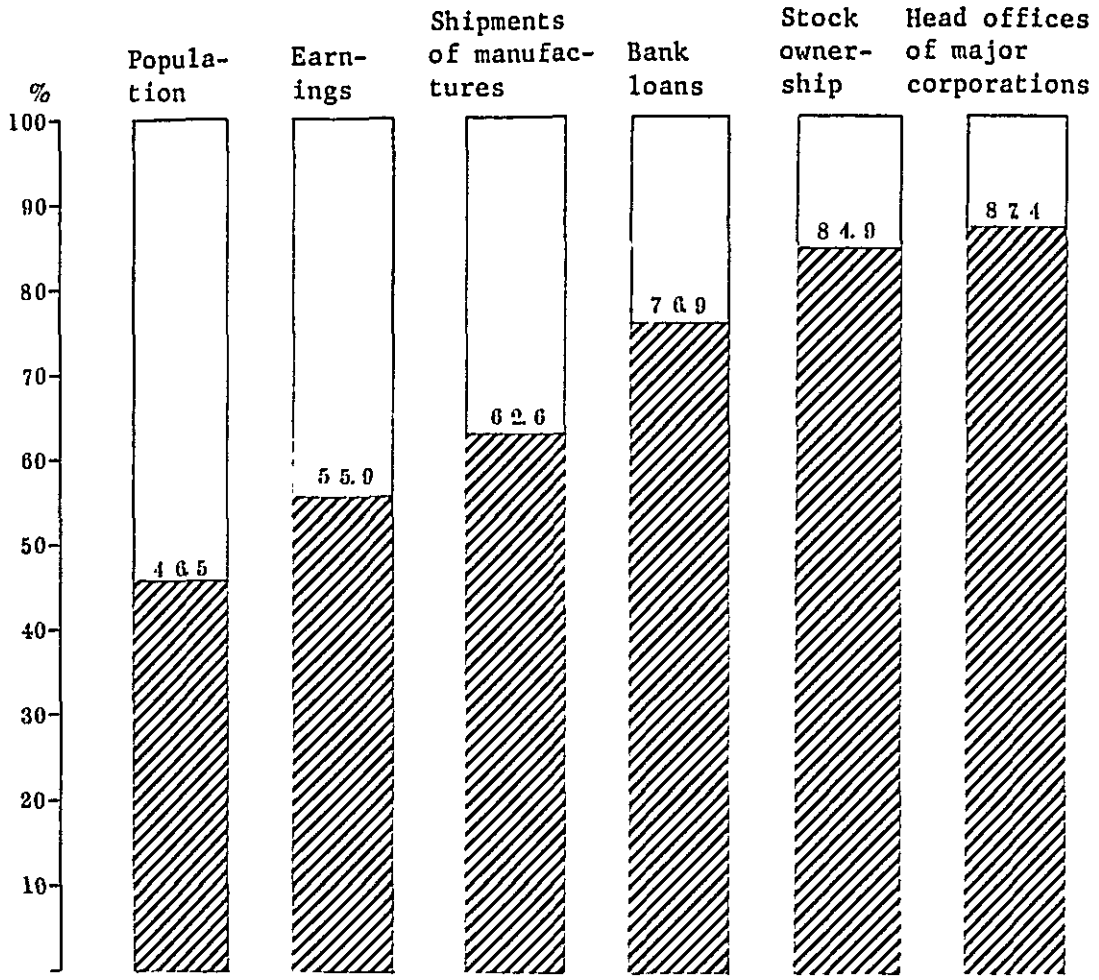
Regarding the industrial structure of these less-developed regions (See Fig. 2-20), the Northeast lags farthest behind. It is here that primary industry accounts for 61.9% of the entire economically active population of the Region and 40.5% of the total production of the region and secondary industry accounts for 10.7% and 10.1% respectively. Secondary industry in the North also is far behind the national level (accounting for 11.2% of the economically active population and 15.0% of the region's total production).

We recognize the high share of tertiary industry both in the North and the Northeast, which is closely related to the problem of urbanization.

(2) Urbanization (Urban-Rural Discrepancies)

With the rapid advance of urbanization, Japan's regional economies have undergone various changes. Due to productivity and income gaps between agriculture and manufacturing, inflow of population into urban areas has been astounding. In 1955, urban population was 50 million or 56% of the total population of Japan, but by 1970 it had increased to nearly 75 million or 72% of the total population. During only fifteen years, the population of urban areas increased by nearly 25 million, accompanied by a comparable decline in rural population, due to, among other factors, urban in-migraton and urbanization, and to a minor extent also administrative incorporation of towns and mergers of villages. The number of cities with a population of over a million increased from five in 1955 (14.8% of the total population) to eight, (20.1%) in 1970.

Fig. 2-21 Concentration of Economic Activity in the Three Major Metropolitan Areas



Notes: 1. Population according to 1970 census. Earnings according to 1968 distribution income. Manufactures shipments as of 1970. Bank loans as of March, 1971. Head offices of those corporations capitalized at more than 10 million yen, as of end of 1970.

2. The three metropolitan areas are defined as follows. Tokyo: Saitama, Kanagawa and Chiba Prefectures, and Tokyo-to; Nagoya: Aichi, Mie and Gifu Prefectures; and Osaka: Osaka, Kyoto, Hyogo and Nara Prefectures.

Source: Kei'ichi Miyamoto, Is This Suitable Regional Development?, 1973.

Urban concentration is particularly evident in the "Pacific belt" or "Tokaido belt" from Tokyo-Yokohama to Osaka-Kobe. The three areas, Kanto (Tokyo-Yokohama), Chubu (Nagoya) and Kinki (Osaka-Kobe) had 57.1% of Japan's population in 1955, but 64.1% in 1970. In terms of concentration of economic activities, the three urban zones, Tokyo, Nagoya and Osaka, contain 46.5% of the total population but are the source of 55.9% of Japan's total income in 1970. They monopolize 62.6% of all shipments, 76.9% of bank loans and 87.4% of big businesses' headoffices (see Fig. 2-21).[28] It is thus no exaggeration to state that the major part of Japan's economic activities are concentrated in this Pacific belt area.

Concerntrated economic activities brought about more efficiency in production but also (1) caused such diseconomies as air and water pollution and lower levels of social welfare in such forms as an acute, persistent housing shortage, and (2) led to problems of rural under-population (and lower agricultural productivity), due to the out-migration of young workers. One result has been widening income gaps among prefectures. For instance per capita income in Tokyo in 1968 was 567,927 yen per annum (US$1,577 at 360 yen to the dollar), while Kagoshima, an agricultural prefecture, had only 245,801 yen (US$682), or less than a half of the Tokyo figure.

Urbanization in Brazil, as can be seen in Table 2-27, saw the 1960 urban population of 32 million (45.1% of Brazil's total population) increase to 62.9 million (56%) by 1970. The share which urban areas occupy in Net National Product similarly increased from 78.8% in 1960 to 82.9% in 1969. Rural areas support 44% of the total population (1970), but occupy only 17.1% of the total economic activities (1969).

The factors that lie behind urbanization in Brazil and in Japan are entirely different. In Japan, rapid industrialization attracted young workers from farm areas, but this did not occur in Brazil. Rather one sees concentration of the working population in tertiary industry in Brazil. The ratio of those engaged in tertiary industry in the total economically active population is high even in less-advanced regions of

Table 2-27. Brazilian Urban Concentration

(units: persons, %)

	Urban		Rural	
	1960	1970	1960	1970
Population	32,004,817	52,904,744	38,987,526	41,603,810
Percentage to total population	45.1%	56.0%	54.9%	44.0%

(unit: Cr$1,000,000)

	Urban		Rural	
	1960	1969	1960	1969
Net domestic production	1.737.6	85,912.0	508.2	17,707
Percentage to NNP	78.8%	82.9%	21.2%	17.1%

Notes: No. of urban areas with population of more than 20,000 303
Their total population 34,206,918
Percentage of national population 36.2%

Source: APEC, A Economia Brasileira e Suas Perspectivas, 1972

the North and the Northeast (see Fig. 2-20), and the share of tertiary industry in the total production of these regions is 60% in the North and 49.3% in the Northeast. People from rural areas are migrating to urban areas due to such factors as unequal distribution of land, low agricultural productivity, a shortage of employment opportunities in farm areas, and periodic droughts in the dry Northeast. Further, insufficient industrial development in urban areas tends to force the surplus population to enter the services and public sectors. Unlike Japan, where industrialization served as the pull factor for the entire economy, Brazil's rural population pressures have led to an extraordinary growth of services industries. This urban population employed in tertiary rather than secondary sector is prone to under-unemployment and imperfect employment, and exerts pressure on goods-producing sectors such as agriculture and manufacturing.

(3) Income Discrepancies

Fig. 2-21 and Table 2-28 compare income discrepancies of Brazil and Japan. Although there are differences in the survey methods (Brazilian figures are based on census data, and Japanese figures are based on the Survey of Employment Structure)[29], a general conclusion can be drawn to the effect that Brazil has greater income discrepancies than Japan.

In Brazil (1970) the poorest 40% of the population receive only 10% of the total income, while the richest 40% receive 79% of the total income. In Japan (1956) the poorest 40% receive 18.5% and the richest 40% receive 65% of the total income of the country. Comparing the average income of the richest and poorest 10% of the population, the former receives 32 times as much as the latter for Brazil, while the ratio is 10 for Japan.

Lorenz curves depict aggravating income discrepancies[30] in Brazil. As far as can be judged from Table 2-28-b, income discrepancies have not grown in Japan between 1956 and 1965. (For a closer examination see Chapter Four, Section 4.)

Despite the controversy over the validity of the data which shows an increasing income disparity for 1960-70 in Brazil, Brazil cannot

avoid facing the serious problem of how to reconcile the objectives of economic growth with the need for income redistribution. During our interviews and seminar we met many economists who placed priorities on economic growth, saying, "The choice between income redistribution and economic growth is a political one. Rapid income redistribution will jeopardize economic growth, and without economic growth there will be no income distribution." But at the same time the opinion was voiced that "If high economic growth is to continue for the coming decade and income disparities are to grow accordingly, grave social problems would be created."[31)]

To examine agricultural disparities, we compare land distribution. It goes without saying that a comparison of absolute amount of cultivated land is of no meaning. Farming units with less than 10 hectares of land account for 44.8% of the total number of farms (data are for 1960) but they occupy only 2.2% of the entire farm land; in the same way farms with 10 to 100 hectares of land number 44.6% of the total farms, while occupying only 18.0% of land. Taken together, 89.4% of farming units possess only 20.2% of the total land utilized. On the other end of the scale we have medium-scale farms with 100 to 1,000 hectares of land, numbering 9.4% and occupying 32.5% of the land. Farms with over 1,000 hectares of land are only 1% of all farms but possess 47.3% of the land. Lack of balance among farms is thus quite marked.[32)]

In Japan, the Postwar Land Reform brought about big changes in the relations of land ownership, greatly increasing the number of owner-farmers. Independent, owner-farmers were only 31% of the total farming population before the war (1934-36), but increased to 69.6% in 1955. In terms of the size of farms, those with less than half a hectare amounted to 38.5%, those from 0.5 to 1 hectare amounted to 32.7%, those from 1 to 2 hectares 23.0%, those from 2 to 3 hectares 3.5%, and those with over 3 hectares of land 2.3% in 1955. A great majority of Japanese farmers are smallholders, which makes it difficult for farmers to earn their livelihood solely from agriculture; more than 40% of the farmers' income came from non-agricultural activities in 1957.[33)]

Table 2-28.

A. Comparison of Brazilian Income Distribution in 1960 and 1970

	1960	1970	1960/70(%)	1960	1970	1960/70(%)
Lowest grade 10%	1.17	1.11	− 5.13	25	32	+28.00
Second grade "	2.32	2.05	−11.64	48	58	+20.83
Third grade "	3.42	2.97	−13.16	71	84	+18.31
Fourth grade "	4.65	3.88	−16.55	96	110	+14.58
Fifth grade "	6.15	4.90	−20.32	126	139	+ 9.45
Sixth grade "	7.66	5.91	−27.75	158	168	+ 6.33
Seventh grade "	9.41	7.37	−21.68	195	210	+ 7.69
Eighth grade "	10.85	9.57	−11.80	225	272	+20.89
Ninth grade "	14.69	14.45	− 1.64	305	411	+34.75
Tenth grade "	39.66	47.79	+20.50	815	1.360	+66.87
Highest grade 5%	27.69	34.86	+25.90	1.131	1.984	+75.42
" " 1%	12.11	14.57	+20.32	2.389	4.147	+73.59
Lower grade 40%	11.57	10.00	−13.57	60	71	+18.33
Middle grade 20%	13.81	10.81	−21.78	142	153	+ 7.74
Higher grade 40%	74.62	79.19	+ 6.13	385	563	+46.23
Total	100.00	100.00	−	206	282	+36.89

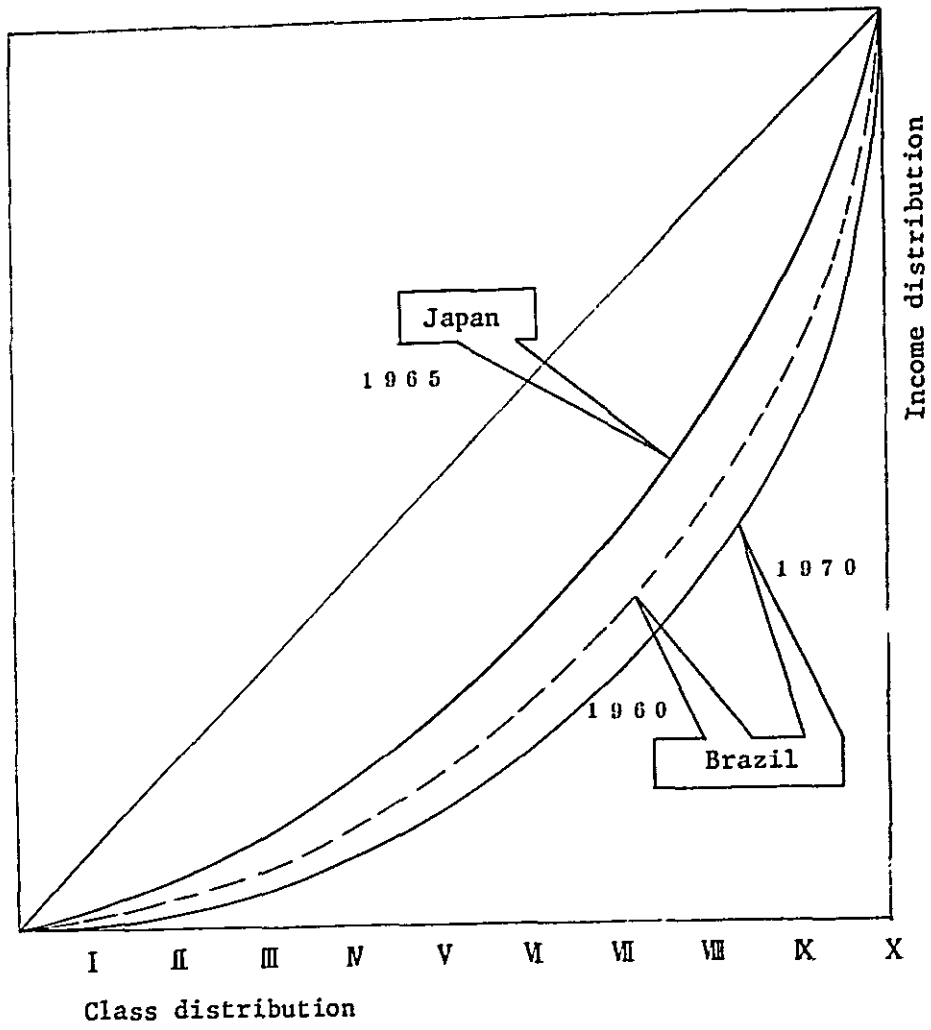
Source: Journal do Brasil, Nov. 26, 1972

B. Comparison of Japanese Income Distribution in 1956 and 1965

	Percentage to total income(%)	
	1956	1965
Lowest grade 10%	2.4	2.2
Second grade "	4.2	4.2
Third grade "	5.3	5.5
Fourth grade "	6.6	6.7
Fifth grade "	7.7	7.6
Sixth grade "	9.1	8.8
Seventh grade "	10.6	10.3
Eighth grade "	12.7	12.2
Ninth grade "	15.9	15.2
Tenth grade "	25.8	27.3

Source: The Developing Economies, vol. V, June, 1967.

Fig. 2-22 Lorenz Curve for Brazil and Japan



(4) Enterprise Discrepancies

The industrial structure of the Japanese economy was thoroughly changed by World War II, and postwar developments. On the one hand industrialization progressed especially rapidly in the heavy and chemical sectors. On the other hand, medium- and small-scale enterprises remained constrained by superannuated equipment, due to incomplete industrial adjustment and modernization, and, it is

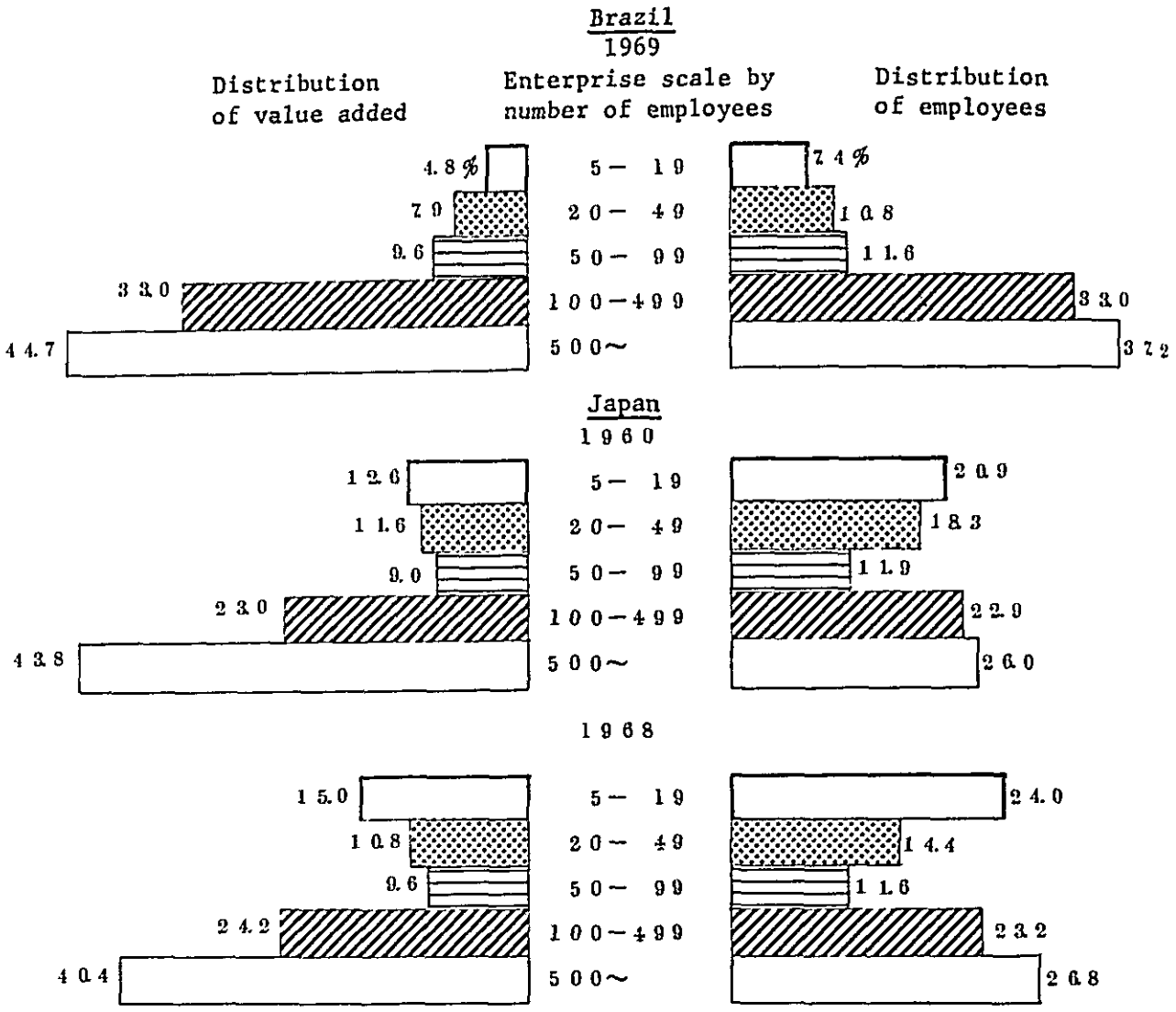
necessary to note, these enterprises were predominant in terms of numbers. This resulted in the "dual structure" of the Japanese economy. Through this dual structure, surplus labor was absorbed, and Japanese products acquired international competitive power by the use of relatively cheap labor. Sundry goods, which were important exports until around 1955, were exclusively products of these medium- and small-scale enterprises. Further, it would have been impossible to produce such export commodities as machinery and electric appliances without these firms who as subcontractors provided big business with subassemblies and parts.

