KOBE

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15th

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THE RESEARCH INSTITUTE FOR
ECONOMICS AND BUSINESS ADMINISTRATION
KOBE UNIVERSITY

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CONTENTS

CHARACTERISTIC APPROACH FOR REGIONAL DEVELOPMENT IN WESTERN EUROPE AND U. S. A.

——Relating to the Case in Japan——

Minoru BEIKA

I

The current regional development policy of Japan started in 1962. The policy aims to prevent the excessive concentration of economic activities in a few central districts and to decrease the income-gap in under developed regions. As a means to promote these aims, about 20 new industrial districts apart from the central districts have been established for regional industrial development. However, the actual development processes have been considerably different from the objectives of the policy, in spite of policy execution for these last several years. Industrial activities have been concentrated in a few central districts as before and many young people have drifted out of the local districts. Rapid urbanization has caused severe economic, social and physical urban problems in the central districts.

These regional problems relating to the excessive high density of population in the central districts and to the excessive low density in the local districts in Japan, which were treated in detail in the last Review (14th Annual Report 1967) by the same writer, are now common in both developed countries, developing countries and under-developed countries. But Western European countries and the United States of America have had various severe experiences for this last half century on urban problems, and they have been confronted with severe regional problems since the panic of 1930 or since World War Ⅰ. The writer had chances of observing the actual circumstances of these several countries in two visits in 1961 and 1966. He was greatly impressed by their problems, experiences and results. Since then, he has studied their regional problems and policies depending on his own observations and from several printed matters relating to these subjects. As a consequence it seemed to him to be useful to make a comparative study of the experiences of these countries and Japan. First,

the writer's viewpoint will be conclusively shown regarding the character-
istics of these regional development policies and processes, their effects and
resulting problems, and then he will review the present conditions of re-
gional development problems and policies in Japan.

II

The United Kingdom has been confronted with unprecedented severe
local unemployment since the panic of 1930, especially in Scotland, North
England and Wales.   The regional development policies of this country
aimed to solve these severe unemployment problems not only before World
War Ⅰ, but also after the War.   The Special Areas Act, 1934 and the
Distribution of Industy Act, 1945 were major characteristic means in their
regional policies.   At the same time, the decentralization of the population
from Greater London and some other metropolitan regions has been pro-
moted by the New Town Act, 1946, the Town and Country Planning Act,
1949 and some other acts.   Since then, these policies and realization
means have been changed more or less to adapt to changing circumstances.
But their basic course has been little less changed and has brought about
considerably effective results for regional development.

France, Netherlands and several other European countries have also,
been confronted with regional unemployment problems or the under-deve-
lopment of country districts with rapid urbanization after World War Ⅱ,
and so they have adopted respective regional policies, referring to the ex-
periments of the United Kingdom and the United States of America.
Sweden, Denmark, and several other European countries did not have these
severe regional unemployment problems, but they were confronted with
rapid urbanization problems in the central metropolitan regions.   Several
new finely planned suburban towns can be seen in these countries.

The United States of America has developed enonrmously through
technical innovations since World War Ⅱ, but 3 or 4 million unemployed
workers, chiefly excluded by automation, have been found in a considerable
number of districts which had old types of industries.   The Federal Govern-
ment, which had resisted participating in local (unemployment) problems
for a long time, finally established the Area Redevelopment Act, 1961, to
help local governments and local communities.   Aside from these regional

development problems, rapid urbanization has brought abont many urban renewal projects and suburban industrial and residential development.

Recently, the United Nations and other international institutions have greatly contributed to these countries and to other under-developed countries by the interchange of their valuable experiences and experiments, and by their accumulation of common useful knowhow resources.   The writer has been interested in these policies, projects, actual processes, and accumulated common knowhow resources.   He has summarized their characteristics, from the viewpoint of Japanese regional development problems, as follows.

III

The processes that these developed western countries have been challenged with in their regional problems, have been characterized by the following seven points, from the viewpoint of the writer who has studied the current regional development problems of Japan.

(1)   Problem-conscious challenge to regional development.

The driving forces for regional development in the western countries were the severe urgent regional problems, especially radical mass unemployment at first, and concentration of the population, and then rapid urbanization.   These regional problems needed some urgent counter measures, yet they had to be planned as synthetically as possible, due to the difficulty and largeness of the problems.   Accordingly their development policies needed to be as practical and effective as possible.

In contrast, it seems that the current regional development policies in Japan have been a little more synthetic and well-planned in some points, than in those western countries.   But the real regional problems had not always been grasped correctly by the Japanese policies, which were more or less idealistically formulated.   Because of this reason, actual conditions following these policies have not always shown expected results.   Gradually, the recent rapid urbanization has begun to lead toward more practical means of regional planning and urban renewal planning in the congested central industrial districts.   But other regional problems due to the low density of the population in the local districts are left and are not clarified problem-consciously.   The income-gap in the country districts which can be grasped statistically, has been considerably large, but it has been unable

to be realstically grasped.   This is now one of the important regional problems in Japan.

(2) Accumulated experiences through trial-and-error experiments in regional development.

Regional development should be approached from the standpoint of integrating the social and economic functions or activities in a certain district to its physical planning.   The economic (especially industrial) activities of the region affect a wider sphere than the social functions. And yet these economic and social functional approaches have respectively very different problems from the physical approach.   Many trial-and-error experiments in these regional development problems have been accumulated in the common knowhow resources for five decades since the end of the 19th Centnry.   For example, the creation of the New Towns in the United Kingdom originated from the garden city movement by Ebenezer Howard at the beginning of the 20th Century and have depended on the many accumulated experiments since then.   The well-designed industrial estates, and industrial parks (or districts), which have been widely applied in the United Kingdom and the United States of America, originated from several experiments at the end of the 19th or the beginning of the 20th Century.   These experiments and widely used townplanning techniques have been characteristically developed between the first and the second World Wars.   These accumulated experiences have bloomed brilliantly as well-planned new towns, suburban industrial areas and well-ordered land use in the western countries afert World War Ⅱ.

On the contrary, Japan has been confronted with regional development problems since only these last 10 or 15 years, when economic activities began to develop enormously.   Any kind of well-planned integrated physical systems, such as the New Town, industrial estates and some other new types in the western countries as stated before, had not been experimented with in Japan before World War Ⅱ.   The Town Planning Act had already been established by 1919 in Japan, but severe landuse and other physical problems had not yet occured at that time.   These regional or physical techniques developed in the western countries, could be adapted in Japan also, but it would be very difficult for us to master the trial—and—error experiences of these countries.

(3) The importance of approaching processes in regional development.

Regional development depends not only on the formation of the fundamental objects and policies, but also on the creative designing of the processes to realize these objects and policies. The more severe and urgent the consciousness for regional and urban problems is, the more necessary the realizing processes are to be. Therefore the processes to realize policies have been attached with importance in western countries. These processes have included not only public (central and local governments) actions which are legal regulations, financial assistance, and some public guidance, but also private cooperation by industrial enterprises, other business firms and individual citizens inhabitants, and still more some mixed types of cooperation between public and private regional activities. The problem-conscious challenges and the trial-and-error experiments as stated before can bring forth realized results only by these processes.

The regional development policies of Japan, so far, have been considerdaly synthetic and theoretical in some points, but greatly abstract in some other points. The subjectivity to realize those policies has tended to be overlooked in Japan. In other words, approaching processes have not sufficiently been concerned with in realizing the objects of regional development. It is related to the limited experience of trial-and-error experiments and the challenge of problem consciousness, as stated before.

(4) Development of several types of planned integrated physical systems for regional development problems.

The writer has been greatly interested in the New Towns in the United Kingdom, which consist of many functional facilities of the community, such as town center, shopping centers, industrial estates, residences and other related community facilities. He has also been interested in the industrial parks, and research parks in the United States of America, the suburban new towns in Sweden, Denmark and some other European countries, which have both the characteristics of the New Towns and suburban bed-towns. It is the same, for the Tennessee Valley Authority, the Port of New York Authority, the Air Pollution Control District such as found in Los Angeles County, and other physical or functional organizations. These respectively different physical or functional facilities or organizations have the same common characteristics, which are some kind of planned integrated physical systems for any kind of regional development problems. Some of these

creative systems have originated from experiments at the end of the 19th or the beginning of the 20th century as stated before, and some of them have been found during the inter-period of the two World Wars, and each of them has been created as a challenge and experiment for any difficult problem of regional development.   Especially, have these systems been devised to accomplish many-sided considerations for public and private needs in regional development or community development to coordinate the economic and social functions, and functional and physical factors.   These are synthetic, integrated systems to prevent a one-sided view or behavior by a lateral functional line organization of public administrations or by private economic or social activities.

In Japan also, some kinds of planned integrated physical systems have been introduced and applied to regional or urban problems, and these have been transformed to gain some peculiar merit for the specialities of regional problems in Japan.   For instance, these examples are industrial and commercial estates for small businesses, underground shopping centers in urban centers or terminals, and new large suburban bed-towns.   However, the writer thinks that these planned "integrated" physical systems have not always been well-integratedly applied but have tended to be utilized rather straight forwardly as some one functional or physical facility.   It seems to be related to a vertical line organization or straight narrow view of public administrations or private activities.   Now the rapid and severe urbanization has gradually widened these narrow views or straight behaviors by public or private organizations, and they have begun to use these systems as multi-functional physical facilities.

(5) Gradual progressing integration of public and private activities in regional development.

It is the general rule in a free-economy system, that central and local governments, public administrations private enterprises and other individual economic and social activities should respectively fulfil their functions in their communities to maintain a harmonious development.   However, the recent rapid technical and industrial innovations have increased the scale of economic and social activities to a larger and larger scale and has drastically changed their features again and again so that the economic activities and social lives have interacted complicatedly against each other in the com-

munities.   They have brought about excessive concentration of industrial activities, disordered landuse, industrial nuisances such as air and water pollution, paralyzed road transportation, and have had many undesirable effects on community life.   Legal regulations, public assistances and some private cooperations have gradually reduced these severe problems, but the gap betwcen public action and private cooperation has been too large to be overcome by such ordinary public and private cooperation.   Accordingly, creative efforts to overcome these gap have led to the formation of many kinds of planned integrated physical or functional systems, as stated before. The writer has reached this conclusion now.   It shows the importance of the functional and physical relations between public and private activities. In this sense, new so-called system approaches have been introduced in the present regional development and community development problems in western countries.   The writer has been impressed by the gradual progressing integration of public and private activities found as such in regional development.

In Japan hitherto, the problem-consciousness of these public and private relations, and the participative functional and physical forms or systems of public and private activities have been overlooked more or less.   Macroeconomic-and-social approaches have been considerably developed in regional problems, but relationship, cooperation, and participation of public, private and other interest groups have not been sufficiently considered for these problems in Japan.

(6) Managerial approaches found commonly in regional and community development problems in western countries.

In this paper, the writer uses such words and phrases for regional problems as problem-conscious challenge, trial–and–error experiments, importance of the processes, systems approach, and integration of public and private activities.   These words and phrases are all relating to those of business administration and management.   Though these processes to approach regional problems might not have always been recognized to be a managerial approach in western countries, the writer has concluded so through their realizing processes and characteristics for the past half-century.

In Japan now, business administration and management have been given due consideration and been studied earnestly in the business world.   But

these thoughts and approaches have not yet been applied beyond the frame of individual business activities.   The current regional development problems and urbanization problems are closely related to economic activities by individual business enterprises, through their industrial development.   Recently top executives of business enterprises are now considerably interested in regional problems through the activities of their economic bodies or parties.   Therefore, the writer hopes now for them to come foward and participate in activities by managerial approaches to regional problems beyond the frame of their individual business enterprises.

(7)   Importance of a fact-finding survey in regional development.

Problem-solving should generally depend on a fact-finding survey.   It is needless to say that regional development problems belong to the same case.   Fact-finding surveys and researches have been accumulated for regional development, especially in the United Kingdom.   Many surveys and researches for industrial location, regional development policies, and urban development had been in operation not only in the 1930's, but also even during World War II and then of course after the War.   A statistical census and survey in Japan had already progressed to some level before the War, and was enormously developed after the War.   But these are insufficient for solving current regional problems and should be reviewed from the viewpoint of a fact-finding and problem-conscious survey in regional development.   The so-called managerial approach should also be found on these surveys and researches.

The seven points stated here are simplified conclusions for regional development by the writer who observed and reviewed actual conditions in western countries.

IV

The problems of regional development have close relations to multi-side investigations; which are regional econometrics, location theory, human and economic geography, sociological studies, town and country planning research, engineering approaches of land-and-sea transportation, civil engineering approaches and so on.   These problems should be approached from the field of synthetic applied sciences.   The writer has challenged these complicated regional problems from characteristic approaching methods, which the study of business administration and management have brought about nowadays.

EXPORT PATTERNS OF LEADING INDUSTRIAL COUNTRIES

Fukuo KAWATA

(1) The purpose of this article is to make some comparisons of the export trade patterns of six leading industrial nations, including the United States, United Kingdom, West Germany, France, Italy, and Japan. Highly industrialized nations are also large trading nations. Their shares in the total exports of the free world are not only large, but also have been increasing. In recent years their shares have been more than half of the free world exports.

Although the shares of these six industrial nations in total have been rising since the early post-war years, those of the United States and the United Kingdom have been declining, while those of the other four countries have been increasing. Especially remarkable is the trade expansion of Germany and Japan. Table 1 shows the shares of these countries in the total exports of the free world.

(2) The ratios of export to gross national product differ from country to country. The United States has a very low ratio, which means that the dependence on world market of that country is relatively small; while Germany and the United Kingdom have large ratios, and the export ratios of Italy, Japan, and France are intermediate. (See Table 2.)

Table 1. Shares of Industrial Nations in Exports of the Free World (%)

Country	1948	1953	1958	1963	1965
World Total	100.0	100.0	100.0	100.0	100.0
United States	23.6	21.2	18.7	17.3	16.6
United Kingdom	12.4	10.0	9.7	8.8	8.3
France	3.7	5.1	5.4	5.9	6.1
Germany	—	5.9	9.3	10.8	10.9
Italy	2.0	2.2	2.7	3.7	4.4
Japan	0.5	1.7	2.7	4.0	5.1
Total of above six countries	42.2	46.1	48.5	50.5	51.4

Source : IMF, International Financial Statistics.

The movement of the export ratio of each individual country since
1952 has also been different.   During the period from 1952 to 1965, the
ratio declined in the United States slightly and in the United Kingdom
rather sharply; whereas in Italy and Japan, this ratio increased conspicuously,
and in Germany and France the rise was moderate.

(3) Let us compare the commodity pattern of export trade of those
highly industrialized nations.   In the exports of those countries, it is quite
natural that manufactured goods, (SITC No. 6, 7 and 8) should take a major
part, although the relative share of each group in the total export of manu-
factured goods is different according to the country.

In Germany, the United States, and the United Kingdom, the share of
machinery and transport equipment (SITC No. 7), the most sophisticated
kind of manufactured goods, is much larger, and in Italy a little larger than
other groups of manufactured goods, while in Japan and France manufac-
tured goods classified by materials (SITC No. 6), the more simple and crude
sorts of manufactured goods, show a higher percentage than any other
group of manufactured goods.

Table 2.   Ratio of Export to Gross National
Product in Highly Industrialized Nations (%)

Country	1952	1955	1958	1962	1965
United States	4.3	3.9	4.0	3.9	3.9
United Kingdom	16.3	15.2	14.0	13.6	13.9
France	9.8	9.8	8.8	10.3	10.8
Germany	12.4	14.3	16.0	14.9	16.0
Italy	8.0	8.4	9.4	11.8	12.6
Japan	7.8	8.9	10.4	9.3	12.7

Source : IMF, "International Financial Statistics", and the Bank of
Japan, "Foreign Economic Statistics".

It is also to be noted that in Italy and Japan miscellaneous manufac-
tured articles (SITC No. 8), more labor intensive category of manufactured
articles, take larger shares than in any other country. (See Table 3.)

Beside manufactured goods, chemicals also play an important part in the
export of highly industrialized nations, and their share has been increasing.
In Germany and in France chemicals absorb more than 10% of their total

export, and in the United Kingdom and the United States they take up about 9 %, whereas in Italy and Japan their percentage is lower than the above four countries, the ratio in the case of Japan, being particularly small. As a noteworthy contrast in the export patterns of leading industrial countries, we point out the fairly high percentages of food export registered by the United States, France and Italy, and the fairly low percentages in the case of Germany, the United Kingdom, and Japan.

In the former three countries, the ratio of food export accounts for more than 10%, while in the latter three countries it is less than 4%. (See Table 3.)

Table 3.

Commodity Pattern of Export of Highly Industrialized Nations (%)

SITC Number	United States		United Kingdom		France		Germany		Italy		Japan	
	1958	1965	1958	1965	1958	1965	1958	1965	1958	1965	1958	1965
0. Food	12.7	14.8	3.3	3.2	9.4	12.9	1.8	2.6	17.9	10.6	8.0	3.9
1. Beverage & Tobacco	2.5	1.9	2.7	3.1	3.6	3.0	0.3	0.4	2.2	1.2	0.2	0.1
2. Crude materials, inedible except fuels	9.6	10.5	3.2	3.2	6.7	7.1	2.3	2.9	4.0	3.3	2.6	2.6
3. Mineral fuels	6.1	3.5	4.1	2.8	6.3	3.2	6.6	4.1	7.0	5.4	0.4	0.4
4. Animal and vegetable oils and fats	1.5	1.7	0.2	0.1	0.5	0.3	0.3	0.3	0.4	0.2	1.1	0.3
5. Chemicals	7.8	8.9	8.2	9.3	8.4	10.1	10.7	11.5	6.6	8.4	4.8	6.5
6. Manufactured goods classified by materials	14.9	12.2	26.9	25.6	31.8	27.8	24.2	22.0	26.0	23.9	46.9	40.6
7. Machinery & transport equipment	35.8	37.1	42.5	42.1	22.8	26.4	44.9	46.0	27.0	30.4	22.1	31.3
8. Miscellaneous manufactured articles	7.9	6.0	6.3	7.5	7.5	8.7	8.5	8.8	8.9	15.4	13.9	13.7
9. Miscellaneous transactions and commodities n. e. s.	1.2	3.4	2.6	3.1	3.0	0.5	0.4	1.4	—	1.2	—	0.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : U. N., International Trade Statistics

(4) Let us here make an international comparison of the amount of manufactured goods exported by the above six countries.

The United States held the first and foremost position in the export of manufactured goods both in 1958 and in 1965, but her relative importance declined in 1965.   In contrast, Germany, France, Italy and Japan raised their shares.   Particularly striking was the progress achieved by Italy and

Japan.   The United Kingdom, like the United States, has lost her position.
(See Table 4.)

(5)   If we compare the production elasticity of manufacturing export which
means the ratio between the growth of export and the growth of manufac-
turing production, we find that on the average, Italy and Japan have the
largest, and the United Kingdom and the United States have the smallest
elasticity value, whereas France and Germany have the intermediate one.
(See Table 5.)   This implies that in Italy and Japan a most rapid ex-
pansion of manufacturing export in relation to the increase of manufacturing
production, has been achieved, while in the United Kingdom and the United
States, the slowest growth of manufacturing export has been experienced.

Table 4.

Manufactured Goods Exported by Highly Industrialized Nations

(in billion U. S. dollars)

Country	1958	(%)	1965	(%)
United States	9.76	(29.7)	16.84	(26.0)
United Kingdom	7.64	(23.1)	11.20	(17.2)
France	3.60	(10.9)	7.32	(11.6)
Germany	7.76	(23.5)	15.92	(24.5)
Italy	1.72	(5.2)	5.60	(8.7)
Japan	2.52	(7.6)	7.76	(12.0)
Total	33.00	(100.0)	64.64	(100.0)

Source : Board of Trade Journal, 26 August 1966.

Table 5.

Production Elasticity of Export of Highly Industrialized Nations

Country	1961	1962	1963	1964	1965	1960 –65	1958–65
United States	0.99	0.97	1.01	1.11	0.98	1.13	1.12
United Kingdom	1.05	1.01	1.03	0.98	1.05	1.13	1.10
France	0.97	0.98	1.04	1.02	1.12	1.13	1.40
Germany	1.04	1.00	1.00	1.03	1.05	1.19	1.31
Italy	1.05	1.01	1.02	1.18	1.16	1.48	1.85
Japan	0.88	1.07	1.02	1.06	1.22	1.24	1.18

Source : Board Trade Journal, 26 August 1966.

(6)   When we compare the growth rate of the export market with that of

the export of individual countries, we find that in general, the former is higher than the latter in the case of the United States and the United Kingdom, while in the case of Italy and Japan, the reverse is true, and in the case of France and Germany the former is almost equal to the latter. (See Table 6.)

(7) If we mean by the market elasticity value of export the ratio between the growth of the export market and the growth of export, we find that the value is high for Japan and Italy, and low for the United States and the United Kingdom, while for France and Germany it is intermediate. (See Table 7.)

Table 6.

The Growth-rate of Export Market and the Growth-rate of
Export in Highly Industrialized Nations (%)

	1961		1962		1963		1964		1965	
Country	A	B	A	B	A	B	A	B	A	B
United States	6	3	3	4	8	7	12	14	6~8 (1)	3
United Kingdom	4	4	7	3	9	7	12	4	15	7
France	5	5	1	2	8	10	11	11	11	12
Germany	8	11	8	5	10	10	13	11	10	11
Italy	7	15	8	12	9	8	14	17	12	20
Japan	2	4	10	16	9	11	14	23	13	27

Source : IMF. Annual Report, 1964, 1965, 1966.
Note : Column (A) shows the growth rate of export market.
Column (B) shows the growth rate of export.
(I) The growth rate of the export market of the United States, in 1965 is difficult to calculate correctly owing to changes in statistical classification.

Table 7.

Export Market Elasticity Value of Highly Industrialized Nations

Country	1961	1962	1963	1964	1965
United States	0.50	1.33	0.88	1.17	0.38—0.50
United Kingdom	1.00	0.43	0.77	0.33	0.47
France	1.00	2.00	1.25	1.00	1.09
Germany	1.38	0.63	1.00	0.85	1.10
Italy	2.14	1.50	0.88	1.14	1.67
Japan	2.00	1.60	1.22	1.64	2.08

Source : IMF. Annual Report, 1964, 1965 and 1966.

The higher the value for the country is, the faster is the export expansion of the country.

In this sense, it may be concluded that the advance of Japan and Italy in the world market is very rapid, while the United States and the United Kingdom are very slow in their export growth in relation to the expansion of their export markets.

(8) We take up the relative cheapness of export price as an indicator of competitiveness in the world market.   By the relative cheapness of export price we mean the relative change of a country's export price in comparison with the change of the average export price of industrial nations.   For example, if country A's export price rises by 5%, while the average export price of industrial nations rises by 10%, then country A's relative change of export price is minus 5 %.   Table 8 provides the relative changes of export price in each industrial nation.

Table 8.

Relative Change of Export Price in
Highly Industrialized Nations (%)

Country	1961	1962	1963	1964	1965
United States	0	0	−2.0	−0.5	+2.0
United Kingdom	0	0	+1.0	0	0
France	0	0	0	+2.0	−1.5
Germany	+2.5	+4.0	−2.5	−0.5	+0.5
Italy	−4.0	−4.0	+4.0	−0.5	−2.5
Japan	−4.0	−4.0	−2.0	−2.5	−3.0

Source : IMF. Annual Report, 1964, 1965 and 1966.

Those countries, such as Japan and Italy, which have high export market elasticity values, have kept their export prices low in relation to the average export prices.   From this fact, we realize that, in order to expand export in the world market of keen competition, we must keep the relative export price as low as possible.

In the case of the United States, and especially of the United Kingdom, the relative export prices have rarely been below the average.   This is one of the reasons why exports of these countries have failed to expand rapidly.

(9) The geographical export pattern of the six leading industrial countries

is presented in Table 9.   All of these six countries increase percentages of
their trade with the industrial area but they all reduced their trade ratios with
the developing area.   Their trade with "other developed area" and with the
Sino-Soviet area does not show such a distinct tendency as is shown in the
case of their trade with the industrial area and with the developing area.

Those countries which diminished their trade percentages with "other
developed area" are the United States, the United Kingdom, Germany, and
Italy, while those which increased them are France and Japan.

As for trade with the Sino-Soviet area, their relative importance de-
creased in the United States and Germany, while it increased in the United
Kingdom, France, Italy and Japan.

The fact that the relative importance of the industrial area as a market
for all these six countries has been increasing, means a growing intra-in-
dustrial area trade at the expense of trade with developing areas.

Among the six countries, those which have the largest percentages in
trade with the industrial area are Germany, Italy and France.   These three
countries are members of the European Economic Community established in
1958, and have remarkably expanded their trade with the E E C countries.
The United States holds an intermediate position.   Her trade percentage

Table 9.

Geographical Pattern of Export of Highly Industrialized Nations (%)

Country	Industrial Area		Other Developed Area		Developing Area		Sino–Soviet Area	
	1958	1965	1958	1965	1958	1965	1958	1965
United States	45.2 (13.6)	55.8 (18.3)	6.3	5.2	36.2	31.0	0.6	0.5
United Kingdom	36.1 (13.8)	47.5 (20.1)	24.5	19.6	34.2	25.6	3.1	3.2
France	42.0 (22.0)	63.5 (41.4)	5.8	8.7	48.4	25.0	3.6	3.8
Germany	62.6 (27.3)	71.4 (35.2)	7.8	7.5	23.2	14.3	5.0	3.7
Italy	56.2 (23.6)	66.2 (40.2)	9.2	8.7	28.0	16.2	4.7	5.3
Japan	37.0 (4.2)	43.4 (5.7)	3.6	8.8	57.0	43.0	2.6	5.7

Source : IMF. Direction of Trade
Note : Figures in parenthesis show percentages of export to the European Economic
      Community.

with the EEC is not so large as the above three countries.   The United
Kingdom and Japan have the smallest percentages.   Japan's export to the
EEC takes only about 6% of her total export in 1965.

As for export to developing areas, Japan and the United States register
the highest percentages, especially large is the percentage recorded by Japan.
In contrast, Germany and Italy have the lowest ratio in export to developing
areas, whereas the United Kingdom and France show an intermediate ratio.
(10)   The shares of each developing area in the total export of the above
six countries are shown in Table 10.

The United States, France and Japan have their export concentrated to
a particular area, while Germany, Italy and the United Kingdom have their
export fairly evenly distributed to each area.

In the case of the United States, Latin America is the largest market.
For France the most important market is Africa, and for Japan South and
South-east Asia.   It is noteworthy that the degree of concentration of ex-
port to any particular area in 1958 decreased in 1965 for the above three
countries. For the United States, the ratio of export to Latin America fell
from 24.2% in 1958 to 15.5% in 1965, and for France the ratio of the
African market decreased from 35.8% in 1958 to 15.7% in 1965, and for
Japan, the percentage of South and South-east Asia declined from 32.4%
in 1958 to 25.9% in 1965.

Table 10.

Shares of Each Developing Area in the Export
of Highly Industrialized Nations (%)

Country	Latin America		Middle East		Africa		South & South-east Asia	
	1958	1965	1958	1965	1958	1965	1958	1965
United States	24.2	15.5	2.6	3.4	1.7	2.2	7.7	9.5
United Kingdom	7.0	5.5	5.7	5.0	8.8	6.9	11.9	8.9
France	5.6	3.8	2.4	2.5	35.8	15.7	4.5	2.0
Germany	8.2	4.6	4.5	3.2	2.6	2.4	7.9	4.1
Italy	10.7	4.5	5.5	3.9	5.6	4.9	6.2	2.7
Japan	7.0	5.4	4.8	3.5	12.8 (4.7) (1)	7.7 (3.4) (1)	32.4	25.9

Source : IMF. Direction of Trade.

Note : (1) Figures in parenthesis indicate the export of ships to Liberia.

THE EARLY DEVELOPMENT OF KOBE PORT

Seiji SASAKI

I

Kobe port of today clearly includes the port-area named "Hyogo-pier" within its boundary, and is nothing but the old port of Hyogo which was one of the most famous and prosperous ports during the period of sailing vessels. From this, people are apt to reach the simple conclusion that the port of Kobe belongs to type of so-called good natural port. At least there is a popular impression or recognition generally that the present modern port of Kobe in that of the old port of Hyogo which expanded or evolved during the hundred years after the reopening of our country to foreign commerce. We can consider from a historical standpoint that the port of Kobe belongs to the category of "an old famous port". This article does not aim to oppose the above opinion. On the contrary the author rather wishes to stress this historical connection in comparison with the following facts ; first, the old ports of the Mediterranean Sea like Marseilles and Genoa show clearly a degeneration, and second, it is evident that there is a difference of sphere between the anchoring ground of the old port of Naniwa and today's port of Osaka as well as between the landing place of the old port of Edo and the present port of Tokyo. Actually it is certain that old Hyogo port is distinctly connected with the new port of Kobe as compared to the very much weaker relation of the old Naniwa port to the present port of Osaka, and of the old Edo port to the new port of Tokyo.

However, we cannot overlook the delicate but indubitable distinction itself, between the old port of Hyogo and the present port of Kobe on the one hand; for there is a certain variation not only in the word (name) but in the substance, historically or developmentally. At least all Japanese in those days knew that new Kobe was not the same as old Hyogo, although it includes Hyogo in its geographical city limits now. This discrimination was generally recognized in Kyoto, Tokyo and elsewhere in Japan as well as in Kobe (Hyogo). In fact the port of Hyogo, not of Kobe, was opened, because the latter was not yet a port-town. We must carefully understand

the fact that the notification to open Kobe in place of Hyogo was issued formally after the accomplishment of the Meiji Restoration, and that the Japnese Governments, both the Shogunate and that of Meiji, attempted to create new facilities such as anchoring grounds foreign settlements, and so on in Kobe which did not have any facilities required for a modern port at that time.

There is a delicate but important distinction in the following two points ; 1) the old port of "Hyogo" became the modern port of Kobe _____ it would be better to say the modernization of the old port _____ , 2) the new modern port of "Kobe" was built and developed near the old port-town and absorbed the latter little by little.

It was certain that most Japanese of the time had hardly any knowledge of the little village of Kobe, as to whether it was a place suitable for ships to enter or not.   Neither did most Western countries. America and European nations had perhaps few knowledge about Hyogo, which was a very famous port in our country.[1]   Especially the two nations, the U. S. A. and Russia, which were most positively trying to open some Japanese ports for their own mercantile marines, seemed to have little knowledge of Hyogo port in the first stage; for the port was geographically very far and inconvenient to American whaling-vessels and Russian ships.

Hyogo port did come question as an officialt treaty port in he discussion of the so-called *"Shimoda-Treaty"* which was proposed by Harris, the American Consul-General.   Even at this stage, representatives of the Tokugawa Shogunate government gave unwilling consent to open the port of Hyogo as well as both the cities of Osaka and Kyoto that were directly requested to be opened by Harris.   By the way it is said that the port of Sakai, one of the oldest and rather more famous port, was earnestly recommendedin the early stage of the discussion, though the port was finally struck off the list later.

In this meaning the opening of Hyogo port was a compromise between both parties.   And we must remember that the majority of the Western countries did not estimate the port of Hyogo so highly on account of their insufficient understanding, while the Japanese Government, both the Toku-

(1) The Dutch and Korean missions landed at or passed Hyogo on their way to Edo (Tokugawa-Shogunate).

gawa Shogunate and the Meiji Government, tried to keep any foreign power
away from Kyoto, where the Japanese Emperor lived and where the head-
quarters of an anti-alienist group was also located.

In addition to such negativism or hesitation in the opening of the port
of Hyogo, a final disagreement was declared by the Emperor's Government
in Octover 1865.   When the opening of the port was permited officially
and somewhat inevitably two years after, the provision for necessary in-
stitutious, especially, the establishment of a settlement was carried on in
Kobe, not in Hyogo.   The new modern port was born in place of the old
Hyogo port. In this meaning the new port of Kobe was formed with very
much difficulty.

Some of the following reasons are given to explain the opening of
Kobe instead of Hyogo ;
1) The people of Hyogo were afraid of foreigners as being terrible bar-
barians, 2) There was already a place for anchoring in Kobe, 3) The
geography of Kobe and its neighbour-hood was wide and flat, etc. Regard-
ing the selection of Kobe instead of Hyogo, we can add a few important
facts or problems ; first, its geographic nearness to Kyoto and Osaka, es-
pecially the latter, second the commercial importance of Osaka, (the real
superiority of Osaka-merchants over Hyogo-merchants), and, finally the
gradual but necessary recognition that a new foreign trade should be
accelerated through Osaka and its merchants.   In fact, the growth and
development of Kobe Port was in close connection with the economy of
Osaka.

From a strict interpretation, however, the opening of Kobe instead of
Hyogo was a sort of swindle.   The change was quite different from the
opening of Yokohama in place of Kanagawa as one of the new trade
ports, even if there were some apparent similarities[2] in both.   Of course,
there was a distinct gulf between the relation of Kobe with Hyogo and
that of Nigata with Ebisu (in the island of Sado).

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(2) a) As both towns of Kanagawa and Hyogo were on the main route to Edo, unforeseen
         trouble might take place during a *"daimyo procession"* it the towns became a trade
         port where many foreigners would live and visit.   From this anxiety the Tokugawa
         Shogunate tried to select a smaller village in the suburbs.
     b) Both Yokohama and Kobe were not yet ports, and this might have given less difficulty
         in forming new big port-facilities.

Undoubtedly it is important and often necessary to have a general com-
prehensive grasp and understanding of the five ports, Hakodate, Yokohama
(Kanagawa), Nigata, Kobe (Hyogo) and Nagasaki, or six ports including
Osaka as symbols of Japanese new modern ports.   It would also be useful
to regard en bloc or common both ports of Yokohama and Kobe as the
two greatest by showing many comparisons between them.   However,
another important thing which must be remembered is to find eacd port's
own characteristic and development process.   Why did only the two ports,
Yokohama and Kobe, tower above the rest?   Did they have the same
condition and character in their progress as either of a port or in the trade
carried on there?   Did the port of Kobe grow up quite differently from
the port of Yokohama?

II

The Commerce Treaties of 1859 signed between the Tokugawa Shogun-
ate and the five countries, the United States of America, Holland, Russia,
the United Kingdom and France, described the opening dates of these five
Japanese trade ports as follows ;

        Kanagawa, Nagasaki and Hakodate...................July 4, 1859
        Nigata..January 1, 1861
        Hyogo..January 1, 1863

Even from this we can understand that the last to open was the port of
Hyogo (Kobe).   Moreover its opening date was really postponed to a few
years later.   Naturally it showed a later start in forming modern port
provisions.

The late opening of Hyogo-port came, as aforesaid, from its connection
with Kyoto (Emperor's government) and with the conservative anti-alienist
group.   After the signing of the above-said Commerce Treaties the dispute
concerning the reverence for the Emperor and expulsion of foreigners waxed
hot, and in October of that year, it led to the Emperor's negative answer
in refusing to open Hyogo port.   On the other hand the postponement of
the opening of Edo, Osaka, Nigata and Hyogo was seriously discussed
because of radical actions like attackes against foreigners, foreign firms and
Japanese rich merchants.   At last a special mission consisting of Y.
Takeuchi, Y. Matsudaira, T. Kyogoku and others visited European countries

in order to obtain consent in postponing the opening of the above four ports till January 1, 1868.

There were also some questions as to whether the delayed date for opening the ports could be successfully kept, and whether the Emperor's government would agree with the opening of Hyogo port itself as a major promise. In fact the Kyoto party, viz, the anti-alienists under the command of the Satsuma-han and Choshu-han, did not easily amend their movement against the opening of Hyogo port. But in May of 1867 the latest agreement for opening the port was issued in exchange for leniency regarding the Choshu-han's defaults,[3] while foreign fleets were carrying out a demonstration in Osaka Bay.

The opening of Hyogo port was realized for formality's sake on the first day of January 1868, when several warships belonging to the United Kingdom and the United States of America were putting pressure on the port.

While both of the above-said foreign problems and the late start of over 10 years compared to the port of Yokohama must be particularly remembered as the most essential and direct reason that brought about the relative slow development of the port of Kobe, the following fact must be also stressed for its similar effect; the port was built in a new place separate from the old port of Hyogo. As stated before, Kobe was not a port in those days, and did not have any harbour-equipment. From this meaning we can also say that Kobe port was gradually formed from a bare coast town where there were no modern harbour-equipment. In the middle of the nineteenth century there were only about 500 houses in Kobe village, about 300 houses in Futatsuchaya village and 140 houses in Hashirimizu village in comparison with about ten thousand houses in Hyogo town.

We can get a bare picture of the port from the next few situations; first, it was the anchoring place for local sailing vessels, "*Higaki-kaisen*" and the "*Taru-kaisen*" both were regular traders from Kamigata (Osaka and Hyogo) to Edo (Tokyo) in the early Meiji Era; second, it had a

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(3) The Choshu-han had bombarded American and Dutch warships at Shimonoseki in May 1863. The squadron of each country and their allied fleets attacked Shimonoseki in that year and the next, and requested considerable indemnity because of their victory. On the other hand the Tokugawa Shogunate tried to conquer the Choshu-han twice. After all the Choshu-han was punished tolerantly and remitted half of the requested indemnity.

"Fune-sue-tate-ba" (an equipment like dock to scrape off and burn sea-weeds or shells), which was built by Kichibe Amiya in 1859; third there was the "Kaigun-sorensho" (Navy School) built by Kaishu (Rintaro) Katsu. Even after the royal permit of opening the port concrete works were not easily set up and only a few formal preparations were realized like the appointmnet of several port officers and plans for "Hyogo-Kaiko-shosha" (an enterprise to arrange for opening the port) which miscarried at last. So there were only a few nominal equipment——"Unjosho" (custom house), three little warehouses and three piers——at the ceremony for the opening of the port, while the settlement had not yet been brought to completion.

Here it must be repeated that formal permit or determination for the opening of the port never meant the appearance of a modern port with substantial equipment and the visible shape of a port.   The modernization of Kobe port——it should rather be said, the development of Kobe from a village to a port town——took many years and many difficulties had to be conquered.   The Tokugagwa Shogunate system fell apart soon after the ceremony for opening the port.   This was followed by a period of domestic war and confusion accompanied by the complete stoppage of trade and shipping transportation.   Of course the construction of the new port was put in abeyance during this period.

A real chance for Kobe to begin fulfilling its function as a port for foreign trade, in other words, as a port for foreign ships to visit; was given in fact by the new Meiji Government; above all, by its local department in Kobe, though the name was often changed as follows; first, it was "Hyogo-Jimkyoku", second, "Hyogo-Chindai", third, "Hyogo Courthouse", and last, "Hyogo Prefectural Office". M. Higashi-kuze assumed formal leadership, with Sajiemon Iwashita, Tozo Terashima, Shunsuke Ito (H. Ito) and so on.   The last man, Ito, the First Prime Minister in our country, made the biggest and most direct contribution to the development of Kobe and of modern Kobe port, when he was the public official for foreign affairs at the prime of his life.   Later he became the Governor of Hyogo Prefecture.

However, such a start toward the modernization of the port of Kobe, which was brought to fruition by Ito and others, did not immediately mean the achievement or the beginning of physical modernization in port equip-

ment. It meant indeed only an actual start forward to becoming a modern port, or a port itself.   The real construction of modern harbour facilities depended greatly upon many people, both Japanese and foreigners and required much time and expense.   Even in selecting a place for the construction of a settlement itself, can we find many difficulties.   It was certain that the new Meiji Government had little money and power to accelerate such a large peaceful work against urgent military movements.

On the other hand, a grave transition quickly took place on a large scale with the moving of the Meiji Government (Emperor) from Kyoto to Tokyo, that is, all leaders of the Meiji Restoration moved to Tokyo, and their important concern was turned to the urgent development of Tokyo and Yokohama.   The majority of useful Japanese young men, as well as foreigners, also centered in Tokyo.   So the nucleus of our country was transferred from Kyoto or Kamigata including Kobe (Hyogo) to Tokyo and its neighbouring area.   Although the actual economical center of our country still remained in Kamigata (Osaka and Kobe), and the Osaka merchants especially were continuously playing a most active part in Japanese economy.   The fact, however, promised little good for Kobe or Hyogo ; there was not a merchant firm in Kobe, and no large Hyogo merchant could have precedence over, any Osaka, merchant in any aspect or period.   In the final analysis Kobe or Hyogo was subordinate to Osaka and its merchants.   Moreover, new friction between Hyogo (residents) and Kobe (residents) came into existence with the development of Kobe territory. Because of all these conditions the port of Kobe was not quickly able to start substantial modernization development as a modern port——even though the course itself had been decided.

While the following chronological date show us main early construction works made in the port of Kobe, we can easily understand their relative lateness in starting essential modern harbour facilities.   The so-called first section of the work was started in about 1906.   The same construction work had been earlier undertaken in other ports like Yokohama in 1889, Nagoya in 1896 and Osaka in 1898.

> 1868 (Meiji-1)   Opening of Unjosho (custom houses, east and west, by the new Meiji Government)
> Completion of settlement construction work.

1871 (Meiji-4)   Building of the Wada Light-house.
                    Construction of a coast stone quay. (repeated often
                    later on)

1873 (Meiji-6)   The East Unjosho changed its name to the Kobe
                    Custom House.   Laying of the pier——15ken-length,
                    3ken-wideness——by the West Unjosho.

1875 (Meiji-8)   Opening of the Kanagawa Dock inside Kobe (railway)
                    Station.

1876 (Meiji-9)   Construction of the Railway Pier inside Kobe Station

1882 (Meiji-15)   Establishment of the Kobe Sambashi Kaisha (Kobe
                    Pier Company) and construction of their pier.
                    Establishment of the Kobe Senkyo Kaisha and con-
                    struction of their pier that was made of many vessels
                    connecting each other.

1883 (Meiji-16)   The fixed moorage for the navy was moved from
                    Hyogo to Kobe.

1884 (Meiji-17)   The Kobe Sambashi Kaisha built a railway pier in
                    Onohama with warehouses and sheds.

1885 (Meiji-18)   Establishment of a permanent disinfecting station
                    (predecessor of the present Kobe quarantine station)
                    at Wada Point.

1889 (Meiji-22)   Kobe was organized as a municipality.

1892 (Meiji-25)   The fixed moorage for ships was enlarged. (The
                    amount of import in this port accounted for 40 percent
                    of the total volume of Japanese import trade).

1896 (Meiji-29)   Opening of the Kobe inspecting office of Silk.
                    A survey for harbour construction was started.

1897 (Meiji-30)   The break-water was built in front of Kano-cho as a
                    work of the Kobe Custom House.

1898 (Meiji-31)   The 30th anniversary of open-port.   The issue of
                    open-port regulations.   The establishment of Kobe
                    Port Authority.   Establishment of "Kobe Ryoshui Co.
                    Ltd. to supply water to ships.   The plan for Kobe
                    harbour construction——so called "Okino's plan"——
                    was brought to completion.

1899 (Meiji-32)   Restitution of the settlement territory.

1901 (Meiji-34)   A Union for pilots, named "Setonaikai Pilots Union," was founded in Kobe.

The Onohama shore protection works were carried out.

1903 (Meiji-36)   Formation of Ikari hill (Anchor hill)

1906 (Meiji-39)   Sakatani, Minister of Finance, expressed his plan for Kobe port construction.

1907 (Meiji-40)   The first section for port construction was set up. A railway combining the land with the sea was completed.

1910 (Meiji-43)   Construction work of the East breakwater was started.

1911 (Meiji-44)   Reconstruction of Meriken-pier was brought to completion.

Although through almost the whole of the Meiji Era the port of Kobe had not yet grown to be a modern trade port in the rigid meaning of the term, actual foreign trade business and shipping business (transportation activity), were carried on to a certain extent, so that both the port and the city also developed correspondingly.   Our next subject will be to take up the essential character of Kobe commerce during the fifty years till the end of the Meiji Era or World War I.   But we are able to describe them only grossly and most typically;

a.   Inclination toward import trade

In contrast to Kobe's present high estination as the most important exporting port, the foreign trade of Kobe port at that time clearly inclined toward import, as is shown in the above paragraphs.   At the earliest stage Osaka merchants clerks came to Kobe carring small quantities of packed goods on their backs and attempted to sell them to foreigners along the roads or on the shore, expressing themselves by gestures.   This was the first type and method of export from this port.   Till the tenth year of Meiji (1877) exporting cargo shipped from Kobe port was very small in number and quantity; the third item (tea) can be pointed out as the only plausible cargo among some of the exporting goods like silk, silkworm-egg card, tea, raw wax, tobacco etc. shown in old records of the time.

Compared with exports, the import trade clearly and gradually increased at an early stage because of the recovery and stabilization of domestic order

after the accomplishment of the Meiji Restoration, of the trend to adopt European civilization, especially all foreign progressive goods, and of the unexpected military demands for the Japan-Formosa War (1874) and the Satsuma Rebellion (1877). Since the second decade of Meiji import trade had been given more rational and large impetus by the following economical development, that is the successful consolidation of paper currency opened the road to modern economy (capitalism) in the concrete and to direct expression of the so-called capitalistic industries, and presented a decisive opportunity to import much material, machinerys and equipment. Of course this general tendency as a whole was surely recognized in imports of Kobe port. But there was a relative stagnation in both exports and imports before the twenties year of Meiji (1887) at Kobe because of a rigid and detailed survey. Besides the actual progress of the above-said economical developments, there were a few direct considerations that led to a quick and real growth of foreign trade, especially of import, in Kobe port; first, the development of local transportation in Kobe City including the completion of road sand a railway, second, the appearance of native shipowners including shipping interests in the town——so-called Shagaisen group. The clearest and greatest increase in import (amount) can be pointed out from the twenty-fourth year of Meiji (1891). It is well to remember that imports of Kobe port stood first in the list of Japanese trade ports by exceeding that of Yokohama port, and this position has continued to date. It is need less to repeat here that foreign trade, especially imports of Kobe port increased greatly through the two wars, the Sino-Japanese War in 1894-5 and the Russo-Japanese War in 1904-5, and with an attendant expansion in economy, commerce, and transportation.

b. Transportation of main imported cargoes

The composition of imported goods was variable through the fifty years. Firstly the import of raw materials increased very rapidly from the 20th year of Meiji onward, while that of finished goods conversely decreased. Second, in the early period the main imported cargoes were composed of clothing and woven goods, but textile material (weaving thread) took first place together with petroleum and sugar during middle of the Meiji period and at last cotton and ginned cotton became the largest imported cargo during the later period. From this phenomenon we can easily analyze the

regular development of Japanese industry, especially the fiber industry. On the other hand we must understand that in those days Kobe port and its real daily activities remained as low as to transport such comparatively infant trading cargo. The above explanations will be useful for us in studying the reasons and limitations for the slow modernization process of Kobe harbour.

c. Many-sided shipping activity

Apart from the smaller size vessels in those days, which in itself has connection with the slow development of the port, we must here point out the fact that the many-sided activity of marine transportation can be recognized in Kobe port since the earliest days. Such a tendency can also be found in Yokohama port, but that of Kobe in more distinct and is full of importance. It was of course related to the high importance of the Hanshin (Osaka and Kobe) economic power, on the one hand, and was connected with its geographic or historical position to many main world-wide trade ports on the other hand. Moreover, it seems to us that the slow tempo of modernization and its eventually indispensable performance together depended on this multifariousness considerably.

In spite of the above-mentioned undeveloped situation as a modern port, a good number of foreign vessels visited Kobe even during the earliest preiod, that is, immediately after the opening of the port, and their flags were various; the *Hayot*, the first merchant-ship to enter Kobe port after the opening was a German ship, and her captain and crew were English. In 1868 another German sailing vessel, *Illies* visited Kobe as the first ship from Europe (Hamburg), while at the same time the English sailing vessel, *Brave*, set sail from this port to the United States of Americaloaded with tea. Other foreign liner-boats,——especially American and English vessels ——either sailing vessels or steamers, began to call at Kobe on their route between their own home-port and Far Eastern ports like Yokohama, Nagasaki and Shanghai as well as tramp ships of other countries called at very often this port. Consequently the flags of the vessels that entered Kobe port were various and it was easy to find those of the Dutch, English, French, German, Italian, and of the U. S. A. together with Asiatic shipowners like the Chinese. On the other hand the Japanese ships set sail from Kobe Port for many foreign ports when steamers and their shipowners

began to grow gradually. Almost all Japanese ocean-going liner-boats that
were first built by the "Mitsubishi Kaisha" and were able to develop
through the efforts of the "Nippon Yusen Kaisha" and "Osaka Shosen
Kaisha" set sail from Kobe or at least called there.   As the shipowners of
the "Shagaisen"——so-called Japanese tramps——began to grow in Kobe
the port, majority of Japanese tramps practically ran between Kobe and
foreign ports.

Such multifariousness of ships, their flags and their routes, etc. as has
already been shown beforehand, promised the internationality of Kobe as a
big city or port.   The development of Kobe port was nothing but the
progress of this international character in a sense.   And it seems to us
that the greatest and final stage of such an international connection set up
the true modernization of the port at the end of the Meiji Era, while the
distinct enlargement in ship size and the continuous increase of ships and
trading cargo gave the most direct impetus to its physical growth as a port
together with all the other land developments like population, industries,
transportation and so on.

RISE OF MODERN SHIPBUILDING IN
JAPAN AND PROMOTERS

Tadakatsu INOUE

I

The beginning of shipbuilding in Japan goes back to the mythological age. According to the *Nihonshoki* compiled in 720 for the purpose of recording the legendary traditions chiefly on the origin and lineage of the Imperial Family, King Suijin who is believed to have been on the throne from 97 to 30 B. C. encouraged his subjects to build ships. This is quite possible in view of the geographical conditions of Japan as an island nation, though most of the ships built in those days must naturally have been small and simple.

In the early seventh century the *Yamato* (Japanese) court sent its first cultural missions headed by Imoko One to Zui, the then dynasty of China. After the dynasty was replaced by Tô in 618, Japan continued to send missions to the continent. This clearly indicates that ships capable of navigating the ocean had already been built in those ancient times.

In the days of the Kamakura and Muromachi periods that continued from the late twelfth to the sixteenth century, both the feudal lords in Kyushu, Shikoku and Chugoku districts and the merchants in the cities of Kyoto, Sakai and Nagasaki became increasingly active in foreign trade while, on the other hand, famous pirates called *Wakô* infested the Chinese coast and the more southern seas. In the following Azuchi-Momoyama Era, Hideyoshi Toyotomi who rose from the lowest position of footman to the highest of *kampaku*, the chief adviser to the Emperor, encouraged foreign trade by using chartered ships called *Goshuin-sen*, and also sent large expeditionary forces twice to Korea in the 1590's. All these events gave a big impetus to the rise and development of shipbuilding in all parts of Japan.

The growing tendency in shipbuilding, however, was suddenly checked with the enforcement of the seclusion policy in the early days of the Tokugawa Era. After 1635 Japanese were forbidden to leave Japan and

foreigners to settle there.   A concomitant law forbade the building of ships of five-hundred *koku* and over and with a structure of two masts and a keel.   After 1639 to 1641, commerce between Japan and the outside world was restricted to that conducted by the Chinese at Nagasaki and by the Dutch merchants who established a firm at Deshima in the same neighbourhood.   As a consequence the demand for ocean-going ships disappeared.   All ships built during the Tokugawa period that lasted as long as two and a half centuries were thus limited to those for coastal and river services.   And there naturally developed a peculiar type of ship known as *Yamato-gata-sen* (Japanese-style ship) which was characterized not only by its smallness but also by its keelless structure with a single mast and sail.

As is generally known, when Commodore Perry steamed for the second time into Uraga Bay in 1854 and refused to leave without obtaining from the Shogunate the right of calling at Japanese ports, the Government found difficulty in keeping its long established policy of isolating Japan from the rest of the world.   By 1858 the Government was compelled to sign treaties which conferred rights of trade on American, British, French and other nationals.   It is needless to say that this forced opening of the ports to foreigners marked the beginning of the marvellous changes in Japan's economic and political life that subsequently occured.

Now that Japan opened her ports to foreign trade and joined in the society of nations, her government and people could no longer rely on the traditional water transportation facilities represented by *Yamato-* style ships which had been used wholly for coastwise service.   They had to be promptly replaced by Western-style ships which surprised the Japanese by their superior capacities as ocean-going ships.   Since the necessity for the modernization of ships was recognized, Japan's shipbuilding industry entered upon a new phase of development.

II

The process of the modernization of Japanese-built ships that took place from the middle of the nineteenth century may be outlined as follows.

The transition from Yamato-to Western-style sailing vessels.
Although both *Yamato*-and Western-types were sailing ships built of wood, they were greatly different in their structures.   As mentioned above, the

former which had long been used exclusively for coastal service was a small keelless ship. In contrast, the latter which had developed as an ocean-going ship was a larger ship with a keel able to surmount the raging waves. It was thus necessary for those who attempted to adopt Western-style ships in place of *Yamato-gata-sen* to make a fresh start in acquiring the art and science of building the former type of vessels.

Credit for the first Western-style sailing ship is given to the Mito clan, which built the *Kyokuzitsu-maru* in 1856 at Ishikawajima, Yedo (Tokyo). It is interesting to note how the clan got the technical skills to build the ship.

In 1854, a Russian fleet off the coast of Shimoda was seriously struck by a tidal wave. The commodore of the fleet decided to build two sailing vessels of the schooner type at the port of Heda, Izu and asked the Shogunate to supply the necessary materials and labor. To seize this opportunity of learning the art and science of building new type of sailing ships, the Government sent retainers (*samurai*) of its own and of the local lords besides a group of carpenters and blacksmith and had them engage in building the ships under the direction of the Russians. Among the *samurai* there was Hanbei Suzuki delegated by the Mito clan, whose expericence became the technical basis for building the *Kyokuzitsu-maru*. But the ship was soon called "*Yakkai-maru* (troublesome ship)" because of difficulties in controlling her due to a mistake in the plans.