Fig. 2-23 shows the distribution of value added in manufacturing industries according to the size of enterprises and distribution of employees for both Brazil and Japan. In Japan enterprises with less than 100 workers employ 51.1% of the total number of the employed (1960), reflecting the dual structure of the economy. These medium- and small-scale enterprises with less than 100 workers produce only 31.2% of the total value added, and their productivity is lower than companies with over 100 workers.

The Brazilian industrial structure forms a clear-cut pyramid. Seventy percent of the total employed population work for enterprises with more then 100 workers and produce 77.7% of the total value added. The same trend can be also seen in Table 2-29, where numbers of enterprises and their numbers of employees are shown for various industries. The numbers of enterprises are much larger in Japan than in Brazil but Brazilian firms have a larger number of employees for all industrial categories shown. The ratio of value added in manufacturing is also higher in Brazil than in the other (see Table 2-30). Only in the chemical industry, which is most capital intensive, does Japan resemble Brazil in terms of numbers of employees per enterprise and the ratio of value added. Great discrepancies are seen in textile and electric appliance industries, which are both labor-intensive.

We may conclude from above observations that Brazil does not have a dual structure as in Japan. We may point out in this connection that

Fig. 2-23. Distribution of Manufacturing Enterprises by Scale



Sources: IBGE, Producao Industrial, and others; Prime Minister's Office, Japan Statistical Yearbook

Table 2-29. Number of Firms and Average Employees per Firm

		Textiles	Food	Chemicals	Metals	Machinery	Electrical equipment	Total (including others)
Brazil 1969	No. of firms	1886	6378	2196	1854	1155	613	29829
	Average employees per firm	158	38	87	128	95	185	69
Japan 1955	No. of firms	39017	33911	5007	11998 (1)	12327	1049	187112
	Average employees per firm	28	16	70	20	30	57	13
Japan 1968	No. of firms	72036	55381	5104	36124 (1)	29606	16094	379099
	Average employees per firm	21	19	99	19	35	68	27

Note: (1) Excluding steel

Source: Same as Fig. 2-23.

Table 2-30. Ratio of Value Added in Manufacturing Industry

		A. Value of production (1)	B. Gross value added	B／A
Brazil 1969 (Cr$1,000,000)	Textiles	8 1 6 4	3 9 1 9	4 8.0 %
	Chemicals	1 4 1 4 4	6 8 5 8	4 8.5
	Electric equipment	5 3 9 3	2 4 3 2	4 5.4
	Total (including others)	8 0 7 5 7	3 8 8 2 6	4 8.1
Japan 1960 (1,000 million yen)	Textiles	1 7 9 8	5 0 6	2 8.1
	Chemicals	1 3 4 0	5 8 7	4 3.8
	Electric equipment	1 2 8 3	5 0 8	3 9.6
	Total (including others)	1 4 7 9 3	5 2 6 4	3 5.6
Japan 1968 (1,000 million yen)	Textiles	3 7 0 9	1 2 2 1	3 2.9
	Chemicals	4 0 0 4	1 9 3 4	4 8.3
	Electric equipment	4 5 2 9	1 8 6 3	4 1.1
	Total (including others)	4 5 5 6 1	1 7 4 1 7	3 8.2

Note: (1) For Japan, value of shipments
Value of shipments = (value of production) - (cost of raw materials)

Source: Same as Fig. 2-25.

(1) development of Brazilian manufacturing industry is a relatively recent phenomenon, and relatively small number of traditional industries, (2) no subcontracting system such as is present in Japan has developed in Brazil, and (3) there is a trend favoring building capital-intensive factories although need is evident for building labor-intensive ones.

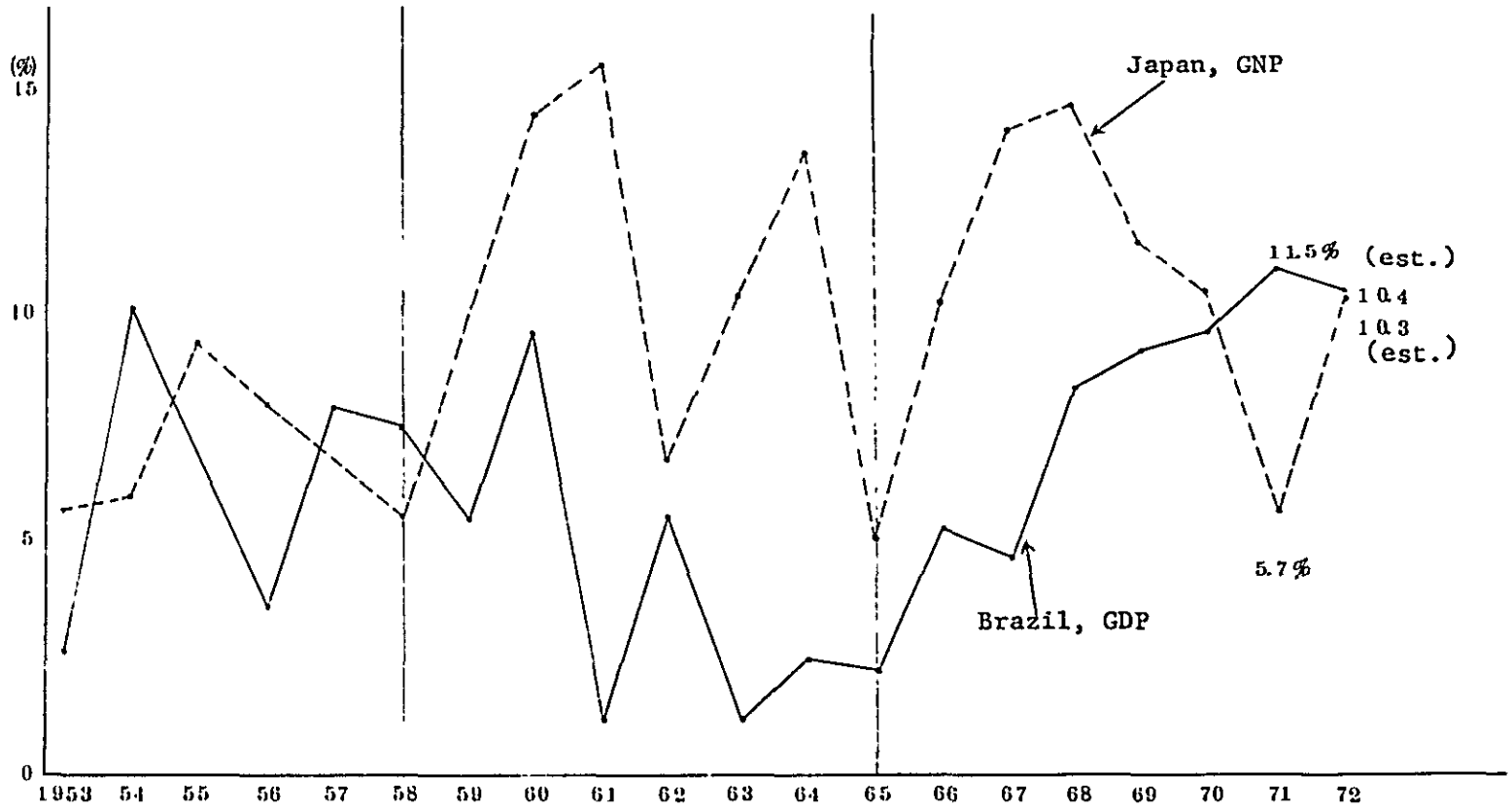
In most industrial sectors in Japan, a small number of big enterprises dominate the industry, and there are also very many small-scale enterprises with no real power. Even after the dissolution of the Zaibatsu following World War II, their power is awesome. For instance, in 1958 the biggest three companies produced 52.4% of the total pig iron (the ten biggest produced 80.0%),[34] and the biggest three produced 76.4% of the total synthetic fiber production (the biggest ten produced 99.1%). In the same way, the share of production by the biggest three and biggest ten firms are as follows: in cement, 48.6% and 82.1%; in oil refining 37.8% and 85.9% in butter production 84.4% and 97.2%; in automobile making, 72.2% and 92.6% for the five biggest, and in banking 21.6% and 57.6%.

5. Pattern of Business Cycles

The Japanese economy accomplished its growth with repeated short-term business cycles of 40 months' duration with respect mainly to changes in inventories from the independence attainment period to 1964. But it acquired international competitiveness during the same period of time and domestic capital accumulation progressed. As a result the business changes became middle-term ones of eight to ten years' duration with equipment investment as the primary factor since 1965 (See Fig. 2-24).

On the other hand, the postwar Brazilian economy achieved a remarkable growth through positive introduction of foreign capital and industrialization mainly in the field of import substitution. The GDP annual average growth rate during 1951-55 was 6.8%, and during 1956-60 it was 6.9%. But due to investment policy followed regardless of infavorable financial consequences, the economy gradually came to be faced with inflation of considerable magnitude, because after 1961 prices rose in

Fig. 2-24 Real Economic Growth Rates, Brazil and Japan, 1953-72



Source: FGV; EPA

a crescendo and the growth rate gradually fell. In the midst of such economic conditions the Military Revolutionary regime took control at the end of March, 1964. The growth rate for 1961-65 (GDP) remained low, at 4.5%. But with the adoption of the 1964-66 economic stabilization policy and the growth policy following 1967 the economy looked upward once again, until it achieved the growth rate of 7.5% in 1966-70. The cycle of economic changes had been irregular for the three to four years prior to the Revolution, but the trend has become more stable and upward ever since 1966. It has entered a long-term cycle, as it seems.

The rapid pace of Japanese economic development was always accompanied by rise of consumer prices. The inflation immediately folowing the end of the war was quite severe. Prices soared between 1945 and 1955 at a steady pace. The wholesale price index with the base of 1 for the 1934-36 average became as high as 246.8 in 1951, and the ratio for consumer prices was 347! Post-war inflation, however, provided a liberal supply as a stimulus for the ent re economy of Japan, in spite of the utter confusion in the price system. The inflation was brought finally under control with the "Dodge Line" stabilization projects under the direction of the American Occupation Headquarters. The economy remained stable during the period of 1950-55, but it started to move upward again following this brief period of relative stability. The wholesale price index, however, remained stable for some more time, giving to the Japanese economy the characteristic of clear distinction between consumer and wholesale prices (see Fig. 2-25).

Japan's inflation is said to have brought about cost-inflation by providing greater demand for labor than could be supplied, by pushing up wages, although the unemployment rate was lowered with increasing employment opportunities. At the same time, productivity gains which exceeded increases in wages brought increasing profits to Japanese firms, which in turn created demand for equipment and raw materials. The rise in private income increased private consumption, making gross expenditure greater than gross production, to serve as a cause for inflation. For these reasons the view has become predominant that inflation be a necessary

Fig. 2-25. Indices for Wholesale Prices, Consumer Prices and Wages in Japan

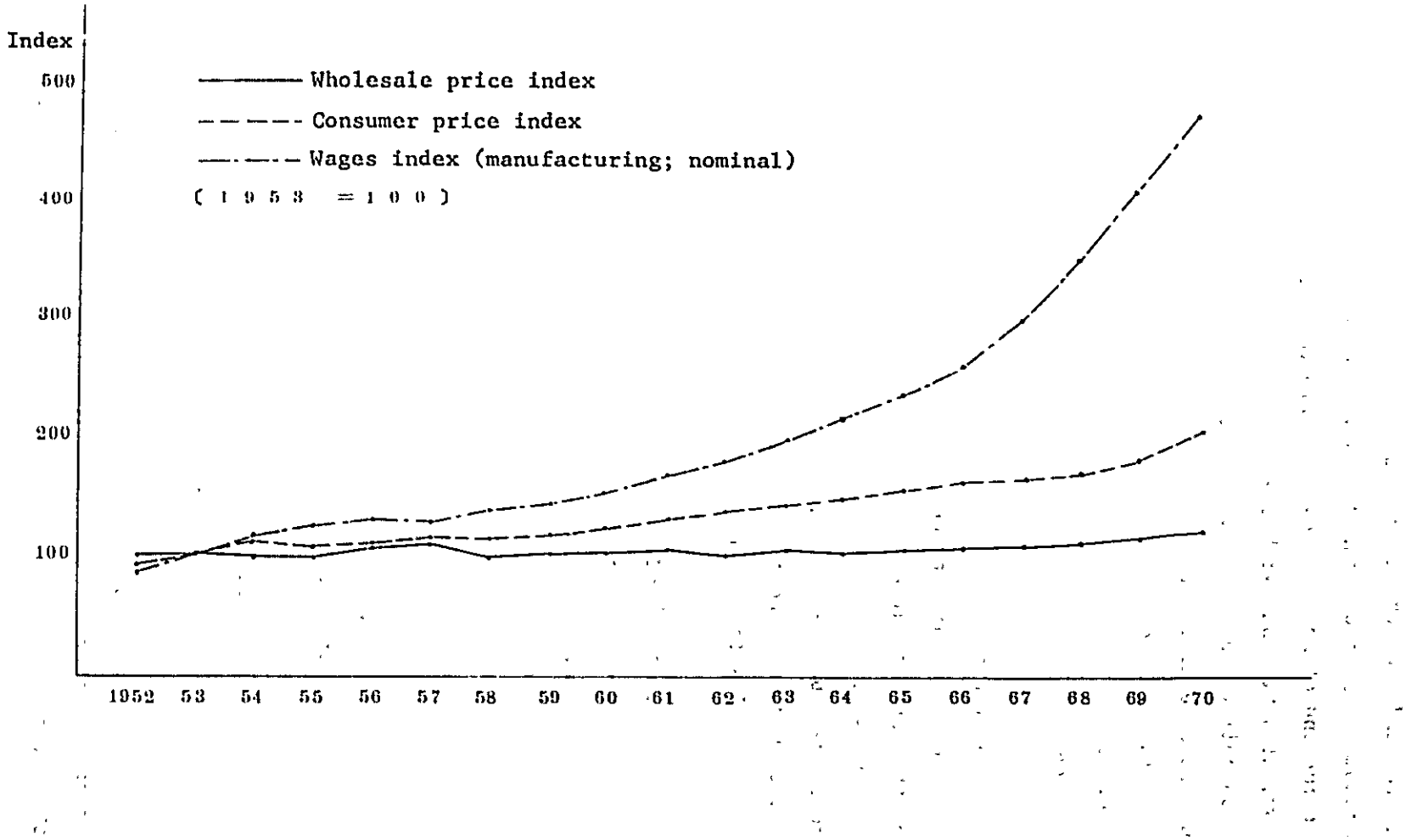
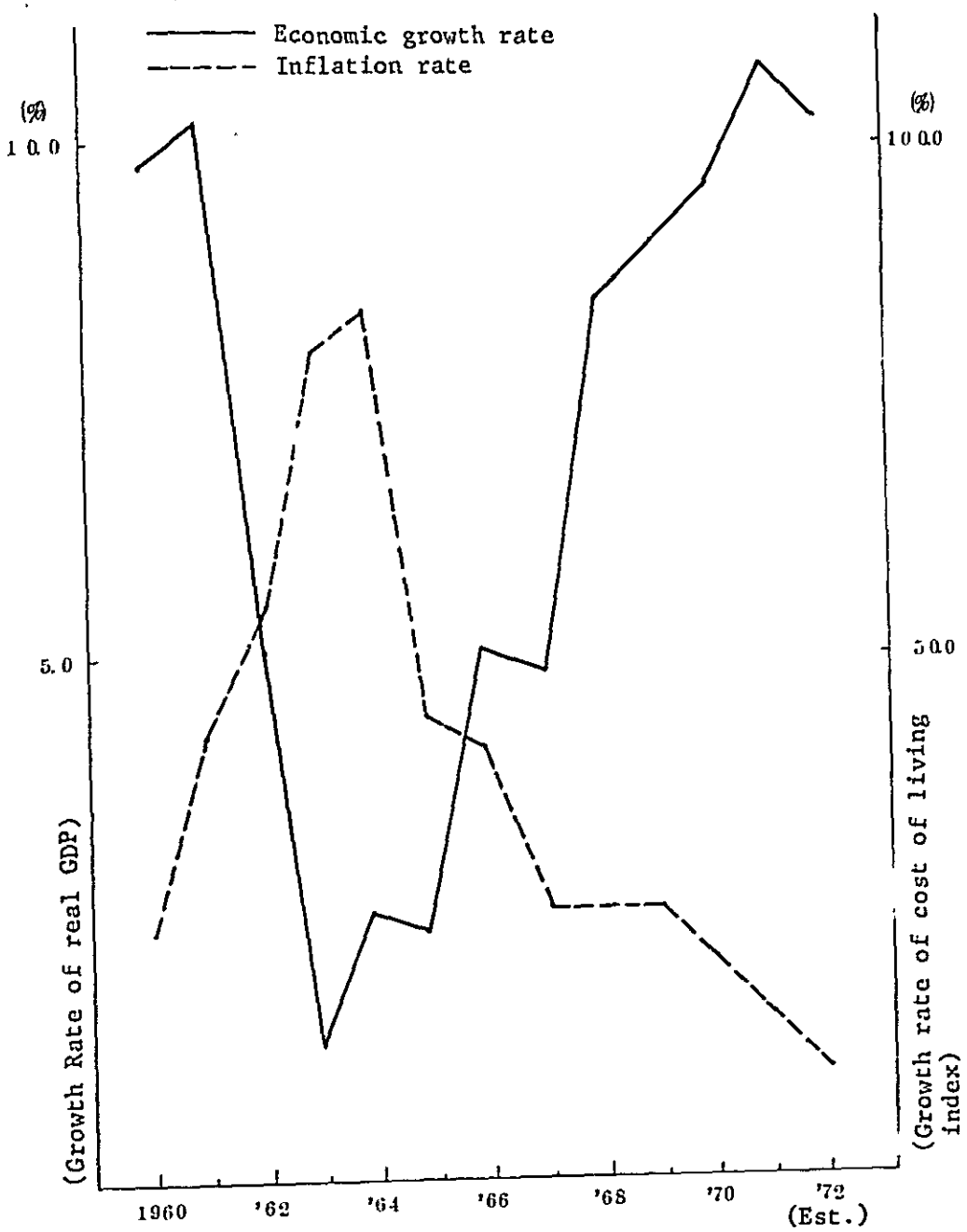


Fig. 2-26 Brazil's Economic Growth and Rate of Inflation



Source: FGV

evil for the purpose of growth.

Inflation has been one of the most difficult problems for postwar Brazil. During the 1950s the rate was around 20% a year, but it jumped to 52% per annum in 1959 (living cost index for the state of Guanabara), and continued to vigorously rise until it reached near 90% in 1964.

Prior to the Military Revolution the predominant view favored a high rate of growth under inflation. But following the Revolution, the policy adopted a tight money one, under the leadership of former Minister of Planning Roberto Campos, and the control of inflation was made the heart of the economic policy. First, the measure of monetary correction was advanced, whereby demerits of inflation can be mediated by applying the sliding principle to time deposits, the nominal value of corporate bonds and negotiable securities, real estate, corporate capital and internal corporate reserves. As anti-inflationary measures the following steps were taken:

(1) Balanced finance was attained by tax reforms intended to increase tax revenues, based on the reflection on the past performance that issuing inflationary money for deficit spending served to cause excessive liquidity. The deficit in the budget decreased from 4.2% of the GNP in 1963 to 0.3%.

(2) Through wage policy reforms, the workers' wages were protected from inflationary effects.

(3) Through the adoption of crawling-peg system the gap between the cruzeiro devaluation and price rises was closed.

(4) By controlling prices of agricultural and manufacturing products, unreasonable price rises were eliminated.

As Fig. 2-26 shows, these policy measures have brought rising rate of economic growth on one hand and subsiding inflation on the other (see also Chapter 3, Sction 2).

Notes

1) Fultado, Celso Formacao Economica do Brasil.

2) W.W. Rostow's analysis gives the take-off time of the Japanese economy as being during the 1880s.

3) BOJ Statistics Bureau, Japan's Principal Statistics since the Meiji Era.

4) Emi, Koichi Economics .

5) Personal communication during discussion with Sao Paulo University economists at IDCJ, Feb. 1, 1973.

6) Baer, Warner Industrialization and Economic Development in Brazil.

7) Ibid.

8) Furtado, op. cit.

9) Japan Statistic Almanac and the Ministry of Finance Survey.

10) Baer, op. cit.

11) Ibid.

12) The economically active population here includes those over 10 years of age for Brazil and those over 15 years of age for Japan, the difference being due to differing significance of low-age workers.

13) Public utilities, like power and gas, are ordinarily classified in secondary industry in Brazil, but they are included in tertiary industry for the purpose of our comparison here.

14) Since the population census in Brazil classifies employees in public utilities as belonging to secondary industry, the share of tertiary industry is taken to be a little higher than what is shown here.

15) Export figures are in FOB prices and imports in CIF prices unless otherwise mentioned.

16) In an interview in Rio de Janeiro by the visiting survey team.

17) Calculated from BOJ, Economic Statistics Annual.

18) Figures are from APEC, A Economia Brasileira e Suas Perspectivas, 1972 edition. This gives a slightly higher figure of US$2,911 million for the total investment as of the end of 1971 in comparison with the amount shown in Table 2-15.

19) IPEA, A Transferencia de Technologia no Desenvolvimento Industrial do Brasil. The number of cases of technological induction is for 1969, and the amount of money paid is for 1965-69.

20) Ministry of Finance Budget Bureau, The Budget in Brief Japan 1970.

21) APEC, A Economia Brasiliera e Suas Perspectivas, 1972

22) The local tax revenues for 1970 Brazil are as being budgeted. The states expect Cr$149,200 million and *municipios* Cr$730 million. The major state tax is the merchandise circulation tax (imposto de circulacao do mercadorias).

23) We found during our field tour in Brazil that the more or less dominant view among Brazilian economists is that represented by Prof. Mario Simonsen of the Getulio Vargas Foundation, who asserted that "the savings rate as appearing in statistics is lower than what it actually is; it should really be as high as around 23%." Among the reasons for inadequate statistics are (1) no approach to this index from the standpoint of flow of funds has been undertaken as yet, and what is available now is only an estimation from the 1960 investment data, and (2) private savings are calculated by subtracting foreign savings and Government savings from total investment, and not obtained through conventional methods. Prof. Simonsen points out various problems to be encountered in comparing Brazilian and Japanese rates of savings as follows: "In order for Brazil to accomplish the same rate of economic growth she should need a lower rate than that required of Japan, because Brazil is possessed of unexplored land and natural resources. Relatively less investment should suffice, for instance, for agricultural development. In other words Brazil's capital coefficient is lower than that of Japan."

24) In an interview in Brasilia the visiting survey team got following explanation: "If Government enterprises are included in the public sector in calculating the nation's investment, Government investment occupies 55.4% of the total investment in Brazil," and "if Government enterprises are included in the public sector in calculating the nation's savings, Government savings would occupy 62.0% and private savings 38.0%, making the Government-private ratio of savings 4:6. It follows that the role of the Government is extremely great in savings as well as in investment."

25) APEC, op. cit.

26) It is extremely difficult to precisely compare Brazil with Japan with respect to the demand situation of firms and business conditions, because (1) methods and handling of depreciation and reserves differ between the two countries, and (2) handling of monetary correction presents severe difficulties.

27) Smith, T. Lynn. Brazil, People and Institutions, p. 14.

28) Miyamoto, Ken'ichi, op. cit.

29) Japanese income distribution statistics are obtained from statistics concerned with (1) tax revenues, (2) wages and (3) household finances, while Brazilian counterparts are obtained from census carried out once every ten years. Statistics covering those who pay income taxes can give income distribution only of the relatively wealthy. Wage statistics available also are only for urban workers, and those in rural areas living in self-sufficient fashion--their number is considerable in Brasil--are excluded. Those covering household finances are not acceptable for our purpose due to big biases and other reasons.

30) Many Brazilian economists, whom the Japanese visiting survey team met, including Prof. Mario Simonsen, point out the following reasons for the inadequacy of discussing aggravating income disparities from the 1960 and 1970 census data:
   1) Census data are based on private monetary income, specifically excluding self-consumption of farm products and most of the services rendered by the Government--all in non-monetary terms.
   2) As the economy develops, a greater portion of the population will receive monetary income instead of non-monetary income, gradually reducing the subsistence sector. As a result the number of people in the low income group increases.
   3) Data obtained in every ten years are not sufficient to deeply analyze effects of inflation, recession, stabilization policies and other factors.
   4) Data for 1960 understate the real situation because many of the wealthy reported less income than actually received, to evade taxes. Also the 1970 data collecting became more accurate.

31) Income equalizing policy of the Brazilian Government today concentrates on (1) increasing employment opportunities in export-oriented industries and maximizing income-equalizing opportunities through extended middle and high school education, and (2) increasing transfer of income through such means as heavier progressive taxes, the Program for Social Integration (PIS), housing policy and social securities.

32) The present Brazilian Government takes the view that the critical issue of Brazilian agriculture lies not in that of the Land Reform as applied to latifundium but in productivity increase of smaller farms. The data for Brazil have been obtained from "Censo Agricola Preliminario," 1960.

33) From statistics published by the Ministry of Agriculture and Forestry.

34) Fair Trade Commission, Yearly Report. The order of the companies is determined by their size of production records, except for banks, where the year-end loans outstanding were taken as the criterion.

Chapter Three: Economic Policies of Brazil and Japan

1. Economic Policy of Japan during 1955-60

1-1 Mechanism Sustaining the High Rate of Growth

Japan's remarkable postwar economic growth may be appreciated by comparing the growth rates of major industrial nations during the 15-year period starting in 1950, when the Japanese economy reached and then rapidly passed prewar economic levels. Among the better accounts of this process are "Consider Japan", and "The Risen Sun", edited and published by The Economist.

Table 3-1 International Comparison of Economic Growth Rates (Real GNP, 1955 prices)

	1950 - 1960	1960 - 1965
Japan	8.8%	9.4%
West-Germany	7.8%	4.8%
Italy	5.8%	5.1%
United States	3.2%	4.5%
Great Britain	2.7%	3.2%

Sources: EPA

It is obvious that Japan's economic growth rate throughout the 1950s exceeded those of the others by far, and continued high during the 1960s, when West Germany and Italy started to level-off after a decade of rapid growth.

In our comparison of the Brazilian and Japanese economies, we have confined our attention to the latter half of the 1950s (1955-60), and deal with the issue why the economy continued to grow at a rapid rate, and did not stagnate after having regained the prewar level of economic activities in terms of basic indices in 1953-55. Specifically, we are concerned here with the boom periods of 1956-57 (the so-called Jinmu-boom) and 1959-61 (the Iwato-boom). This, the main subject taken up in this chapter, is best seen against the background of factors which have been identified as having contributed to the continued high growth rate. Such factors, as pointed out by Japanese and foreign scholars, are summarized below.

Important characteristics identified by British and Japanese studies concerning themselves with "secrets of high economic growth" are as follows.

Table 3-2 List of Factors Contributing to the High Economic Growth of Japan

The Economist (ed.): "The Risen Sun-Seven Keys of the Japanese Economy," 1967

1. Partnership between enterprises, banks and the Government
2. High standard of education
3. Vigorous investment
4. Labor transfer from traditional sectors to modern sectors of the economy
5. Banking and credit system
6. Group loyalty
7. Capable bureaucracy

Miyohei Shinohara, "The Secrets of High Economic Growth," 1961*

1. Ability to expand export
2. Dual structure of the economy
3. High savings rate

Toshio Shishido, Growth Power of the Japanese Economy, 1965**

1. Favorable balances of payment
2. Fund procurement facilitated by high savings rate
3. High rate of growth in investment
4. Abundant labor force
5. Japanese characteristics of technological innovation

These studies all view the high rate of economic growth from the aspect of supply factors. The first emphasizes subjective conditions more, while the other two list concrete and objective characteristics of Japan's economic structure. Of course, the factors favoring high economic growth must be supported by increasing effective demand. In this respect it can be said that increases in domestic demand, stimulated through a series of post-war democratization reforms (including dissolution of the zaibatsu, agricultural land reform, organized labor movements more firmly established than previously, and improved social security, and the tendency overseas demand, (including overseas military procurements by the United States) favored the growth of the Japanese economy.

Summarizing these lists from the viewpoint of objective factors, we may identify the following as "factors aiding high economic growth."

1. The mechanism of savings and investment

   A high rate of private savings, overloans supported especially by bank credit and Teasury loans, and investments for industry, which were combined with a vigorous, attitude on the part of businessmen for investment, for rationalization and modernization.

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* Miyohei Shinohara, former Director of the Economic Research Institute, EPA, is now a faculty member of Seikei University.

** Toshio Shishido, now is Director General of Nikko Research Center, a private research institute.

2. An abundant, good-quality labor force

In contrast to the labor shortages afflicting West European countries, the smooth transfer of labor from traditional to modern sectors was possible in Japan; this raised the labor productivity on a national scale by making increasing sophistication of the industrial structure possible. This labor force was well educated, had a good measure of industrial discipline, and was loyal to employers.

3. Factors for growth inherent in the dual-structure

The dual sturcture, consisting of large firms on the one hand and medium- and small-scale firms on the other, and of modern industries and traditional industries seems to have worked in a mutually complementary manner, as the former was able to draw productive factors from the latter during periods of prosperity and the latter served as the base supporting the former during slack periods. This ultimately helped the economy grow.

4. Favorable conditions in balance of payment situation mainly through exports

In early postwar years, such external factors as United States aid for reconstruction in 1945-48, and special procurement demands in 1950-55 owing to the Korean war helped maintain Japan's trade balance. During 1957-62 Japanese exports greatly expanded, using the opportunity presented by falling level of world prices. After 1960, the balance of capital transactions turned to Japan's favor. In other words the Japanese economy combined the three favorable factors of United States aid to Japan, special procurements and the falling level of world prices in a shrewd way to strengthen its export capabilities, and

Japan postponed trade liberalization until the economy acquired sufficient strength to export in great volume. In short, the rapid increase in exports during the latter half of the 1950s was the fruitition of the vigorous modernization-rationalization investment by the private sector during the first half of the decade, and was greatly assisted by measures taken by the Government, and banks, to promote export industries.

5. Effects of fiscal and monetary policies

As pointed out by The Economist, the Government's economic planning, and its fiscal and monetary policies, stimulated entrepreneurship and competitive spirit in the private sector, and they also placed primary emphasis on growth of the economy.

These five factors are believed to deserve careful examination in considering the economic development of today's Brazil, although there may be slight shifts in weight when applying to the case of Brazil.

On the basis of this brief summary, let us examine indices of Japanese economic growth during the period 1955-60.

First, the general index of Japan's economic activities presents itself as the GNP expressed in current prices. It shows a 1.8-fold increase in five years, and a 1.55-fold increase in real terms; i.e., the entire national economy grew by 55% during the five-year period. That is an annual (compound) growth rate of 9.1% for the period.

What supported such a high rate of growth is the gainfully employed population, which increased by 1.085 times during this five-year period. The discrepancy between increase of GNP and that of gainfully employed population must be accounted for by a remarkable increase of per worker productivity. If we calculate GNP in real terms per worker for 1955 and 1950, we obtain the following figures. These figures reveal an

1955	388,000 yen
1960	459,000 yen

Table 3-3 Changes of Main Economic Indices (1955-1960)

	1955	'56	'57	'58	'59	'60	'60/'55
Population (1,000 persons)	89276	90172	90928	91767	92641	93419	1046
Employed population (1,000 persons)	40880	41720	42840	43240	43680	44360	1085
Primary industry (%)	(41.0) 41.0	(38.7)	(36.9)	(35.1)	(33.5)	(32.5) 32.6	0883
Secondary industry (%)	(23.0) 23.5	(24.7)	(25.9)	(26.7)	(27.1)	(27.7) 29.2	1384
Tertiary industry (%)	(34.4) 35.5	(36.6)	(37.2)	(38.2)	(39.4)	(39.7) 38.2	1198
National capital stock (10 billion yen)	158641	—	—	—	—	302296	1905
of which machinery & equipment	17491	—	—	—	—	41720	2385
GNP, current value (1965 value)	86236	97260	110803	115219	129263	154992	1797
(1965 value)	[131564]	[140510]	[152117]	[161834]	[179661]	[203483]	[1546]
Index of industrial production (1)	1000	1224	1445	1415	1702	2125	2125
Value of exports (US$1,000,000) (2)	2011	2501	2858	2877	3456	4055	2016
Value of imports (US$1,000,000) (2)	2471	3230	4284	3033	3599	4491	1817
Foreign reserves (US$1,000,000) (2)	738	941	524	861	1322	1824	2471
Introduction of industrial technology							
Approved cases	82	150	120	90	153	327	3987
Payments made (US$1,000)	17963	28417	39439	44370	54196	83466	4646
Wholesale price index	1000	1044	1075	1005	1016	1026	1026
Consumer price index	1000	1003	1035	1030	1041	1079	1079

Notes: (1) Weight is based on value added by items
(2) Customs clearance base

Source: EPA, Economic Outline; BOJ, Economic Statistics Annual

approximately 20% increase of productivity in macro terms. This increase in productivity is partly due to the increase of the national capital stock, which increased 1.9-fold in nominal terms during the period. What is particularly noteworthy is the rise in the share in the national capital stock of machinery. Although, in 1955 the ratio of machinery and equipment divided by national capital formation was 11.0%, the value for 1960 was 13.8%. This not only shows a higher composition of capital but also reflects the vigorous equipment investment of this period.

Growth of the economy and productivity gains in this period also may be ascribed to the greater sophistication of the industrial structure. In five years the weight of primary industry decreased from 41.0% to 32.6%, while secondary industry increased from 23.5% to 29.2% and tertiary industry increased from 35.5% to 38.2%. Expansion of secondary industry's share was very rapid, indicating that the growth in this period characteristically was in the heavy and chemical industries, led by secondary industry. This is reflected in the rapid rise of the mining and manufacturing production index. More important, this industrialization is evident not only in the quantitiative increase of various indices but also in absorption of expanding and widening waves of global technological innovation. This can be seen in the rate of increase of technological induction (in terms of both the number of cases of induction of technology and payments made) which was greater than any other indices ot the period. This was to bear fruit during the following decade, in the form of strengthened international competitive power of the economy.

To maintain industrial production at a high level, Japan must import most of the industrial raw materials used. Imports during this period increased 1.8-fold from US$2,500 million to US$4,500 million, certainly a rapid increase. The exports which pay a major portion of the cost of such imports indicate Japan's industrial strength, and the international competitiveness of her products. The approximately two-fold increase of exports during the period in question--this growth was (more rapid than that of imports)--thus indicates improvement in Japan's international competitive power. The trade balance registered deficits

throughout this period, but it is of utmost importance that the deficits did not increase in relative terms. The following figures are obtained by calculating

$$\frac{\text{(Imports - Exports)}}{\text{Exports}} \times 100$$

for each year during the 1955-60 period.

1955 = 22.9%
1956 = 29.1%
1957 = 49.9%
1958 = 5.4%
1959 = 4.1%
1960 = 10.7%

The ratio of trade deficits to total exports started to decline after 1957, making for more stable trade relations. The balance of trade showed its first postwar surplus in 1965 and has maintained a favorable trend since 1968. With such a healthy balance of trade, foreign reserves also increased gradually from US$740 million in 1955 to US$1,820 million in 1960. The ratio of foreign reserves to GNP was 3.1% in 1955 and went up to 4.2% in 1960.

The indices in Table 3-3 tell us more, when we study the price index, which, during this five-year period, remained rather steady both in wholesale and retail areas. First, while the mining and manufacturing production index rose from 100 to 212.5, the wholesale price index moved only from 100 to 102.6, meaning that the production indices in current price terms can be taken as depicting the real situation. That is why the characteristic of the boom in this period is aptly described as "quantity business cycle" (Mengen-Konjunktur). Also, with respect to consumer prices, we may claim the same steady trend except for 1959-60. Yearly increases of consumer price index were as follows.

- 1.1% down for 1955
0.3% up for 1956
0.5% up for 1957
0.5% up for 1958

1.1% up for 1959

3.7% up for 1960

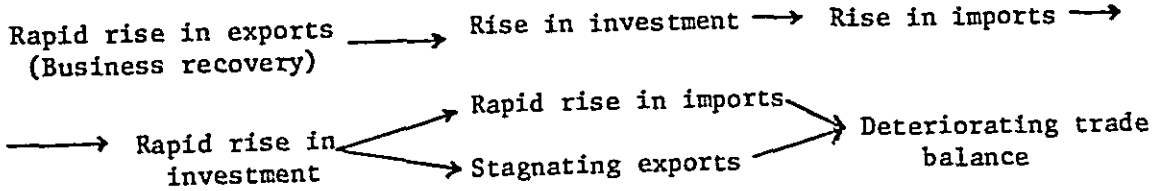
It folows that in this period personal income per capita directly influence the national income level if adjustment is made for population increase.

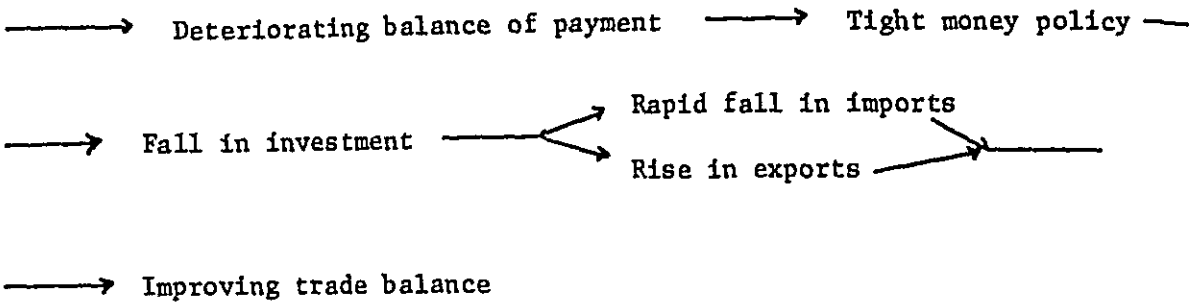
In short, this particular period which we have chosen in our attempt to compare the two economies, the namely the period of 1955-60, was a very fortunate stage of the development of the Japanese economy. Even though today's Brazilian indices may approach those of Japan in this period and various similarities are certainly to be recognized, we must however, carefully take into account such factors as the differing stage of development of the two economies, their differing business cycles, and differences between the 1955-60 atmosphere of the world economy and today's, in comparing the two economies.

In addition to these general differences, we note such specific differences as the fact that Brazil's cost of living index fluctuated by 15% in spite of subsiding inflation following a period of hyper-inflation, as against Japan's stable consumer price index in this period.

The rapid economic growth of Japan was not achieved smoothly but was accompanied by cyclical movements of business activities. To examine Japan's business cycles, reference may be made to Fig. 3-1 which shows the cycles.

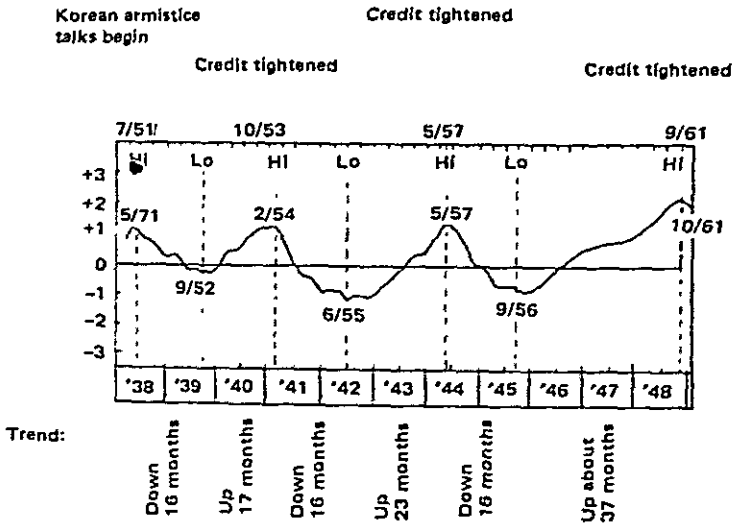
Fig. 3-1 shows the business cycles occurring between July, 1951 (armistice negotiations of the Korean conflict) to October, 1961 (the peak period of the so-called Iwato-boom). It is evident in this figure that in Japan's business cycles, downward movements following the peaks were always initiated by tight money policies of the Government. Let us show in a diagram how the mechanism of business cycles functioned during recovery periods. The process was reversed during down-swings.





What is common to all the business cycles from 1953 to around 1968 is the increasing investment with the business upturns, which invited increased imports, resulting in a deteriorating balance of trade situation and ultimately in deteriorating balance of payments situation or deficits. This deficit phonemenon in the international balance of payments served as the signal which triggered adoption a tight money policy slowing investment drives of private firms and bringing about favorable turns in the trade balance through decreasing imports and increasing exports. This is where the cycle started, and from whence it will lead again to the stage of rapidly increasing exports. What we can state from seeing such repetitions of cycles is this: business expansion

Fig. 3-1. Overall Trend of Business



in this period saw rapidly increasing exports as the driving force for the following rapid rise in investment, which in turn served the cause of general business upturns; after the expansion period hit the ceiling imposed by foreign reserves, bringing forth a tight money policy, and started to head downward, suppression of investment activities and adjustment of the business cylces ensue, after which it is time for the next cycle to start.

But for such a mechanism to function as described above, the Japanese economy in this period had to be provided with the following characteristics.