The adoption of steam power in place of sail. In 1849, the Satsuma clan ordered Ganpo Minozukuri to translate a Dutch book on steam engine into Japanese. Under the guidance of this translation, the clan built a trial steam engine in 1851 and installed it in a small boat. As a more earnest effort along this line, the Shogun founded a shipbuilding yard in 1857 at Nagasaki with the assistance of Dutch engineers and, in 1859, constructed the steamship *Tamaura* about twenty-seven meters long. This ship is generally known as the first steamship built in Japan.

The transition from wooden to iron and steel ships. Efforts to introduce iron and steel in shipbuilding were made in the 1880's. Three iron-framed wooden warships—the *Katsuragi, Yamato,* and *Musashi*—were constructed at the shipyards of Yokosuka and Onohama, Kobe in 1885 and 1886. Then, two steel-framed and iron-board warships—the *Atago* and *Takao*—were built at Onohama during the next two years. The same de-

velopment occured in the construction of merchant vessels.   Among the
first iron ships there were the Asahi-maru and Ajikawa-maru built at
Onohama in 1884 and 1885 and the Yoshinogawa-maru (401 gross tons),
Minatogawa-maru (about 400 gross tons), Kizugawa-maru (138 gross
tons), and Kamogawa-maru (421 gross tons) each constructed at the
Kawasaki Dockyard Company of Kobe in 1885, 1886 and 1887.   At the
latter shipyard two steel ships, the Tamagawa-maru and Fujigawa-maru,
each of about 500 gross tons, were built in 1889, while, in the same year,
the shipyard of the Mitsubishi Company of Nagasaki constructed three steel
vessels, the Chikugogawa-maru, Kisogawa-maru, Shinanogawa-maru, each
of about 600 gross tons.

The appearance of larger Japanese-built ships.   Although the modern-
ization of Japanese-built ships had been carried on since the middle of the
nineteenth century, before 1895 the Japanese shipyards launched only one
vessel of over 1,000 gross tons.*   A new era began with the Shipbuilding
Encouragement Act of 1896, the year following the Shino Japanese War.
This provided for the granting of official subsidies to builders of iron and
steel vessels of 700 gross tons and over.   The bounty was fixed at the
rate of 12 yen a ton for ships of under 1,000 tons and 20 yen a ton for
those of over 1,000 tons, while 5 yen per horse-power was given for marine
engines manufactured in Japan.   As a result existing shipyards were ex-
tended and several new ones founded.   In 1899 further encouragement was
given by an amendment to the Navigation Subsidy Law.   This law, passed
in 1896, had provided for subsidizing the mercantile marine.   The amend-
ment entitled owners of Japanese-built ships to claim twice the amount of
subsidy granted to owners of foreign-built ships.   From this time onward
leading yards were entrusted with the building of large ocean-going steam-
ships.   Vessels of over 700 gross tons built at private Japanese shipyards
in the years from 1896 to 1913 were as follows:

Shipbuilding Companies	Number of Vessels	Tonnage in Gross Tons
Mitsubishi	43	207,765
Kawasaki	35	101,713
Osaka	30	30,521
Others	4	4,568
Total	112	344,597

* This ship was the Sumamaru of 1,592 gross tons constructed at the shipyard of the
Mitsubishi Company of Nagasaki in 1895.

III

We have outlined the rapid progress in the modernization of Japanese-built ships during the few decades after the opening of the ports to foreigners. Next, we need to refer to the rise of Western-style shipyards in Japan where actual improvements in water transportation facilities took place. Emphasis will be laid on the problem of who played the leading part in laying the foundations for these modern dockyards.

1. *The role of traditional shipbuilders.*

It may truly be said that most of the ship carpenters who had been actively engaged in building ships for coastal or river service in the Tokugawa period failed to become modern shipbuilders.   See, for example, the leading shipbuilding companies of today.   There are none with the exception of the Fujinagata Dockyard of Osaka that had their origin from traditional shipbuilders.

The explanation for this is not hard to find.   As mentioned above, there was a great difference between Western methods of shipbuilding and traditional ones.   Ship carpenters thus found great difficulty in adapting their craftmanship to modern technical methods of shipbuilding.   Further, a large sum of money was needed to build a Western style yard capable of efficiently building ocean-going steamers.   This undoubtedly made it difficult for traditional shipbuilders to transform themselves into modern industrialists.

2. *The shipyards founded by foreign residents.*

Among the Europeans and Americans who resided in Japan after the opening of the ports to them in the late 1850's, there were those who started shipbuilding and ship repairing businesses in Kobe, Hakodate, and other places.   The following cases indicate that they played no small part during the early Meiji Era in initiating Japanese modern shipbuilding industry.

Edward C. Kirby's shipyard: the origin of the Naval Arsenal of Kure. About 1865 E. C. Kirby, an Englishman, came to Yokohama and became an importer of matches and dry goods.   In 1868, when the port of Kobe was opened to foreigners, he moved there and engaged in importing dry goods and machinery.   Sometime later he founded an iron-work at Onohama, Kobe with two partners and started out in the ship repairing business.

After a failure in 1878, the partnership was taken over by Kirby, who was thereafter the sole owner of the establishment.   In 1884, however, when the yard was busy in building the coastal defense ship *Yamato* and the merchant vessel *Asahi*, he got into trouble and committed suicide.   The Meiji Government who had advanced money to Kirby on the security of the latter's buildings and machinery took over the yard and put it under the administration of the Navy.   In 1895, the facilities were moved to near Hiroshima and became a part of the Naval Arsenal of Kure.   It is here that, about a half century later, the *Yamato*, the largest battleship ever constructed in the world, was launched.

Morehead's machine shop: one of the predecessors of the Kawasaki Dockyard Company.   An American called Morehead set up a machine shop in Kobe at the beginning of the Meiji Era and engaged in manufacturing and repairing marine engines.   The shop soon added the building of ships to its line and changed its name to the Balkan Iron Works.   But the firm was bought out in 1873 by the Meiji Government which had taken over a shipyard in the same harbor founded by *samurais* of the Kaga and Daishoji clans.   After operating the yard for over a decade, the Government yard was transferred in 1887 to the private ownership of Shozo Kawasaki, the founder of the Kawasaki Dockyard Company.

E. H. Hunter: the founder of the Osaka Iron Works.   Among the early employees of the above-mentioned E. C. Kirby and Co. of Kobe, there was a young man called Edward Hazlett Hunter from the same province as that of his employer.   Retiring from the firm in 1873, he engaged for a while in foreign trade at the foreign settlement of Kobe.   Then, in 1879, he determined to embark on the shipbuilding business and started the construction of a Western-style shipyard on a site of 3,000 *tsubo* at Ajikawa, Osaka.   The yard was completed in 1881 and called the Osaka Iron Works.   At the beginning of its operation, the yard had about two hundred employees and various English-made machinery powered by a steam engine of six horsepower.   After a successful operation of thirty-five years, the firm of Hunter and his Japanese-born son, Ryutaro Hunta, was reorganized in 1914 as a corporation under the same name.   (As everyone knows, the corporation was put under the control of the Hidachi Works in 1936 and the name was changed in 1943 to the present Hidachi Shipbuilding Company)

3. *Newly rising shipbuilders.*

Besides the shipyards of foreign residents, there arose a number of private ones founded by Japanese citizens. But the part they played in initiating the modern shipbuilding industry was not so important. Take, for example, the port of Kobe. According to a book published in 1898 for the celebration of the 30th anniversary of the port that was formally opened on January 1, 1868, the following names are listed as new ship-builders in the municipality :

Names	Years of Foundation
Gombei Hinoue's works	1 8 7 7
Shozo Kawasaki's works	1 8 8 1
The Hyogo Dock Company	1 8 8 2
Masakichi Daimatsu's works	1 8 8 8
Kiichiro Arita's machine shop	1 8 8 8
Hanbei Honda's works	1 8 9 1

But, according to the same book, all except Shozo Kawasaki were not worthy the name of modern shipbuilders by the end of the nineteenth century. In addition, S. Kawasaki does not fall under the category of a newly risen shipbuilder in the strict sense of the term. As will be stated later, he owed much of his success to the transfer of the Government yard of Kobe to him in 1887.

4. *The role of Government yards.*

Toward the end of the Tokugawa period, the Shogun and the *daimyo*, who saw the irresistible might of Western naval equipment, realized the necessity of improving their own water transportation facilities. To begin with, they bought ocean-going ships from abroad. At the same time the Shogun annuled in 1853 the law forbidding the building of large ships and founded himself several shipyards at Uraga, Nagasaki, Yokohama, and Yokosuka for repairing and building ships. The Mito, Satsuma, and Kaga clans also followed this and set up their yards at Ishikawajima, Kagoshima, and Nanao. It is needless to say that foreign technical experts made an important contribution to the construction of these yards, though entre-preneurial initiative came almost entirely from native sources.

After the House of Tokugawa was overthrown in 1868 and the Emperor was restored to the constitutional position which he had not occupied for some hundred years, the new Government took over the shipyards of the

Shogun and the *daimyo* and re-equipped and re-organized them.   For example, the yard of Nagasaki, originally owned by the Shogun, was put under the control of the Restoration Government in 1868 and, after an overall improvement, played an important part in repairing vessels during the Satsuma Rebellion of 1877.

Among the new Government dockyards, some developed into naval arsenals while others were transferred to private ownership.   The yard of Yokosuka represents the former; it was turned over to the administration of the Navy in 1872.   The yards of Nagasaki, Kobe, and Ishikawajima, Tokyo each illustrate the latter; the first one was lent to a *samurai* named Yataro Iwasaki, the founder of the Mitsubishi Combine, in 1884 and transferred to him in 1887, the second one was lent and then transferred to Shozo Kawasaki, the founder of the Kawasaki Dockyard Company, about the same year, and the third one was lent to Tomiji Hirano, the founder of the Ishikawajima-Harima Dockyard Company, in 1876.   As everyone knows, the Mitsubishi, Kawasaki, and Ishikawajima-Harima are now the big Three in our shipbuilding industry.

<p style="text-align:center">*   *   *   *   *</p>

We have examined the four courses through which Japan's modern shipbuilding yards developed.   And we have made it clear that the most important among them was the course of development from the shipyards founded by the Shogun and the *daimyo* to the Restoration Government yards, and to private shipyards such as the Mitsubishi, Kawasaki, and Ishikawajima-Harima dockyards.   But this does not neccessarily lead to the conclusion that the Japanese Goverment played the most important part in laying the foundation for modern shipyards.   Before we reach any conclusion, we have still some important problems to examine.   They are as follows :

1. What were the conditions of the shipyards when they were under the control of the Shogun or the *daimyo* and, then, under the new Government?   If it is certain that the size, technical method, and administrative technique of these yards were in such a state as worthy of the name of modern shipyard, we would have no hesitation in setting a high value on the achievements of the then Government.   If not so, we shall come to an opposite conclusion.

2. What changes did occur in the shipyards after they were transferred to private ounership. If there are facts that these yards were really modernized through these changes, we must evaluate the entrepreneurial and managerial efforts of the businessmen such as Y. Iwasaki and S. Kawasaki.

3. In order to answer these questions, we must not only know more about the facts but also get a clearer idea concerning the concept of "modern shipyard."

These problems, however, are too big to be examined here. The writer is satisfied by indicating the main points of the problems.

A NOTE ON THE REDISTRIBUTION
OF PROFITS

Nobuko NOSE

In the traditional approach to income re-distribution, the main arguments have been directed to the re-distribution of income in the personal sector through, say, fiscal policy.[1]   There may be, however, the possibility of considering the redistribution of profits through taxation assuring the independence of the business sector as a going concern in an economy. At the same time, further reasoning for the incidence of profits tax can be obtained on the belief that the burden of profits tax can be passed on to other businesses or personal sector up to the point where the equalization of a profits rate can be obtained.   During the years of continuous debate on this question, the issues at stake have been made more precise in many literatures.[2]

This paper is essentially an attempt to incorporate this new material, and, taking statistical evidence, to appraise the possibility of the debate. In Section I we present a formula to clarify the point.   This serves both to illuminate the effects of profits tax for the business sector and to establish the basis for our statistical survey.   We add statistical results in Section II based on this procedure, and some remarks are discussed in the final section.

(1)   G. F. Shirras and L. Rostas, *The Burden of British Taxation* (Cambridge : at the University Press, 1942) ; T. Barna, *Re-Distribution of Incomes through Public Finance* (Oxford : at the Clarendon Press, 1945) ; A. M. Carter, *The Redistribution of Income in Post-war Britain* (New Haven : Yale University Press, 1955) ; A. T. Peacock, *Income Redistribution and Social Policy* (London : Jonathan Cape, 1953).

(2)   E. M. Lerner and E. S. Hendriksen, "Federal Taxes on Corporate Income and the Rate of Return on Investment in Manufacturing, 1927-52," *National Tax Journal*, September 1955; D. Bodenhorn, "The Shifting of the Corporation Income Tax in a Growing Economy," *Quarterly Journal of Economics*, May, 1956; M. A. Adelman, "The Corporate Income Tax in the Long Run," *Journal of Political Economy*, April, 1957; C. Cosciani, "Zur Frage der Überwälzbarkeit der Körperschaftsteuer," *Finanzarchiv*, 1959; R. E. Slitor, "The Enigma of Corporate Tax Incidence," *Public Finance*, September, 1963.

I *A Formula for Estimating the Redistribution of Profits and the*
   Equalization of Profits Rate

We produce somewhat different variations in the formulae from those
usually conceived; these can however, easily be adapted to other cases
wherever appropriate data are available for the objectives.

We assume that there are n industries in a closed economy and that
original data are available (also analysed by industry) for output, gross
trading profits, assets as well as the actual burden of profits tax.

First we define the rate of profits in the simplest from as

(1) $\rho_i = P_i/Y_i$

where P_i is gross trading profits in the i-th industry, and Y_i is output in the
i-th industry, both measured in money terms.   We also consider an asset-
output ratio γ_i for the i-th industry given by

(2) $\gamma_i = Y_i/A_i$

where A_i stands for total assets in the i-th industry.   Combining (1) and
(2) we shall define the 'rate of yield' of the i-th industry as

(3) $\gamma_i \rho_i = P_i/A_i$.

We have no statistical evidence that the asset-output ratios of all in-
dustries are equal with a constant value nor are there any data available
for the values on these ratios; it is however possible to argue that these
ratios are more stable than profits ratios because of technical reasons and
that the values may have less differences among industries than the latter,
having some level less than unity.   If then we may first discuss the rate
of profits, we shall be able to extend the reasoning to the case of rate of
yield in all industries.   On this ground, we shall start with the formulae
to present the comparison of the rate of profits before and after profits tax.

Let ρ_i and ρ_j be the rates of profits of i-th and j-th industries before
profits tax, it is clear that generally speaking they have different values
when there is no disturbance through profits taxation.   The key problem
here is whether equalization of profits ratios can be attained through the
assessment of profits tax and hence through redistribution of profits or not.

If now we may accept the argument, as shown in some previous works,
that an equality of the revenue ratio might be obtained as the key factor
in the process of the incidence of profits tax, then we can get an extreme
case where the rates of profits of all industries will reach an equal level

after the assessment of the tax. Therefore we get the relation

$$(4) \quad \rho'_i = (1 - \overset{*}{t}_{pi}) \, P_i / Y_i$$
$$= (1 - \overset{*}{t}_{pj}) \, P_j / Y_j = \rho'_j$$
$$= \bar{\rho}$$

where ρ'_i and ρ'_j are the rates of profits of i-th and j-th industries after profits tax, $\overset{*}{t}_{pi}$ and $\overset{*}{t}_{pj}$ stand for the effective profits tax rates for those industries, and therefore $(1 - \overset{*}{t}_{pi})$ is the effective ratio of profits (left to the industry at its disposal), and $\bar{\rho}$ is the average rate of profits which may be obtained in the final process.

On the other hand, the version of the effective profits tax rate of, say, i-th industry can be expressed in the form

$$(5) \quad \overset{*}{t}_{pi} = t_p \, (P_i - D_i) / P_i$$
$$= t_p \left(1 - \frac{D_i}{P_i} \right)$$

when t_p is the statutory profits tax rate prevailing at the uniform level (pre-determined by the tax law), D_i is the amount of abatement out of profits for tax purpose in several forms of allowances. Therefore $(P_i - D_i)$ makes chargeable profits, and we can define the term (D_i / P_i) as the abatement ratio of profits, the greater (or smaller) value of which will make the values of effective profits tax rate smaller (or greater) under a constant statutory profits tax rate.

Substituting (5) into (4), and taking our definition (1) into account, one derives

$$(6) \quad \frac{\rho_i}{\rho_j} = \frac{(1 - t_p) + t_p (D_j / P_j)}{(1 - t_p) + t_p (D_i / P_i)}$$

which explains an extreme case where the equalization of the rate of profits has been attained as a result of the redistribution of profits through taxation.

As stated above, it is evident that the rate of profits are actually different from industry to industry before tax. Then if we accept the tendency of the equalization of the rate of profits through taxation, we have to conclude that the abatement ratios should be actually different in order to approach the result shown in the relation (6), because the statutory

profits tax rate will have a definite value of, say, 10 per cent.   In other words and more precisely, if the rate of profits in i-th industry ρ_i is actually greater than that of j-th industry ρ_j, the abatement ratio of i-th industry (D_i/P_i) must be smaller than that of j-th industry (D_j/P_j) so as to establish the equalization of the rate of profits at the level of $\bar{\rho}$.

From an inverse reasoning of the above discussion, we may conclude that the tendency toward the equalization of profits rate may be working if we can confirm the fact that the higher abatement ratios have actually been effective in tax administration for industries in which only lower profits ratios have been prevailing, or vice versa.   This can be made clear by the statistical evidence showing *the negative correlation between the rate of profits ρ_i and the abatement ratio* (D_i/P_i) for all industries. Second, we may conclude that a principle of taxation (equity) can be satisfied if the higher (or lower) effective profits tax rates are actually assessed to the higher (or lower) rates of profits.   This is also tested with *the correlation of the rate of profits ρ_i with the effective profits tax rate t_{pi}* for all industries.   Third, as a result, the rate of change in the rate of profits must be equal to the value of the effective tax rate shown in this formula since

$$(7)\quad 1 - \frac{\rho'_i}{\rho_i} = 1 - \frac{(1 - \overset{*}{t_{pi}})\, P_i/Y_i}{P_i/Y_i} = \overset{*}{t_{pi}}$$

which will be a measure for estimating the effect of redistribution of profits through tax policy.

As stated previously, when we assume more or less stable values of the asset-output ratios (which are defined in (3)), we may obtain parallel results for the rate of yield.   With the same reasoning as above, we may conclude that the principle of equity may be satisfied if the effective profits tax rates are levied on industries containing higher rates of yield, i. e. with the result that there is a positive correlation between the rate of yield $\gamma_i \rho_i$ and the effective profits tax rate $\overset{*}{t_{pi}}$. We now proceed to a statistical survey to clarify this issue.

II *The Statistical Results*

The data used mainly in the survey of the rate of profits and the redistribution of profits were taken from *the Report of the Census of Production for 1958* (Board of Trade, London, H. M. S. O., 1961) which

contains 132 parts; but the data are adjusted by the general price index on the basis that 1958 = 100 and 1959 = 101. For profits tax, the data in *the 1962 (10th) Inland Revenue Annual Report* (London, H. M. S. O., 1963), pp. 216-17 has been arranged to be appropriate to our objective for computation by industry. In the above *Census* we get information of net output, wages and salaries and capital expenditure out of net output analysed by industry, although in the simplest form, we can obtain gross trading profits. Therefore, it is easy to obtain the rate of profits by industry under the relation (1) the results of which are listed in Table I below. Then combining the information of the burden of profits tax by industry obtained from *the Inland Revenue Annual Report*, the effective profits tax rate can be computed, which are also shown in Table I.

In line with the discussion above, a correlation to test the equalization of profits through taxation has been found, i. e.

Correlation coefficient between rate of
profits and effective profits tax rate
$= 0.385$ for all industries, and
$= 0.904$ for production goods sector.

This will predict a resulting actual heavy profits tax assessment to the industries with high profits rates, and vice versa. Hence we can conclude that the principle of equity has been actually realised in the profits tax administration through redistribution of profits among industries. There arises also the point as to the difference between the above two results; since the consumption goods sector has to bear the burden of excise taxes, some allowances may be considered in computing chargeable profits, which means that a pure equalization effect of profits tax will appear mainly in the production goods sector.

Second, data of chargeable profits are also available in *the Inland Revenue Report* (pp. 216-17) for all industries, so that, the computation of abatement ratio by industry can be worked out in the form of D_i/P_i. To clarify our result obtained above, an other correlation has been tested, which shows the result

Correlation coefficient between abatement ratio and profit rate
$= -0.414$ for all industries, and
$= -0.411$ for production goods sector.

It is clear that the higher (or lower) is the profits ratio the lower (or higher) is the abatement ratio.   This also predicts that several allowances might have been actually taken into consideration for low profits industries so as to attain the equity of taxation, and vice versa.   Further, the estimated calculation of statutory profits tax rate in our form (5) has been listed in Table I, which shows approximately the same value as the actual level of 10 per cent which was in effect in the 1959 fiscal year in the U. K. (see *the 1962 Inland Revenue Report*, p. 211)

Third, in order to approach from the 'rate of yield' aspect under relation (3), data on total assets, gross trading profits and profits tax were taken out of *the Economist* (April-June, 1959; July-September, 1959; October-December, 1959 and January-March, 1960 issues).   The liability of profits tax has been arranged with a three month lag to make a suitable correspondence of the tax base with the burden.   Taking the values of the ratio between total assets and gross trading profits, we obtain the rate of yield as shown in Table II.   Also since the above information gives the effective profits tax rate for each industry, we get the result listed in Table II.

With approximately similar reasoning, but different data from the above survey, another correlation has been found :

Correlation coefficient between rate of
yield and effective profits tax rate
= 0.292   for all industries, and
= 0.286   for production goods sector.

This also shows a tendency for equity of profits taxation as has been discussed above.

Concluding Remarks

In all that has been said so far, although the survey has been limited in finding a line for an approach to clarify the actual tendency of equalization of profits through taxation, we have found an argument to predict the issue on the redistributive character of profits tax.

More precise discussions will be needed to bring the problems to a satisfactory solution ; there remains some observations in line more or less similar to the case for the personal sector, for example, taking the number

of businesses in each industry, and second, a microscopic attack will be useful since only the profits above a certain level may be charged with also a specific rule of abatement. Also to add realism to the form, backing with information of the actual tax administration must be necessary. These are problems to be solved in the future, and also problems beyond this tentative and statistical survey.

APPENDICES

Table 1. Profit ratio, Abatement ratio and Effective profits tax rate analysed by Industry (1959 Fiscal Year in the U. K.)

Industry	Profit rate (ρ_l)	Abatement ratio (D_l/P_l)	Effective profits tax rate (t_{pl}^*)	Estimated statutory profits tax rate $t_{pl}^* \big/ \left(1 - \frac{D_l}{P_l}\right)$
1. Mining and quarrying	0.1173	0.8305	0.0121	0.0714
2. Food, drink and tobacco	0.4955	0.4247	0.0506	0.0880
3. Chemicals and allied industries	0.3689	0.2132	0.0697	0.0886
4. Metal manufacture	0.2637	0.1376	0.0794	0.0921
5. Engineering and electrical goods	0.3515	0.4963	0.0498	0.0989
6. Shipbuilding and marine engineering	0.1881	0.5879	0.0434	0.1053
7. Vehicles	0.3096	0.4482	0.0548	0.0993
8. Metal goods not elsewhere specified	0.3540	0.3878	0.0618	0.1009
9. Textiles	0.4521	0.5633	0.0403	0.0923
10. Leather, leather goods and fur	0.3532	0.4499	0.0611	0.1111
11. Clothing and footwear	0.3387	0.6330	0.0358	0.0975
12. Bricks, pottery, glass, cements, etc.	0.3311	0.3215	0.0660	0.0973
13. Timber, furniture, etc.	0.2732	0.6480	0.0320	0.0909
14. Paper, printing and publishing	0.3439	0.4681	0.0513	0.0964
15. Other manufacturing industries	0.3324	0.6570	0.0245	0.0714
16. Construction	0.2507	0.7612	0.0242	0.1013
Average	0.3202	0.5017	0.0473	0.0939 (Actual rate was 0.10 for 1959 F. Y.)

Table 2. Rate of yield and effective profits tax rate analysed by industry (1959 Fiscal Year in the U. K.)

Industry	Rate of yield $(\gamma_i \rho_l)$	Effective profits tax rate (t_{pl}^*)
1. Breweries and distilleries	0.1148	0.0795
2. Clothing and footwear	0.1180	0.0673
3. Food and confectionery	0.1290	0.0381
4. Shops and stores	0.1540	0.0904
5. Tobacco	0.1307	0.0514
6. Building	0.1260	0.0665
7. Engineering	0.1308	0.0757
8. Iron and steel	0.1138	0.0593
9. Shipbuilding	0.0879	0.0762
10. Chemicals and paint	0.1153	0.0511
11. Electrical manufacturing	0.0983	0.0613
12. Motors, cycles and aircraft	0.1170	0.0744
13. Newspapers, papers and printing	0.1116	0.0674
14. Miscellaneous manufacturing	0.1105	0.0684
15. Shipping	0.0696	0.0255
16. Cotton	0.0557	0.0426
17. Silk and rayon	0.0729	0.0488
18. Wool	0.0949	0.0948
19. Other textiles	0.0764	0.0635
20. Oil	0.1040	0.0778
21. Rubber	0.1096	0.0122
22. Tea	0.0958	0.0253
23. Other companies	0.0770	0.0723
Average	0.1049	0.0604

INTERNATIONAL LIQUIDITY CONTROVERSY
IN JAPAN (2)

Masahiro FUJITA

I

In the 14th Annual Report of Kobe Economic & Business Review (1967), we have already examined some original reforming plans or proposals of international monetary system in Japan, so it is an important moment for us to examine some attractive proposals of them.*

International Liquidity Controversy in the early period had rather introductive character of the leading proposals in international aspects (between Angro-American and continental Europe) than the controversy of original proposals among the specialists in Japan.

After the appearance of the Triffin plan the proposals began to actual controversy and discussion and we can understand easily that these discussions are based on their national interest.   International liquidity discussion is about to change a new development and to be a remarkable stage with the appearance of the Special Drawing Rights (S. D. R.) of International Monetary Fund in the Rio de Janeiro Meeting in September 1967.

Generally speaking, it would be very beneficial or convenient to divide these controversies into the two periods. So, the first period was the starting period of controversy of the ideal and theoretical proposals (1958—1962) among many scholars and economists, the second period is the promoting period of proposals after 1963.

The turning point from the starting period to the promoting period may be implied the discussion of the creation of new reserve assets. Now, we have entered into the realizing process of the new plan, the S. D. R. plan was called as the most useful solution of the present "Dollar Crisis". The various proposals before the S. D. R. plan have played, so to speak, preparative parts, so we have never to neglect that nothing came out of all these discussions immediately.