(1) A decade after the end of the war, the ceiling or constraint to the expansive business trend began to change, from capital accumulation to the balance of payments problem, but it had not reached the stage where the labor force may serve as the limit to growth;

(2) Competitiveness of Japanese products was strengthened by favorable factors and the general atmosphere, such as:

  (a) The fruits of modernization-rationalization investment of early 1950s started to become evident and increased productivity;

  (b) The abundant labor force still could be employed at wage levels lower than the world standard;

  (c) Export industries were supported by the protective policy of the Government (e.g., through import duties, import quotas and foreign exchange controls), and also by strong measures for the promotion of export industries practiced by the Government and the financial institutions, and

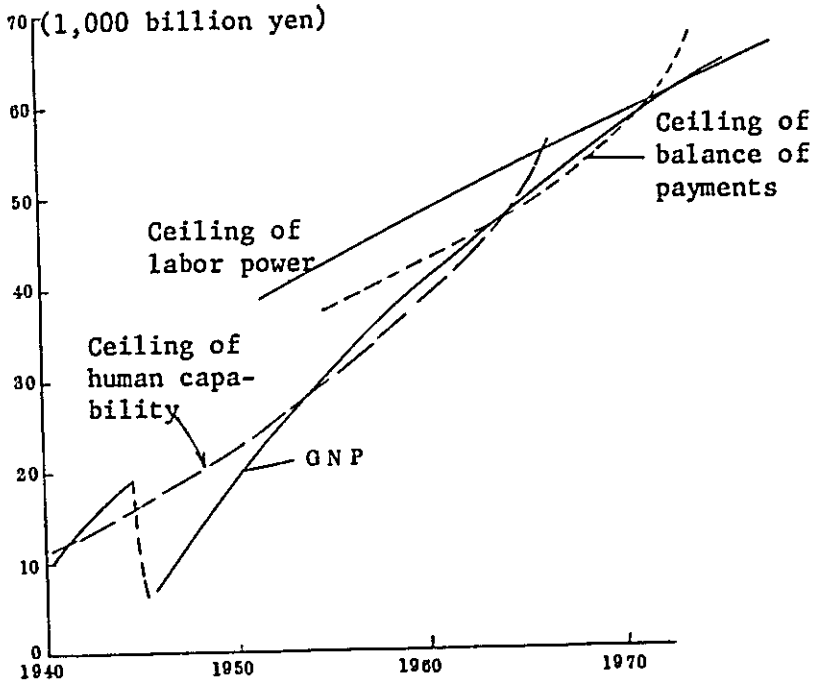
  (d) The general expansive trend of the world economy also functioned in favor of Japan's export drive; and

(3) In the period following the end of the war, the prevailing pattern of fund procurement prior to investment, by private firms, was supported by the indirect financing system

(funds were channeled mainly through banks), resulting in heavy dependency of firms on external funds. But this also served to make monetary policy more effective.

It is worthwhile to elaborate each of the above factors. To explain changing factors that constrained growth at each peak period, we may present a hypothesis shown in Fig. 3-2:

Fig. 3-2. Ceilings of Japanese Economic Development



The Figure attempts to explain the following: Until around 1965 the capability ceiling, or the extent of capital accumulation, limited the growth of the Japanese economy. Therefore, during the period with which we are concerned, i.e., 1955-60, the basic task to be accomplished for the purpose of economic growth was the promoting investment to facilitate capital accumulation. When this capability ceiling is hit, the

economy can grow no more. But in the case of Japan the economy developed at an extremely rapid pace within the confine of this ceiling. Beyond this capability ceiling is the balance of payments ceiling. If the economy tried to develop over and above the capability ceiling, it then faces the barrier posed by the balance of payments situation. During 1945-52 United States aid to Japan controlled this ceiling, so to speak. And as the Japanese economy attained independence in 1953 the limitation of this ceiling began to be felt even more. But even after this became evident the economy, through shrewd steering and use of fiscal, monetary and other measures, managed to achieve great growth. It, however, is in the 1960s that this feature of the Japanese economy showed its best performance. What comes after the balance of payments ceiling is the labor force ceiling, which, however, is revealed only in the 1970s as Shishido seems to assume. As to the balance of payments ceiling, the Japanese economy alone cannot raise it, making it in actuality the ceiling of international cooperation with respect to monetary and trade matters. We may also envisage still more ceilings lying behind the labor force ceiling, this is, those of pollution prevention and environmental affairs. At any rate, it will prove to be an important point of discussion in dealing with the economic development of the Brazilian economy to determine what factors may serve as ceilings to development in that country.

Let us turn to the favorable factors and general atmosphere both domestic and overseas.

Equipment investment which increased productivity has already been pointed out in the explanation of Table 3-3, but in greater detail, we may first study equipment investment during our comparison period. Table 3-4 shows (A) totals for installed equipment, derived from national economic accounting, and (B) equipment investment for each industry compiled by the Japan Development Bank on the basis of its loans made as industrial funds. From the (A) series of figures we see how widely the amount of equipment investment changes from year to year. It grew by 35-55% in 1956-57 and 60-61, showing vigorous investment in equipment.

Table 3-4. Trend of Equipment Investment in Japan, 1954-1962

	1954	1955	1956	1957	1958	1959	1960	1961	1962
A) Corporate equipment investment in Gross National Expenditure	9112	8881	13732	18562	17183	20192	29093	41020	42383
Ratio compared to previous year (%)	58	−25	54.6	35.2	−7.4	17.5	44.1	41.0	3.3
B) Industrial equipment investment	5300	5988	10258	12652	12787	16191	14489	18856	16604
Basic industries	2128	2285	3511	4824	5180	5759	6252	7433	6482
Electric power	1422	1483	2010	2437	2901	2970	3384	3899	3490
Iron and steel	256	269	625	1119	1197	1821	2248	2872	2304
Coal	137	143	135	301	338	304	241	227	228
Shipping	313	390	741	967	744	664	379	435	465
Other industries	3172	3703	6747	7828	7607	10432	8237	11422	10122
Textiles	385	409	991	696	547	749	620	716	682
Chemicals	412	468	1013	1487	1273	1839	1380	2051	1655
Machinery	295	297	818	1262	1199	1873	2198	3269	2814
Transportation (except shipping)	113	148	171	213	192	231	178	201	170

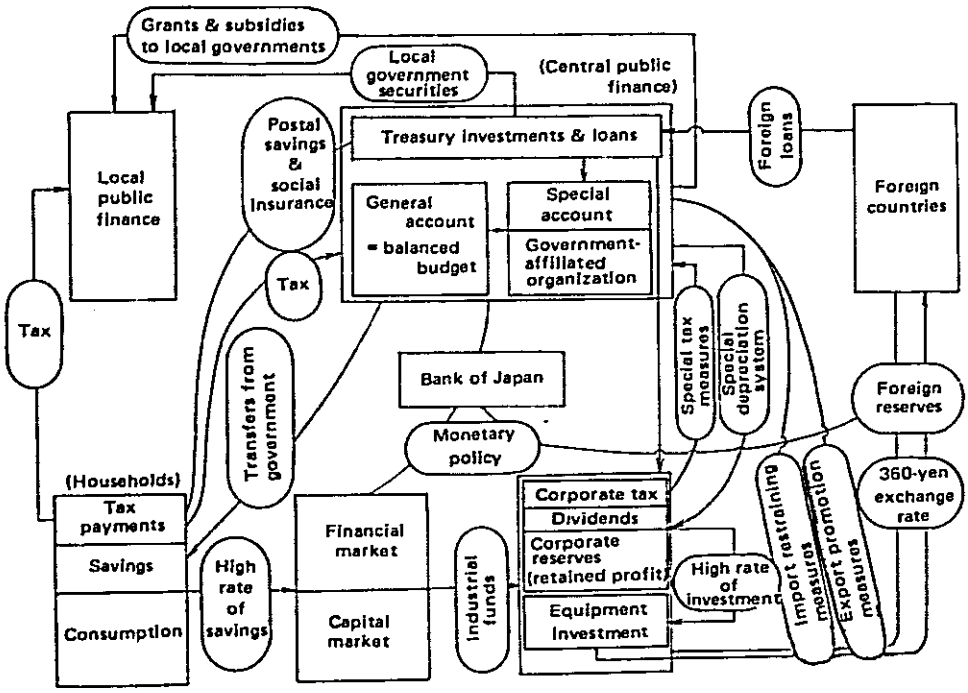
Source: A) EPA, Annual Statistical Report on the Economy; B) Japan Development Bank, Monthly Report.

The above two periods are, respectively, the "Jinmu-boom" and the "Iwato-boom." When these figures showing annual increases in equipment investment are compared with the corresponding increases in GNP (see Table 3-3), it becomes clear that the changes in equipment investment determined the changes in GNP or the pattern of business cycles. For this reason we call the growth factor during this period "leadership in equipment investment."

Regarding the (B) figures, we may see which industries served as the core industries responsible for assuming the "leadership in equipment investment." As in the (A) series, big increases in rates are observable both for 1956-57 and 1960-61. Moreover, basic industries showed conspicuously big figures in 1960-61, especially iron and steel in 1956 and 1957, coal in 1957 and maritime transportation in 1956. Among other industries, high rates are registered, during the "Jinmu-boom," by textiles, chemcials, and machinery in 1956, and, during the "Iwato-boom," by chemcials and machinery (espeically by the latter). We thus observe a change of emphasis from basic industries to "other" industries, and, among "other" industries, from textile to machinery.

Regarding the protective policy, the diagram in Fig. 3-3 explains the essential aspects, and clarifies the over-all mechanism of high economic growth during this period.

Fig. 3-3. Fiscal Organization of Japan



What the diagram tries to explain can be summarized as follows.

(1) The principal item which served the cause of high economic growth is the high rate of investment mainly in the field of equipment investment.

(2) The factors that made this high investment rate possible in terms of internal fund supplies were such measures as favorable treatment in corporate taxes, and a special depreciation system to increase internal reserves.

(3) What served the same cause in terms of external fund supplies was the smooth supply of industrial funds, or easy loan policy of city banks backed by the credit of the Bank of Japan, plus the basis of all of the above--the high savings rate.

(4) What augmented the pattern of high investment leading to export promotion is, first, various measures taken to promote export and control import, and, secondly, the yen parity of 360 yen to the dollar, set on April 1, 1949 and recently revised.

Fig. 3-3 contains other information too, but primarily can be taken as explaining how the fiscal organization served the cause of furthering the pattern of investment promotion equaling capital accumulation.

1-2 *Economic Forecasts and Performance*

About a dozen economic plans have been adopted in the postwar era in Japan. Except a few drafts immediately following the end of the war, there are as many as ten plans that could placed in the category of "planning," from the 1948 "Economic Reconstruction Plan" to the latest "Basic Economic and Social Plan." The existence of these plans serves as evidence to show that there have been changing objectives and priorities, according to various stages of the postwar economic development of Japan, but at the same time they show changing econometric methodologies applied in formulating plans, and adoption of improved ones to supercede existing plans.

Table 3-5. Planned and Actual Real GNP Growth Rate, Japan 1949-70

F.Y.	Actual	I	II	III	IV	V	VI	VII	VIII
1949	12.7	12.0							
1950	11.0	8.0							
51	13.0	7.4	4.3						
52	11.0	6.9	5.3						
53	7.9	7.2	5.4						
54	2.3								
55	11.4			4.5					
56	6.8			4.8					
57	8.3			4.9					
58	5.7			5.2	6.5				
59	11.7			5.2	6.5				
1960	13.3			5.2	6.5				
61	14.4				6.5	9.0			
62	5.7				6.5	9.0			
63	12.8					9.0			
64	10.4					7.2			
65	5.4					7.2	8.1		
66	14.4					7.2	8.1		
67	13.0					7.2	8.1	8.2	
68	13.8					7.2	8.1	8.2	
69	13.2					7.2	8.1	8.2	
1970	11.0					7.2		8.2	10.6

Notes: Calculated by 1960 price for 1949-52 and by 1965 price for 1953-70.

I. Economic Reconstruction Plan
II. Economic Recovery Plan
III. Five Year Plan for Economic Autonomy
IV. New Long-Range Economic Plan
V. Doubling National Income Plan
VI. Medium-term Economic Plan
VII. Economic and Social Development Plan
VIII. New Economic and Social Development Plan

Source: Tsunehiko Watabe, Keizai Seisaku (Economic Policy) 1972, p.77

But, when viewed from the discrepancy between the forecasts and performance, during earlier periods of the plans the performances always exceeded forecast figures, after which this "over-achievement" was incorporated into the remainder of the plan. Table 3-5 shows such relations in a compact form. One sees from this table that only in years 1954, 1958, 1962 and 1965 - all years of recessions or stagnation - performance feel short of the forecasts.

Fig. 3-4. Planned and Actual Economic Development Trend in Terms of Real GNP

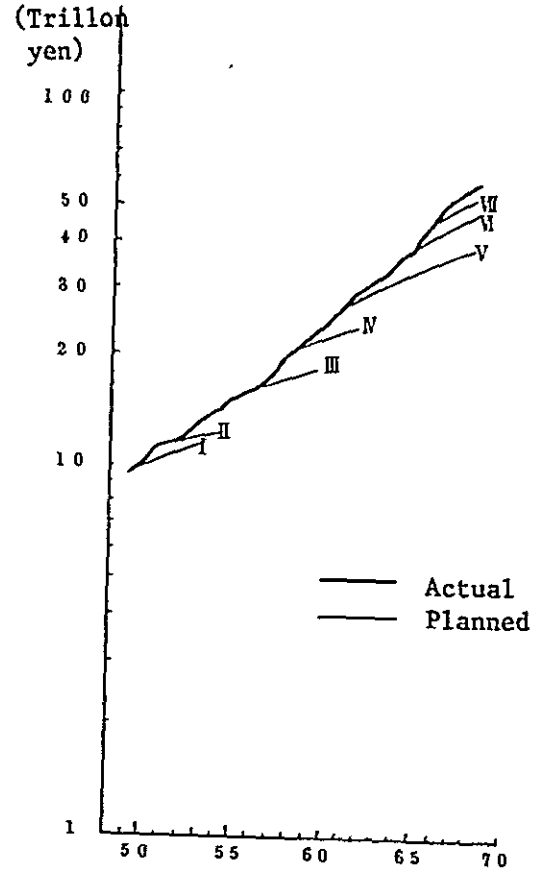


Fig. 3-4 depicts in simplified form the relations between the forecasts and performance derived from the above table. The solid heavy line indicates the actual growth of GNP in real terms, while the light lines show growth as planned, derived by applying the projected growth rates on the base figures of the GNPs. As is apparent, the projected growth lines always come under the real growth line.

This phenomenon not only suggests the huge latent growth potentialities of the Japanese economy during this period but also gives some ground to the speculation that the forecast figures were deliberately suppressed as a part of general policy in economic planning. If we look specifically at our comparison period of 1955-60, there are two plans, the Five Year Plan for Economic Autonomy approved in December, 1955, and the New Long-Range Economic Plan approved in December, 1957. The short life of the first, far shorter than the period covered by that plan, is a sufficient indication of the rapidity of growth in this period, which quickly outpacing the projection.

The Five Year Plan for Economic Autonomy was drawn up at the time when the Occupation terminated and signing of the Peace Treaty cut American aid to Japan, forcing Japan to set her targets of economic independence and full employment at home. But as the end of the Korean War was seen pessimistically as reducing income from special procurements and war-related exports, the projection figures were brought down. But in actuality the latter half of the 1950s saw the result of vigorous technological induction as well as modernization and rationalization during the earlier half of the decade, which led to enhanced productivity and ultimately to strengthened competitive power of export commodities.

The second, the New Long-Range Economic Plan was established with the general direction of lessening direct intervention in the private sector and of gradually retreating from the postwar policy of direct control of the nation's economic activities. But this plan again underestimated the independent mind of the private sector and particularly the role of private equipment investment, and as a result the growth rate of investment surpassed the forecast by a wide margin. This plan then was replaced by the next plan, or the Doubling National Income Plan, in December, 1960.

Outlines of these two plans within our comparison period are shown in compact manner, in Table 3-6.

Table 3-6 Japan's Economic Planning in Second Half of 1950s

	Five Year Plan for Economic Autonomy	New Long-Range Economic Plan
Year approved	December 1955	December 1957
Cabinet	Hatoyama	Kishi
Ranges	F.Y. 1956-60	F.Y. 1958-62
Growth rates		
Planned	5.0%	6.5%
Actual	9.1%	10.1%
Systems of Planning	Colm System	Hypothesized growth rate
Objects	Economic independence	Maximum growth and improvement of living standards
	Full employment	Full employment
Priority policies measures	Modernization of production facilities	Strengthen industrial infrastructure
	Promotion of trade	Expansion of heavy industry
	Increase of self sufficiency	Export expansion
	Thrift in consumption practice	More savings

The situation was as follows. During the period which we have chosen for our purpose of comparing the Japanese economy with that of Brazil, Japan had two consecutive economic plans. Both were 5-year plans, but the comparison with their forecasts and performance were far apart. The Five Year Plan for Economic Autonomy forecast 5.0% of growth for its period, but the actual figure turned out 9.1%. The Long-Range Plan

anticipated the annual growth of 6.5%, but economy grew at 10.1% a year. In both cases the predictions were exceeded by almost double. The 5%-prediction probably was the result of the thinking that the Japanese economy would grow at a slower pace of 4 to 4.5%, which was the over-all average of the pre-war years. But in actuality the case was different: at a time when the economy attained independence and its production level reached the prewar standard (the average of years 1934-36), it 'took off' for another period of high growth.

Both plans mention full employment as an objective. But "economic independence" mentioned in the earlier plan was changed to "maximum growth" in the latter, showing confidence that further growth would be attained after experiencing the "Jinmu-boom." Among priority policy measures the earlier plan mentioned "modernization of production facilities," which was replaced by "achieving a stronger industrial infrastructure and heavy industrialization" in the ensuing plan. We also note other changes in the adoption of more positive tones, like from "trade promotion" to "export expansion" and from "thrift in consumption practice" to "more savings." All this demonstrates the emphasis placed on growth promotion and priorities on industries during this period of Japan's economic history.

These plans are sometimes reviewed as being only "decorative" for such reasons as the big discrepancies between their predictions and what proved to be the real growth of the economy. But economic plans are to have, in general, the following roles to play: (1) enlightening and educational roles, (2) to serve as the long-term platform of the Government in power, and (3) to serve as a forum for adjusting conflicting interests. Aside from the first item, the plans did accomplish their objectives to a considerable degree, in terms of the second and the third of these items. For instance, the projected growth rate may well have influenced and guided private firms in planning their activities. Or, in promoting economic growth with the main driving force coming from the private sector, the role of the Government economic plans as providing a forum for adjusting various interests did serve a purpose.

2. Characteristics of Brazilian Economic Development Policy

2-1. Policies after the Revolution of 1964

Basically speaking, the social and economic development policy implemented after the Revolution in 1964 do not differ substantially from various other policies which are facing three gaps of savings, of external debt and of human resources. The characteristic of the Brazilian case is the harmonious connection of political instrument with strategy adapted to the institutional and cyclical conditions.

Substantial change has taken place, in the institutional sphere, in the form of a strong trend in favor of a mixed economy--Government and private initiative--and adoption of the principle of administrative continuity of the Government.

In materializing the mixed economy, Government was able to delimit precisely its functions and areas of action, which facilitated a better identification of investment opportunities in the private sector. The direct government intervention in a strict sense in the production sector is complementary to, and limited to, fields of national security, the sluggish market, etc. where efficient action by the private sector is impossible.

A planning system was instituted in the area of administration, among other reforms. Out of this, the idea of a "rolling plan" has prevailed and has been joined with budgeting which spans several years, and the full continuity of administration whether in carrying out a program during the period of administration of the same Government or in the period of transition from one Government to another.

Approaching the system from the institutional point of view, it is not difficult for authorities to adopt a strategy aiming at an economic policy which is able to influence the private sector. Being rich in natural resources and blessed with abundant labor which has capability to adapt rapidly to modern production technique even if the present quality of labor is low, economic authorities concentrated their effors on (1) enlarging the ability to invest as much as possible without limiting consumption; (2) improving the efficiency

of investment; and (3) reducing regional and income disparities and gradually neutralizing and eliminating inflation.

A summary of the above policies and strategies is as follows.

(1) Enlargement of investment capacity

1) Domestic aspect: Utilization of private savings both voluntary and involuntary by furnishing a profitable means of saving. It was necessary to liberalize interest paid to depositors by easing limitations imposed by law and to organize the capital market into which these savings could flow. At the same time, various systems were institutionalized as instruments for savings, such as the exemption of income tax on stock earnings, establishment of the Fundo de Garantia de Tempo de Servico which sought to guarantee pensions for workers and the Social Integration Program (Programa de Integracao Social).

2) External aspect: It was sought to increase the ability to pay for debts by the policy of export promotion, by a selective imports policy establishing capability to attract foreign capital within a clearly established framework. For this purpose, the Government initiated a vast program for reform such as altering the exchange system to make credits more easily available, and secondly, providing special incentives.

(2) Improvement of the efficiency of investment

It was seen necessary to make efficient use of comparative advantage, by eliminating distortions which increased risk in investment in the primary sector, particularly including the activities of mining industry.

Gradual elimination of the distortions in relative price of capital/labor which were completely unrelated with the availability of capital and labor factors was also a goal. Though the labor force was plentiful, its cost was excessively high compared with that of capital which was then highly subsidized, because of the former wage policy, and in some

cases the real interest was negative.

Also important was adoption of the equipment replacement program for traditional industrial activities with a low capital/labor ratio. These traditional industries have become economically irrational because of distortions in prices, and consequently their financial capability for replacing obsolete equipment was lost.

(3) Reduction of regional disparities

In addition to the efficient use of comparative advantages--there are many differences between various states--the need for export promotion, various actions by the Federal Government with respect to the necessities of infrastructure development in diverse regions was recognized. Accordingly the following policies were adopted.

New programs of colonization, recolonization and re-organization of private sector activities--including the redistribution of land--according to the different characteristics of population pressure and the necessity of increasing yields of cultivated land.

Special fiscal incentive programs aiming at attracting capital from the Southeast Region to the North, Northeast, Centerwest and South Regions, not only for the primary and secondary sectors but also tertiary sectors were adopted. At the same time, a free trade zone was set up, as a special case, at Manaus.