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* We studied the Matsumura plan, the Horie proposal, and the Miyata plan in another work. Masahiro Fujita, International Liquidity Controversy in JAPAN (1), Kobe Economic & Business Review, No. 14, 1967, pp. 73-86.

In this work, we would like to try the bibliographical review as to the above-mentioned starting period of the international liquidity problem.

II

Mr. Pierre-Paul Schweitzer, Managing Director of the International Monetary Fund, pointed out the focus of the present international liquidity problem in his Rio de Janeiro Meeting address,[1] as follows :

"An outstanding lesson of both the Kennedy Round and liquidity negotiations is that the most difficult problems of trade and finance can be resolved provided that the will exists.   The discussions on international liquidity were conducted over a period of four years in the Fund, among the ten countries that participate in the Fund's General Arrangements to Borrow, in the joint meetings of Executive Directors and the Deputies of the Group of Ten, and in many other forums.   As a result, Governors now have before them, approved by the Executive Directors as the basis for an amendment of our Articles, a specific Outline for facility to meet the need, as and when it arises, for a supplement to existing reserve assets.   At this juncture I want to express my very real appreciation of the way in which the long period of discussion and negotiation was so lightened and made pleasant by the spirit of cooperation shown by all participants, and I should like here to pay particular tribute to the Chairman of the Deputies.

After a number of years in which I could do no more than report a certain amount of progress and promise intensive additional study for the next year, I am particularly happy to be able to present this plan to you now on behalf of the Executive Directors and to give my warm support to the proposed Resolution that asks them to prepare the necessary amendments of the articles for submission to the Board of Governors.   Once approved by the Board, the amendments would go to members for ratifications.

The Fund staff and management stand ready to prepare with maximum dispatch drafts of the necessary instruments, and any other requisite material, to facilitate the work of Executive Directors in both tasks assigned to them in the Resolution, relating to the establishment of the new facility and to possible improvement in the present Fund.   The Outline reflects the

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(1) Pierre-Paul Schweitzer, Managing Director of the Fund, International Financial News Survey, Oct. 6, 1967, pp. 320-324.

principle that the international community should be able to control reserves, instead of reserves controlling the community."

Also, Mr. Schweitzer has shown the following his plan.

"The new facility is aimed at creating international liquidity in the unconditional form. There are two categories; unconditionally available reserves, the kind of liquidity that countries can use without being subject to any commitment or discussion as to policy, and conditional liquidity, such as the Fund provides in the credit tranches. It is vital to the promotion of an efficient international adjustment process that conditional credit facilities should continue to play a major role in the international payment system. It has become clear, however, from the discussion of recent years that countries see important differences between access to such conditional facilities and reserves available as of right, so that augmented conditional facilities are not regarded as a full substitute for a normal accrual of reserves."

Mr. Schweitzer defined very clearly the new reserve asset, as follows :

"A member will be able to use the S. D. R. (Special Drawing Rights) for which the outline provides whenever it has a balance of payments or reserve need to do so, and its judgement of its own need will not be subject to prior challenge. A member will be able to transfer its drawing rights to appropriate transferees, and in this way can be sure that it will get the currencies it needs to meet a payments deficit. Members that join the scheme will be obligated to accept without question the new reserve assets when presented to them by other members in accordance with rules and instructions of the Fund. This acceptance obligation is an important feature of the reserve character of the new drawing rights, and its limit has been set at a level designed to ensure that members will be able to use their drawing rights when they need to do so. Of course, any member can agree to hold any amount of the assets in excess of the limit. The new drawing rights will be usable among participating members only for official settlements. But they will presumably also be usable, under rules still to be worked out, for some of the types of transactions that presently take place between the Fund and its members.

The assets will be given certain other characteristics to make it an international assets worthy of standing side by side with gold, reserve currencies, and existing reserve positions in the Fund, such as a guarantee of the

maintenance of its gold value and interest remuneration at a moderate rate. For these reasons, countries can be expected to want normally to retain the drawing rights allocated to them, to acquire additional amounts when they are in payments surplus and, when they are in deficit, to use the new drawing rights only in conjunction with the use of their other reserves. The latter idea is indeed reflected in the Outline, which refers to the desirability that countries pursue over time a balanced relationship between their holdings of special drawing rights and other reserves.   A member that follows this principle in the management of its reserves would be unlikely to have to adjust its holdings of drawing rights as a result of the obligation to reconstitute—an obligation which specifies that over a five-year period a member's average use is not to exceed 70 per cent of its average net cumulative allocation."

However, we know that there are the two different opinions in our country, one regards the S. D. R. as credit facilities,[2] another states the S. D. R. as *the third world currency*.[3]   Now, we have no sufficient afford, so we would like to analyze in detail in coming chance.

<div align="center">III</div>

On February 1st, 1968, President Johnson announced the Economic Report to the Congress.   In this Report, President Johnson states the following explanation of the Dollar and the International Monetary System :

"The interests of major nations are also linked together in the international monetary system. For us, there is a special responsibility, since the dollar is *a world currency*, the dollar widely used by business abroad, and held along with gold as a reserve assets by foreign central banks.   Our deficits in the past decade have sent more dollars abroad than businesses there needed to acquire, or than governments have wanted to hold as reserves.   Many of these dollars were used to purchase gold from the United States. Speculation generated by the Strains on the international

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(2)   Many metalists in Japan, assert the theory of the facilities.   For example, Professor
      Zentaro Matsumura, On the new reserve assets theory by Professor Tachi : Z. Matsu-
      mura, International Monetary Fund, Banking (JAPAN), No. 236, Nov., 1967, pp. 11–20.

(3)   Many nominalists and a few metalists in Japan assert the theory of the third world
      currency.   For example, Einosuke Ashiya : The Third World Currency, Asahi Journal,
      Nov., 1967.

monetary system has caused further drains of gold from international reserves. Above all, much of gold outflowed from the United States to the rest of the world (the Continental Europe). During the last three months in 1967, the amount of outflowed gold from the United States to Western Europe reached $700 million. As a result, the United States' gold reserves have declined to about $12 billion. This is still ample to cope with foreseeable demands on the United States' gold stock. But persistent large the United States' deficits would threaten the entire international monetary system. Our commitment to maintain dollar convertibility into gold at $35 an ounce is firm and clear. We will not be a party to raising its price. The dollar will continue to be kept as good as or better than gold."

Nextly, as for the Freeing the Gold Reserves, President Johnson said as follows:

"I am therefore asking the Congress to take prompt action to free our gold reserves so that they can unequivocally fulfill their true purpose to insure the international convertibility of the dollar into gold at $ 35 per ounce. The gold reserve requirement against Federal Reserve notes is not needed to tell us what prudent monetary policy should be.

It is not needed to give value to the dollar that value derives from our productive economy. The reserve requirement does make some foreigners question whether all of our gold is really available to guarantee our commitment to sell gold at the 35-dollar price. Removing the requirement will prove to them that we mean what we say."

President asked speedy action from the Congress, because it will demonstrate to the world the determination of America to meet its international economic obligations.*

And President Johnson's Report continued:

"Neither can it depend on gold. Gold production has been leveling off in the face of rising industrial use and a steady drain into private hoards. What is needed is a reserve asset universally acceptable as a supplement to gold and dollars, that can be created in the amount needed to meet the desired expansion of world reserves. The Special Drawing Rights plan, agreed on in Rio de Janeiro, last September, provides such an asset. This plan will fundamentally strengthen and ultimately transform the international monetary system in the years ahead."

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* The proposal of abolishment of the gold reserve requirement against Federal Reserve notes (25%) passed the Congress at February 20, 1968,

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FACTORS TO DETERMINE THE RELATIVE SHARE:
THE CASE OF INDIA[*]

Hikoji KATANO

1. In the present paper, we analyse factors to determine the relative share, which is defined as the ratio of profit to wage. Moreover, we treat the relative shares both in respective industrial sectors and in the economy as a whole. Due to this reason, our analysis is concerned with economy's intersectoral transaction structure.

2. We have various kinds of relative share theories. These have been developed from various standpoints by many economists; M. Kalecki, S. Weintraub, N. Kaldor, R. M. Solow, M. W. Reder, and so on. However, we will develop, in this paper, an alternative theory of relative share from a quite different point of view. We consider the relative share which depends on (1) the situation of exchanges and (2) the rate of surplus value.

3. As mentioned above, we use the intersectoral analysis in this paper. The numerical base depends on the intersectoral transaction structure of India of 1955/56.[1] In this structure, the sectoral classification is as follows:
    1. agriculture
    2. mining
    3. small-scale industry
    4. large-scale light industry
    5. large-scale heavy industry
    6. transport and communication
    7. construction
    8. trade and distribution

(1) cf. H. Katano, "Intersectoral Transaction Table with Endogenous Foreign Trade Sector in the Indian Economy: 1955/56, "*Kobe Economic and Business Review*, 12th Annual Report, 1965. This table is prepared by arranging the Indian Statistical Institute's table (Inter-Industry Transaction Table:1955/56 (at market prices), unpublished revised version in mimeographed paper. Nov. 5, 1962).

9. financing organization

10. administrative and professional services

m. foreign trade.

The most significant characteristic of this structure is that it treats the foreign trade sector as an endogenous industry.   This depends on the assumption that foreign trade is a kind of production process.

4. According to the intersectoral transaction data (1955/56) of India, the relative shares either in respective industrial sectors or in the economy as a whole are calculated as shown in **Table 1**.

Table 1: Sectoral Aggregate Relative Shares

	Profit (P)	Wage (W)	Relative Share (P/W)
	(Rs. crore)		
1.	1,170.90	3,445.85	0.33980
2.	111.54	40.54	2.75136
3.	128.51	528.29	0.24326
4.	424.46	234.39	1.81091
5.	278.86	115.52	2.41395
6.	171.09	341.96	0.50032
7.	591.05	366.81	1.61132
8.	350.34	1,332.09	0.26300
9.	44.57	56.31	0.79151
10.	1.04	1,223.53	0.00085
	3,272.36	7,685.29	0.42580

In the following analysis, we examine factors to determine both sectoral and aggregate relative shares.

5. Developing our analysis, we use the concept of *labour requirement*, which is defined as "labour unit required directly and indirectly for producing one crore rupees of each commodity."   The idea for this concept mainly depends on Prof. N. Okishio's contribution.[2] Similar ideas have been developed by K. May,[3] and some Russian economists.[4]

6. Letting a_{ij} stand for the rupee value of ith domestic product required for producing one crore rupees of jth domestic product, m_j for the

(2) Okishio. N., *Fundamental Theories of Capitalistic Economy*, (in Japanese), Sobunsha, 1965.

(3) May, K., "The Structure of Classical Value Theories", *Review of Economic Studies*, 1949/50.

(4) cf. V. S. Nemchinov, ed., *The Use of Mathematics in Economics*, (English Edition ed. by A. Nove), 1964,

rupee value of aggregate imports required for the same purpose, n_j for the unit of direct labour (employment) required for also the same purpose, and e_i for ith domestic product component contained in one crore rupees of aggregate exports, the labour requirement of respective domestic products and aggregate imports satisfy the following relations,

$$y_j = \sum a_{ij} y_i + m_j y_m + n_j$$
$$y_m = \sum e_i y_i$$

where y_i stands for the labour requirement of ith domestic product and y_m for the labour requirement of aggregate imports.

7. These labour requirements are measures of equivalent and/or un-equivalent exchanges of all commodities in the market. For example, let us pick up a pair of labour requirements, y_a and y_b. Then, (1) in the case $y_a = y_b$, the commodities a and b are equivalently exchanged in the market, but (2) in the case $y_a \neq y_b$, both commodities are unequivalently exchanged in the market: when $y_a > y_b$, this exchange is in favour of producers of b-th commodity, because they can get a larger amount of labour unit than their products contain in themselves, and *vice versa*. These relations must be true for all pairs of commodities. This is the fundamental idea of labour requirement to be used in this paper.

8. As to the input coefficient $(a_{ij}, m_j$ and $e_i)$, we can calculate it by using the above-mentioned intersectoral transaction structure. For calculating the labour input coefficient, we use statistical data given by the Central Statistical Organization[5] and the Ministry of Labour and Employment.[6] The sectoral labour inputs are shown in **Table 2**.

Table 2 : Sectoral Employments

(Unit : 1,000 persons)

1.	77,341
2.	789
3.	5,512
4.	2,108
5.	1,055

(5) cf. Central Statistical Organization, *National Income Statistics: Proposals for a Revised Series of National Income Estimates for 1955/56 to 1959/60*, Government of India, 1961. The CSO has given us both official series and revised series of the estimates of sectoral employments. In this paper, we use the official series. In any case there is only a one or two percent error on the average between these two series.

(6) cf. *Statistical Abstract, India, 1955/56*, New Series, No.6, Government of India, 1957.

6.	2,384
7.	2,354
8.	9,205
9.	148
10.	15,713
	116,609

9. Based on these statistical data, we, at first, calculate the labour requirements of all products, which are shown in **Table 3**.

Table 3: Labour Requirements

(Unit: men-year /Rs. one crore)

1.	16,432.24
2.	5,439.06
3.	9,959.25
4.	8,134.41
5.	5,162.35
6.	7,161.04
7.	4,558.67
8.	6,189.47
9.	2,733.32
10.	12,368.21
m.	8,878.79

10. Unit expenditure patterns from wage and profit are expressed by respective sets of commodities which are

wage : $(b_1, \cdots\cdots, b_n, b_m)$, $\sum b_i + b_m = 1$

profit : $(c_1, \cdots\cdots, c_n, c_m)$, $\sum c_i + c_m = 1$

These sets of commodities are purchased by one crore rupees of their unit expenditures.   These expenditure patterns are shown in **Table 4**.

Table 4: Expenditure Patterns

(Unit: Rs. crore/Rs. one crore)

	(b)	(c)
1.	0.42806	0.11802
2.	0.00389	-0.00309
3.	0.12760	0.07533
4.	0.09704	0.00496
5.	0.01117	0.07362
6.	0.05473	0.05852
7.	0.06642	0.29774
8.	0.15027	0.07768
9.	0.00782	0.00857
10.	0.05188	0.21689
m.	0.00112	0.07176
	1.00000	1.00000

11. Using these expenditure patterns, we can calculate the units of labour requirement contained in respective unit expenditures, that is,

$$y_w = \sum b_i y_i + b_m y_m$$

$$y_p = \sum c_i y_i + c_m y_m,$$

where y_w and y_p stand for units of labour requirement contained in unit expenditures from wage and profit. These are easily calculated by using the statistical data mentioned above, that is,

$$y_w = 11,470.77$$

$$y_p = 8,698.64$$

What does the difference between y_w and y_p depend on? According to the above-mentioned relations, the difference between y_w and y_p depends on the expenditure patterns (b_i, b_m) and (c_i, c_m). As we can see in **Table 4**, workers expend their income (wage) mainly on agricultural products (foods), small scale industries' products and trade distribution services. The labour requirement of these sector's products are all very large. Correspondingly, the value of y_w becomes very large. On the other hand, profit earners expend their income mainly on construction, administrative and professional services and agricultural products. Due to such an expenditure pattern, the value of y_p becomes relatively low compared to the value of y_p.

12. In jth industrial sector, the direct labour input (employment) is N_j, the data of which are shown in **Table 2**. This is a produced value-added in this sector. On the other hand,

$$\overline{N}_j = y_w w_j + y_p p_j$$

stands for a received value-added in jth sector, which means the unit of labour requirement contained in $W_j + P_j$ crore rupees of sectoral income in jth sector.

The received value-added is calculated by using the preceding statistical data. This is shown in **Table 5**.

Table 5 : Received Value-Added

(Unit: 1,000 persons)

1.	49,711
2.	1,436
3.	7,176
4.	6,382
5.	3,751

6.	5,411
7.	9,349
8.	81,328
9.	1,034
10.	14,043
	116,621

13. Let us consider the ratio of $\bar{N}_j$ to N_j, which is specified as s_j. This ratio is defined as the unequivalent exchange ratio.   In case $s_j > 1$, this jth sector is in a favourable position in exchange as a whole, and *vice versa*.   The unequivalent exchange ratio can be easily calculated.   And the results are shown in **Table 6**.

Table 6: Unequivalent Exchange Ratio

	S
1.	0.64275
2.	1.82003
3.	1.30189
4.	3.02751
5.	3.55545
6.	2.26971
7.	3.97154
8.	1.99109
9.	6.98649
10.	0.89372
	1.00010

14. As we have mentioned above, the labour requirement shows the unequivalent exchange situation for each pair of commodities, while the unequivalent exchange ratio expresses an unequivalent exchange situation among all industrial sectors.   The empirical results in the case of India are shown in **Tables 3** and **6**.

These results show that the lst (agriculture), 10th (administrative and professional services) and 3rd (small scale industries) sectors are the most unfavourable in exchange and that the 5th (large scale heavy industries), 7th (construction) and 9th (financing organization) sectors are the most favourable in exchange.   We shall consider the favourability and unfavourability in terms of (1) the labour requirement and (2) the unequivalent exchange ratio.

At first, as to the labour requirement, let us take the pair y_a and y_b,

where ath sector has a larger capital coefficient than bth sector does.   Then, for ath sector to have the same rate of profit as bth sector has, y_b must be smaller than y_a.   Moreover, it is very likely that ath sector with a larger capital coefficient may contain a few big firms and bth sector with a smaller capital coefficient may be composed of very crowded industries. The price of ath commodity may be increased over the corresponding equilibrium price for a balanced rate of profit and the price of bth commodity may be decreased below the corresponding equilibrium price.   In such a situation, y_a becomes smaller and smaller and y_b becomes larger and larger.   So the divergence between y_a and y_b becomes larger and larger.

Secondly, the unequivalent exchange ratio depends on the labour requirement.   Then the favourability or unfavourability of respective sectors can be explained by the size of capital coefficients and the degrees of competitive power in the corresponding sectors.

Thus, (a) as to the large scale heavy industries, construction, and financing organization sectors, the favourability is explained by their large capital coefficients and their strong competitive power.   For these sectors, we can naturally expect a relatively large amount of capital accumulation. And also, strong competitive power is expected.

(b) As to agriculture, administrative and professional services, and small-scale industries sectors, the unfavourability is explained by their small capital coefficient and their weak competitive power.   These factors depend on the characteristics of these sectors.   In these sectors, there may not always be any capitalistic production.   So there may naturally be no large amount of capital accumulation.   And also, their competitive power would be very weak.

15.   Next, let us define the rate of surplus value of jth sector as

$$\sigma_j = \frac{1 - y_w \, w_j}{y_w \, w_j},$$

where w_j stands for the money wage rate in jth sector.   As we mentioned above, y_w is the amount of labour requirement contained in a unit expenditure from wage. So $(1 - y_w w_j)$ is the surplus labour per one unit of labour in jth sector.   As y_w is constant for a unit expenditure from wages in all industrial sectors, the sectoral differences of the rate of surplus value depend only on the sectoral differences of the wage rate.

The sectoral wage rate is shown in the first column of **Table 7**. We can then calculate the surplus labour per one unit of labour, and in turn the rate of surplus value (the second and the third columns of **Table 7**).

Table 7: Rate of Surplus Value

	Wage Rate	Surplus Labour per one unit of Labour	Rate of Surplus Value	Surplus Labour
	(Rs. per year)	(men-year)		(1,000 men year)
1.	445.54	0.48893	0.95668	37,814
2.	513.82	0.41061	0.69655	324
3.	958.44	−0.09940	−0.09041	−547
4.	1,111.91	−0.27545	−0.21596	−581
5.	1,094.98	−0.25603	−0.20384	−270
6.	1,434.40	−0.64537	−0.39223	−1,539
7.	1,558.24	−0.78742	−0.44053	−1,854
8.	1,447.14	−0.65998	−0.39758	−6,075
9.	3,804.73	−3.36432	−0.77087	- 498
10.	778.67	0.10681	0.11958	1,678
			0.32275	28,452

16. According to these results, the sectoral surplus labour is negative for the 3rd (small-scale industries), 4th (large-scale light industries), 5th (large-scale heavy industries), 6th (transport of communication), 7th (construction), 8th (trade and distribution), and 9th (financing organization) sectors, and positive for the 1st (agriculture), 2nd (mining), and 10th (administrative and professional services) sectors. These situations are economically explained as follows: The surplus labour of jth sector is defined as

$$1 - y_w w_j,$$

y_w is common for all sectors. Then the sectoral difference in sectoral surplus labour depends only on the sectoral difference in w_j. Thus negative values of sectoral surplus labours for the 3rd to 9th sectors are explained by the relatively high money wage rates in these sectors.

This situation is very peculiar to our common sense. In a normally developed economy, surplus labours in all sectors of the economy may have, more or less, positive values. For such a situation existing in the Indian economy, a large amount of surplus labour should be produced in the 1st, 2nd, and 10th sectors. According to our results, the required amount of surplus labour is produced in the 1st (agriculture) sector. This situation is supported by the small capital coefficient in the agriculture sector and

the very weak competitive power of the sector.

Thus the above-mentioned peculiar situation is explained by the relatively high levels of money wage rates in the 3rd to 9th sectors and the very low levels of money wage rates in the 1st, 2nd, and 10th sectors. In addition to this explanation, we have to consider the small capital coefficient in the agriculture sector and the sector's weak competitive power.

Here we should note, the negative value of a sectoral surplus labour never means the negative value of profit of the corresponding sector.

17. Using these above-mentioned concepts, the sectoral and aggregate relative shares can be developed as follows:

$$\frac{p_j}{w_j} = \{(s_j - 1)\ (1 + \sigma_j) + \sigma_j\} \frac{y_w}{y_p}$$

$$\frac{\sum p_j}{\sum w_j} = \{(s - 1)\ (1 + \sigma) + \sigma\} \frac{y_w}{y_p}$$

Then the relative share depends on three factors:

a) unequivalent exchange ratio: s_j, s,

b) degree of unequivalent exchange between commodities which are bought by wage and commodities which are bought by profit: y_m/y_p,

c) rate of surplus value: σ_j, σ

As we can easily see, if all exchanges are equivalent, then $s_j = 1$ and $y_w/y_p = 1$. Thus $p_j/w_j = \sigma_j$, that is the relative share coincides with the rate of surplus value. In this situation, the sectoral differences in relative share depend only on the sectoral differences in wages.

According to these conditions, the relative share depends on the following two factors:

i) the situation of exchange: s and y_w/y_p

ii) the rate of surplus value: σ_j

18. In the aggregate relative share, s is the ratio of $\sum \bar{N}_j$ to $\sum N_j$. So this ratio is the unequivalent exchange ratio of the economy as a whole. Under the condition where the balance of trade deficit is absorbed by the profit earner's income, this ratio depends both on the difference between y_p and y_w and on the balance of trade deficit. Because this ratio can be rewritten as

$$s = 1 - \frac{(y_p - y_w) D}{\sum N_j}$$

where D stands for the balance of trade deficit of this economy. When

the balance of trade deficit is zero, and/or when the equivalent exchanges
of all commodities are kept in the market, this ratio becomes unity.

19. Using the results mentioned above, we can arrange factors to determine the relative share as in **Table 8**.

Table 8 : Factors to determine Relative Share

	s_j	σ_j	y_w/y_p	p_j/w_j
1.	0.64275	0.95668		0.33980
2.	1.82003	0.69655		2.75136
3.	1.30189	−0.09041		0.24326
4.	3.02751	−0.21596		1.81091
5.	3.55545	−0.20384		2.41395
6.	2.26971	−0.39223	1.31869	0.50032
7.	3.97154	−0.44053		1.61132
8.	1.99109	−0.39758		0.26300
9.	6.98649	−0.77087		0.79151
10.	0.89372	0.11958		0.00085
	1.00010	0.32275	1.31869	0.42580

20. The influence of the unequivalent exchange ratio (s) to the aggregate relative share is very small, because $s = 1.00010$. Then the aggregate relative share depends on the rate of surplus value of the economy as a whole (σ) and the degree of unequivalent exchange between commodities which are bought by wages and commodities which are bought by profits (y_w/y_p).

The rate of surplus value in the Indian economy (1955/56) as a whole is 0.32275.

This value means a rather low level for the rate of surplus value as a whole in the economy. For example, the rate of surplus value as a whole in the Japanese economy in 1951 was 0.929, which was estimated by a similar method used in our present analysis.[7]

The rate of surplus value as a whole in an economy is defined as

$$\sigma = \frac{1 - y_w w}{y_w w},$$

where w is the average rate of money wage. The smaller σ is supported

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(7) cf N. Okishio, "Measurement of the Rate of Surplus Value", (in Japanese), *The Economic Review*, Vol. 10, No. 4, Oct. 1959.

by the larger $y_w w$, $y_w w$ is decomposed into

$$y_w w = \sum t_i R_i, \qquad R = \sigma_i w_i / p_i,$$

where t_i denotes the amount of labour necessary to produce one unit of ith commodity and p_i denotes the price of ith commodity, and R_i denotes the amount of consumption of ith commodity by a labourer. However, in the Indian economy, we can perhaps say that the amount of consumption goods $(R_1, \cdots, R_n)$, consumed by a labourer, is relatively less than the world average. Then the lower σ comes to be supported by the very high levels of $(t_1, \cdots, t_n)$. This means the lower σ of the Indian economy is supported by the very low levels of labour productivity, which is expressed by the inverse of the amount of labour necessary to produce one unit of commodity. As to $(R_1, \cdots, R_n)$, the part of agriculture products (foods) should take the largest percentage of all consumptions. On the other hand, we can guess that the lowest labour productivity is in the agricultural sector. Such a situation helps $y w$ become larger. Thus we explain the lower value of the Indian economy by the smaller amounts of labourer's consumption and the very low level of labour productivity. An additional explanation can be given by our observation that the largest percentage labourer's consumption is taken by agricultural products and that the labour productivity in the agricultural sector is the lowest of all.

y_w / y_p takes the value of 1.31869 due to the reason mentioned above.

Thus the aggregate relative share takes the value of 0.42580. This value reflects the Indian situation in the sense mentioned above.

21. The sectoral relative shares are widely distributed around the aggregate relative share. Such a situation depends on sectoral differences of the unequivalent exchange ratio and the rate of surplus value for the constant y_w / y_p.

The extremely high rate of the sectoral relative share is that of the 2nd (mining) sector. This is based on both the relatively favourable position in exchange and the high level of the rate of surplus value due to the very low level of the sectoral wage rate.

The second highest value of the sectoral relative share is that of the 5th (large scale heavy industries) sector. In this sector, the rate of surplus value is relatively low. But the exchange situation in market is very favourable. This latter factor supports the very high level of this sector's

relative share.

The most favourable position in exchange has been given to the 9th (financing organization) sector. However, in this sector, the money wage rate is very high, so the rate of surplus value is very low. Thus the sectoral relative share cannot be very high. A similar situation can be, more or less, seen in the 7th (construction) sector.

The lowest value in the sectoral relative share is that of the 10th (administrative professional services) sector. In this sector, the rate of surplus value is not so low that the surplus labour can be negative. However, on the other hand, the unequivalent exchange ratio is very low. This latter factor causes the lowest value in this sectoral relative share.

In the 1st (agriculture) sector, the rate of surplus value is very high (the highest value in the economy), while the exchange situation in market is very unfavourable. These factors cause the very low level of this sector's relative share.

For the other sectors, we can see their respective situations from the arranged series of the unequivalent exchange ratio and the rate of surplus value shown in **Table 8**.

<div align="right">(Nov., 1967)</div>

MAINTENANCE OF CAPITAL BASED ON EARNING POWER

Jiro ONO

I

As the readers are already aware, quite a few writers have recently tried to reexamine the theoretical structure of business accounting from the viewpoint of economics.[1)]   They intend to define the concept of business capital on the basis of the theories of Fisher, Hicks and other economists,[2)] and to develop a more economical —— rather than a more scientific —— theory by applying it to accounting.   I am sure that one of their prime motives is to find a more useful "maintenance of capital" concept to make firms more adaptive to the dynamically changing social economy.

In this paper we intend to examine "the maintenance of capital based on earning power concept" which is the theoretical core of the above writers' opinions, and to formulate a general framework of thinking.

II

In regard to "maintenance of capital", there are several substantially different concepts as follows;[3)]

(A) Maintenance of nominal money capital.   This is the most powerful concept which has been used in commercial law, the law of taxation and the generally accepted accounting principles.   According to this concept, "maintenance of capital" means to maintain the original amount of money capital which was initially invested in a firm.   As everybody is aware, the present business accounting founded on this static concept, that is, the original cost basis has great significance in that it can provide the so-called "objective verifiable evidence".   However, it cannot be a sufficiently capable calculation-standard for the maintenance of capital, because it can keep the scale of business activity of a firm the same as before only on the unreal assumption that no innovation, no decrease in the value of money and no change in the consumption structure occur.

(B) Maintenance of purchasing power of money capital.   The intention

of this concept is to maintain the above-mentioned nominal capital adjusted by the general price index at a given time. So, according to this concept, the scale of business activity can be kept the same as before whether the value of money increases or decreases, but it is possible only if we can fortunately assume that other conditions, especially concerning innovation and consumption structure, remain the same.

(C) Absolute maintenance of physical capital. The purpose of this concept is to reproduce or reacquire the same assets as ones which were initially purchased or acquired by a firm and to maintain them. That is, from the viewpoint of this concept, the net earnings of a firm can be recognized only after the amount necessary to reacquire the old assets has been charged as expenses. This is also a static concept, because the scale and the quality of business activity are considered to have only to be always the same as in the initial situation in spite of the present dynamic economic changes.

(D) Relative maintenance of physical capital. The intention is to maintain a firm's proportionate part, that is, its relative position in the whole of a national economy through its business accounting based on the reproduction cost of assets. However, this concept can make it possible only in a limited sense and only under several unreal assumptions. The accounting certainly provides a firm's periodical performance and the amount of its assets which are founded on the reproduction-cost basis, and it may change the scale of business activity. But, to my regret, it does not always mean the maintenance of capital in accordance with the changing value-system in the national economy.

(E) Functional maintenance of physical capital based on its service potentials. This concept intends to maintain the function of capital to supply its service, the significance of which is always changing in accordance with innovation, decrease in the value of money and changing consumption structures in an economic society. This new concept seems to provide a firm with a much more reasonable accounting basis concerning the maintenance of capital, because it regards the very function of the capital as one which must be kept whether it is physically the same as before or not and whether the accounting is founded on the original cost basis or the reproduction cost basis. However, it fails to recognize that it is not the

individual physical assets' functions but the organic whole of business act-
ivities that we have to maintain in a living firm, that is, a going concern.

(F) Maintenance of capital based on earning power.   This is a con-
cept which has been built on the basis of economic theories and which we
can regard as the most theoretical.   It intends to maintain the earning
power of a firm, that is, the present value of its expected future earnings.

Business accounting has the purpose of dividing the earnings into one
part which must be collected as consumed capital during a period (expenses)
and another surplus part which can be appropriated for dividends (net
earnings or profit).   But if the basic concept of accounting intends only
to maintain the nominal money capital which was initially invested in a
firm or the present physical capital, that is, its present individual physical
assets which are being used, the business activity of the firm becomes in-
flexible. It cannot adapt itself to a dynamically changing social economy,
and at last "the capital" could be lost.   It is not the individual assets or
their individual functions but the earning power of the organic whole of
the firm, including the quality of management, an excellent research develop-
ment staff, a complete information system and other intangible factors, that
must be maintained from the viewpoint of "capital", because theoretically
the value of capital which we must consistently maintain for its investors is
decided only by its earning power.   "Maintenance of capital based on
earning power" concept is the sole useful concept which can give us an
exact recognition of the present dynamic social economy, especially in regard
to innovation, decrease in the value of money and in the change of con-
sumptions structure, and which make us reflect it in business accounting for
the maintenance of a much more adaptive business activity.

So, we now come to the problem which we have to examine and try
to formulate in the next chapter, that is, what does the maintenance of
capital based on earning power mean ?

III

For example, in Co. X, the expected earnings (or cash-inflow) in a
future period from the time t-1 to t are supposed to be E_t, the expenses
(cash-outflow) are A_t, the company's duration is n years, the capitalization
rate is i and $1+i=q$ (supposing that $i_1=i_2=i_3=i_4\cdots\cdots=i_n=i$ to simplify

the formula).

So, the worth of Co. X, is shown by the following formula.   At the time 0,

$$W_0 = \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

At the time 1,

$$W_1 = \sum_{t=1}^{n-1} (E_{t+1} - A_{t+1}) \ q^{-t} + (E_1 - A_1)$$

$$= E_1 + \sum_{t=1}^{n-1} E_{t+1} \cdot q^{-t} - (A_1 + \sum_{t=1}^{n-1} A_{t+1} \cdot q^{-t})$$

$$= (1+i) \sum_{t=1}^{n} E_t \cdot q^{-t} - (1+i) \sum_{t=1}^{n} A_t \cdot q^{-t}$$

$$= (1+i) \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

$$= \sum_{t=1}^{n} (E_t - A_t) \ q^{-t} + i \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

Therefore, the net earnings in the first period are as follows;

$$P_1 = W_1 - W_0$$

$$= i \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

$$= i \ W_0$$

That is, in the above-stated simple assumption that the future of a business activity can be certainly anticipated, if the capital based on earning power which was initially measured must be maintained, the net earnings (or net cash-inflow) in any period P_t is equal to the interest which the capital existing at the beginning of the period W_{t-1} —— the present value of the expected net earnings (net cash-inflow) in future periods from the time t to n —— should bring forth.   In other words, the part of interest in the earnings is considered as the firm's disposable profit during the period, and another part of earnings is the expenses which have been collected to recover the consumed capital in the period.

Now we shall try to formulate a structure of financial statements from the above-mentioned viewpoint, that is, to think over what asset, debt, revenue and expenses consist of.   According to the above-stated example, the balance-sheet and the profit and loss statement at the time 0 and 1 are shown as follows;

B/S (the time 0)

The present value of the expected future cash-inflow $\cdots\cdots\sum\limits_{t=1}^{n} E_t\cdot q^{-t}$	The present value of the expected future cash-outflow $\cdots\cdots\sum\limits_{t=1}^{n} A_t\cdot q^{-t}$
	Capital (the present value of the expected future net earnings or net cash-inflow) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots W_0$

B/S (the time 1)[4]

The present value of the expected future cash-inflow $\cdots\cdots\sum\limits_{t=1}^{n-1} E_{t+1}\cdot q^{-t}$	The present value of the expected future cash-outflow $\cdots\cdots\sum\limits_{t=1}^{n-1} A_{t+1}\cdot q^{-t}$
The increased cash (the already acquired net cash-inflow) in the first period $\cdots\cdots\cdots\cdots\cdots E_1 - A_1$	Capital (the same as at the time 0) $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots W_0$
	Profit $\cdots\cdots\cdots\cdots\cdots\cdots\cdots i\ W_0$

P/L (the time 1)[5]

The cash-outflow in the first period $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots A_1$	The cash-inflow in the first period $\cdots\cdots\cdots\cdots\cdots\cdots\cdots\cdots E_1$
The decrease of the value of capital $\cdots\sum\limits_{t=1}^{n} (E_t - A_t)\,q^{-t} - \sum\limits_{t=2}^{n} (E_t - A_t)q^{-t}$	The increase of the expected future cash-inflow $\cdots\cdots\cdots\sum\limits_{t=1}^{n-1} E_{t+1}\cdot q^{-t} - \sum\limits_{t=2}^{n} E_t\cdot q^{-t}$
The increase of the expected future cash-outflow $\cdots\cdots\cdots\cdots\sum\limits_{t=1}^{n-1} A_{t+1}\cdot q^{-t} - \sum\limits_{t=2}^{n} A_t\cdot q^{-t}$	
Profit $\cdots\cdots\cdots\cdots\cdots\cdots\cdots i\ W_0$	

First, at the time 0, the present value of the expected future cash-inflow $\sum\limits_{t=1}^{n} E_t\cdot q^{-t}$ is recognized as an asset, the present value of expected future cash-outflow $\sum\limits_{t=1}^{n} A_t\cdot q^{-t}$ as a debt and the difference between the two values $\sum\limits_{t=1}^{n} (E_t - A_t)\ q^{-t}$, that is, the present value of expected future net earnings or net cash-inflow as the capital W_0.

Second, at the time 1, in addition to the above-stated items $\left(\sum\limits_{t-1}^{n-1} E_{t+1}\cdot q^{-t}\right.$ and $\left.\sum\limits_{t-1}^{n-1} A_{t+1}\cdot q^{-t}\right)$, the net cash-inflow E_1-A_1 realized in the first period is counted as an asset and, as a matter of course, the same amount of capital W_0 as at the time 0 and the profit iW_0 are disclosed on the debt side.

Thirdly, we have to examine items in the income statement at the time 1, which will make the structure of our accounting viewpoint much clearer.

(1) One of the most important expense items is the cash-outflow A_1 in the first period.

(2) An item which is called the decrease of the value of capital is the difference between the present value of expected future net earnings at the time 0, $\sum\limits_{t-1}^{n} (E_t-A_t)\ q^{-t}$, and the one at the time 1, $\sum\limits_{t-2}^{n} (E_t-A_t)\ q^{-t}$. This item must be necessarily recognized, because the realization of net earnings or net cash-inflow E_1-A_1 in the first period shortens the firm's duration and, in accordance with the shortening, decreases the expected future net earnings or net cash-inflow.

(3) The item which is stated as the increase of the expected future cash-outflow is the difference between the amount anticipated at the time 0, $\sum\limits_{t-2}^{n} A_t\cdot q^{-t}$, and the one at the time 1, $\sum\limits_{n-1}^{n-1} A_{t+1}\cdot q^{-t}$. This item is brought forth as the result of having shifted the valuation-time from 0 to 1. That is, at the time 0, the amount was smaller because the cash-outflow was anticipated to occur in the further future, whereas, at the time 1, it becomes larger because it is anticipated to have been gotten in the nearer ——by one period—— future. So, the item must be counted as expenses, too.

(4) Cash-inflow E_1 is one of the most important revenue items in the first period.

(5) The increase of the expected future cash-inflow on the side of revenue is also the difference between the amount anticipated at the time 0, $\sum\limits_{t-2}^{n} E_t\cdot q^{-t}$, and the one at the time 1, $\sum\limits_{t-1}^{n-1} E_{t+1}\cdot q^{-t}$, which has been brought forth by shifting of the valuation-time from 0 to 1, like item (3) on the expense side.

That is, (2), (3), (5) are adjustment-items of the present value of the expected future cash-flow which are necessarily brought forth only by

shifting of the valuation-time from 0 to 1. Especially, item (2) can be called "economic depreciation" of the business enterprise.

In sum, the characteristics of these financial statements which we have formulated from the viewpoint of economics are (1) to regard the expected future cash-flow as the decisive factor in accounting, (2) to estimate the value of capital to be maintained on the basis of future net earnings or net cash-inflow, (3) to discriminate the disposable profit in a period from the above-estimated capital, (4) to recognize also asset and debt as the present value of the expected future cash-flow, (5) to count the increase of the future cash-flow as revenue or expenses and (6) to have confirmed that the thus measured profit in any period is equal to the interest or the cost of capital to be acquired for the amount of the capital existing at the beginning of the period.

We are sure that this new framework of thinking is the most theoretical, because it can provide the business management with a more scientific criterion for his activity and inform the shareholders of the true financial position of business, that is, whether the capital based on its earning power is maintained or not.

This theory, however, has a critical weak point that it can be satisfactorily established only on the very simple assumption that we can "certainly" anticipate the future cash-flow, that is, the expectation at the time 0 continues to be valid forever.

If the future of a business is "uncertain" ——this assumption is much more realistic—— we must more elaborately think over the modification of the future cash-flow, the increase or decrease in the value of capital and also the character of the profit in a period brought forth as a result.

But these problems are too difficult to solve in the present stage.   At a future opportunity We hope to examine them logically.

<div style="text-align: right">December 11, 1967</div>

Note :

(1)   Hansen, Palle ; The Accounting Concept of Profit, 1962, Schneider, Dieter ; Besprechungsaufsatz, Bilanzgewinne und Oekonomische Theorie, ZfhF, 1963, S. 457-S. 474, Albach, Horst ; Grundgedanken einer systematischen Bilanztheorie, Z. f. B., 1965, S. 24-S. 31, Honko, Jaako ; Über einige Probleme bei der Ermittlung des Jahresgewinns der Unternehmung, Z. f. B.,

1965, S. 611-S. 642, Jaedicke, Robert K. and Sprouse, Robert T. ; Accounting Flows: Income, Funds and Cash, 1965, p. 9-p. 27.

(2) Fisher, Irving ; The Nature of Capital and Income, 1923, p. 52, Hicks, J. R. ; Value and Capital, 1939, p. 172,   Lindahl, Erik ; The Concept of Income, Economic Essays in Honour of Gustav Cassel.

(3) Eckardt, H. ; Die Substanzerhaltung industrieller Betriebe, 1963, S. 19-S. 36.

(4) Because $W_0 + iW_0 = (1+i) \ W_0$

$$= (1+i) \left\{ \sum_{t=1}^{n} E_t \cdot q^{-t} - \sum_{t=1}^{n} A_t \cdot q^{-t} \right\}$$

$$= (1+i) \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

$$= E_1 - A_1 + \sum_{t=1}^{n-1} (E_{t+1} - A_{t+1}) \ q^{-t}$$

So, in the credit side of B/S, $\sum_{t=1}^{n-1} A_{t+1} \cdot q^{-t} + W_0 + iW_0$

$$= \sum_{t=1}^{n-1} A_{t+1} \cdot q^{-t} + E_1 - A_1 + \sum_{t=1}^{n-1} (E_{t+1} - A_{t+1}) \ q^{-t}$$

$$= \sum_{t=1}^{n-1} E_{t+1} \cdot q^{-t} + E_1 - A_1$$

The above-stated structure of B/S can be satisfactorily established.

(5) Because $iW_0 = i \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$

So, in the debt side of P/L,

$$A_1 + \sum_{t=1}^{n} (E_t - A_t) \ q^{-t} - \sum_{t=2}^{n} (E_t - A_t) \ q^{-t}$$

$$+ \sum_{t=1}^{n-1} A_{t+1} \cdot q^{-t} - \sum_{t=2}^{n} A_t \cdot q^{-t} + i \sum_{t=1}^{n} (E_t - A_t) \ q^{-t}$$

$$= A_1 + \sum_{t=1}^{n-1} A_{t+1} \cdot q^{-t} + (1+i) \sum_{t=1}^{n} (E_t - A_t) \ q^{-t} - \sum_{t=2}^{n} E_t \cdot q^{-t}$$

$$= (1+i) \sum_{t=1}^{n} A_t \cdot q^{-t} + (1+i) \sum_{t=1}^{n} (E_t - A_t) \ q^{-t} - \sum_{t=2}^{n} E_t \cdot q^{-t}$$

$$= (1+i) \sum_{t=1}^{n} E_t \cdot q^{-t} - \sum_{t=2}^{n} E_t \cdot q^{-t}$$

On the other hand, in the credit side of P/L,

$$E_1 + \sum_{t=1}^{n-1} E_{t+1} \cdot q^{-t} - \sum_{t=2}^{n} E_t \cdot q^{-t}$$

$$= (1+i) \sum_{t=1}^{n} E_t \cdot q^{-t} - \sum_{t=2}^{n} E_t \cdot q^{-t}$$

The above-stated structure of P/L can be satisfactorily established.

RECENT CHANGES IN JAPAN'S TRADE WITH
LATIN AMERICA AND BRAZIL

Yoshiaki NISHIMUKAI

Since 1960, there have been large absolute increases in Japan's trade
with Latin America.   However, trade with Latin America is still relatively
unimportant in terms of total trade for Japan.   In 1965, the share of total
Japanese exports which was absorbed by Latin America did not reach 5
percent; while the corresponding share for imports was 8 percent.   These
figures were much smaller than those which were found in Japan's trade
with other Asian countries.   Moreover, the share of Japanese exports to
Africa has increased since 1962 and is now larger than the comparable
share to Latin America; although Japanese imports from Latin America are
still more important than those from Africa.

In Japan's trade with other Asian countries, there are some factors,
such as nearness and historical intimacy, which promote trade relations
based on the principle of comparative advantage.   But in Japan's trade
with Africa and Latin America, there are not such promoting factors and
consequently the trade relations are determined only by the comparative
advantage.   In this sense, it may be said that both trade relations are
under the same condition.   But, in fact, the importance of Japan's trade
with Latin America has decreased in terms of her total foreign trade, while
that with Africa has increased.

One of the causes of this phenomenon may be that Latin America has
reached a relatively advanced stage of economic development as compared
with Asia and Africa and consequently industrial structures of Japan and
Latin America have become less complementary or heterogeneous.   But
another important cause is related to the recent expansion of intra-Latin
American trade through the reduction of regional trade barriers which has
been taking place in the LAFTA countries and the Central American
countries.   It can be supposed that trade expansion among Latin American
countries had a trade-diverting effect which affected Japanese exports to

Latin America. In order to examine these issues, it is necessary to analyze
in detail Japan's trade with Latin America. My purpose in this essay is to
focus attention on some of the main changes in trade patterns of Japan
and Latin America before and after the establishment of LAFTA. However,
for lack of commodity trade statistics according to the Standard International
Trade Classification, the greater part of my analysis could not help being
concentrated on Japan's trade with Brazil which was the only country that
had the above-mentioned statistics for the period under consideration.

I. Japan's Recent Trade with Latin America

    In order to make clear the relative importance of Japan's trade with
Latin America in terms of her total foreign trade, it is necessary to give
attention to the rates of trade expansion of the countries concerned.

    From 1961 to 1965, world trade rose about 40 percent in exports and
imports.   Japan's exports rose during this same period about 99 percent,

Table 1.   Recent Trend of Foreign Trade of Japan and Latin
            America

(Million Dollars)

	1960	1961	1962	1963	1964	1965
	(A) Exports					
World a)	129,919.6	115,989.0	122,041.6	133,181.9	150,285.3	162,218.5
Japan	4,054.7	4,233.5	4,917.5	5,449.1	6,677.3	8,456.2
Latin America b)	8,029.9	8,088.5	8,648.2	9,220.2	9,973.2	10,371.0
LAFTA	4,762.3	4,960.3	5,228.1	5,656.8	6,170.8	6,595.8
Brazil	1,270.9	1,402.3	1,214.6	1,406.9	1,430.9	1,595.7
	(B) Imports					
World a)	139,137.1	121,275.0	129,319.0	140,669.9	158,324.4	171,693.1
Japan	4,491.7	5,810.1	5,634.9	6,739.3	7,947.4	8,167.8
Latin America b)	7,689.3	7,927.9	8,018.7	7,853.3	8,580.7	8,853.6
LAFTA	5,660.4	5,998.0	5,921.7	5,738.7	5,990.0	5,993.3
Brazil	1,463.1	1,461.6	1,475.5	1,487.4	1,265.6	1,097.5

(Source) IMF, *Direction of Trade, Annual 1960–64* and *1961–65.*
    a) After 1961, excluding socialist countries.
    b) Excluding Cuba.

while her imports increased at the same rate as that of world trade.   The
rate of trade expansion of Latin America was much lower than that of
world trade in both exports and imports.   But, the exports of the LAFTA
countries rose about 33 percent which was approximately the rate of the
world exports expansion.   Brazil's exports increased only about 13 percent,
while her imports tended to decrease. (see Table 1).

The difference among these rates of increase results in changes in
their participation in world trade, as Table 2 indicates.   Only the ratio of
Japanese exports to total world exports increased and in 1965 accounted
for 5 percent, but it is notable that all other ratios showed a decline ;   the
shares of Latin America, the LAFTA countries and Brazil in world trade
tend to decline in both exports and imports.

Under these conditions, Japanese exports to Latin America and to the

Table 2.   Rates of Trade Expansion of Japan and Latin America
and their Percentage Shares in World Trade

	1960	1961	1962	1963	1964	1965
	(A) Exports					
World	112	100	105	114	129	139
Japan	95 (3.1)	100 (3.6)	116 (4.0)	128 (4.1)	157 (4.4)	199 (5.2)
Latin America	99 (6.2)	100 (7.0)	107 (7.1)	114 (6.9)	123 (6.6)	128 (6.4)
LAFTA	96 (3.7)	100 (4.2)	105 (4.3)	114 (4.2)	124 (4.1)	133 (4.0)
Brazil	90 (0.9)	100 (1.2)	86 (1.0)	100 (1.0)	102 (0.9)	113 (0.9)
	(B) Imports					
World	114	100	106	116	130	141
Japan	77 (3.2)	100 (4.8)	97 (4.3)	116 (4.8)	136 (5.0)	140 (4.7)
Latin America	97 (5.5)	100 (6.5)	101 (6.2)	99 (5.5)	108 (5.4)	111 (5.1)
LAFTA	94 (4.0)	100 (4.9)	98 (4.5)	95 (4.1)	100 (3.7)	100 (3.5)
Brazil	100 (1.0)	100 (1.2)	101 (1.1)	102 (1.0)	86 (0.8)	75 (0.6)

(Source)   Data of Table 1.

Table 3.   Japan's Exports to Latin America

(Million Dollars)

	Total	Latin America[a]	LAFTA	Brazil
1956	2,500.6	164.0	120.5	45.1
1957	2,858.0	149.0	74.4	25.0
1958	2,876.6	193.7	100.5	41.9
1959	3,456.5	232.4	103.2	37.4
1960	4,054.7	270.7	140.5	45.7
1961	4,233.5	308.7	215.3	86.0
1962	4,917.5	306.5	202.9	43.6
1963	5,449.1	305.2	173.3	56.3
1964	6,677.3	364.3	166.2	29.1
1965	8,456.2	404.7	211.9	26.8
	index : 1960=100			
1956	61	60	85	99
1957	70	55	53	55
1958	71	71	71	91
1959	85	86	73	82
1960	100	100	100	100
1961	104	114	153	188
1962	121	113	144	95
1963	134	112	123	123
1964	164	134	118	63
1965	208	149	150	58

(Source)   *Tsūshōhakusho*, 1961 and IMF, *Direction of Trade Annual.*
   a)   After 1960, excluding Cuba.

LAFTA countries rose about 50 percent which were much lower than the rate of increase of Japan's total exports and those to Brazil decreased by about 40 percent (see Table 3).

On the other hand, Japanese imports from Latin America and the LAFTA countries increased at a higher rate than that of the increase of her total imports, although Japanese imports from Brazil increased only about 50 percent which corresponded to less than half the rate at which Japan's Latin American imports increased. (see Table 4).

Table 4.   Japan's Imports from Latin America

(Million Dollars)

	Total	Latin America	LAFTA	Brazil
1956	3,229.7	349.2	259.5	50.2
1957	4,283.6	312.5	168.2	45.0
1958	3,033.1	260.4	185.3	27.1
1959	3,599.5	327.8	215.9	36.4
1960	4,491.7	288.6	243.3	32.8
1961	5,810.1	452.7	385.7	61.3
1962	5,634.9	434.9	331.8	40.1
1963	6,739.3	532.1	386.6	38.4
1964	7,947.4	607.4	461.6	37.1
1965	8,167.8	660.9	497.4	49.7
	index : 1960=100			
1956	72	121	106	153
1957	95	108	69	137
1958	67	90	76	82
1959	80	113	88	111
1960	100	100	100	100
1961	129	157	158	186
1962	125	150	136	122
1963	83	184	159	117
1964	177	210	189	113
1965	182	229	204	151

(Source)   Data of Table 3.

Consequently, the relative share of Japan's trade with Latin America in her total foreign trade showed substantial changes since 1960. In the first place, the notable expansion of Japanese exports in the last few years is due to her increase of exports to developed countries rather than to that to less developed countries, as Table 6 indicates. Japanese exports to Latin America are not an exception to this general trend. The ratio of Japan's exports to Latin America to total exports declined from 1960 to 1965, increasing only in 1961. Japan's exports to the LAFTA countries and to Brazil followed the same trend (see Table 6).

In the second place, Japan's imports from less developed countries have increased since 1961. The ratio of Japanese imports from these countries to total imports rose from 35.8 percent in 1961 to 41.8 percent in 1965. The share of Japan's imports from Latin America was stable from 1961 to 1964, but exceeded 8 percent in 1965. However, the shares of Japan's imports from the LAFTA countries and Brazil gradually declined and in 1965 showed a little recovery, which did not return to the level of 1960. (see Table 8).