(4) Neutralization and gradual elimination of inflation

Concerning the neutralization of inflation or the elimination of distortions imposed on the productive system, the basic instrument adopted was monetary correction (correcao monetaria) which was applied principally to the instruments of savings, the exchange system, the fiscal system and wage policy.

With respect to the elimination of inflation, instruments used

were directed to supply as well as demand, besides which the monetary, fiscal and wage policies, and price controls, in use since 1964, which especially influenced the condition of supply of goods and services.

It is obvious that the plans of action presented here do not cover completely the areas taken over by the Government and consequently do not completely cover the special policies formulated. The policy of income redistribution is not presented in full here, although it is reflected in some instruments already mentioned, in certain forms. An educational reform--in quantitative as well as qualitative senses--the low-income housing program and an amplification of medical hospital facilities, for example, were excluded here. The reason that these policies were not considered in this report is not that they are of low importance but that they lie outside the main scope of this study.

2-2. Characteristics of the "Brazilian Model"

(1) Promotion of exports

Though the export promotion policy includes the political instruments adopted in relation to improvement of profitability of investments, elimination of regional discrepancies, the neutralization of and fight against inflation, etc., those instruments related directly with exports are dealt with in this part of the report.

The export promotion policy is, in principle, divided into exchange policy, fiscal policy and credit policy.

The exchange policy, initially based on the "pegged exchange rate", was adjusted first in the sense that the exchange rate must be adjusted with an increase of internal prices. Since the internal prices are influenced by the components of cost, they naturally reflect the prices of products. If the exchange rate were not adjusted, it would force an increase of prices in foreign currencies and thus lead to the loss of competitive power in world markets.

Then the "pegged rate," adjusted by the increase of prices prevailed in Brazil from 1964 to the middle of 1968. This system, however, was

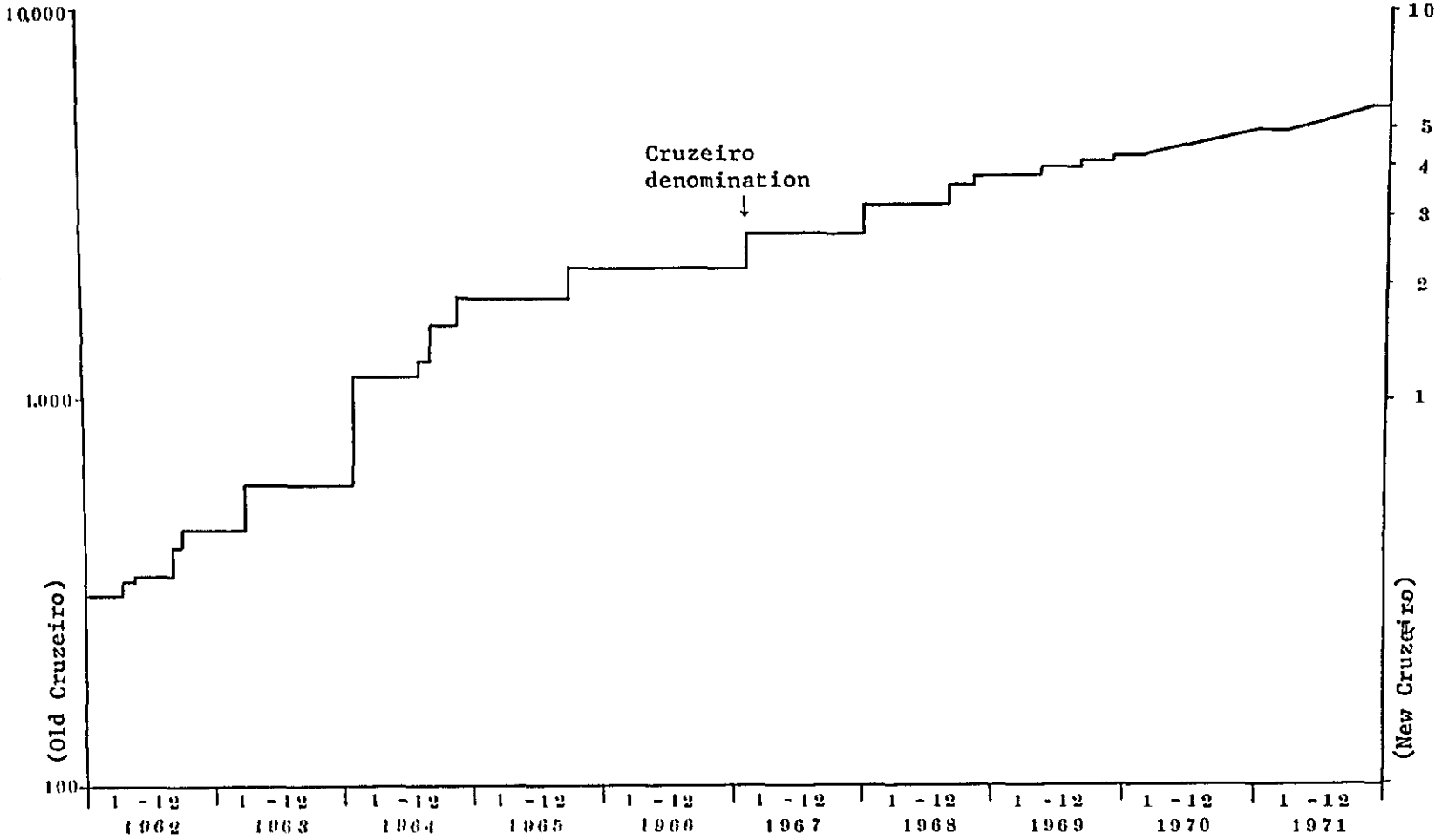
extremely inconvenient for those export activities that require a continual flow of merchandise during all months of the year, because although the internal prices showed a continuous increase, the exchange rate was adjusted only once in twelve or eighteen months. The exportation of primary products could be effected without great problems. But this was not true for exports of mineral ores and other manufacturing products, since the importers preferred a regular flow to an enormous one-time shipment in order to maintain month to month production schedules.

As a consequence, Brazil adopted "crawling peg" system in the middle of 1968 which allowed to devaluate its currency with interval of down to days. By this measure Brazil guaranteed that the continuous increase of production costs would not necessarily be reflected in higher prices of Brazilian products abroad. In this manner, conditions to contract the regular supply of manufacturing products as well as minerals are created.

However, the adoption of the "crawling peg" system was not enough to eliminate certain distortions related to the Brazilian fiscal system proper as well as the equilibrium level of the exchange rate. In the first case, there was the adoption of an indirect tax based on value added, and this affected export products and consequently the foreign prices. To eliminate this effect, a fiscal credit system was adopted for indirect tax on export products. Besides, some exemptions from indirect taxes were introduced when the indirect taxes are incorporated into the prices of raw materials and could not be abated or when Brazilian exports are taxed in Brazil and abroad.

"Drawback"--consistsing of the elimination of taxes and tariffs levied on imported products--was adopted to imported input materials which are incorporated in export products and, also, a system of exemption of tariffs was introduced for industrial equipment intended for the expansion of exports. In the last sense, legislation permitting the importation of a complete industrial factory, as in force in other countries, was recently introduced, since it would not imply the abandonment of external markets.

Fig. 3-5. Changes in the Cruzeiro-Dollar Exchange Rate



Source: FGV, Conjuntura Economica, Nov. 1972

Moreover, concerning the exportation of manufactured products, the exchange, fiscal and credit policies were defined with a view to finance export operations, from production to commercialization. Associating with foreign banks, Brazil has developed the policy of creating multinational banks, by which it is intended to widen the possibilities of offering "suppliers' credit".

Recently, implementation of the export promotion policy has made to emphasize the development of integrated systems, or in other words "export corridors" which are intended to integrate production districts with a large-capacity transport system. At the same time, the Government special incentives to the formation of "trading companies" related to the export corridor or not. In this sense, the first step was to create "consorcios" for exportation. For instance, an informal association of small producers of the same product would be formed in order to meet the demand of large importer and foreign distributers.

(2) Inflation and monetary correction

Concerning the anti-inflation policy adopted by Brazil, two very distinct aspects of Government activities must be pointed out: the decision to gradually reduce inflation and at the same time the necessity to utilize special instruments which neutralize the effects of inflation on the economic system.

It is the traditional explanation in texts which analyze the problems of inflation that the fundamental problem of inflation is the distortion imparted to investment. Because of the unpredictability of the increase of prices, one of the effects of inflation is indeed disincentive to long-term investments and stimulation to the speculative investments. There were additional problems of inflation in Brazil, that is, efforts for saving whether by application for fixed interest securities or variable interest securities was seriously hampered.

In the case of fixed interest securities, the existence of "usury law" which limited interest payable to the depositor to a maximum of

12% per annum--therefore, it was much lower than the inflation rate which reached practically 100% per annum--has made it impossible for depositors to earn income from their capital. It is obvious that those who were able to dodge the "usury law" had always a large opportunity to obtain a certain real interest rate. However, this opportunity was very difficult to obtain in actuality because of runaway inflation, and the increase of prices which always substantially exceeded anticipations even in short term.

In the case of valiable interest securities, there were problems of the delusion of monetary profits. Since the capital of firms is evaluated by its nominal cost, in the same way, the annual cost of depreciation is determined by nominal value, so it was a common phenomenon that the distribution of dividends conglobated not only profit but also distribution of owned capital. Thus, the capital reserves, gained by accumulation of depreciation or by retention of profits, were never sufficient enough to cover the depreciation of revolving capital itself. Consequently, they never covered, also, the cost of replacement of machines and equipments.

The introduction of monetary correction, initiated by its application to government bonds and extended later to all fixed-interest instruments of saving, and further to the bookvalue of capital, made it possible to form new savings either by firms or by individuals.

Though it is applied also to other variables, such as wages, exchange rate, rent etc., the utilization of monetary correction is not to be generalized in sense of eliminating all the distortions caused by inflation, so that it may be wrong to consider that the adoption of monetary correction corresponds to institutionalization of inflation. Contrarily, utilization of monetary correction goes well only when there is also present firm policies for gradual control of inflation, since the proper principle of monetary correction tends to diminish the rhythm of negative acceleration of inflation when decreasing, or to increase the rhythm of acceleration when inflation is present.

The policy of gradual reduction of inflation adopted by Brazil started from an understanding that the inflation conglobated the pressure

of demand as well as of cost. The demand pressure can be corrected by orthodox instruments of anti-inflation policy. It is not the same with cost pressure. Cost pressure, if not liberated from price control--especially in the case of public services responsible for the supply of energy, and transport and communication services--tend to perpetuate the disequilibrium of relative prices and made it difficult, as a consequence, to expand the supply of such goods and services.

Strictly speaking, four factors were identified as basic to inflation in Brazil; expansion of currency, increase of wages, exchange rate and supply of agricultural products.

The substantial expansion of money due to the financing of deficits of the Government budget was not covered by the issuance of Government securities. Consequently, the government set up a complete reform of the fiscal system geared to the proper dynamics of inflation, at the same time tried to make a program to reduce its own expenditures. Ths most important indirect taxes were converted into the value added tax--evasion of which is most difficult--while the Government improved the system of income tax collection. Consequently, the tax revenues increased enough to make it possible to drastically reduce the deficit of the budget, which fell from approximately 5% of the GNP to scarcely 2% in 1972. And this deficit is also financed by issue of government bonds today.

Having made the fiscal position sound, it became easy to control the budget and supply of money.

At the same time, the Government reformed its wage policy, based on legislating a minimum wage for unskilled workers. Contrary to the wage policy in the past, the present wage policy tries to preserve a real purchasing power of wages and to incorporate in it the annual gains of productivities. It was abandoned to enable the income redistribution policy to be incorporated in the wage policy, miniminizing the pressure of wages on the cost of production.

As an additional instrument, the Government introduced a system of price controls intended to discipline the correction of relative prices and to prepare the entreprenuer to exercise the strict control of their

costs.

With this mechanism, a price freezing policy was avoided, strengthening the control of price increases which are accepted through measures that disclose the pressure of cost not absorved by the improvement of productivity in short term.

Moreover, the adoption of more realistic policies, for external and agricultural sectors, made it possible to eliminate gradually the problems of the supply of products. Indeed, both contributed only in limited fashion to the problems of inflation before 1964. However, they came to be utilized, at present, to cause autonomus anti-inflational effects such as in the case of agricultural production.

(3) Balanced growth of agriculture and industry

There are various reasons for the relatively greater balance of production between agriculture and industry that Brazil has been trying to obtain. Among them, the following points are conspicuous: disinflation, expansion of exports, national integration, and reduction of disparities of regional production.

In order to evaluate the importance of the greater balance between agriculture and industry, the following are worthy of mention.

(1) 85% of the total Brazilian exports in 1970 corresponded to primary products. About 50% of the recent increase in exports is due to primary products. Likewise, the expanded production of wheat made it possible to reduce the price of this grain.

(2) The influence of the production of the primary sector in the formation of the GNP is considerable in that it supplies 50% of the input industry requires and 32% of the activities of the tertiary sector are services for the primary sector. Summing up indirect and direct influences concurrent with 28% of GNP, an increase of 1% of products of the primary sector corresponds to 0.5% of the increase of GNP.

(3) About 45% of the Brazilian population lives in rural areas, and produces only 28% of the GNP. The improvement of

- production and productivities of this segment of the population is very important for reduction of income disparities and expansion of internal markets.

(4) The capital/output and import coefficient (import/production) are remarkably lower in the primary sector than the secondary sector.

For Brazil, the possibilities of accelerated growth depend on the improvement of efficiency of investment, increase of the ability to pay for debt and reduction of disequilibria between regions and between individuals, and it is obvious that the strategy must lead to balanced growth between agriculture and industry.

Chaper Four Restraints to Brazil's Economic Development and Possible Approaches to Solution in View of Japan's Experience

We have thus compared the two economies and clarified similarities and differences between them, and with this in mind we now proceed to suggest various problems that Brazil may face in promoting her economic development. In view of Japan's experience of rapid economic growth during the decades of 1950's and 1960's, we will attempt to point out present problems that confront the Brazilian national economy, possible future obstacles to economic development, and solutions.

We might point out the following four issues as obstacles or restraints to the economic development of Brazil.

The first comprises subjective items for economic development, which include entrepreneurial spirit, educational standards and abilities to absorb technology. All these are closely related to potentiality for development of a national economy, making them important determinants of Brazil's future development. Moreover, there are still three more issues that require immediate solutions. They are (1) the need to raise agricultural productivity and to modernize the industrial structure, (2) the need to maintain price stability and secure funds for development without bringing about a balance of payments crisis, and (3) the need to correct income and regional discrepancies and avoid political pressures.

1 Basic Factors for Economic Development

1-1 Entrepreneurship

Capital and technology alone do not constitute sufficient conditions for economic development. There must be entrepreneurs who make effective use of available capital and technology to improve productivity. It has been frequently affirmed by many economists that vigorous entrepreneurial spirit served as the driving force of Japan's economic growth since the Meiji era. Let us first look at how this entrepreneurial spirit was formed and developed in Japan.

When Japan started to modernize after the Meiji Restoration, the entrepreneurial leaders were the Government officials (bureaucrats). The Meiji Government, recognizing that Japan was far less advanced than West European nations, set as its first target catching up to the advanced Western nations, and put forth a two-part industrialization policy. For one, the Government itself became the entrepreneur, managing Government-run factories. For instance, the Tomioka Silk Reeling Factory in Gunma Prefecture made a great contribution to the development of the Japanese silk industry, as the forerunner of model factories subsequently set up in many parts of the nation. The Government was also actively involved in constructing railways and operating munitions plants. The other aspect of the policy called for Government assistance and promotion of private enterprises. This policy was applied to all industrial sectors, including mining and continuing with pottery manufacturing, silk reeling, spinning, weaving, soap making, paint making, foodstuff processing, iron proudction and machinery engineering. Later, these Government mines and factories were transferred to private ownership.

Under such a condition private entrepreneurs gradually came to the fore, and took charge of modern industry. Among them were men who had been powerful government-sanctioned merchants since pre-modern days, and they became leaders of modern industry, such as members of the Mitsui and Sumitomo families. But many of the new entrepreneurs came from lower samurai class, peasants and petty merchants. They can be classified into the following three categories.[1)]

(1) Leader-type entrepreneurs who made great efforts for the development of modern industry

(2) Protege merchant-type of entrepreneurs, who prospered by securing special privileges from the Government

(3) Common entrepreneurs, belonging to none of the above

As the representative entrepreneur of the first group we may cite Eiichi Shibusawa. He was born the son of a rich farmer, and, on resigning from the Ministry of Finance in 1873 at 34 years of age, went to work in the private sector to greatly contribute to the founding and development of many enterprises in the capacity of a great leader. His official position was the President of the Daiichi Bank, but founded and guided many other national banks and private banks, as well as helping found such other industries as paper milling (Oji Paper Co.), spinning (Osaka Spinning Co.), maritime transportation (Kyodo Marine Transportation Co., and Toyo Shipping Co.), insurance (Tokyo Marine & Fire Insurance Co.), railways (Japan Railways Co.), foodstuff processing (Nippon Sugar Manufacturing Co. and Sapporo Breweries, Ltd.), cement (Asano Cement Co.), shipbuilding (Ishikawajima Shipbuilding Co.), and public utilities (Tokyo Gas Co. and Tokyo Electric Co.). But he concerned himself with founding and managing so many enterprises not so much to accumulate his own wealth but rather to act on his belief that Japan's most critical task in the face of fear of colonization by Western advanced nations was to develop her own industry. And what formed the backbone of such thinking was the Confucian ideas. In fact, he is reported that he "never was without 'The Analects of Confucius' and an abacus."

Among the second type of entrepreneurs the most representative figure is Yataro Iwasaki, the founder of Mitsubishi zaibatsu. He came from a low ranking samurai family, but secured close connections with political elements in power to expand his enterprise (in maritime transportation) with strong protection by the Government. He accumulated great wealth thereby. In contrast to Mitsubishi's maritime transporation venture, Mitsui, another zaibatsu, made most of its early development in the fields of banking and trading. Rizaemon Minomura, then supreme head of Mitsui zaibatsu, pleaded with high-ranking officials and secured rights

for Mitsui Bank, founded in 1876, to handle Government funds. When he established Mitsui Trading Co. as the succeeding body to various existing companies in his control, he appealed to the Government and obtained permission to handle government bills for land tax paid in the form of rice, which eventually became the main item of business for the new trading company. Other prominent merchants of this type were Zenjiro Yasuda, Kihachiro Okura, Ichibei Koga, Soichiro Asano and Masazo Kawasaki. Yasuda handled Government funds, Okura imported munitions, Koga operated copper mines, Asano ran cement factories, and Kawasaki bought shipyards from the Government (at exceptionally low prices), in solidifying the basis of their operations. From their activities were born more zaibatsu.

Entrepreneurs belonging to none of the above two types were common in textile industries. For instance, Takeo Yamabe of Osaka Spinning Co., Denshichi Ito of Mie Spinning Co. and Juemon Tashiro of Amagasaki Spinning Co. were among better known personalities in spinning. They developed mostly on the basis of their own efforts. It is noteworthy that some of these ordinary entrepreneurs did not seek merely prosperity of their own firms but went about their business activities with nationalism in their mind.

These early modern industires developed swiftly with the stimuli provided by Sino-Japanese War (1894-95) and Russo-Japanese War (1904-05) and by riding on the great boom created by World War I. After World War I, however, the economy suffered a setback as a reaction to the wartime prosperity. This recession caused many firms to merge or be taken over by other, stronger companies, and the zaibatsus' ability to control the industry gradually grew. Zaibatsu control reached its peak in around 1928, and by this time Mitsui and Mitsubishi zaibatsu had come to embrace all principal firms in Japan under their umbrella. But those zaibatsu were strong mainly in the fields of trade, finance, mining and light industry, specifically lacking heavy industry. It was for this reason that new zaibatsu grew mainly in chemical, automobile and aviation fields as heavy-chemical industrialization progressed.

We can name Nippon Soda Co., Nippon Chisso Co., Nippon Industries, Nippon Denko Co., and Riken as typical concerns. Their leaders were mostly men with a background in engineering and their firms showed a strong tendency to be related to munitions production.

After World War II, these zaibatsu and other large holding companies were dissolved by the United States Occupation Forces, ushering in a new age of keen inter-firm competition.This competition forced firms to carry sweeping managerial reforms. The prewar Japanese economy developed by introducing foreign technology, but it was forced to make corresponding managerial changes in the postwar era as new technologies, such as those involving electronics, high-molecular chemistry and automation were adopted. These managerial reforms were accomplished by copying, with varying degrees of modification, American methods, and the Japan Productivity Center, established in 1955, served as the central organization for such a task. It was established largely with American initiative, and it has been quite active, spending about 10 billion yen within ten years following establishment (2.3 billion yen of this came from the United States Government). It dispatched inspection missions to the United States, sponsored management seminars, and fostered establishment of joint labor-management consultative committees in industry among other activities and projects. It made a great contribution to the introduction of modern managerial practices.

The Japan Management Association also played a major role in introducing and spreading modern managerial techniques. It was established in 1942 (during the war) and worked for production rationalization in iron and steel, and aviation, during the war. After the end of the war it resumed its activities as early as in late 1945. It was engaged in introducing and spreading techniques of production process control, and Zero Defect (ZD) programs and is now an important consultant organization specializing in production engineering and managerial techniques.