<p align="center">Table 5.   Destination of Japan's Exports</p>

<p align="right">(Million Dollars)</p>

	1960	1961	1962	1963	1964	1965
Developed Areas	1,927.8	1,906.7	2,453.5	2,647.3	3,298.3	4,346.1
Less Developed Areas	2,054.3	2,218.6	2,244.4	2,554.6	2,956.9	3,623.7
United States	1,107.5	1,073.0	1,410.6	1,522.4	1,866.3	2,517.1
Canada	119.2	116.6	126.2	124.8	166.2	214.6
United Kingdom	120.6	114.6	192.2	155.8	197.9	205.1
Common Market	174.6	211.2	272.5	331.8	365.6	484.1
Other Ind. W. Eur.	99.6	127.7	127.2	115.1	197.7	251.3
Other W. Europe	81.6	91.8	99.4	115.3	107.0	155.7
Aust. Nz. S Africa	224.7	171.8	225.4	282.1	397.6	518.2
Latin America	270.7	308.7	306.5	305.2	364.3	404.7
LAFTA	140.5	215.3	202.9	173.3	166.2	211.9
Brazil	45.7	86.0	43.6	56.3	29.1	26.8
Other W. Hemis.	21.5	18.9	28.1	38.1	49.1	49.7
Middle East	156.6	173.3	165.8	201.4	245.2	295.7
Other Africa	273.7	308.0	254.9	367.9	469.5	649.2
Other Asia	1,313.7	1,393.0	1,473.1	1,617.8	1,781.4	2,190.5
Sino-Soviet Area	72.4	105.8	215.3	244.6	420.6	480.7
Miscellaneous	18.6	18.5	20.3	26.8	48.9	39.6
Total	4,054.7	4,233.5	4,917.5	5,449.1	6,677.3	8,456.2

(Source) IMF, *Direction of Trade Annual*

Table 6.   Destination of Japan's Exports

(Percentages)

	1960	1961	1962	1963	1964	1965
Developed Areas	47.5	45.0	49.9	48.6	49.4	51.4
Less Developed Areas	50.7	52.4	45.6	46.9	44.3	42.8
United States	27.3	25.3	28.6	27.9	27.9	29.8
Canada	2.9	2.7	2.6	2.3	2.5	2.5
United Kingdom	3.0	2.7	3.9	2.8	2.9	2.4
Common Market	4.3	5.0	5.5	6.1	5.5	5.7
Other Ind. W. Eur.	2.4	3.0	2.6	2.1	2.9	3.0
Other W. Europe	2.0	2.2	2.0	2.1	1.6	1.8
Aust. Nz. S Africa	5.5	4.0	4.6	5.2	5.9	6.1
Latin America	6.7	7.3	6.2	5.6	5.4	4.8
LAFTA	3.5	5.1	4.1	3.2	2.5	2.5
Brazil	1.1	2.0	0.9	1.0	0.4	0.3
Other W. Hemis.	0.5	0.4	0.5	0.7	0.7	0.6
Middle East	3.9	4.1	3.4	3.7	3.7	3.5
Other Africa	6.7	7.3	5.2	6.7	7.0	7.7
Other Asia	32.4	32.9	30.0	29.7	26.0	25.9
Sino-Soviet Area	1.8	2.5	4.4	4.5	6.3	5.7
Miscellaneous	0.4	0.4	0.4	0.5	0.7	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

(Source)   Table 5.

Among these changes, one of the most important problems is that the relative importance of Latin America has decreased in terms of markets for Japanese exports since 1962 when the Montevideo Treaty first influenced trade among the member countries.   It can be expected that this trend is due not only to the development of industrialization in Latin America, but

to the trade-diverting effect through the liberalization of intra-Latin American trade.   On the other hand, we can suppose that changes in the industrial structure of Japan brought about by the rapid growth of her economy also constituted another important cause for this trend.   Considering these questions, we shall attempt to analyze in detail Japan's trade with Latin America by commodities.

<p style="text-align:center">Table 7.   Breakdown of Japan's Imports, by Origin</p>

<p style="text-align:right">(Million Dollars)</p>

	1960	1961	1962	1963	1964	1965
Developed Areas	2,585.7	3,504.5	3,259.2	3,772.4	4,327.1	4,196.2
Less Developed Areas	1,773.2	2,080.3	2,127.6	2,689.0	3,116.2	3,415.5
United States	1,554.2	2,096.7	1,809.1	2,078.1	2,336.9	2,364.3
Canada	203.7	265.8	255.0	318.8	378.3	355.0
United Kingdom	99.1	137.1	145.8	149.2	187.1	162.0
Common Market	209.1	311.9	344.4	396.2	444.0	391.9
Other Ind. W. Eur.	55.7	81.8	94.8	106.0	146.5	134.2
Other W. Europe	31.1	27.2	21.6	23.8	39.0	40.8
Aust. Nz. S Africa	432.8	584.0	588.5	699.7	795.3	747.4
Latin America	288.6	452.7	434.9	532.1	607.4	660.9
LAFTA	243.3	385.7	331.8	386.6	461.6	497.4
Brazil	32.8	61.3	40.1	38.4	37.1	49.7
Other W. Hemis.	3.1	3.5	6.6	9.2	30.9	17.7
Middle East	439.8	515.0	592.0	771.6	937.6	1,098.8
Other Africa	88.1	89.4	88.1	120.5	203.1	191.9
Other Asia	925.1	991.4	983.2	1,228.6	1,289.5	1,405.8
Sino-Soviet Area	132.6	225.3	244.7	277.9	497.9	556.1
Miscellaneous	28.7	28.3	26.2	27.0	53.9	40.4
Total	4,491.7	5,810.1	5,634.9	6,739.3	7,947.4	8,167.8

(Source) IMF, *Direction of Trade Annual,*

Table 8.   Breakdown of Japan's Imports, by Origin

(Percentages)

	1960	1961	1962	1963	1964	1965
Developed Areas	57.5	60.3	57.8	56.0	54.4	51.4
Less Developed Areas	39.5	35.8	37.8	39.9	39.2	41.8
United States	34.6	36.1	32.1	30.8	29.4	28.9
Canada	4.5	4.6	4.5	4.7	4.8	4.3
United Kingdom	2.2	2.3	2.6	2.2	2.3	2.0
Common Market	4.6	5.4	6.1	5.9	5.6	4.8
Other Ind. W. Eur.	1.2	1.4	1.7	1.6	1.8	1.6
Other W. Europe	0.7	0.5	0.4	0.3	0.5	0.5
Aust. Nz. S Africa	9.6	10.0	10.4	10.4	10.0	9.2
Latin America	6.4	7.8	7.7	7.9	7.6	8.1
LAFTA	5.4	6.6	5.9	5.7	5.8	6.1
Brazil	0.7	1.0	0.7	0.6	0.5	0.6
Other W. Hemis.	0.07	0.06	0.1	0.1	0.4	0.2
Middle East	9.8	8.9	10.5	11.4	11.8	13.4
Other Africa	2.0	1.5	1.6	1.8	2.5	2.3
Other Asia	20.6	17.1	17.4	18.2	16.2	17.2
Sino–Soviet Area	3.0	3.9	4.3	4.1	6.3	6.8
Miscellaneous	0.6	0.5	0.5	0.4	0.7	0.5
Total	100.0	100.0	100.0	100.0	100.0	100.0

II.   Patterns of Comparative Advantage of Japan and Brazil

In order to measure the effects of LAFTA on Japan's trade with Latin America, we have to examine, first, trade patterns before the establishment of this institutional organization. However, for lack of trade statistics necessary for our purpose, the following analysis cannot but concentrate on the foreign trade between Japan and Brazil.

Our first intention is to detect the patterns of comparative advantage of both countries in world trade and in mutual trade, and to make clear the divergence between these two patterns.   The patterns of comparative advantage are approximately given by the composition of exports and imports shown in "Annexed Tables" at the end of this paper.   The classification of commodities used in this paper is based on the SITC code and each category includes the following SITC code numbers: food and beverage (0, 1), raw materials (2), fuels and fats (3, 4), textile (65, 841), nonmetal mineral manufactures (66), other light industrial manufactures (61, 62, 63, 8, excluding 841, 861, 864, 891), chemicals (5), iron and steel (67), non-ferrous metals (68), metal manufactures (69), general machinery (71), electrical machinery (72, 891), transport equipment (73), instruments and watches (861, 864).

In Figures 1 and 2, in the first place, the parts enclosed by solid lines represent the pattern of comparative advantage in world trade of both countries.   As Figure 1 shows, generally speaking, Japan has a comparative disadvantage in primary products and a comparative advantage in industrial manufactures.   The degree of comparative disadvantage is greater in raw materials and fuels.   On the other hand, the comparative advantage is overwhelming on light industrial manufactures and great on machinery and equipment and metal manufactures.   On the contrary, trade patterns of Brazil still show characteristics of less developed countries which export some primary products and import industrial manufactures.   The categories in which Brazil has comparative advantage are food and beverage and raw materials, while Brazil has an overwhelming comparative disadvantage in almost all industrial manufactures.

In spite of the remarkable contrast found in the patterns of comparative advantage and disadvantage, the degree of concentration of foreign trade is not so different in both countries.   The degree of concentration of exports which is calculated as the total percentage share of the first three important categories of commodities in exports is 84.4 percent (light industrial manufactures, 44.2 percent, machinery and instruments, 27.1 percent and metal manufactures, 13.1 percent) in Japan, and 97.8 percent (food and beverage, 74.1 percent, raw material, 19.4 percent and fuels and

oil, 14.3 percent) in Brazil.   The correspondent degree for imports is 77.8 percent (raw materials, 48.4 percent, fuels and oil 17.2 percent and food and beverage, 12.4 percent) and 69.8 percent (machinery and instruments, 37.1 percent, fuels and oil, 19.6 percent, and food and beverage, 13.1 percent), respectively.

In the second place, the patterns of comparative advantage in mutual trade are shown by the shaded portions of Figures 1 and 2.   The parts enclosed by intermittent lines in Figure 1 show the pattern of comparative advantage of Japan in her trade with Latin America.   It can be deduced from the trade patterns of Japan and Brazil in their total foreign trade that the division of labour between the two countries would be complementary or harmonious in the form of primary products *vis-a-vis* manufactured goods.   In fact, Japanese exports to Brazil are mainly composed of industrial products and Brazilian exports to Japan of primary products, while Japanese export of primary products to Brazil and Brazilian export of industrial products to Japan are negligible in both absolute and relative terms.   Other distinguished facts are as follows :   (1) machinery and instruments are the most important items exported by Japan to Brazil, (2) the ratio of machinery, instruments and metal manufactures of Japan's exports to Brazil is much higher than the comparable ratio of her total exports, (3) but the share of light industrial manufactures in Japan's exports to Brazil is considerably smaller than the corresponding share in Japan's total exports, (4) Brazil's exports to Japan consist primarily of food and raw materials, (5) the percentage share of raw materials in Brazil's exports to Japan is much greater than the comparable share in the proportion of her total exports, (6) but in regard to food and beverage we can find the reverse relation.

In other words, Japan's comparative advantage to be found in world trade is strengthened in machinery, instruments and metal manufactures and weakened in light products in her exports to Brazil.   On the other hand, Brazil strengthens her comparative advantage in raw materials and weakens it on food and beverage in her exports to Japan.   This means that the important problems related to trade expansion between Japan and Brazil are how to promote Japan's export of light industrial products and

Figure 1. Japan (1959-61 average)

Figure 2.   Brazil (1959-61 average)
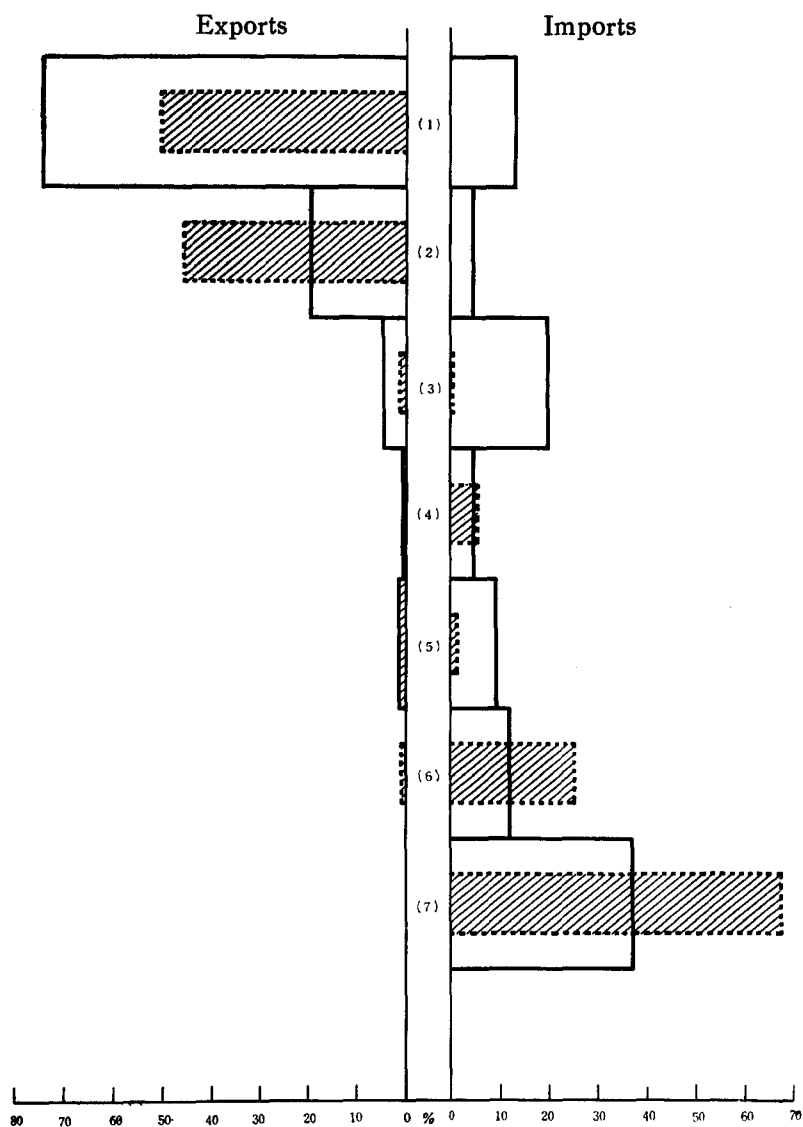
how to expand Brazil export of food and beverage.   However, both prob-
lems seem to encounter great difficulty as we shall examine later, because
with regard to the former problem, the process of import substitution in
Brazil has substantially progressed in the field of light industries and has
entered into a new stage of capital goods industries, on one hand; and
the share of light industrial products in Brazil's imports from Japan slightly
exceeds a comparable share for her total imports, on the other; and in
reference to the latter, the share of food and beverage in Japan's imports
from Brazil in much higher than the corresponding share for Japan's total
imports.

Considering the trade patterns of Japan and Brazil in terms of abso-
lute value, we can reach the same conclusion as given by an analysis of
the relative composition of trade.   Assuming that a country whose import
of particular categories of commodities is less than 20 percent of the ex-
port of the same category and is specialized in the export of those com-
modities, we can derive the following conclusions from Annexed Tables I
and III.   The commodities in which Japan has specialized and, therefore,
has an overwhelming comparative advantage are all manufactured goods.
On the contrary, the commodities in which Brazil has specialized are pri-
mary products with the only exception of fuels.   In regard to trade
between Japan and Latin America as a whole, we can find the same pat-
terns, excepting the case of chemicals.

III.   Intensity of Trade by Commodities

Trade relations between Japan and Brazil which were clarified to some
extent in previous sections can be understood more clearly and synthetical-
ly through calculation of the coefficients of their trade intensity.   These
coefficients are given in Tables 9 and 10.   The first column shows the
coefficient of concentration of exports which represent the percentage share
of a particular commodity absorbed by country B to country A's total
export of this commodity.   The second column shows the coefficient of
concentration of imports which corresponds to the percentage share of a
particular commodity exported by country B to country A's total imports
of the same commodity.   The third column represents the intensity of
trade which is obtained by the following method of calculation ;

$$I_{ij}^{h} = \frac{X_{ij}^{h}}{X_{ij}} \Bigg/ \frac{M_{j}^{h}}{M_{j}} \cdot 100$$

I_{ij}^{h} : country i's intensity of exports of commodity h to country j.

X_{ij}^{h} : country i's export of commodity h to country j.

X_{ij} : country i's total exports to country j.

M_{j}^{h} : country j's total import of commodity h.

M_{j} : country j's total imports.

In short, the first term shows country i's composition of exports to country j and the second means the structure of demand for imports in country j. Consequently, the intensity of exports helps to indicate in what com-

Table 9.   Intensity of Japan's Exports to Brazil

(Average of 1959–61)

	(1)		(2)	(3)	(4)
	to L. A	to B.			
1. Food · Beverage	1.6	0.4	0.5	13	13.1
2. Raw Materials	2.1	—	—	0	4.4
3. Fuels · Fats	1.0	0.4	0.06	2	19.6
4. Light Ind. Products	4.4	0.1	4.5	117	4.6
Textile	4.4	—	—	0	0.1
Non–Metal Minerals	4.7	1.2	16.2	400	0.9
Others	4.5	0.2	1.9	50	3.6
5. Chemicals	3.8	0.4	0.5	13	9.4
6. Metals	10.2	2.7	8.4	218	11.7
Iron · Steel	11.0	2.7	11.7	302	5.4
Non-Ferrous	0.3	—	—	0	2.9
Manufactures	10.4	3.6	10.6	271	3.4
7. Machinery · Instruments	12.1	3.4	6.9	177	37.1
General Machinery	13.7	8.0	7.5	193	17.9
Electric Machinery	11.5	2.2	7.9	204	5.4
Transport Equip.	12.9	2.2	5.4	140	12.8
Instruments	6.0	1.5	10.1	260	1.0
Total	6.9	1.4	3.9	100	100.0

(Source)   Annexed Tables I—VIII.

modities country i has greater comparative advantage, or competitive power, and of what commodities country j's imports come largely from country i. If the trade relations between i and j have greater intimacy, the coefficient of intensity will exceed 100.

Table 10.   Intensity of Brazil's Exports to Japan
(Average of 1959-61)

	(1)	(2)	(3)	(4)
1. Food • Beverage	1.7	2.8	415	12.4
2. Raw Materials	5.8	0.7	96	48.4
3. Fuels • Fats	0.4	0.03	5	17.0
4. Light Ind. Products	1.0	0.1	18	1.5
Textile	—	—	—	0.4
Non–Metal Minerals	4.3	0.5	66	0.3
Others	0.6	0.06	9	0.8
5. Chemicals	0.7	0.03	5	6.0
6. Metals	9.4	0.09	12	4.9
Iron • Steel	9.7	0.2	29	2.1
Non–ferrous	—	—	—	2.5
Manufactures	—	—	—	0.3
7. Machinery • Instruments	—	—	—	9.8
General Machinery	—	—	—	6.3
Electric Machinery	—	—	—	0.9
Transport Equip.	—	—	—	1.8
Instruments	—	—	—	0.8
Total	2.4	0.7	100	100.0

(Source)   Annexed Tables Ⅰ—Ⅷ.

First, from Table 9, we can find that the coefficient of concentration of Japan's exports to Brazil is only 1.4 in aggregate terms and is considerably lower than the comparable coefficient to Latin America, that is, 6.9. Among the coefficients by commodities, those of metal manufactures and machinery are relatively high.   The highest level is shown by general machinery which exceeds 8.   It means that Brazil is one of the most important markets for Japan's exports of these items.   Other manufactures

show coefficients less than 1. The coefficient of concentration of Brazil's imports from Japan is also relatively high in metal products and machinery among which the corresponding coefficients to items of iron and steel, metal manufactures and instruments are over 10. As to light industrial products, non-ferrous metal manufactures have a coefficient of the highest level.

Second, as Table 10 indicates, the coefficients of concentration of Brazil's exports to Japan are relatively higher in iron and steel, raw materials and non-ferrous metal manufactures than those in food and beverage. This means that the importance of the Japanese market for Brazil's exports is greater in metals than in primary products, with the exception of raw materials. On the other hand, the degree of concentration of Japan's imports from Brazil is very low.

Last, we shall turn our attention to the intensity of exports shown in Tables 9 and 10. Generally speaking, the coefficients of intensity of Japan's exports to Brazil are higher in industrial products. Among these, the coefficients regarding metals and machinery are especially high, but the coefficient of light industrial products is relatively low, although in trade with the rest of the world Japan has a great comparative advantage in this item, as we have mentioned above. The only exception is related to chemicals in which the coefficient is very low, that is, 13. Considering that chemicals are products in which Brazil has a comparative disadvantage and Japan has an overwhelming comparative advantage at least in her trade with Brazil, we can reach the conclusion that Japan has little chance in the export competition of these commodities. On the other hand, the intensity of Brazil's exports to Japan can be theoretically considered higher in primary products, but in fact food and beverage are the only category of commodities that show a coefficient of more than 100 while the other products stay on a level lower than 100; raw materials, 96, fuels and fats, only 5. As to the latter, this situation is inevitable because of its comparative disadvantage, but as for the former it is necessary for Brazil to expand her exports to Japan and to correct the excessive concentration on food and beverage.

These problems can be made clearer through a comparison of the intensity of exports of both countries with the demand patterns of each

partner country. This comparison clarifies the disparity between the actual situation and a desirable one. The last columns in Tables 9 and 10 show the structure of demand for imports. If we compare this structure with the intensity of exports, we can reach the following conclusions; (1) in the case of Japan, the intensity of Japan's exports of chemicals to Brazil must be higher than that in reality, although the coefficient regarding light industrial products is satisfactory, (2) as to machinery and instruments in which Brazil has the largest demand for imports, the intensity of Japan's exports should be higher, comparing it with the case of metals, (3) for Brazil, the intensity of her exports to Japan must be increased in the item of raw material where Japan has the largest demand for imports.

IV. Dynamic Changes in Japan's Trade with Latin America

The considerations in some previous sections were based exclusively on analyses of the averages of 1959-61 when LAFTA had not yet had any effective impact on regional trade. Our next purpose is to make clear some important changes in the trend of Japan's trade with Latin America. In order to verify these probable changes, we shall examine whether the divergence between the two patterns of comparative advantage, one of which is concerning each country's trade with the rest of the world and the other is related to trade between the two countries, has expanded or contracted after LAFTA affected regional trade. For this examination, it is useful to calculate the coefficient of the intensity of trade.

First, we showed the movements of total foreign trade, by commodities, of Japan and Brazil in Tables 11, 12, and 13, where we found the following characteristic facts: (1) increases in Japan's exports are greater in industrial manufactures than in primary products, and greater in heavy industrial products than in light ones, (2) on the contrary, Japan's imports increased more rapidly in primary products than in industrial products, and as to the latter, the increases in imports of light industrial products are remarkable. These can be considered as the repercussion of changes in the Japanese industrial structure. (3) Brazil's exports of primary products show a relative stagnation, with the exception of raw materials where we can see a relatively satisfactory expansion. However, her exports of in-

dustrial products increased in all items, and each rate of increase is extra-
ordinarily high, except for chemicals, as the consequence of exports ex-
pansion to member countries of LAFTA, as we shall examine later, (4) as
a consequence of restriction of imports, Brazil's imports in 1965 declined,
with the exceptions of food and beverage, and chemicals.

Second, concerning trade between Japan and Brazil, we can find some
different features: (1) Japan's exports of industrial products to Brazil
substantially declined, with the only exception of chemicals, (2) Japan's
imports from Brazil highly increased in industrial products, especially in
chemicals.   It might be true that the overwhelming comparative advantage
which Japan has in this category tends to disappear and the horizontal
division of labor goes on.   Imports of primary products from Brazil are

Table 11.   Rate of Increases of Japan's Exports,
by Commodities (1965)

1959—61＝100

	Total	to Latin America	to Brazil
1. Food • Beverage	130	32	—
2. Raw Mateials	184	168	—
3. Fuel • Fats	121	94	109
4. Light Ind. Products	142	118	30
Textile	135	136	—
Non–Metal Minerals	157	86	—
Others	153	90	93
5. Chemicals	312	265	287
6. Metals	336	219	81
Iron • Steel	379	260	109
Non–Ferrous	461	5,635	—
Manufactures	213	90	14
7. Machinery • Instruments	283	131	29
General Machinery	261	102	26
Electric Machinery	326	175	49
Transport Equip.	275	121	15
Instruments	254	161	85
Total	214	146	47

(Source) Annexed Table Ⅰ.

also expanding with the exception of food and beverage, (3) in 1959-61, Japan specialized in exports of all industrial products in her trade with Brazil, as we have already pointed out, but in 1965, machinery and instruments were the only category of commodities that Japan specialized in exports. But this must be understood as a consequence not of the disappearance of Japan's overwhelming comparative advantage, but of the restriction of imports on the part of Brazil.

Table 12. Rate of Increases of Japan's Imports, by
Commodities (1965)

1959—61=100

	Total	from Latin America	from Brazil
1. Food · Beverage	258	122	42
2. Raw Materials	143	198	155
3. Fuel · Fats	215	2,531	346
4. Light Ind. Products	342	1,172	376
Textile	299	—	—
Non–Metal Minerals	415	1,253	495
Others	338	211	—
5. Chemicals	149	169	2,080
6. Metals	185	247	606
Iron · Steel	145	271	606
Non–Ferrous	218	239	—
Manufactures	192	—	—
7. Machinery · Instruments	172	83	—
General Machinery	156	—	—
Electric Machinery	303	—	—
Transport Equip.	186	84	—
Instruments	127	—	—
Total	178	192	116

(Source) Annexed Table Ⅲ.

Table 13.   Rate of Increases of Brazilian Trade, by
Commodities (1965)

1959—61＝100

	Exports		Imports	
	Total	to Japan	Total	from Japan
1. Food · Beverage	105	40	108	—
2. Raw Materials	157	141	67	82
3. Fuel · Fats	83	269	85	—
4. Light Ind. Products	405	366	69	45
Textile	551	—	73	—
Non–Metal Minerals	166	501	83	11
Others	398	—	64	84
5. Chemicals	103	194	130	261
6. Metals	2,368	783	76	119
Iron · Steel	2,295	783	61	160
Non–Ferrous	—	—	135	3,308
Manufactures	4,363	—	48	19
7. Machinery · Instruments	600	—	49	34
General Machinery	1,071	—	58	58
Electric Machinery	3,696	—	65	21
Transport Equip.	223	—	23	13
Instruments	—	—	101	122
Total	121	95	76	60

(Source)   Annexed Table V, Ⅶ.

Last, we shall consider the coefficients of intensity of total trade which are shown in Table 15.   The coefficients, whose method of calculation is given in the same Table, is based on data from Table 14.   The method of calculation shows us that the coefficient is the ratio of country j's imports from country i to country i's exports, in relation to country j's position in world imports.   Therefore, trade relations between both countries are intimate, if it exceeds 100.   Table 15 has two meanings; if we read it vertically, it shows us the coefficients of intensity of imports and if we look at it horizontally, it shows us the intensity of exports.

Now, Table 15 shows us the following changes;

(1) The intensity of Japan's imports from Latin America has slightly increased, but that from LAFTA countries decreased and, above all, that

from Brazil considerably declined.   The intensity of Japan's exports to Latin America, LAFTA countries and Brazil declined, the last intensity showing a remarkable decrease.

(2)   On the contrary, the coefficients of intensity of imports of Latin America, LAFTA countries and Brazil show considerable increases, excepting that from Japan.   This trend can be found in the coefficients of exports.

(3)   The intensity of Japan's exports to Latin America and Brazil is higher than the intensity of her imports from these areas, but in Japan's trade with LAFTA countries we can find the reverse relation.

(4)   The intensity of intra-Latin American trade and intra-LAFTA trade rose, particularly, the intensity of Brazil's trade with other LAFTA countries considerably increased.

<div align="center">Table 14.   Trade Matrix[1]</div>

<div align="right">(Million Dollars)</div>

exports to / imports from	Japan	Latin America [2]	LAFTA	Brazil
Japan	—	289.7 / 404.7	177.9 / 211.9	65.8 / 26.8
Latin America [2]	235.3 / 431.5	607.4 / 1,016.3	508.9 / 797.7	153.1 / 212.9
LAFTA	189.0 / 290.2	371.5 / 720.2	318.6 / 636.5	66.3 / 137.7
Brazil	36.8 / 29.9	93.1 / 202.2	90.8 / 197.3	—

(Source)   IMF, *Direction of Trade, Annual 1960–64* and *1961–65.*

(Note)   (1)   Upper row shows annual average of 1960–61 and the lower of 1965.

(2)   Excluding Cuba.

Table 15.   Intensity of Total Trade

exports to / imports from	Japan	Latin America	LAFTA	Brazil
Japan	—	112 88	92 68	136 46
Latin America	69 83	118 180	132 209	158 306
LAFTA	93 89	120 204	139 267	115 315
Brazil	68 39	114 244	150 351	—

(Source) Table 14.

(Note) $Iij = \dfrac{Mij}{Xi} \; / \; \dfrac{Mj}{W - Mi}$

Iij : country *j*'s intensity of imports from country *i*.

Mij : country *j*'s imports from country *i*.

Xi : country *i*'s total exports.

Mj : country *j*'s total imports.

W   : world imports

Mi : country *i*'s total imports

These changes mean that Japan's trade with Latin America has lost its intimacy after the establishment of LAFTA.   Tables 16 and 17 show in what commodity group this alienation in trade relations has occurred.

The intensity of Japan's exports to Brazil has been relatively higher in most of the industrial products.   But the intensity of Japan's exports of light industrial products sharply declined and that of metals remarkably increased.   In chemicals, this intensity rose from 13 to 49, but this is still far below 100.   As regards the category of machinery and instruments, we can say that the intensity of exports has not changed, if we consider some error in the calculating process.   Comparing these changes with changes in the composition of Brazil's imports which represent the structure of her demand for imports, we can find some important facts.   For example, as Brazil's demand for chemicals has considerably increased, the

intensity of Japan's exports of these commodities could have been much higher.   Moreover, it is strange that the intensity of Japan's exports of light industrial products to Brazil has decreased, because Brazil's demand for these products did not show any adverse changes for Japan.   On the contrary, in the category of metals and of machinery and instruments, Japan has gained satisfactory results, because the intensity of Japan's ex-

Table 16.   Changes in Intensity of Japan's Exports
to Brazil, by Commodities

	Intensity of Exports	Composition of Brazil's Imports
1. Food · Beverage	13 0	13.1 18.7
2. Raw Materials	0 0	4.4 3.9
3. Fuel · Fats	2 3	19.6 21.9
4. Light Ind. Products	117 88	4.6 4.1
Textile	0 0	0.1 0.1
Non-Metal Minerals	400 0	0.9 0.9
Others	50 116	3.6 3.1
5. Chemicals	13 49	9.4 16.0
6. Metals	218 388	11.7 11.7
Iron · Steel	302 889	5.4 4.4
Non-Ferrous	0 69	2.9 5.2
Manufactures	271 133	3.4 2.1
7. Machinery · Instruments	177 179	37.1 23.7
General Machinery	193 142	17.9 13.8
Electric Machinery	204 259	5.4 4.6
Transport Equip.	140 153	12.8 4.0
Instruments	260 369	1.0 1.3
Total	100 100	100.0 100.0

(Source)   Annexed Tables I～VIII.
(Note)   Upper row : Annual average of 1959–61.
                 Lower row : 1965.

ports of the former increased and that of the latter remained stable, while Brazil's demand for these two categories showed unfavorable changes for Japan.

Table 17.   Changes in Intensity of Brazil's Exports
to Japan, by Commodities

	Intensity of Exports	Composition of Japan's Imports
1. Food · Beverage	415 121	12.4 18.1
2. Raw Materials	96 178	48.4 38.9
3. Fuel · Fats	5 11	17.0 20.6
4. Light Ind. Products	18 36	1.5 3.0
Textile	— —	0.4 0.7
Non–Metal Minerals	66 157	0.3 0.7
Others	9 —	0.8 1.6
5. Chemicals	5 12	6.0 5.0
6. Metals	12 98	4.9 5.0
Iron · Steel	29 288	2.1 1.7
Non–Ferrous	— —	2.5 3.0
Manufactures	— —	0.3 0.3
7. Machinery · Instruments	— —	9.8 9.4
General Machinery	— —	6.3 5.5
Electric Machinery	— —	0.9 1.5
Transport Equip.	— —	1.8 1.9
Instruments	— —	0.8 0.5
Total	100 100	100.0 100.0

(Source)   Annexed Tables   I~VⅢ.
(Note)   Upper row : Annual average of 1959–61
           Lower row : 1965

On the other hand, the intensity of Brazil's exports to Japan declined strikingly in food and beverage and rose in raw materials. It is noteworthy that the coefficient of intensity rose from 12 to nearly 100 in the category of metals. As a consequence of these changes, the divergence between the magnitude of intensity of Brazil's exports to Japan and the composition of Japan's imports has almost disappeared.

V. Conclusions

As we have pointed out, the liberalization of intra-Latin American trade, especially intra-LAFTA trade have had some negative effects on Japan's trade with this region. Will these effects continue to be strong in the near future ? How does development of Latin American economic integration affect Japan's trade with Latin America ? The lack of sufficient statistical data about intra-regional trade by commodities and the existence of many uncertain factors in the integration process make it difficult to reply to these important questions. It can be said, however, that Japan's exports to Latin America will be confronted with more difficulties. What are desirable policies to promote Japan's exports under these predictable conditions?

Intra-Latin American, especially intra-LAFTA trade has been expanding since 1962, as shown in Table 18. Table 19 shows the coefficients of intensity of total trade which, using the data of Table 18, were calculated by the same method as in Table 15. It is clear that all LAFTA countries increased their intensity of intra-regional trade and decreased that of extra-regional trade, with the only exception of Uruguay. But it is noteworthy that the rate of decreases in intensity of extra-regional trade is much smaller than the rate of increases in the intensity of intra-LAFTA trade. This means that in spite of the remarkable expansion of intra-LAFTA trade, it is still important for Latin America to expand her trade with extra-regional advanced countries.

In order to make clearer this problem, we calculated the coefficients of Brazil's imports, by commodities, which are shown in Table 20. The method of calculation is as follows.

Table 18.   Intra-LAFTA Trade Matrix

(Million Dollars)

exports to / imports from	A	B	CH	CO	E	M	PA	PE	U	intra-regional exports	extra-regional exports	Total
A	—	54.8	42.3	0.3	0.1	1.0	8.6	14.8	9.3	131.2	890.8	1,022.0
	—	107.1	53.4	7.1	0.6	6.7	10.6	37.6	8.0	231.1	1,261.9	1,493.0
B	62.0	—	10.3	0.6	—	0.1	0.8	0.8	16.2	90.8	1,245.2	1,336.0
	141.0	—	19.0	2.9	—	8.9	2.3	12.0	11.2	197.3	1,397.7	1,595.0
CH	20.5	6.0	—	0.6	0.6	0.3	—	3.1	1.2	32.3	464.7	497.0
	26.5	14.1	—	1.9	1.4	2.8	0.1	4.6	1.9	53.3	631.7	685.0
CO	0.1	0.1	0.6	—	0.8	0.1	—	3.5	—	5.2	445.3	450.5
	5.5	0.4	0.8	—	3.9	0.5	—	5.2	0.3	16.6	522.4	539.0
E	—	—	2.3	4.2	—	—	—	0.5	—	7.0	128.5	135.5
	2.2	—	3.3	6.1	—	0.2	—	3.8	—	15.5	207.2	222.7
M	0.8	1.5	1.4	1.5	0.3	—	—	0.7	0.1	6.3	788.7	795.0
	7.4	5.4	12.3	5.5	1.3	—	—	3.5	0.8	36.2	1,109.8	1,146.0
PA	8.2	—	—	—	—	—	—	—	1.1	9.3	19.7	29.0
	14.7	—	—	—	—	—	—	—	2.2	16.9	40.1	57.0
PE	8.8	2.9	15.4	0.8	2.5	0.8	—	—	1.0	32.2	429.8	462.0
	19.7	5.3	17.4	4.3	1.4	4.3	—	—	1.7	54.1	614.9	669.0
U	2.1	1.0	0.5	0.3	—	—	0.3	0.1	—	4.3	147.7	152.0
	3.1	5.4	0.9	4.6	—	0.3	0.2	1.0	—	15.5	175.5	191.0
intra-regional imports	102.5	66.3	72.8	8.3	4.3	2.3	9.7	23.5	28.9	318.6	4,560.4	
	220.1	137.7	107.0	32.4	8.6	23.7	13.2	67.7	26.1	636.5	5,961.2	
extra-regional imports	1,251.5	1,394.7	476.2	529.7	92.7	1,160.2	23.8	397.0	184.6	5,510.4		4,879.0
	977.9	958.3	497.0	421.6	147.8	1,536.3	30.8	651.3	124.9	5,345.9		6,597.7
Total	1,354.0	1,461.0	549.0	538.0	97.0	1,162.5	33.5	420.5	213.5		5,829.0	
	1,198.0	1,096.0	604.0	454.0	156.4	1,560.0	44.0	719.0	151.0		5,982.4	

(Source)   *Direction of Trade, Annual 1960–64 and 1961–65.*

(Note)   (1) A:Argentine, B:Brazil, CH:Chile, CO:Colombia, E:Ecuador, M:Mexico, PA:Paraguay, PE:Peru, U: Uruguay

(2) Upper row: Annual average of 1960–61, Lower row: 1965

Table 19. Intensity of Intra-LAFTA Trade

exports to / imports from	A	B	CH	CO	E	M	PA	PE	U	intra-regional	extra-regional
A	—	446 1,138	917 1,050	6 180	12 44	9 49	2,800 3,550	423 612	535 662	267 449	91 87
B	418 1,281	—	171 350	9 69	— —	1 61	200 700	17 182	711 875	141 359	97 90
CH	371 559	100 325	—	27 103	150 222	6 46	— 50	182 163	141 337	135 226	98 95
CO	2 147	1 11	28 41	—	212 800	2 10	—	226 234	— 62	23 89	103 100
E	— 142	— —	375 435	702 1,050	—	— 9	—	108 414	— —	107 202	99 96
M	9 92	15 74	37 314	40 184	37 122	—	—	23 73	5 87	16 91	104 100
PA	2,546 3,737	— —	— —	— —	— —	— —	—	— —	2,229 4,825	667 861	70 72
PE	171 426	51 125	740 764	38 246	675 233	19 67	— —	—	123 312	145 234	97 95
U	124 234	54 447	71 138	43 923	— —	— 16	633 500	17 126	—	58 235	102 95
intra-regional	289 486	112 330	331 476	38 188	100 144	4 40	633 1,000	141 248	347 487	—	98 93
extra-regional	101 89	105 95	95 91	109 100	100 100	110 109	66 100	105 100	94 87	103 98	—

(Source) Table 18.

$$I_{ij}^{h} = \frac{M_{ij}^{h}}{M_{ij}} \bigg/ \frac{M_{j}^{h}}{M_{j}} \cdot 100$$

I_{ij}^{h} : intensity of country j's imports of commodity h from country i

M_{ij}^{h} : country j's imports of commodity h from country i

M_{ij} : country j's total imports from country i

M^{h} : country j's total imports of commodity h

M_{j} : country j's total imports

In other words, the coefficient is given as the ratio of composition of country j's imports from country i to the composition of country j's total imports.

As Table 20 indicates, the intensity of Brazil's imports of industrial products from other LAFTA countries increased, but the absolute levels are still lower than 100, with the only exception of metals.   On the other hand, the intensity of Brazil's imports of industrial products from extra-regional countries also increased, and the levels are higher than 100.   Thus, we can find that the only case of trade-diverting effects appeared in im-

ports of metals, and as regards other commodities, the intensity of Brazil's imports rose in both intra-regional and extra-regional imports.

Table 20. Intensity of Brazil's Imports from Other LAFTA
Countries, by Commodities

	A	CH	CO	E	M	PA	PE	U	intra-regional	extra-regional
1. Food • Beverage	734	105	—	—	—	763	38	763	650	64
	492	56	—	—	16	—	6	473	374	43
2. Raw Materials	20	943	—	—	164	—	—	—	105	100
	3	218	—	—	82	—	28	—	38	113
3. Fuel • Fats	3	—	—	—	—	—	348	—	12	106
	14	4	375	—	—	457	62	—	17	117
4. Light Ind. Products	13	411	—	—	313	—	—	—	50	104
	10	152	426	—	119	—	—	274	48	110
Textile	—	—	—	—	—	—	—	—	—	100
	—	—	—	—	—	—	—	—	—	100
Non-Metal Minerals	—	—	1,790	—	—	—	—	—	—	100
	—	—	—	—	220	—	—	1,150	70	100
Others	17	525	—	—	400	—	—	—	64	103
	13	206	—	—	90	—	—	—	42	113
5. Chemicals	7	82	1,064	—	440	—	—	—	19	105
	9	36	—	—	276	—	—	—	24	116
6. Metals	9	155	—	—	316	—	229	—	32	105
	—	536	—	—	323	—	720	—	137	92
Iron • Steel	2	126	—	—	—	—	—	—	13	107
	—	—	—	—	—	—	—	—	—	120
Non-Ferrous	7	197	—	—	1,276	—	924	—	66	103
	—	1,206	—	—	727	—	1,619	—	308	56
Manufactures	21	165	—	—	—	—	—	—	32	103
	—	—	—	—	—	—	—	—	—	124
7. Machinery • Instruments	—	—	—	—	—	—	—	—	—	107
	12	22	—	—	28	—	—	—	13	118
General Machinery	—	—	—	—	—	—	—	—	—	107
	12	38	—	—	—	—	—	—	14	117
Electric Machinery	—	—	—	—	—	—	—	—	—	107
	17	—	—	—	146	—	—	—	17	117
Transport Equip.	—	—	—	—	—	—	—	—	—	107
	10	—	—	—	—	—	—	—	8	120
Instruments	—	—	—	—	—	—	—	—	—	1,100
	—	—	—	—	—	—	—	—	—	123

(Source) Annexed Table IX
(Note) Upper row: Annual average of 1959-61
Lower row: 1965

Considering these trends that appeared in Brazil's imports, we do not have to take a pessimistic view on the possibility of expansion of Japan's

exports to Brazil, at least in the near future.   If we compare the intensity
of Brazil's imports from extra-regional countries with the intensity of Japan's
exports to Brazil, we can see favourable results in exports of metals,
machinery and instruments, and unfavourable ones in exports of light in-
dustrial products and chemicals.   Therefore, it is necessary to expand the
exports of the last two categories of commodities.   But the expansion of
exports of the former seems to be more difficult than that of the latter,
because Japan's exports concentrate excessively on exports of light indust-
rial products;   Brazil has already achieved an import substitution in these
products and the rate of increase of demand for these products is generally
lower than the correspondent rate for heavy industrial products.   Thus
the commodities of which we must and can expand exports are mainly
chemicals.   These conclusions seem to have validity to some extent regar-
ding Japan's exports to other LAFTA countries.

Annexed Table I   Japan's Exports

(Million Dollars)

	Total Exports		to Latin America		to Brazil	
	1959-61	1965	1959-61	1965	1959-61	1965
1. Food · Beverage	264,177	343,392	4,098	1,300	945	—
2. Raw Materials	121,363	222,969	2,547	4,283	—	—
3. Fuel · Fats	48,220	58,309	513	484	174	191
4. Light Ind. Products	1,727,813	2,459,591	77,185	91,034	2,999	909
Textile	1,059,040	1,426,608	46,868	63,891	—	—
Non-Metal Minerals	168,434	265,129	7,874	6,819	2,021	—
Others	500,339	767,854	22,443	20,324	978	909
5. Chemicals	175,278	546,866	6,609	17,516	688	1,979
6. Metals	510,322	1,718,299	52,239	114,544	14,202	11,551
Iron · Steel	340,376	1,290,481	37,330	97,101	9,072	9,936
Non-Ferrous	26,715	123,208	71	4,001	—	907
Manufactures	143,231	304,610	14,838	13,442	5,130	708
7. Machiney · Instruments	1,061,982	3,010,280	128,779	169,194	36,627	10,776
General Machinery	238,797	624,427	32,810	33,645	19,137	4,987
Electric Machinery	276,021	899,996	31,869	55,804	6,098	3,018
Transport Equip.	451,745	1,243,297	58,363	70,511	9,958	1,552
Instruments	95,419	242,560	5,737	9,234	1,434	1,219
8. Total	3,909,155	8,359,706	271,970	398,355	55,635	25,406

(Source) U. N., *Commodity Trade Statistics*

Annexed Table II   Composition of Japan's Exports

(%)

	Total Exports		to Latin America		to Brazil	
	1959–61	1965	1959–61	1965	1959–61	1965
1. Food • Beverage	6.8	4.1	1.5	0.3	1.7	—
2. Raw Materials	3.1	2.7	0.9	1.1	—	—
3. Fuel • Fats	1.2	0.7	0.2	0.1	0.3	0.7
4. Light Ind. Products	44.2	29.4	28.4	22.8	5.4	3.6
Textile	27.1	17.0	17.2	16.0	—	—
Non-Metal Minerals	4.3	3.2	2.9	1.7	3.6	—
Others	12.8	9.2	8.3	5.1	1.8	3.6
5. Chemicals	4.5	6.5	2.4	4.4	1.2	7.8
6. Metals	13.1	20.5	19.1	28.8	25.5	45.5
Iron • Steel	8.7	15.4	13.7	24.4	16.3	39.1
Non-Ferrous	0.7	1.5	0.03	1.0	—	3.6
Manufactures	3.7	3.6	5.4	3.4	9.2	2.8
7. Machinery • Instruments	27.1	36.1	47.4	42.4	65.9	42.4
General Machinery	6.1	7.5	12.1	8.4	34.4	19.6
Electric Machinery	7.1	10.8	11.7	14.0	11.0	11.9
Transport Equip.	11.5	14.9	21.5	17.7	17.9	6.1
Instruments	2.4	2.9	2.1	2.3	2.6	4.8
8. Total	100.0	100.0	100.0	100.0	100.0	100.0

(source)   Annexed Table I.

Annexed Table III   Japan's Imports

(Million Dollars)

	Total Imports		from Latin America		from Brazil	
	1959–61	1965	1959–61	1965	1959–61	1965
1. Food • Beverage	569,499	1,470,148	95,390	117,033	19,932	8,404
2. Raw Materials	2,217,735	3,167,571	257,019	510,360	22,009	34,268
3. Fuel • Fats	781,188	1,679,749	1,224	30,989	250	866
4. Light Ind. Products	71,523	245,166	264	3,095	158	594
Textile	19,023	56,884	48	—	—	—
Non-Metal Minerals	14,116	58,572	171	2,144	120	594
Others	38,384	129,710	45	951	38	—
5. Chemicals	274,064	408,184	3,272	5,547	31	645
6. Metals	222,939	412,609	7,566	18,688	773	4,686
Iron • Steel	97,013	140,700	1,729	4,691	773	4,686
Non-Ferrous	113,221	247,515	5,837	13,997	—	—
Manufactures	12,705	24,394	—	—	—	—
7. Machinery • Instruments	445,697	769,023	3,624	3,036	—	—
General Machinery	288,807	450,710	17	—	—	—
Electric Machinery	39,698	120,296	8	—	—	—
Transport Equip.	82,259	153,614	3,599	3,036	—	—
Instruments	34,933	44,403	—	—	—	—
8. Total	4,582,645	8,152,450	368,359	688,748	43,153	49,463

(Source)   U. N., *Commodity Trade Statistics.*

Annexed Table IV   Composition of Japan's Imports

(%)

	Total Imports		from Latin America		from Brazil	
	1959-61	1965	1959-61	1965	1959-61	1965
1. Food · Beverage	12.4	18.1	25.9	16.9	46.2	16.9
2. Raw Materials	48.4	38.9	69.8	74.0	51.0	69.2
3. Fuel · Fats	17.0	20.6	0.3	4.4	0.5	1.7
4. Light Ind. Products	1.5	3.0	0.07	0.4	0.4	1.2
Textile	0.4	0.7	0.01	—	—	—
Non-Metal Minerals	0.3	0.7	0.05	0.3	0.3	1.2
Others	0.8	1.6	0.01	0.1	0.09	—
5. Chemicals	6.0	5.0	0.9	0.8	0.07	1.3
6. Metals	4.9	5.0	2.0	2.7	1.8	9.4
Iron · Steel	2.1	1.7	0.4	0.6	1.8	9.4
Non-Ferrous	2.5	3.0	1.6	2.0	—	—
Manufactures	0.3	0.3	—	—	—	—
7. Machinery · Instruments	9.8	9.4	1.0	0.4	—	—
General Machinery	6.3	5.5	0.00	—	—	—
Electric Machinery	0.9	1.5	0.00	—	—	—
Transport Equip.	1.8	1.9	0.97	0.4	—	—
Instruments	0.8	0.5	—	—	—	—
8. Total	100.0	100.0	100.0	100.0	100.0	100.0

(Source)   Annexed Table III.

Annexed Table V   Brazil's Exports

(Thousand Dollars)

	Total Exports		to Japan	
	1959-61	1965	1959-61	1965
1. Food · Beverage	966,605	1,015,215	16,120	6,534
2. Raw Materials	252,939	398,299	14,561	20,662
3. Fuel · Fats	56,078	46,719	243	655
4. Light Ind. Products	8,213	33,317	89	326
Textile	2,693	14,841	—	—
Non-Metal Minerals	1,523	2,536	65	326
Others	3,997	15,940	24	—
5. Chemicals	13,760	14,270	94	183
6. Metals	1,953	46,263	185	1,450
Iron · steel	1,915	43,929	185	1,450
Non-Ferrous	—	676	—	—
Manufactures	38	1,658	—	—
7. Machinery · Instruments	4,906	29,465	—	—
General Machinery	1,582	16,953	—	—
Electric Machinery	138	5,101	—	—
Transport Equip.	3,186	7,111	—	—
Instruments	—	300	—	—
8. Total	1,304,454	1,583,548	31,292	29,810

(Source)   U. N., *Commodity Trade Statistics*, SEEF, *Foreign Trade of Brazil.*

Annexed Table VI   Composition of Brazil's Exports

(%)

		Total Exports		to Japan	
		1959–61	1965	1959–61	1965
1.	Food · Beverage	74.1	64.1	51.5	21.9
2.	Raw Materials	19.4	25.2	46.5	69.3
3.	Fuel · Fats	4.3	3.0	0.8	2.2
4.	Light Ind. Products	0.6	2.1	0.27	1.1
	Textile	0.2	0.9	—	—
	Non–Metal Minerals	0.1	0.2	0.2	1.1
	Others	0.3	1.0	0.07	—
5.	Chemicals	1.1	0.9	0.3	0.6
6.	Metals	0.1	2.94	0.6	4.9
	Iron · Steel	0.1	2.8	0.6	4.9
	Non–Ferrous	—	0.04	—	—
	Manufactures	0.00	0.1	—	—
7.	Machinery · Instruments	0.31	1.82	—	—
	General Machinery	0.1	1.1	—	—
	Electric Machinery	0.01	0.3	—	—
	Transport Equip.	0.2	0.4	—	—
	Instrnments	—	0.02	—	—
8.	Total	100.0	100.0	100.0	100.0

(Source)   Annexed Table V.

Annexed Table VII   Brazil's Imports

(Thousand Dollars)

		Total Imports		from Japan	
		1959–61	1965	1959–61	1965
1.	Food · Beverage	187,693	203,497	—	—
2.	Raw Materials	63,509	42,581	165	136
3.	Fuel · Fats	279,803	239,114	276	—
4.	Light Ind · Products	66,204	45,342	2,974	1,341
	Textile	1,580	1,159	44	—
	Non–Metal Minerals	12,489	10,428	1,557	183
	Others	52,135	33,755	1,373	1,158
5.	Chemicals	134,162	174,159	980	2,557
6.	Metals	167,625	127,323	15,402	18,320
	Iron · Steel	77,848	47,632	10,109	16,204
	Non–Ferrous	41,572	56,381	34	1,125
	Manufactures	48,205	23,310	5,259	991
7.	Machinery · Instruments	530,613	258,627	41,111	14,205
	General Machinery	256,079	150,155	13,350	7,849
	Electric Machinery	77,152	50,537	17,976	3,906
	Transport Equip.	183,143	43,605	8,720	1,146
	Instruments	14,239	14,330	1,065	1,304
8.	Total	1,429,609	1,090,643	60,908	36,559

(Source)   U. N., *Commodity Trade Statistics*, SEEF, *Foreign Trade of Brazil.*

Annexed Table Ⅷ   Composition of Brazil's Imports

(%)

		Total Imports		from Japan	
		1959–61	1965	1959–61	1965
1.	Food · Beverage	13.1	18.7	—	—
2.	Raw Materials	4.4	3.9	0.3	0.3
3.	Fuel · Fats	19.6	21.9	0.4	—
4.	Light Ind. Products	4.6	4.1	4.9	3.7
	Textile	0.1	0.1	0.07	—
	Non-Metal Minerals	0.9	0.9	2.5	0.5
	Others	3.6	3.1	2.3	3.2
5.	Chemicals	9.4	16.0	1.6	7.0
6.	Metals	11.7	11.7	25.3	50.1
	Iron · Steel	5.4	4.4	16.6	44.3
	Non-Ferrous	2.9	5.2	0.05	3.1
	Manufactures	3.4	2.1	8.6	2.7
7.	Machinery · Instruments	37.1	23.7	67.5	38.8
	General Machinery	17.9	13.8	21.9	21.5
	Electric Machinery	5.4	4.6	29.5	10.7
	Transport Equip.	12.8	4.0	14.3	3.1
	Instruments	1.0	1.3	1.7	3.5
8.	Total	100.0	100.0	100.0	100.0

(Source)   Annexed Table Ⅶ.