In the background of the postwar economic development of Japan has been such active introduction of managerial techniques by private business which enabled managerial transformation from the ewar, zaibatsu-centered,

patrimonial management to more efficient, modern ways, which are more suitable to the conditions of competition, internationalization and technological progress. Another characteristic feature of Japanese entrepreneurs is that unlike in Western Europe and today's developing nations, business activities were consistently highly evaluated in terms of social status in Japan, and entrepreneurs were given the elite status with bureaucrats, scholars and (prior to World War II) generals. This has become even stronger after the war, when military officers and bureaucrats have become less highly evaluated. Most of the cream of university graduates is skimmed by the business world.

In contrast to such a situation in Japan, Brazil still has a great number of family-run enterprises. Most college graduates want to practice law, leaving relatively few who are interested in a business career. The Government plays a big role in all areas of economic activities. This may be inevitable due to the nature of private business activities, but entrepreneurs must be trained and their number increased.

1-2 Human Resources and Education

It is a well known fact that a high educational level served an important factor in Japan's economic growth. It may be quite true that Japan had advantages over today's developing nations with respect to education, because Japan possessed a considerably high (according to contemporary standards) educational level for the general populace even before the Meiji Restoration, for various historical reasons. But it was during the Meiji era that the Japanese Government recognized the importance of education and placed its full weight behind the educational efforts of the nation.

In 1869, a year after the Meiji Restoration, the Government issued a notification throughout the nation to build primary schools in all prefectures, and to 'educate (children) in the knowledge of national policy and trend of the time, and in the way of fidelity and loyalty'. And in November, 1871, the Government initiated research for a nationally uniform school system after the fashion of Western Europe and America. In August the following year the law governing the school system and the

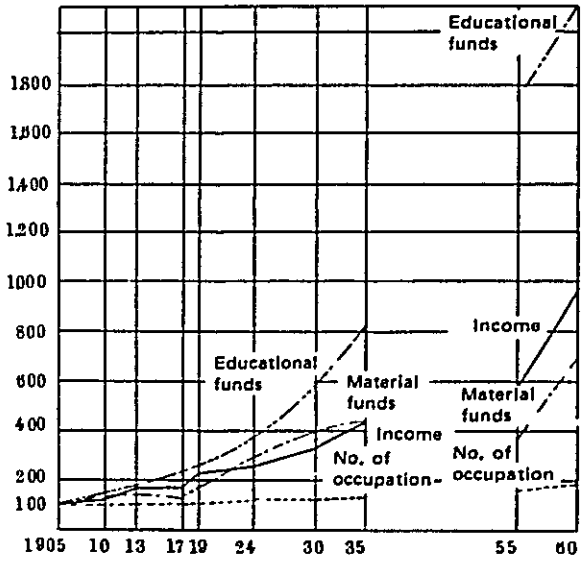
Imperial Prescript on Education was issued. The school system borrowed a great deal from the French system with the nation dividing into eight school zones with one national university in each zone; with each zone divided into 32 middle-school zones with one secondary school in each; with each of these subdivisions further divided into 210 primary school zones with about 600 residents in each. His Majesty's words spoke of the meaning of school education to lie solely in individual's benefits and happiness and not for the sake of the nation, so that its burden should be borne by the subjects themselves.

But this philosophy of education underwent some change as the Government's policy to enrich the country and strengthen its military came to the fore. In 1880 a more centralized compulsory educational system was established. Even though the country was poor in economic terms, four-year compulsory education was forcefully put into effect in 1886. As can be seen, education in Japan was forced upon the people from above at the beginning, but due to the considerable prevalence of a private tutoring system in the pre-modern era the promulgation of the school system law unmistakably stimulated the general populace's zeal for education. In fact, the rate of school attendance, already as high as 28.1% in 1873 (39.9% for boys and 15.1% for girls), went up to 45.0% in 1887 (60.3% for boys and 28.3% for girls), and continued to rise until it reached 91.6% in 1902 (95.8% for boys and 87.3% for girls). In 1908 the compulsory education was extended to the duration of six years, but the attendance rate exceeded 98% at that time, achieving in effect perfect primary schooling.

Along with such advances in the field of compulsory education, secondary and higher education also made gradual progress, until the compulsory schooling was extended to nine years by a postwar reform. Supplementary and occupational training also gradually received more attention. It is quite clear that all these efforts combined raised the intellectural level of the nation as a whole and helped absorb new technology introduced from advanced European countries and the United States.

This subject of contributions made by education to economic development has been extensively studied by many scholars notably from the United States. For our present purpose let us take up the White Paper on Education issued in 1962 by the Japanese Ministry of Education, Growth and Education in Japan. Fig. 4-1 shows the trends of national income, capital in material form and capital in educational form during the period of 1905-60.

Fig. 4-1 Changes in income, labor force, material & educational funds



Source: Ministry of Education, Growth and Education in Japan, 1962

What is meant by "capital in education form" here is the sum total of money the people spent on education. As we examine the indices for after 1905, we see that capital in the form of education grew at a much faster pace than capital in material form. In other words we may conclude that Japanese economic growth was given impetus not only by capital accumulation in material form but also by educational investment in human resources to a considerable extent.[2)]

Let us now compare the Japanese educational standard with the world level, as in Fig. 4-2, from which we see that in Japan primary education enrollment was high from the beginning, and climbed to just below 100% rather quickly, after which this high level was maintained. Secondary education also advanced rapidly, narrowing the gap between the primary and secondary levels of education. Higher education also advanced rapily, and, generally, the higher educational standard of the Japanese in comparison with Europeans and American should indicate a considerable untapped potential.

Last, we list the main conclusions of the analysis concerning the contribution of education to the economic growth of Japan as has been revealed in the Educational White Paper.

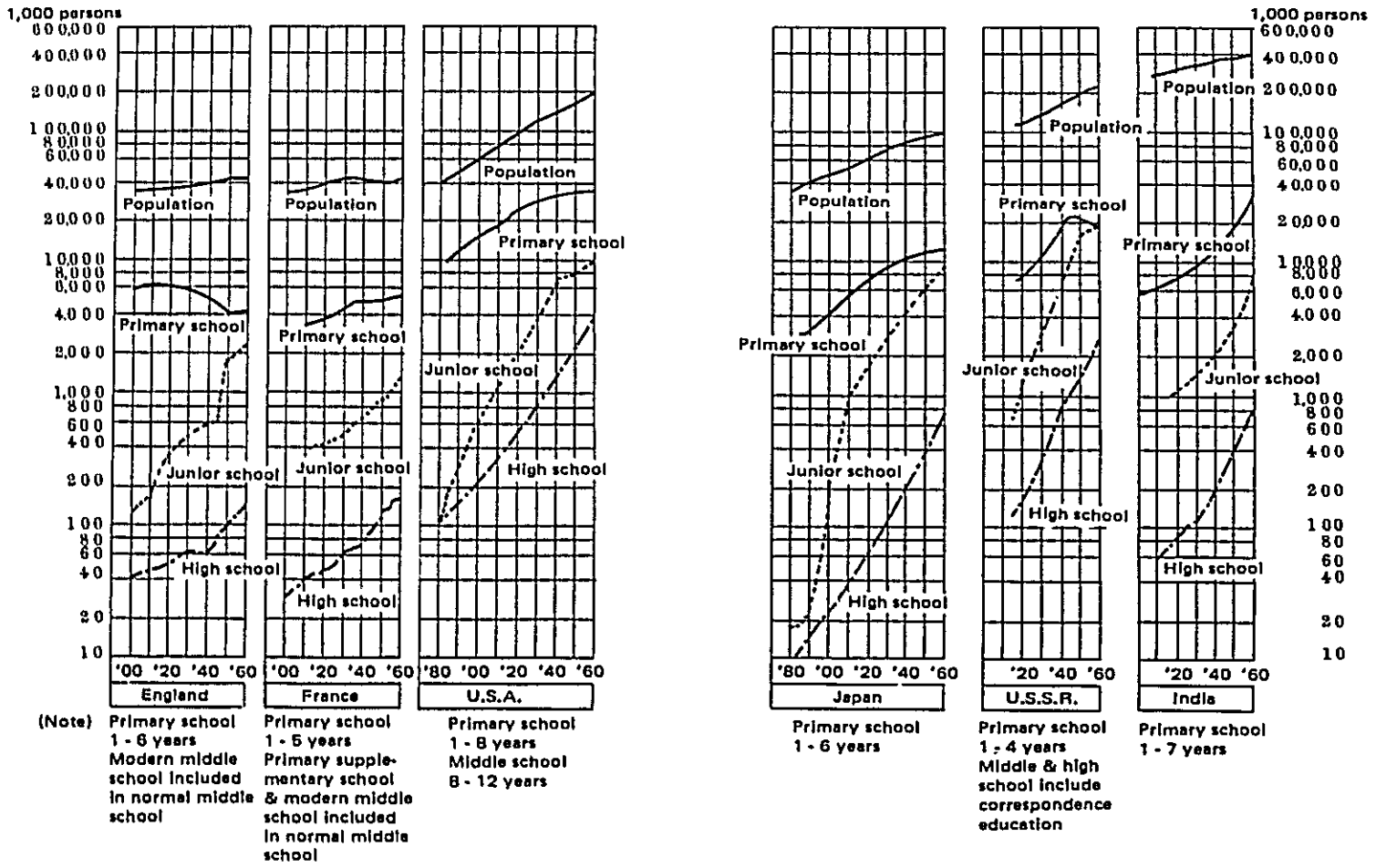
(1) Between 1905 and 1960 the number of educated persons in Japan increased 1.7-fold, the capital in material form 7-fold, and the national income 10-fold, while capital in educational form increased by 23 times. This shows that the driving force of Japan's economic growth since Meiji has been largely related to education.

(2) However, this trend has been markedly weakened in recent years: During the 5-year period after 1955 the capital in material form underwent a 18-fold increase, while capital in educational form increased only 13-fold, this producing a lower rate of investment in education in recent years.

(3) By a rough calculation, about 25% of the increase in Japan's national income between 1930 and 1955 can be attributed to effects of educational investment (this being a very tentative figure, it cannot be compared to the same figures of 30% for the USSR and 33% for the United States).

(4) Propagation of education in Japan was extremely rapid and extensive, as in the case of the United States of Soviet Union. Primary education reached its highest level during the Meiji era, and secondary and higher education (including higher education for girls) also spread rapidly. The Japanese accomplishment was in no way inferior to that of European countries or the United States.

Fig. 4-2 Changing number of educational grade students in each countries



(Source) "The Growth & Economy in Japan" published by the Ministry of Education, 1962

(5) In spite of the above, however, close observation reveals that the number of students in secondary and higher educational institutions combined grew in parallel with increase in mining and manufacturing production. General statement (1) of this list thus is not applicable to higher education.

(6) But it constitutes a characteristic feature of Japanese higher education that it has always been accessible to people from all walks of life. For instance, the percentage of those Tokyo University students out of the commoners (as opposed to members of the aristocracy and samurai's descendants) increased from 25.5% in 1878 to 48.1% in 1885.

(7) There are many latent problems in higher education in Japan. In particular the declining ratio of students enrolled in technical and scientific areas of study in recent years constitutes a potentially grave problem. This ratio was 29% in 1950 and 26.6% in 1960, considerably lower than the Soviet Union's 51%, Great Britain's 49%, West Germany's 42% and United States' 30%.

(8) In terms of the ratio of school attendance Japan fares better than might be expected from the prevailing living standard of the nation, as is also true in the Soviet Union. The zeal of Japanese population for education is apparent. But the relatively high share of the burden is borne by the people, with a correspondingly low rate of public financing (especially for higher education), so that education is one area where the Government may exert more efforts.

The Brazilian Government also has been making great efforts for propagation of education. The First National Development Plan (1972-74) seeks to raise the school attendance rate from 73% (1970) to 80% in 1974 and to reduce the number of the illiterate (age 15 to 35) from 8 million to 2 million. And, educational investment during this period is expected to reach the total amount of Cr$31.2 billion in 1972 price terms, out of which Cr$28 billion is to be invested in social overhead.

According to a study made by Langoni, about 20% of the rate of economic growth in Brazil between 1950 and 1959 is attributable to the effects of educational investment.[3)]

Judging from the Japanese experience as described above, prevalence of education in Brazil will not only raise the rate of economic progress but also reduce pressure on employment by absorbing a good number of persons from the non-productive age bracket of the population, and further control population increases and equalize income distribution as two long-term effects. But in order to bring about these effects to the fore, Brazil must first work for wider diffusion of primary education and for a greater school attendance rate in compulsory education (six years long). And adoption of a school lunch program deserves some consideration for the benefit of children from poor families.

1-3 Introduction and Adaptation of Foreign Technology

Today's developing nations are keenly interested in how Japan introduced foreign technology and made best use of it in accomplishing her economic growth. What are the reasons that enabled Japan to absorb and digest foreign technology during the past century and to develop to become the third biggest industrial power of the world? We naturally see many factors in operation. One is the fact that Japan, as the first country to deliberately set out to industrialize itself (that is, the world's first developing nation), was quite ready and eager to accept Western civilization or technology as early as the beginning of the Meiji era, and offered no great resistance to the inflow of Western civilization, unlike some developing countries today. And this is due partly to the tradition of "Western learning" during the Edo era, when the country was closed to foreign powers but selected aspects of Western learning such as medicine were introduced through the Dutch and were rather well accepted among national leaders. Another factor making for little resistance to introduction of Western culture was the relatively high literacy rate as of the end of the Edo era. This served as a favorable factor in producing a labor force to serve modern industry.[4)]

The second reason for smooth introduction and adaptation of foreign technology in Japan was the general positive attitude of Japan to imitation and absorption of foreign technology. The Meiji Government in particular employed foreign engineers and teachers at a high salary to transplant advanced technology to the country. Table 4-1 shows the numbers of such foreigners in several areas.

Table 4-1. Number of Foreigners Employed by the Meiji Government

	Teachers	Engineers	Managers	Skilled workers	Others	Total
1872	102	127	43	46	51	369
1874	151	213	68	27	65	524
1876	129	170	60	26	84	469
1878	101	118	51	7	44	321
1880	76	103	40	6	12	237

Source: Tobata, Seiichi, "Creators of Japan's Capitalism," 1964.

As to the method of technological induction, at first Japan adopted the pattern of importing all the equipment and machinery, with foreign engineers assembling and operating the entire establishment; but soon import of completed items was avoided as much as possible and the trend became one of producing as much as possible in Japan. In case of a large machine, attachments came to be produced in Japan, and only the most difficult parts to make were imported. Only at the next stage was domestic production of these parts attempted. Ships and aeroplanes were domestically produced after going through a similar process. And this method was applied not only to production of "things" but also to the production of "people" (technicians and engineers) and "information" (know-how, such as design plans).[5)]

The third--and the biggest--reason was the gap existing between the domestic technological standard and that in foreign countries. On this point Dr. Saburo Okita has the following to say:

"Throughout the history of Japan's modernization since the early Meiji period the importation of foreign technology played a crucial role in promoting economic progress. This happened again in the course of postwar development. During and shortly after the War Japan was separated from the technological progress of the outside world. As contacts with foreign countries were restored the import of "know-how" from highly developed countries increased sharply. The postwar investment boom--in particular, that of 1959-64--was based mainly on the importation of technology and its application in the actual production process. The large gap which existed after the War between foreign and domestic levels of technology and the resulting catching-up process stimulated investment and promoted rapid economic growth."[6)]

Dr. Okita goes on to mention the following two factors as characteristics of technological induction in Japan. For one, Japan had been deprived of her rights to control her own import duties under the pressures of Western powers until 1899, when unfair treaties were finally revised to correct the situation. This had forced Japanese manufacturers from the very beginning to be strongly conscious of production costs, the same attitude applying also to introduction and adoption of foreign technology. The other factor mentioned by Dr. Okita in this regard is the constant efforts of Japanese entrepreneurs to further improve and develop foreign technology. There are numerous cases of improvements thus achieved yielding far greater productivity than the original technology from overseas. Some blast-furnaces, for instance, operate at the rate of 2,500 tons per day even though they were first designed for production of only 1,500 tons per day.

This experience of Japan may have much to offer to Brazilian efforts to introduce technology. As has been pointed out by Dr. Okita, technological gaps between today's developing nations and advanced nations are far greater than those faced by Japan a century ago, and potentials for the newly developing countries can be said to be proportionately greater.

However, in order to take advantage of such technological gaps the developing countries must be ready to receive and digest the new technology, as Japan was. Japan was equipped with favorable conditions for technological induction, such as considerable capital accumulation and the over-all social atmosphere. And the Japanese were good at adapting foreign technology to the existing conditions in Japan.[7] In many cases developing countries show great interest to the most advanced equipment in the world without paying sufficient attention to the cost and how capital and labor factors are combined. This may not be a correct attitude after all.

2. Agricultural Production and Changes in Industrial Structure

The role of agriculture in the economic growth of Japan since the Meiji Period has been significant, as can be seen in the steady rise of agricultural production as shown in Tables 4-2 and 4-3. While the average size of a farming unit declined from approximately one hectare in 1878 to 0.8 hectare in 1962, more important are such facts as that the total area under cultivation increased greatly, and the rice production per hectare increased from 1.8 metric tons (unpolished rice) in 1868-82 to 3.6 metric tons in 1956-60. Futhermore, the early increase in agricultural production was accomplished without an increase in the agricultural labor force. In fact, the total agricultural labor force showed a slight decrease from 15.5 million in 1878 to 14.5 million in 1912.[8]

The development of Japanese agriculture has passed through the following three stages:

(1) The stage of rapid growth from the Meiji Restoration to World War I (1868-1918);

(2) The stage of slower growth from the end of World War I to the start of World War II (1919-1945); and

(3) The stage of renewed rapid growth from end of World War II to today (1945-today).

During the first stage the average annual growth rate of real agricultural production was 2.3%, exceeding the population growth rate.

Table 4-2. Input and Output of Agriculture (Five-year averages)

F.Y.	Production of rice (1,000 metric ton)		Yield of rice per hectare (ton)		Net value of Agriculture Production 1928-32 prices		Agri. Production Index	F.Y.	Investment Index of Circulating Capital
1878~82	4,629	100 [a]	1.81	100 [a]	825	100 [a]	100 [a]	1880~84	100 [a]
1883~87	5,070	109	1.94	107	934	113	112	1885~89	131
1888~92	5,833	126	2.13	118	1,089	131	123	1890~94	160
1893~97	5,651	122	2.04	113	1,196	144	129	1895~99	142
1898~1902	6,372	138	2.25	125	1,432	173	147	1900~04	166
1903~07	6,943	150	2.41	133	1,517	183	158	1905~09	199
1908~12	7,588	164	2.57	142	1,722	208	176	1910~14	245
1913~17	8,286	179	2.71	150	1,829	221	198	1915~19	310
1913~17	8,286	100	2.71	100	1,829	100	100	1915~19	100
1918~22	8,838	107	2.83	104	1,975	108	106	1920~24	100
1923~27	8,700	105	2.76	102	1,901	104	109	1925~29	116
1928~32	9,070	109	2.81	104	2,109	115	124	1930~34	122
1933~37	9,414	114	2.95	109	2,305	126	125	1935~39	123
1938~42	9,527	115	2.99	110	—	—	—		
1946~50	9,401	100	3.19	100	2,611	100	—	1945~49	100
1951~55	9,634	102	3.14	98	3,081	118	100	1950~54	191
1956~60	11,943	127	3.62	113	3,289	126	122	1955~59	292

Note: Index numbers according to stage
Source: Ministry of Agriculture and Forestry, EPA

In the same period the productivity of farm land doubled and labor productivity more than doubled, with little change in the agricultural population. Increases in productivity made it possible to supply foodstuffs to the increasing urban population, and helped control inflationary pressures due to food shortages. Exports of agricultural product--particularly tea and raw silk--also increased during this period bringing in foreign currency which helped buy necessary materials and machinery for industrial development.

There were two basic types of factors involved in this great development in agriculture: technological and institutional. Among the former belong such items as physical improvement of the land, development and adoption of improved varieties and of methods of cultivation, and application of domestic and imported fertilizer. Among the latter factors we may mention the expansion of the domestic market through the dissolution of the feudal clan system.

During the second stage, the rate of development in Japanese agriculture declined, seriously affecting other sectors of the economy. Increasing urban population could not be supplied with sufficient food, resulting in dependency upon increased production of rice in Japan's colonies of Korea and Taiwan. This in turn brought about further stagnation of Japanese agriculture, to which was added the damage inflicted on the agricultural sector by the stock market crash of 1929 and consequent worldwide depression.

During the third stage, Japanese agriculture showed once again remarkable growth, for the following five reasons:[9)]

(1) As a result of the land reform, carried out as planned by the U.S. Occupation Forces, the number of tenant farmers greatly decreased and absentee landlords were virtually eliminated;

(2) The dissolution of the Japanese Empire eliminated competition with colonies, and food imports were limited due to the global food shortage and scarcity of foreign currency in Japan. This caused the Government to change its policy of price control from price suppression to provision of price incentives.

Table 4-3. Net Value of Production by Sector (1928-32 prices)

(Unit: million yen)

Fiscal year	Primary industry		Secondary industry		Tertiary industry	
1888～92	1,150	100 [a]	356	100 [a]	664	100 [a]
1893～97	1,467	128	528	148	892	134
1898～1902	1,757	153	793	223	1,177	177
1903～07	1,791	156	803	226	1,354	204
1908～12	2,040	177	1,037	291	1,820	274
1913～17	2,025	176	1,479	415	2,150	324
1913～17	2,025	100	1,479	100	2,150	100
1918～22	2,409	119	1,826	123	2,977	138
1923～27	2,551	126	2,253	152	4,529	211
1928～32	2,552	126	3,373	228	6,463	300
1933～37	2,862	141	4,713	318	7,420	345
1938～42	3,156	156	7,050	477	8,534	397
1946～50	3,289	100	3,134	100	4,005	100
1951～55	3,989	121	5,440	174	7,915	198
1956～60	4,471	136	9,097	290	12,350	308

Note: (a) Calculated by index by stage.

Sources: For prior to 1942, calculated from Ohkawa, op. cit., p. 17. For after 1946, EPA, White Paper on National Earnings, 1960.

(3) Until 1953 agricultural products enjoyed very favorable terms of trade, which enabled the agricultural sector to accumulate considerable funds and pay debts incurred during the period of postwar inflation.

(4) The loss of overseas colonies, and the postwar food shortage, made the Government adopt more positive measures to increase the area of farm land, and improve it. This took the form of "consolidated" investments which could not be made by individual farmers, and a result was effective land development.

(5) The postwar technological progress in non-agricultural sectors had great impact on agriculture. New technology was applied so as to benefit the agricultural population, for instance, in the form of small machinery for farm use, and agricultural chemicals. The changes in the consumption patterns accompanying postwar prosperity brought about diversification of agriculture, especially through development of stock breeding and dairy industries.

Particularly important among the above five are the first, or the institutional factor; the second, or price-supporting system, and the last, general influences of the entire economy on agriculture. For the first factor, one cannot naturally overlook economic incentives directed at former tenant farmers liberated by land reform. We should also point out the significant role played by agricultural cooperatives in providing credit, shipping product to market and supplying agricultural inputs. With respect to the second factor one should note the production increase brought about by the policy of maintaining high government purchase prices for rice. This, however, has made domestic staple farm products are more expensive than imports by 40 to 50%.

In the case of the fifth factor, extremely close interrelations between agriculture and other sectors of the economy can be cited as a characteristic feature of agricultureal development in Japan. Japanese agriculture not only served as the origin of the general demand, the source of labor and source of capability to earn foreign currency, but also was

the source of supply of capital in the form of savings during the process of capital accumulation, and the source of supply of financial funds to other sectors of the economy. Particularly in the postwar era the high growth rate of the economy brought about a torrent of migration of labor from agriculture to the secondary and tertiary sectors (See Table 4-4), lessening the weight of the primary sector in the entire economy of the nation. What is to be noted for Japan is the fact that farm areas also provided many employment opportunities, raising the rate of the so-called "part-time agriculture." This raised farm income and closed the income gap with other industries rather effectively. For instance, it is reported that about 80% of all factories had been dispersed throughout the countryside by around 1883, and over 30% of the then agricultural population had been engaged in non-agricultural jobs. According to agricultural statistics issued by the Ministry of Agriculture and Forestry the ratio of "part-time farming" households in the total farm population increased from 54% in 1935 to 66% in 1960. Table 4-5 shows the high ratio of income obtained through non-agricultural activities in the total income received by the agricultural population, which was 47% in 1960.

In comparing Brazilian agriculture with that of Japan, one immediately notes that the former is characterized by its large scale and extensiveness while Japan's is a small scale, labor-intensive agriculture. Despite this overwhelming difference we may point out the following from Japan's experience. Of particular importance is the strengthening of mutual relations between agriculture and other sectors of the economy. With the relatively small ability of the industrial sector to absorb labor, Brazil seems to face considerable difficulties in her attempt at transforming her industrial structure through traditional methods. This leads to the necessity of establishing linkage, from structural aspects, between urban and rural sectors. According to Prof. Hiroshi Saito of University of Sao Paulo, one effective method is to organize farm cooperatives. He has suggested the following two methods in concrete terms in relation to Brazilian Government's "export corridors" plans presently under way:

Table 4-4. Importance of Agriculture in the Japanese Economy

F.Y.	(1) GNP 兆	(2) Agricultural production	(2) / (1)	(3) Total 万 employees	(4) Employed in agriculture	(4) / (3)
			%			%
1950	39,467	8,056	20.4	3,563	1,610	45.4
1955	82,355	13,497	16.4	4,152	1,541	37.1
1960	146,789	14,714	10.0	4,485	1,339	29.8
1961	177,375	15,865	8.9	4,529	1,303	28.8
1962	192,900	17,782	9.2	4,575	1,264	27.6
1963	223,834	18,367	8.2	4,638	1,200	25.9
1964	256,881	19,994	7.8	4,690	1,148	24.5

Note: (1) & (2) 100million yen
(3) & (4) 10,000 persons
Source: Ministry if Agriculture, Social Accounts for Agriculture and Agricultural Households, 1965

Table 4-5. Key Indicators of Agricultural Economy (Average of all households)

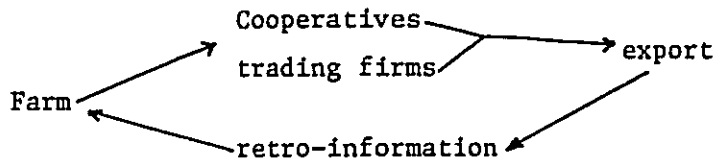
	1957	1958	1959	1960
Composition of farm income				
Income from agriculture	56.6%	56.3%	55.3%	53.3%
Income sources other than Agri.	43.4	43.7	44.5	46.7
Income of a farm household	100.0	100.0	100.0	100.0
Percentage of cash in				
Gross agricultural income	62.6	64.5	67.7	70.2
Total living cost	61.6	62.3	64.4	67.3
Engel's coefficient	48.4	47.9	45.9	43.6

Source: Ministry of Agriculture Agricultural Economic Survey

(1) The cooperative central headquarters should come to an agreement, covering three to five years for trade with exporters, and maintain export quality of farm products, grow varieties suitable for export and among other measures, through its organization, which individual cooperatives should be held responsible for carrying out these measures.

(2) Brazilian companies affiliated with a Japanese trading firms or with Japanese firms through joint ventures in Brazil, should take over some of the roles of the cooperatives in carrying out the above activities.

He mentions the importance of feed-back by a Government agency in the field of communication in both cases. The following diagram may show the general outline of the above scheme.



The second point we may make from Japan's experience in agriculture is the need to introduce such labor-intensive industries as foodstuff processing and textile manufacturing. This can be related to the intention of the Brazilian Government to establish agro-business. Thus, strengthening relations between agriculture and other sectors of the economy seems to be of the most important measure to be adopted for bringing about changes in industrial strucutre.

3 Steady Growth, Stable Prices and Balance in International Payment

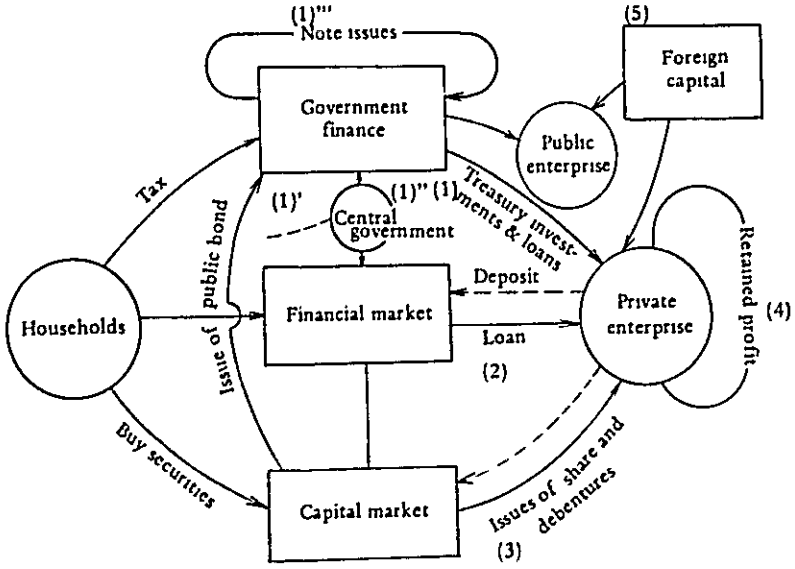
With the object of her economic policy being set in "economic growth," and by making it a lasting phenomenon, Brazil aims at becoming one of the world's advanced nations by the end of this century.

To accomplish this continuous growth, it is necessary to increase the share of national resources allocated to investment and increase the GNP through increased return on investment. But this in turn requires that

two conditions be met.

First, a smooth supply of growth currency for the purpose of investment, and second, increasing effective demand in proportion to expanding productive capacity.

The first is nothing but the issue of savings and investment, which has already been taken up in a statistical frame of reference in Chapter Two, 4-2. That is to say, funds for investment are to be secured from the sources and through the routes shown in the diagram below.



Industrial funds will be loaned to firms through routes (1) to (5). The most desirable ones among them (excluding (4) retained profit) would be (2) the financial market and (3), the capital market, because these two are by nature intermediary institutions linking spontaneous private savings and investment. But since many developing countries are forced to carry out investment activities without a well-developed financial and capital market, they inevitably have to depend on the routes (1) and investments either Government's treasury loans or induction of foreign capital (5). Now, these treasury loans and investments should come from

tax revenues, which depend on the size of the national income, i.e. tax-bearing abilities, and the efficiency of the tax collecting organization. One cannot expect to gain much income from tax revenues, however, at a stage of development where economic growth has not been securely placed in orbit and when neither the taxation system nor tax collecting organization is well established. The alternative is (1)' issuance of bonds (government borrowing). But this method again is closely related to the extent that the capital market is established, making it difficult to issue bonds to be purchased by private resources in developing countries. The next alternative, then, is, issuance of bonds to be accepted by the central bank, which in effect is precisely the same as (1)'' greater issuance of central bank notes. The Government may also issue irredeemable money (1)'''. That in developing countries fiscal funds occupy a prominent place, with the result that the role of the Government is made more important, is due precisely to this fact that when financial and capital market is not well established, its functions should be taken over by Government fiscal measures.

But it is quite conceivable that Government issuance of irredeemable notes and bonds to be accepted by the central bank may be inflationary. One central issue then is how not to aggravate inflation when improving the ability of the economy to yield greater returns on investment.

Another methods of securing capital is induction of foreign capital. There are other important sources of capital--notably foreign aid, but this subject does not lie within the scope of this study. In dealing with induction of foreign capital, the first-stage requirement is that there exist effective, efficient systems for accommodating foreign investment, without which private foreign investors cannot be attracted. This really amounts to economic stability and favorable judgement by the investor on the growth potential (or, ultimately, the capacity to obtain a satisfactory return on investment). In many cases in developing countries, the foreign investor's partner is the Government of the developing country, or a semi-Governmental or Government-related enterprise, which makes it critical that administrative abilities of said Government be highly evaluated. The second-stage problem of foreign capital induction is the impact of debt servicing on the balance of international payments.

If repayment of capital and interest payments grow to significantly influence invisible trade, it will be difficult to maintain a balance in the current account, which also reflects the over-all balance. Current transactions may even show deficits. To avoid this difficulty it is necessary to wait for export capabilities of the economy to grow, and press for policies which will enable maintenance of balance between foreign capital inflow, ability to provide adequate return on investment, and ability to export.

The other condition for sustained growth is

$$\dot{O}=\dot{Y}$$

with O standing for output capabilities and Y for effective demand. This Y is the sum of private consumption, private investment, Government consumption, Government investment, and the amount of exports minus imports. In developing countries, Government investment and exports will loom large in calculating this figure, and within Government investment not only general administrative investment but also investment in Government enterprises will play a large role.

Let us now apply this general observation to the particular case of the Japanese economy. It was during the first years of the Meiji era and several years following the end of the last war that Japan overwhelmingly depended on foreign borrowings and irredeemable notes to power the economy. The former period was the period of primitive accumulation at the beginning of capitalistic development, where the three main sources of fiscal funds--issuance of Government inconvertible notes, (Dajyo-kansatsu) borrowings from wealthy merchants and bonds issued in Great Britain--served their purpose. Table 4-6 shows their figures.

Table 4-6. Government Revenue Composition in the Early Meiji Period

	Total revenue (1,000 yen)	Composition (total earnings = 100) Currency issued %	Public Bonds & Loans %	Tax revenue %	Others %
1868	33,089	72.6	14.3	8.3	4.8
1869	34,438	69.6	2.6	11.2	16.6
1870	20,959	25.5	22.8	42.3	9.4
1871	22,145	9.7	-	56.0	34.3

Source: Koichi Emi, "The Mechanism of Savings Investment and Fiscal Balance" Keizai Kenkyu, April 1965.

Issuance of irredeemable notes during the early years of the Meiji period is apparent in this Table. What is important here is the fact that irredeemable notes issurance is concentrated on the first two years of the era, and that the share of taxes exceeds that of irredeemable notes in 1870 and 1871. It should also be noted that 22.8% of the total of bonds and borrowings were bonds issued in the British currency in the amount of 4,880,000 yen and paying 9% interest, for the specific purpose of constructing a railway (Japan's first) between Shimbashi in central Tokyo and Yokohama. For these reasons the early issuance of irredeemable notes in large amounts was not inflationary. Instead the situation immediately returned to normal fiscal structure based on taxes. We note that funds raised through such means as described above were not directed to consumption but to social overhead.

Table 4-7. General Account, Special Account, Reconstruction Financing
(100 million yen)

F.Y.	1946	1947	1948	1946-48
General Account				
Government bonds	135			135
Loans	100			100
Rates to revenue	19.7%			2.9%
Special Accounts				
Government bonds	260	526	729	1,515
Loans	111	206	127	434
Rates to revenue	19.4%	17.5%	7.4%	11.1%
Reconstruction Finance Bank				
Government financing	40	30	180	250
Underwriting by BOJ	28	396	278	702
Underwriting by commercial banks	2	133	254	389
Percentage of underwriting by BOJ	93.3%	74.0%	52.3%	64.3%

Note: For General Account and Special Account, MOF, Finance Statistics and for Reconstruction Finance Bank, Reconstuction Finance Bank, Monthly Review. The amount of underwriting is the fiscal-year-to-fiscal-year difference of balances.

Source: See Table 4-6

A similar situation is observed for the years following the end of World War II (Table 4-7). In 1946, immediately following the termination of the war, bonds and borrowings occupied about 20% of the total revenues both for the General Account and Special Accounts, and 93.3% of the Reconstruction Finance Bank money was raised by having the Bank of Japan accept the obligation, which might very easily have led to inflation. But these percentages sharply declined in 1946-48, as Japan progressed toward normalcy. Unlike the beginning of Meiji, this was not the

embryonic period of capitalistic development but was a period of reconsutruction and recovery. But to recover from the great wartime loss of the nation's capital stock, capital accumulation resembling the accumulation of early Meiji times was needed, and the solution to this challenge was sought in inflationary money through reconstruction finance. However, the input of the huge amount of money had been absorbed through output effect of industrial production, i.e., real national income, by 1955, when economic independence was achieved (see Table 4-8), and in retrospect these measures prepared the economy for the high growth made during the following years.

Table 4-8. Annual Rates of Increase in Currency, Production & Prices, (Japan) 1947 - 1955

	Manufacturing Industry Production	Real GNP	Wholesale prices	Currency issued
1947	24.3%	6.1%	197.5%	132.8%
48	33.7	17.2	165.3	61.5
49	32.5	15.7	64.0	0.3
50	25.2	18.6	18.1	18.8
51	41.2	10.0	38.7	19.9
52	8.0	9.7	1.9	13.8
53	23.8	5.9	0.6	10.7
54	9.6	2.8	-0.6	-0.9
55	8.3	11.4	-1.7	9.0

Note: For real GNP, fiscal year (March - April); for others, calendar year.

Source: BOJ and EPA.

We may assert that at this stage thatinput of great sums of money to ignite the engine for 'take-off' can be effectively dealt with by the output effect of the economy if its growth is continuous, suppressing inflationary trend and bringing the situation back to normal.

We have so far seen a successful case of the Japanese economy in overcoming the inflationary character of increased money supply and in heading for real growth. But concerning the supply of money for sustained growth as is considered here we must deal with longer-term problems and not just those during emergency periods. In this regard we come to conclude that financial and capital markets should be improved in order to have private voluntary savings satisfy the need for investment funds as much as possible.

With respect to the maintenance of balanced international payments, the basic line of thinking should be that improvement of the domestic savings and investment setup, attaining stability of domestic production and increasing productivity will eventually lead to strengthened competitiveness of export goods. It of course is necessary to carry out over-all policy measures along this line of thought, including improvement of industrial structure, protection and assistance to be provided for export industries and exploration of overseas markets. In Japan's case the cumulative effects of all of these efforts bore fruit in the manner shown in the Table 4-9.

We may summarize the above as follows:

Stage (1) 1946-57 Trade balance, current transactions and over-all accounts: all three showed deficits.

Stage (2) 1958-64 Great improvement in trade balance and prospect of its turning favourable evident.

Stage (3) 1965- A trend of favourable trade balance; current transactions and over-all accounts also favorable due to the relations of trade balance (invisible trade balance + transfer balance)

Table 4-9. Japan's Balance of Payments Situation

(unit: US$1,000,000)

	Table balance / Exports x 100%	Current balance	Overall balance	Change in gold and foreign reserves
1946	△ 80.0%	△78	△58	
47	△ 99.7	46	66	
48	△ 15.9	75	105	
49	△ 67.5	207	179	
1950	△ 16.8	476	434	
51	△ 50.8	329	370	
52	△ 59.4	225	186	
53	△ 89.0	△205	△379	
54	△ 47.3	△51	2	
1955	△ 22.9	227	285	
56	△ 29.2	△34	1	203
57	△ 49.9	△624	△503	△417
58	△ 5.4	264	393	337
59	△ 4.1	361	143	461
1960	△ 10.8	143	105	502
61	△ 13.4	△982	△952	△338
62	8.2	△48	237	355
63	△ 3.1	△780	△161	37
64	5.6	△480	△129	121
1965	22.8	932	405	108
66	23.6	1,254	337	△33
67	11.3	△190	△571	△69
68	19.8	1,048	1,102	886
69	23.6	2,119	2,283	605
1970	20.9	2,014	1,374	903
71	33.4	5898	7677	10836

Source: BOJ, Statistics Depertment Economic Statistic Annual.

Stage (1) required 12 years, and Stage (2) seven years. Brazil seems to be near the end of Stage One, with the currently moot issue being how she might advance to the second stage.

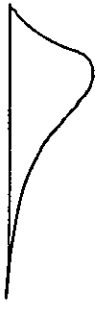
4 Income Discrepancies, Regional Discrepancies, and Politial Pressures

In the preceding section we have dealt with effects of inflation. Even though inflation may produce favorable results in terms of its effects on productive capacity of the economy, inflation itself forces re-distribution of income and wealth and inflicts heavy burden on general population. It follows that if inflationary policy is adopted to squeeze out forced savings to pay for industrialization, corrective measures are desirable, sooner or later when production reaches a high level, to improve the distribution of income and wealth.

Income discrepancies may be understood in statistical terms as income distribution by size, but this must also be compared by industry, by region and by the form of income as in Fig. 4-10. This relationship may be understood in the following terms:

Table 4-10 shows income distribution, classified by industry, by region and by form, shows the over-all income distribution of the entire national economy shown as the heavy-line curve at the left. This curve is the result of integration of A(1) with A(2), are income distribution curves by industry, and of the integration of B(1) with B(2) which are income distribution curves by region. The over-all income distribution is made up of the income distribution of working class and that of property owning class. The first task in comparing income distribution in Japan and Brazil, then, is to produce statistics showing similar relations as shown in Table 4-10. The item C in Table 4-10 may also be expressed as wages and profits, and this is what is most generally called income distribution. At any rate, the integrated picutre at the left-hand side of the Figure should first be obtained, and in proceeding with the analysis of the factors' contribution to equality or inequality we may identify differences in income distribution by industry, by region and by form.

Table 4-10. Income Distribution According to Industry, Region and Income Form

Group / Income distribution	(A) By industry		(B) By region		(C) By form of income	
	Growth industries A (1)	Declining industries A (2)	Affluent regions B (1)	Poor regions B (2)	Wages & salaries C (1)	Assets (C (2)
Upper group						
Middle group						
Lower group						

It is desirable to obtain sufficient statistics to draw charts such as Table 4-10 in time series, to follow changes in the degree of equality (or inequality) in income distribution, in time.

As tools of analysis for determining the degree of equality (or inequality) of income distribution, we may use (1) the Lorenz curve, (2) Gini's index of concentration, (3) Pareto's index, and (4) Gibrat's law.

In Japan the following statistical sources are available as showing income distribution, which can apply the above tools. (Note: The figures in parentheses show the number of principal series of statistics that can meet our requirements for each item.)

(1) Appendix to Household Survey (cities - 4, and rural areas - 3)

(2) Appendix to Labor Force and Employment Situation Survey (2)

(3) Appendix to Social Securities and Welfare Survey (3)

(4) Appendix to Employment and Wage Survey (1)

(5) Appendix to Tax Statistics (3)

The following are some examples of postwar income distribution analyses using above statistics.

[Estimate by Saburo Shiomi]

Table 4-11 Pareto's Coefficient According to Income Tax Statistics

1947	1.82
1948	2.01
1949	2.03
1950	2.08
1951	1.93
1952	1.98

Let us explain them briefly. In Table 4-11 Pareto's index is shown. The greater the figures are, the more equal income distribution is. Pareto's index for the ten-year average of 1927-36 in Japan (specifically including in its coverage the prewar baseline years of 1934-36) is calculated to be 1.65, while the figure for postwar years of 1948-50 is higher than 2. We admit then that income distribution immediately following the end of the war was more equitable than in prewar years. But at the same time we must not overlook the fact that the data source used here is income tax statistics, and that the years 1949-50 were when the drastic deflationary policy (usually referred as Dodge Deflation) was carried out. It may then be only natural that Pareto's index should be greater than 2. Even without income tax statistics we may learn of more equitable income distribution through the expression popular during the postwar years: "poverty for 100 million". Since our comparison period extends only up to 1952, we cannot impute a general trend for the entire postwar era from the results of Table 4-11.

What follows in time sequence is Table 4-12, calculation of Pareto's index by Koichi Emi. Here tax statistics (based on declaration and payment) are also used, as was the case with the last series of figures (calculated by Mr. Saburo Shiomi). Since the data base is the same, the resulting figures for the years 1951-52 appearing in both tables should approximate each other. But Emi's calculation for 1951, for instance, gives 1.786, amounting to 93% of the Shiomi estimate of 1.93, projecting greater inequality of income distribution for the same year.

This difference may be due possibly to differing manners of handling the statistics. Let us use the second series of the index here and proceed to examine the condition in 1951-62. For some time following the end of the war it seems to have headed for more equitable distribution of income, but after 1954-55 disequalibrium advances rapidly. Another point to note in the national average figures is the fact that among so-called recession years of 1954, 1958 and 1962 the first and the last years show higher Pareto's index than the before-or-after years, and that the rate of downward movement for 1958 from the 1957 figure is

[Estimate by Koichi Emi]

Table 4-12. Trends of Pareto's Coefficient

	Nat'l avr.	A	B	C	D	E	F	G	H	I	J	K
1951	1.786	1.658	2.078	1.656	1.794	2.009	1.768	2.054	1.870	2.008	1.698	1.992
1952	1.310	1.167	1.566	1.249	1.391	1.527	1.310	1.436	1.388	1.466	1.227	1.521
1953	1.824	1.666	2.107	1.766	2.068	2.044	1.804	2.014	1.873	2.186	1.804	2.029
1954	1.842	1.608	2.346	1.776	2.008	2.122	1.835	2.057	2.021	2.244	1.918	2.298
1955	1.841	1.566	2.238	1.761	2.064	2.152	1.845	2.092	2.104	2.271	1.865	2.171
1956	1.723	1.487	2.091	1.650	2.079	2.028	1.708	1.937	1.939	2.283	1.779	2.141
1957	1.609	1.398	1.975	1.507	1.844	2.047	1.601	1.862	1.816	1.954	1.669	1.851
1958	1.588	1.358	1.916	1.481	1.888	2.035	1.576	1.850	1.837	1.900	1.742	1.837
1959	1.483	1.295	1.809	1.398	1.758	1.864	1.477	1.747	1.780	1.746	1.614	1.757
1960	1.363	1.205	1.690	1.296	1.652	1.719	1.380	1.573	1.588	1.667	1.501	1.632
1961	1.146	1.104	1.481	1.178	1.487	1.530	1.249	1.463	1.478	1.462	1.417	1.441
1962	1.329	1.181	1.580	1.268	1.562	1.640	1.359	1.554	1.582	1.632	1.507	1.578

Notes: Headings correspond to tax administration districts; conventional administrative districts included therein are as follows.

(A) Tokyo: Tokyo, Kanagawa, Chiba, Yamanashi Prefectures;
(B) Kanto Koshinetsu: Saitama, Ibaragi, Tochigi, Gumma, Nagano, Niigata Prefectures;
(C) Osaka: Kinki Prefectures except Mie;
(D) Sapporo: Hokkaido;
(E) Sendai: six Tohoku prefectures;
(F) Nagoya: Tokai prefectures plus Mie Prefecture;
(G) Kanazawa: three Hokuriku prefectures;
(H) Hiroshima: six Chugoku prefectures;
(I) Takamatsu: Shikoku;
(J) Fukuoka: Fukuoka, Saga, Nagasaki Prefectures;
(K) Kumamoto: Oita and three other South Kyushu prefectures, but the author has grouped Oita together with the Fukuoka district prefectures.

Source: Miyohei Shinohara, Econometric Analysis of the Structure of Regional Economies, 1965

relatively small. In contrast, business expansion years of 1956-57 and 1960-61 show big downward changes. We may draw the conclusion from these observations that income distribution becomes more inequitable during expansion years and becomes equitable, or at least dis-equalized by a lesser degree, during recession years.

Prof. Emi has derived Pareto's index also by region(according to regions as established by Local Tax Administration Bureau). The over-all trend for various regions in 1951-62 is similar to the national trend in macro terms. The regions in the order of greater inequality as of 1962 are Tokyo, Osaka and Nagoya, which are followed by Kanto-Koshinetsu, Sapporo, Kanazawa, Hiroshima, Fukuoka and Kumamoto, all in the range of 1.5. Fukuoka should be counted as belonging to the more unequal regions in terms of income distribution within its territory. Relative equality of income distribution is attained in North-eastern Japan with its center at Sendai and on Shikoku Island. We may summarize by saying that regions with great inequality are long-standing industrial prefectures and experienced violent industrialization and urbanization during the period under study.

For the similar period Prof. Emi has measured the movement of income distribution through another method: calculating the coefficient of variation (cv) by dividing the standard deviation σ by the arithmetic average m for available statistical groups. Higher cv figures natually indicate greater inequality, as can be seen from the process of calculation. The cv figures have been produced for the three surveys of the wage situation (Table 4-13-a), salary situation in the private sector (Table 4-13-b) and household survey (households of members of the working population). The figures for the first two can be more readily observed in Fig. 4-3, and the last in Fig. 4-4 for changing cv's.

In Fig. 4-3, for salaries in the private sector, the cv figures show a gradually increasing trend for 1951-59, and after 1959 they seem to head downward again. The wage situation presents similar pattern as do the salaries in the private sector, although the period under our examination is shorter. We seem to be able to conclude from these incidents that,

[Estimate of Koichi Emi]

Table 4-13-a. Wage Survey (monthly)

	Average m	Standard deviation σ	Coefficient of valuation σ/m
1958	16,712 yen	11,620 yen	0.6953
59	17,455	12,207	0.6994
60	18,572	12,871	0.6930
61	20,094	13,572	0.6754
62	22,959	14,897	0.6489

like the results of Pareto's index, equalization in income distribution advanced following the end of the war, but the trend changed in the latter half of the 1950s, and the trend toward disequalibrium reached its peak and changed its direction once again around in 1959. Why did it go through the second change of direction in 1959? One possible hypothesis may be labor shortage, which became apparent around this time.

But Fig. 4-4 shows somewhat different phenomenon. Here the peak seems to have been reached in 1961, also the peak of the Iwato-boom. In comparing Fig. 4-3 and Fig. 4-4 we see that absolute values of cv figures are biggest for salaries in the private sector and become smaller for wages and household incomes in that order. Due to the greater coverage, and also due to its characteristics of embracing various forms of income in it, the income distribution observable in household incomes seems to be the most representative among our series of available materials.

The last of our examples is the Gini's coefficient produced by Mr. Shigemi Jinushi using the Basic Survey of Employment Structure. They give us figures for every three years during the period of 1955-64, at four

Table 4-13b Survey of Wages and Salaries in Private Industries

	Average m	Standard deviation σ	Coefficient of valuation σ /m
	yen	yen	
1951	148,611	117,779	0.7925
52	178,690	150,864	0.8445
53	197,288	166,201	0.8424
54	204,945	174,869	0.8535
55	207,507	176,721	0.8516
56	231,185	206,109	0.8915
57	249,136	224,426	0.9008
58	251,379	231,927	0.9226
59	273,451	258,948	0.9470
60	300,137	277,544	0.9247
61	340,714	315,679	0.9265
62	380,076	339,328	0.8928

Fig. 4-3. Trends of Coefficient of Valuation

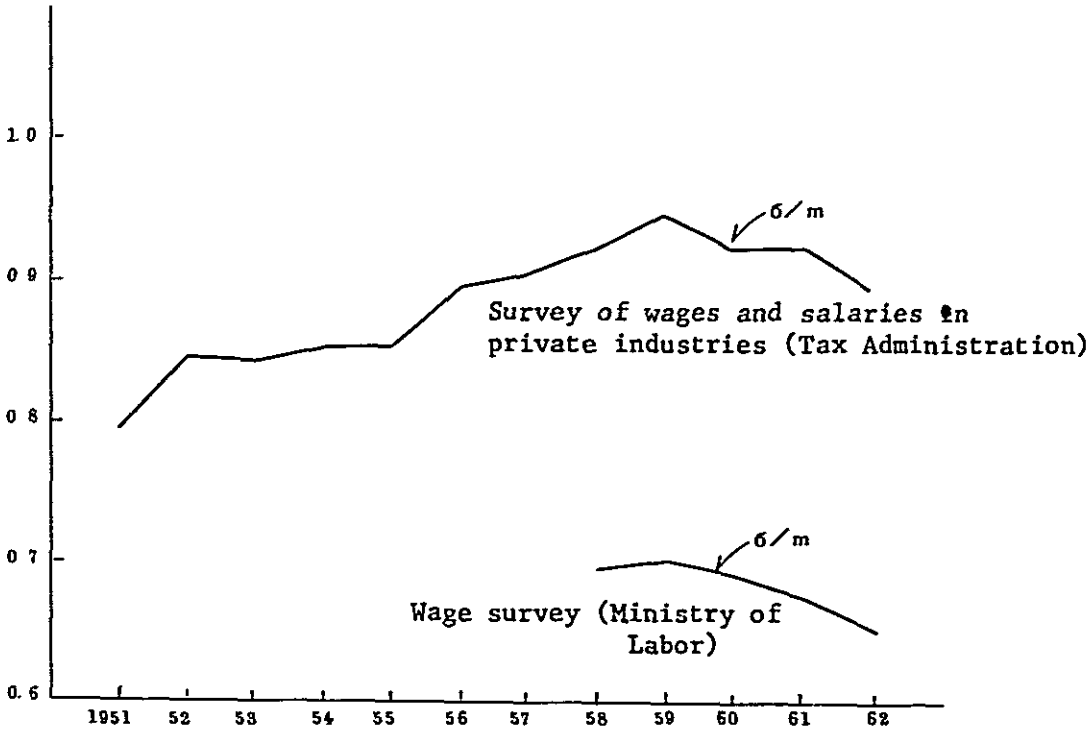
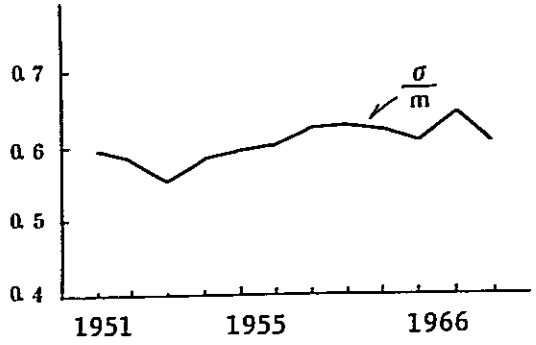


Table 4-13c. Changes in Income Distribution of Workers' Household (Household survey urban area, monthly)

	Average m	Standard deviation σ	Coefficient of valuation σ/m
	yen	yen	
1951	15,277	9,097	0.5955
1952	19,259	11,205	0.5818
1953	24,038	13,285	0.5527
1954	26,440	15,285	0.5819
1955	27,006	15,985	0.5959
1956	28,257	16,093	0.6030
1957	29,820	17,039	0.6242
1958	31,602	18,613	0.6270
1959	33,431	19,814	0.6234
1960	36,483	22,427	0.6149
1961	40,181	25,989	0.6467
1962	45,405	27,399	0.6034
1963	47,597		

Source: Prime Minister's Office

Fig. 4-4. Trend of Coefficient of Valuation of Income (Workers' Household)



points of time. The Gini's coefficient figures for original income fluctuate during the period, from down 1.709 to 1.676 up to 1.816 and down again to 1.714. Since higher Gini's figures indicate greater inequality, combined with the business cycle relations with respective years (1955=expansion, 1958=recession, 1961=expansion and 1964=recession), our conclusion would be that the Gini's coefficient rises in periods of business expansion and falls during business recessions. In other words, income distribution becomes less equal in expansion periods and more equal during recession periods. The interpretation of Mr. Jinushi is that, due to the above relations, the degree of equality or inequality of income distribution corresponds to business cycles. Although this is a very interesting point, it seems to require more supporting materials.

Another point Mr. Jinushi makes in this connection is the phenomenon of less inequality for re-distributed incomes (B) than for original incomes (A), which is indicated by B/A figures in Table 4-14. But it also shows that the effect of re-distribution in this respect becomes smaller as years go by, as a general trend. Mr. Jinushi makes a similar point as regards to the four classifications of forms of employment or households. But the degree of inequality seems to be highest among non-agricultural non-forestry enterprise owners, and lower for employees and agricultural-foresty owners in that order. The unemployed seem to have a similar pattern of movement to that of the employed.

From the above empirical studies we may now conclude that during the postwar era (except a short period immediately following the end of the war) income distribution was progressively less equal during the high growth period of the latter 1950s, became less equal but at a small rate around the recession of 1965, but became less equal again at a considerable pace during the latter half of the 1960s for the Izanagi-boom. Movements during the latter half of the 1960s, however, need still closer examination.

The above movements are accompanied by changes in income distribution by region and type of employment. In particular it cannot be denied that income discrepancies between industrial prefectures and agricultural prefectures, or between urban areas and local areas, have been made greater

[Estimate by Shigemi Jinushi]

Table 4-14. Gini Coefficient of Income

	Total	Agriculture	Employee of Agri.	Non-agricultural industries
[1955]				
(A) Income before redistribution	1,709	1,323	1,531	1,642
(B) Redistributed income	1,447	1,200	1,402	1,581
(B)/(A)	84.7%	90.7%	91.6%	96.3%
[1958]				
(A) Income before redistribution	1,676	1,405	1,623	1,779
(B) Redistributed income	1,591	1,388	1,558	1,720
(B)/(A)	94.9%	98.8%	96.0%	96.7%
[1961]				
(A) Income before redistribution	1,816	1,497	1,703	1,858
(B) Redistributed income	1,705	1,492	1,723	1,814
(B)/(A)	93.9%	99.7%	101.2%	97.6%
[1964]				
(A) Income before redistribution	1,714	1,465	1,675	1,820
(B) Redistributed income	1,686	1,382	1,651	1,842
(B)/(A)	98.4%	94.3%	98.6%	101.2%

Source: Shigeto Tsuru(ed.) In Search of New Political Economics(Atarashii Seiji Keizaigaku o Motomete) Vol.2 1968

through the process. It is entirely conceivable that this growing discrepancies are closely related to today's urban problems and rising power of residents.

Notes

L) Arisawa, Hiromi, A Hundred-Year History of Japanese Industry Vol. 1

2) Ichimura, Shin'ichi, Japanese Economy in the World Perspective (Sekai no Nakano Nippon Keizai) 1965, p.66

3) Carlos Geraldo Langoni, "As Fontes do Crescimento Economico Brasileiro," Estudos Economicos, Vol. 2, No. 4, 1972

4) Mikio Sumiya (ed.), Economic Behavior of the Japanese, vol. 2, Tokyo Keizai Shimposha, 1969, pp. 41-42.

5) Ibid., pp. 43-45.

6) Okita, Saburo, Causes and Problems of Rapid Growth in Postwar Japan and Their Implications for Newly Developing Economies, Japan Economic Research Center, 1967, p. 12.

7) Okita, Saburo, Ibid.

8) Ogura, Takekazu (ed.), Agricultural Development in Modern Japan, Japan FAO Association, 1963.
Appendix, "Significance of the Japanese Experience"

9) Ibid.

Chapter Five

Conclusions and Recommendations

Our analyses have compared and contrasted similarities and differences between the Brazilian and Japanese economies, and are summarized here.

1. As far as macro-indices and industrial production indices are concerned, the Brazilian economy resembles the Japanese economy during the period when Japan gained economic independence (1953-57). But when micro-indices are taken up, today's Brazilian economy should be compared to that of Japan in the period of 1951-55. In other words, the gap between the two economies amounts to 12 to 15 years when macro considerations are adopted, and to 15 to 20 years when micro considerations are adopted. This is the very reason why we undertook the task of comparing today's Brazilian economy with the Japanese economy of around 1955.

2. Between the two economies we observe such similarities as the mixed economic system, political stability, continuity of economic policy, growth priorities, importance of Government leadership, and cooperation with the United States. But on the other hand we may also point out many differences, such as natural resources endowment and the timing of economic take-off. Particularly different is the industrial structure of the two economies. In comparison with Japan, Brazil has a wide income

discrepancy between the industrial and agricultural sectors, and tertiary sector has a much larger share. In Brazil one also observes regional differences in the stages of growth. She also faces urbanization problems consequent to abnormal growth of urban tertiary sector due to population pressures in rural districts. In contrast, Japan is afflicted with aggravating problems of over-population and under-population due to urban in-migration. But dual structure, a characteristic feature of the Japanese economy, is totally absent from the Brazilian scene.

3. The factors contributing to high economic growth of Japan can be summarized in the following five items.

1. Savings and investment mechanism
2. Abundant and good-quality labor force
3. Factors for growth inherent in the dual structure
4. Favorable balance of payments situation mainly due to expansion of exports
5. Effects of fiscal and monetary policies.

Each of these seems to deserve close examinations in dealing with economic development of Brazil. The ceilings that limited the growth of the economy in Japan changed from "capital accumulation" to "balance of payments" one decade following the end of the war, and the most recent ceiling to develop is the "labor shortage." In the case of Brazil's economic development we still must clarify which factors might serve as the ceiling. This will prove to be a crucial issue in economic development of Brazil.

4. Factors that may hamper smooth economic development of Brazil are:

1. Subjective problems (managerial capabilities of firms, educational standard, and technology-absorbing ability;
2. Productivity gains in agriculture and accompanying changes of the industrial structure;
3. Fund procurement for sustained growth and expansion of

effective demand; and

4. Correction of discrepancies in income distribution, and of regional discrepancies.

In solving these problems not a little may be learned from the experience of Japan.

It then follows that considerable similarities are observable in the growth patterns and various indices of Brazilian and Japanese economies. However, behind these similar figures lie solid differences in terms of industrial structure, historical background, and geographical conditions. The same factors determining economic development naturally take different forms owing to varying historical and geographical conditions. The meaning of this study lies in clarifying how different they appear, what produces the differences and what measures should be taken in dealing with the variations. It is in this sense that clarification and elucidation of similarites and differences between our two economies should not be without meaning. But in view of the present state of the Brazilian economy and of possibilities of Japan's economic cooperation to Brazil, the following five items should be studied with greater depths.

1. Industrialization and export promotion
2. Transfer of technology
3. Problems of agricultural development
4. Procurement of funds for growth
5. Urban problems

In the second year, comparative studies based on concrete cases (case studies) should be undertaken. Also, if possible, comparisons based upon econometric models should be considered. These will shed more light on differences of growth patterns, giving suggestions as to preferred areas and modes of Japan's economic cooperation toward Brazil.

We must point out here that we have faced various difficulties inherent in international comparisons of this nature. The first is the

problem of statistics. We used, as much as possible, UN statistics or IMF figures from the viewpoint of "equal footing," but this did not solve all the problems arising from differences in basic statistics of the two countries. For instance, Japan mostly measures GNP, while Brazil is concerned with GDP. The second difficulty comes from conversion of the two currencies into the US dollars for the purpose of comparison. Brazil has adopted the floating system, and has experienced frequent devaluations. The third problem area was the suitability of the method of applying the exchange rates to comparisons of domestic commodities and services, the rates being applicable only to trade goods. The fourth one was how to deal with Brazil's price rises, which are mcuh more rapid than Japan's. Fifthly, the big regional discrepancies in Brazil also presented problems, forcing us to adopt an experimental method of comparing Brazil's urban sectors to the entire Japan. In addition to these, one still must take into account differing values, preferences and habits, and differing attitudes toward, for example, land and housing (Brazilians tend to evaluate "stock" more highly than "flows").

Brazil

	1970	%
Japan	144.940	5.3
Other Asia	98.017	3.6
EEC	770.469	28.1
EFTA	351.886	12.8
Other Europe	247.995	9.1
Soviet Union	21.237	0.8
United States	676.058	24.9
Other North America	48.311	1.8
LAFTA	302.946	11.1
Other Central & South America	4.551	0.2
Africa	58.784	2.1
Oceania	3.000	0.1
Total	2.738.922	100.0