Annexed Table IX   Brazil's Imports from Other LAFTA Countries

(Thousand Dollars)

	A	CH	CO	E	M	PA	PE	U	intra-LAFTA	extra-LAFTA	Total
1. Food · Beverage	72,769	1,092	—	—	—	122	127	1,047	75,157	112,536	187,693
	120,569	2,757	—	—	255	—	135	7,351	131,067	72,430	203,497
2 Raw Materials	711	3,278	—	—	69	—	—	—	4,058	59,451	63,509
	118	2,239	—	—	274	—	136	—	2,767	39,814	42,581
3. Fuel · Fats	372	—	—	736	—	—	1,733	—	2,105	277,698	279,803
	4,115	236	736	—	—	130	1,647	—	6,864	232,250	239,114
4. Light Ind. Products	446	1,490	—	—	137	—	—	—	2,073	64,131	66,204
	502	1,705	160	—	429	—	—	951	3,747	41,595	45,342
Textile	—	—	—	—	—	—	—	—	—	1,580	1,580
	—	—	—	—	—	—	—	—	—	1,159	1,159
Non–Metal Minerals	—	—	—	—	—	—	—	—	—	12,489	12,489
	—	—	160	—	189	—	—	951	1,300	9,128	10,428
Others	446	1,490	—	—	137	—	—	—	2,073	50,062	52,135
	502	1,705	—	—	240	—	—	—	2,447	31,308	33,755
5. Chemicals	531	605	70	—	395	—	—	—	1,601	132,561	134,162
	1,868	1,512	—	—	3,843	—	—	—	7,223	166,936	174,159
6. Metals	812	1,426	—	—	353	—	681	—	3,272	164,353	167,625
	—	16,599	—	—	3,275	—	10,201	—	30,075	97,248	127,323
Iron · Steel	112	533	—	—	—	—	—	—	645	77,203	77,848
	—	—	—	—	—	—	—	—	—	47,632	47,632
Non–Ferrous	184	450	—	—	353	—	681	—	1,668	39,904	41,572
	—	16,599	—	—	3,275	—	10,201	—	30,075	26,306	56,381
Manufactures	516	443	—	—	—	—	—	—	959	47,246	48,205
	—	—	—	—	—	—	—	—	—	23,310	23,310
7. Machinery · Instruments	—	—	—	—	—	—	—	—	—	530,613	530,613
	3,826	1,412	—	—	581	—	—	—	5,819	252,808	258,627
General Machinery	—	—	—	—	—	—	—	—	—	256,079	256,079
	2,287	1,412	—	—	—	—	—	—	3,699	146,456	150,155
Electric Machinery	—	—	—	—	581	—	—	—	—	77,152	77,152
	1,003	—	—	—	581	—	—	—	1,584	48,953	50,537
Transport Equip.	—	—	—	—	—	—	—	—	—	183,143	183,143
	536	—	—	—	—	—	—	—	536	43,069	43,605
Instruments	—	—	—	—	—	—	—	—	—	14,239	14,239
	—	—	—	—	—	—	—	—	—	14,330	14,330
Total	75,641	7,891	70	—	954	122	2,541	1,047	88,266	1,341,343	1,429,609
	130,998	26,460	896	—	8,657	130	12,119	8,302	187,562	903,081	1,090,643

(Source)   U. N., *Commodity Trade Statistics*, and SEEF, *Foreign Trade of Brazil.*

(Note)   Upper row : Annual average of 1959-61,

Lower row : 1965

Annexed Table X   Composition of Brazil's Imports from Other LAFTA Countries

(%)

	A	CH	CO	E	M	PA	PE	U	intra-LAFTA	extra-LAFTA	Total
1. Food·Beverage	96.2	13.8	—	—	—	100.0	5.0	100.0	85.1	8.4	13.1
	92.0	10.4	—	—	2.9	—	1.1	88.5	69.9	8.0	18.7
2. Raw Materials	0.9	41.5	—	—	7.2	—	—	—	4.6	4.4	4.4
	0.1	8.5	—	—	3.2	—	1.1	—	1.5	4.4	3.9
3. Fuel·Fats	0.5	—	—	—	—	—	68.2	—	2.4	20.7	19.6
	3.1	0.9	82.1	—	—	100.0	13.6	—	3.7	25.7	21.9
4. Light Ind. Products	0.6	18.9	—	—	14.4	—	—	—	2.3	4.8	4.6
	0.4	6.4	17.9	—	5.0	—	—	11.5	2.0	4.6	4.2
Textile	—	—	—	—	—	—	—	—	—	0.1	0.1
	—	—	—	—	—	—	—	—	—	0.1	0.1
Non-Metal Minerals	—	—	—	—	—	—	—	—	—	0.9	0.9
	—	—	17.9	—	2.2	—	—	11.5	0.7	1.0	1.0
Others	0.6	18.9	—	—	14.4	—	—	—	2.3	3.7	3.6
	0.4	6.4	—	—	2.8	—	—	—	1.3	3.5	3.1
5. Chemicals	0.7	7.7	100.0	—	41.4	—	—	—	1.8	9.9	9.4
	1.4	5.7	—	—	44.4	—	—	—	3.9	18.5	16.0
6. Metals	1.1	18.1	—	—	37.0	—	26.8	—	3.7	12.3	11.7
	—	62.7	—	—	37.8	—	84.2	—	16.0	10.8	11.7
Iron·Steel	0.1	6.8	—	—	—	—	—	—	0.7	5.8	5.4
	—	—	—	—	—	—	—	—	—	5.3	4.4
Non-Ferrous	0.2	5.7	—	—	37.0	—	26.8	—	1.9	3.0	2.9
	—	62.7	—	—	37.8	—	84.2	—	16.0	2.9	5.2
Manufactures	0.7	5.6	—	—	—	—	—	—	1.1	3.5	3.4
	—	—	—	—	—	—	—	—	—	2.6	2.1
7. Machinery·Instruments	—	—	—	—	—	—	—	—	—	39.6	37.1
	2.9	5.3	—	—	6.7	—	—	—	3.1	28.0	23.7
General Machinery	—	—	—	—	—	—	—	—	—	19.1	17.9
	1.7	5.3	—	—	—	—	—	—	2.0	16.2	13.8
Electric Machinery	—	—	—	—	—	—	—	—	—	5.8	5.4
	0.8	—	—	—	6.7	—	—	—	0.8	5.4	4.6
Transport Equip.	—	—	—	—	—	—	—	—	—	13.7	12.8
	0.4	—	—	—	—	—	—	—	0.3	4.8	4.0
Instruments	—	—	—	—	—	—	—	—	—	1.1	0.1
	—	—	—	—	—	—	—	—	—	1.6	1.3
Total	100.0	100.0	100.0	—	100.0	100.0	100.0	100.0	100.0	100.0	100.0
	100.0	100.0	100.0	—	100.0	100.0	100.0	100.0	100.0	100.0	100.0

(Source) Annexed Table IX.

SOME INVENTORY ACCOUNTING PROBLEMS

Isao NAKANO

I The Concept of Inventory

What is the correct meaning of the term "inventory" in accounting? Disagreement of opinions on this basic concept is often responsible for the fact that so many different views and proposals have been advanced and yet so little progress made in the field of the inventory accounting theory. We are therefore going to take up and consider here two opposite views on this concept in Japan, with the hope that this study may be of some help in giving the most proper definition to the term.

The official written opinion series No. 4 "On the Valuation of Inventories" (published by the Council on Business Accounting in Japan) have referred to this problem, and in this writing "inventory" is regarded as those goods and services which belong to any one of the following categories ;

(a) those goods and services which are held for sale in the ordinary course of business,

(b) those goods and services which are currently being manufactured to be sold in the future,

(c) those goods which are to be consumed in a short time for the purpose of manufacturing goods and services for sale,

(d) those goods which are to be consumed in a short time in the field of selling and general administrative activities.[1]

The pamphlet further says that parts of living trees and bamboos which are to be cut off within a short time also constitute elements of inventory because "they will become expenses in a short time-period", and that goods with very short useful lives (ex. perishable tools etc.) as well as goods whose acquisition costs are very small (ex. tools and furniture whose acquisition costs are under certain specified amounts) should also be counted as inventory "from the view-point of their accounting attributes."[2]

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(1) The written opinion series No. 4, "On the Valuation of Inventories" (An interim report by the Council on Business Accounting, the Finance Ministry in Japan), Chapter 1, P. 29.

(2) Ibid., P. 30.

As you can see from the foregoing, the concept of inventory in this written opinion includes (1) all those assets which are held or being manufactured for sale in the ordinary course of business, (2) all those which are to be consumed in a short time-period in business operations and (3) all those which, though not so rapidly consumed, have small acquisition costs.   This is indeed a "pluralistic concept of inventory" in the sense that the propriety of counting an item as an inventory asset has been judged here not from a single consistent point of view but from the above-mentioned three heterogeneous bases.   Consequently, the title of "inventory" is given not only to merchandise, finished goods, goods in process, partly finished goods and raw materials, but also to factory and office supplies, part of living trees and bamboos which are to be cut off in a short time, and moreover to perishable tools and furniture.

It is this writer's opinion that any theoretical concept should cover all items which have a certain characteristic in common and yet exclude any other which lacks it.   Of course, this characteristic must be important and useful enough to be adopted as the basis upon which to select the proper elements covered by the concept.   Returning to the inventory concept, my opinion is that we must inquire into the theoretical and practical significance and usefulness of the "inventory" concept before it is justified to use the terminology especially as the name for a part of "current assets."   We already possess the concept of "current assets."   Why divide them and give a part of them another title "inventory"?   Unfortunately there is no explanation of the aim with which the above pluralistic concept of inventory has been proposed.   It seems, however, that since this concept covers almost all assets whose costs are to be charged to operations through their sale or their consumption measurable by some physical unit the purpose of proposing this broad concept of inventory may have been to study as a whole the accounting principles and procedures of these assets and thus to contribute to a proper determination of "operating income."

But considering the matter from a logical point of view, the above written opinion has been challenged by the criticism that "it offers no consistent basis upon which to judge whether or not an item belongs to inventory[3] and that "the scope of inventory assets should be determined

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(3)   Susumu Watanabe, Inventory Accounting (Revised Edition), Tokyo (Japan) 1965, P. 508.

on the unitary basis of utility or function of assets to a business enterprise."[4] According to this view "inventory" assets are defined as those which are intended for sale in the ordinary course of business and those which are to be consumed physically and in a measurable form for the purpose of manufacturing assets for sale.   Compared with the former, this may be called a "unitary concept of inventory."   When this interpretation is adopted, the items covered by the concept are usually limited to such assets as merchandise, finished goods, work in process, raw materials, parts, containers, the titles of which are to be passed to customers, those factory supplies which come to be physically embodied in finished goods (ex. nails, screws, bolts and paints) and those goods which, though not physically embodied in finished goods, will be consumed rendering services indispensable for, or facilitating production (ex. fuel, chemicals etc).[5]

As mentioned above, this concept has the theoretical merit of having adopted a unitary and consistent view point in determining the scope of inventory assets.   But when inventories are thus regarded as those goods or services which are intended for sale or which are physically and directly consumed in their production, why cannot "plant assets" be included in inventory assets?   Buildings or machines are, in essence, bundles of services to be utilized and consumed for manufacturing salable assets, and on this point no fundamental difference can be found between plant assets and those cited above as inventory.   A possible answer to this question may be that, for instance, raw materials and fuel are consumed in physically measurable form while machines remain almost the same in their physical form throughout their use in production.   This kind of difference is, however, so superficial that this explanation alone can hardly justify dividing a part of current assets from another part under the title of "inventory." What is the theoretical and practical usefulness of introducing this unitary concept of "inventory" into accounting?   Advocates of this concept do not seem to have paid attention to this problem.

In order to inquire into this point, it is useful, I think, to clearly recognize that the unitary concept of inventory has the following three characteristics.   (1) The items covered by this concept are usually ex-

(4)   Ibid., P. 508.

(5)   Ibid., PP. 17~20.

pected to become elements of the cost of goods sold in income statements, (2) expired costs of these items can be determined on the basis of physically consumed (or sold) quantities, and (3) these items take part in the production of salable assets, not by rendering services to administrative activities of a business but by being physically consumed in the production process, so that it would be realistic to assume that fall in prices of these goods would exert some influence on the selling price of finished goods produced therewith.   These points show us that the proposal of the unitary concept of inventory is logically based on the assumption that the adoption of this concept will help to systematically develop the accounting principles and procedures on items which have the above three characteristics and to properly determine the cost of goods sold (including the possibility of applying the "cost or market, whichever is lower") for the ultimate purpose of a proper determination of profit (or loss) on sales in an income statement.

Thus far, we have pointed out the theoretical and practical usefulness of adopting the pluralistic or unitary concept of inventory.   And this study has lead the writer to the conclusion that the latter concept should be preferred, because first the former pluralistic and broad concept of inventory lacks any consistent basis upon which to select inventory asset items, which the latter really possesses, and second, there is some doubt whether the "cost or market" rule may properly be applied to those items which, according to the former concept, is included in inventory but not when the latter is adopted.   Since these items include those which will ultimately become elements of selling and administrative expenses, any fall in prices of these goods will not necessarily lower the selling prices of finished goods in the business.   If one should deny the theoretical propriety of the "cost-or-market" rule, of course, the above second point will be unimportant. But this writer's opinion is that the accounting theory should, first of all, concentrate upon theoretical explanations of accounting practices as it is ("raison d'être") (including the cost-or-market rule) and that the proper concept of an inventory should be consistent with the existence of this valuation rule that is now permitted to apply to any inventory asset item.

Ⅱ   Full Costing vs. Direct Costing in Inventory Valuation

What sorts of cost elements should properly be aggregated to determine the cost of each inventory asset?   Broadly speaking, generally accepted

accounting principles on this problem are as follows : First, in case of goods purchased from outside the firm, their acquisition costs usually consist of purchase prices (net prices after deducting purchase allowances and purchase rebates, if any) and of incidental costs (ex. duties, freight or other transportation costs, storage, insurance while goods are being transported or stored, etc.) ; Second, costs of goods in process and finished goods are chiefly their production costs which are made up of costs of raw materials, supplies, labor costs and manufacturing overheads properly allocated to the goods concerned, while costs due to idle capacity or excessive damage of goods etc. are not included in inventory costs but treated as expenses (or losses) during the period in which they were incurred.   (Such incidental costs as those required for transportation, storage etc. of goods finished or still in process should be included in their acquisition costs only when they can clearly be distinguished from selling expenses).

It may be assumed that the principle underlying the above generally accepted accounting procedures relating to inventory costs is that "all cost elements which had 'relationship' with the acquisition or production of the inventory asset concerned should be treated as its cost,"[6] or as far as the costs of products are concerned, that "all costs that took part in the production of the goods and possess any 'causal relation' with their production should compose their product costs."[7]

In this seemingly clear explanation, however, theoretical ambiguity begins to appear when we start to investigate what the essential concept "relationship" or "causal relation" really means, viz. (1) what kind of relationship it is, and (2) between what objects the relationship should exist.   And it is the vagueness of this important concept, we think, that has given rise to controversy between advocates of "full costing" and those of "direct costing" in inventory valuation.

Under the direct costing procedures the manufacturing costs are divided into variable costs and fixed costs, and the former alone are allowed to constitute the costs of products while the latter are to be treated as expenses of the period in which they were incurred.   The advocates of this

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(6) Susumu Watanabe, Allocation of Inventory Costs, (A Paper included in : Katsuji Yamashita (ed.), Income Accounting Theories, Tokyo 1959) P. 131.

(7) Ibid., P. 131.

kind of inventory valuation have raised the following two reasons to support their view.

(1) Fixed costs really are not costs expired for manufacturing goods, but they are costs arising from keeping the capacity to manufacture and to sell in readiness for use, namely "capacity costs."[8]   Services provided by such capacities flow away with the passage of time even when there is no production of goods in a given period, so that the cause of these cost expirations is not production of goods but the passage of time.   Such "capacity costs", therefore, are most properly matched with revenue through the medium of time-period (viz. they should be applied to the revenue of the period in which they were incurred).

(2) Inventories should be valued by the amount of cost which will be saved in following periods.   The variable manufacturing costs incurred in the current period will not have to be incurred again in the future unless additional production is carried out, while fixed costs accrues with the passage of time whether or not production is made in following periods, so that the latter kind of costs do not have the power of "future cost avoidance."   Accordingly, the inventory should be priced by variable costs incurred during their production.[9]

Traditional full costers have challenged the former of these views as follows ; Taking up the depreciation cost as an example of fixed costs, since no production is possible without use of productive capacity, plant assets constitute essential factors for manufacturing in the period concerned and clearly contribute to producing goods.   Therefore, the treatment of this fixed cost as an expense in the period in which it was incurred can not be justified from the viewpoint of the proper matching of costs with revenues.[10]

The latter theory of "future cost avoidance" also seems to be open to the following objection.   It is undoubtedly true that variable costs incurred

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(8)   National Association of Accountants, Research Report 37, Current Application of Direct Costing, New York 1961, PP. 10~11 and P. 76.

(9)   Raymond P. Marple, Try This on Your Class, Professor, the Accounting Review, July 1956, PP. 492~497.

(10)   Susumu Watanabe, Allocation of Inventory Costs, op. cit., P. 135.   Philip E. Fess and William L. Ferrara, The Period Cost Concept for Income Measurement—Can It Be Defended?, the Accounting Review, Oct. 1961, PP. 598~602.   James M. Fremgen, Variable Costing for External Reporting, A Reconsideration, the Accounting Review, Jan 1962, P. 77.

in this period for the production of an inventory at the year-end can save the same kind of costs in the future but fixed costs cannot render this sort of favorable benefit to the future. But the real question here is whether or not placing emphasis on this difference can justify the direct costing procedure in an income statement. The real meaning of this theory is that because expiration of service potentials (revenue-producing potentials) in plant assets are dependent upon the passage of time rather than on manufacturing activity their expiration in the future cannot be avoided by any manufacturing activity during this period. But this inescapability of fixed cost expiration in the future cannot negate the fact that a part of service potentials in the assets has been effectively put to use for production during this period. In other words, even though "expiration" of fixed costs relate to time-periods, their "utilization" relates to the products manufactured during this period, resulting in the creation of utility (service-potential) of the products. It may be said that the manufacturing activity in the current period has given rise to a shift of a part of service potential from plant assets to manufactured goods. Accordingly, if accounting principles and procedures should reflect this economic fact correctly, it follows that the expired cost (roughly corresponding to the service potential used up in the current production) of the plant assets must be allocated to goods manufactured with the assets.

In the above discussion the "service potential" concept has been used to mean the "revenue-producing potential" of an asset. But another new interpretation of this concept has been proposed by Messrs. Horngren and Sorter, who assert "a cost has service potential, in the traditional accounting sense, if its occurrence now will result in future cost avoidance in the ordinary course of business. In other words assets (unexpired costs) ordinarily represent costs whose reincurrence is unnecessary in the future···. Expressed another way, if the total future costs of an enterprise will be decreased because of the presence of a given cost, that cost is relevant to the future and is an asset. If not, that cost is irrelevant and is expired."[11] This new revolutionary proposal may properly be called a "future cost avoidance" concept of service potential. And no fixed costs have "service

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(11) Charles T. Horngren and George H. Sorter, "Direct" Costing for External Reporting, the Accounting Review, Jan 1961, P. 86.

potential" in this sense and therefore can be allocated to the inventory.

But this definition cannot be free from the following criticism.   "The objective of a firm's operation is not the minimization of costs but the production of revenues in excess of costs.   Hence, the service potential concept ought to be interpreted in the light of an incurred cost's capacity to contribute to the production of revenue."[12]   Accordingly, the "revenue-producing potential" concept of service potential would be more appropriate from the standpoint of the objective of a firm.   And adoption of this interpretation inevitably demands including in inventories all costs, variable and fixed, required for their production, as was explained above.

In response to this criticism Horngren and Sorter amended their definition of "service potential" as follows ; "To represent service potential, a given cost must be an index of future economic benefit in the form of a reduction of total expected future costs or an addition to total expected future revenue in the ordinary course of business.   Expressed another way, if the total expected future revenue in the ordinary course of business. Expressed another way, if the total expected future costs or revenue of an enterprise will be changed favorably because of the presence of a given cost, that cost is relevant to the future and is an asset ; if not, that cost is irrelevant and is expired."[13]   It seems to us that this definition of service potential concept would be the same as the traditional interpretation of the concept, but for the peculiar assumption connected with the former that it is possible to postpone utilization of the capacity to produce and sell goods provided for by the fixed cost items from this period to the future without incurrence of any incremental explicit or opportunity costs.   This assumption is not justified, however, first, because the so-called base stock portion of a firm's inventory in a current period cannot be diminished without preventing future normal manufacturing and (or) merchandising activities and reducing the amount of revenue in the future period, and second, because the amount of inventory in excess of the base stock is built up, in normal cases, to provide for the prospect of an increase in sale and so the lack of this provision must inevitably lead to either a loss of additional

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(12)   James M. Fremgen, op. cit., P. 77.

(13)   George H. Sorter and Charles T. Horngren, Asset Recognition and Economic Attributes —The Relevant Costing Approach, the Accounting Review, July 1962, PP. 393~394.

revenue or to incurrence of additional production costs in the future to meet this additional demand.

Therefore, we have come to the conclusion that attempts to support direct costing procedures by means of developing a new interpretation of the "service potential" concept have not succeeded.

In the foregoing we have pointed out the theoretical ambiguity of the term "relationship" which decides whether or not a cost element should be included in "product costs." Returning to this point, our opinion is that fixed cost items (a plant asset for example) have the following three aspects : (1) they gradually expire with the passage of time, keeping the capacity to manufacture goods ready in use ("expiration of capacity") ; (2) the capacity is, in normal cases, more or less put to use in business operations ("utilization of capacity") ; (3) as a result of this utilization of capacity products are manufactured in the ordinary course of business ("manufacture of products").   And it seems to us that the above-cited controversy is reduced to whether the relation of (1) and (3) or that of (2) and (3) should be recognized as the basic fact which decides whether or not a cost element should be included in "product costs."

The relation between (1) and (3) means, expressed more precisely, the quantitative correlation between the quantity of expired fixed costs and the quantity of products manufactured in this period.   Advocates of direct costing assert that since currently incurred variable costs clearly possess this kind of correlation with currently manufactured goods they must be charged to the products but fixed costs are not inventoriable because they do not have such a relationship.   But how is it permitted to let this relationship decide the scope of inventoriable cost items?   If a cost element possesses this kind of relationship, it will mean that incurrence of the cost has been "caused" by the very products that the cost correlates and therefore the cost should be "recovered" through the sale of these products.   But other cost elements with no correlation of this kind would have been incurred even without production of the goods, and so it will be illogical to require recovery of the incurred costs specifically through the sale of the products. The latter kind of costs have inevitably incurred and expired with the passage of time, so that they should be recovered evenly from the revenue of each period.   In other words, existence or non-existence of a correlation

between the amount of an incurred cost and the quantity of manufactured goods in a period may be said to determine whether the cost should be "recovered" from the revenue due to sale of the goods to which the cost relates or from the revenue of the period in which the cost has been incurred.   Therefore, if the proper concept of business income could be defined as a difference between "expiration of economic resources" and "sources for its recovery" rather than, as the traditional accounting theory explains, a difference between "efforts" (expired costs meaning economic contribution to producing revenue) and "accomplishments" (revenue), the direct costing would be justified for external reporting.   On the other hand, when the relationship between (2) and (3) is preferred as the basic requirement in deciding whether or not a cost element should be included in "product costs," it follows that since no production is possible without utilization of plant assets there clearly exists a "causal relation" between "utilization of the capacity" and "manufacture of goods."   And if this causality is to be reflected in accounting records, currently manufactured goods should be charged not only with their variable costs but also with the fixed costs (the depreciation cost, for example) reflecting the utilization of the capacity in the current period.   But why should existence of this causal relation be chosen as the criterion for deciding the extent of inventoriable cost elements?   This is required, in this writer's opinion, from the viewpoint of regarding the accounting concept of income as the difference between "efforts" (expired costs contributing to production and realization of revenue) and "accomplishments" (revenues expressing an economical result of these contributions) rather than as the difference between "expiration of economic resources" and "sources for its recovery," because matching "efforts" with "accomplishments" in income accounting is no less than a comparison of "causes" and "results" relating to the current economic activity of a firm so that recognition of the "causes" and recognition of the "results" should be synchronized in the income accounting.   Treating some of the manufacturing costs as product costs is one of the means in achieving this synchronization.

To sum up, the controversy between full costing and direct costing in financial accounting is reduced to whether the proper accounting income concept should be regarded as the difference between "efforts" and "accom-

plishments" or as the difference between "expiration of economic resources" and "sources for its recovery." And so long as the former concept of income still prevails, we must conclude that there is no room for theoretically supporting the direct costing procedure for the external accounting purpose.

▌ On Inventory Pricing Methods

In the inventory accounting theory in Japan as well as in the United States, various inventory pricing methods have been "separately" explained and their merits and defects have been pointed out from theoretical and practical standpoints, but only few attempts can be found which have tried to "systematize" these many inventory pricing methods. This systematization seems to be indispensable both for the further development of inventory accounting theories and for improvement of accounting practices.

This attempt at systematization can be made in two different ways; one of them may be called a "unitary" systematization, the other a "dualistic" systematization. One example of the unitary systematization of the inventory pricing methods is that which was made by Carman G. Blough.[14] In his theory all inventory pricing methods are regarded as forming a "unitary" system in the sense that according to him all the methods have the same theoretical grounds in common (or aim at determination of the same concept of business income) and that they are different from one another only in the situations in which they are properly to be applied. For instance, the fifo method is said to be justified only where current acquisition costs of inventories do not relate to current sales prices but these costs may be regarded to have been incurred in order that the goods sold in the current period may be replenished and the sales in the future provided for. The lifo and the base stock methods are based upon the assumption, he says, that there is a close mutual relationship between current sales prices and current purchase or production costs and that the current costs of purchases or production have been incurred to cover current sales. Such an assumption is justified, he asserts, when a company bases its sales prices on current costs. Third, average cost methods are said to assume that current costs of purchases or production have been incurred to replace the

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(14) Carman G. Blough, Changing Accounting and Economic Concepts Affect Methods of Inventory Policy, Journal of Accountancy, Sept. 1948, P. 206.

inventory which are being sold (like the case of the fifo method) but at the same time there exists a mutual relationship between current sales prices and current purchases or production costs, the relationship recognizable in the case of the lifo method. Accordingly, average cost methods are said to be appropriate when goods are acquired or produced in advance of their sales but unlike the case of the fifo method their selling price varies with the change of their current costs, especially when there is a lag between the changes of the current costs and those of the selling price.[15]

In short, it may be said that this theory is attentive to whether the current sales price is influenced by current costs or by original costs of purchases or production, and that in the former case the current revenue is matched with most current costs by means of the lifo or base stock method, while in the latter case the fifo method is said to be used in order to charge original costs of the goods sold to the current revenue. When the sales price varies with the change of current costs but it is accompanied with a lag, some average cost method is preferred. Mr. Blough does not refer to the specific identification method, but judging from his laying great emphasis upon the correlation between change of the current sales price and change of current purchase or production costs, this method may most properly be used when each item of inventory has some speciality and its selling price is clearly influenced by its individual original cost. According to this theory all inventory pricing methods are regarded as aiming at the determination of the common concept of business income as an excess of revenue over costs and expenses exerting influence on the current selling price. This income concept seems to be different from that usually explained in accounting text-books in putting great emphasis upon the relationship between the current selling price and the costs to be charged to the current revenue. What is the use of this new interpretation? He is silent on this point.

Besides this unitary systematization of the inventory pricing methods, however, we find another kind of attempt, a "dualistic" systematization, so to speak. According to this view, the specific identification method, the fifo method and the average cost methods are regarded as composing an exclusive group, named "fifo" group, while both the last-in first-out method

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(15) Ihid., P. 206,

and the base-stock method form another group called "lifo" group, and
these two groups are quite different from each other in the nature of the
income concept underlying each group Moreover, these two sorts of business
income concepts are so incompatible and so sharply opposed to each other
that the system of the generally accepted inventory pricing methods are
composed of these heterogenous, ever-struggling groups.[16]

According to this "dual systematization" theory, the "fifo" group tries
to achieve allocation of inventory costs on the basis of "the flow of goods."
From this point of view the specific identification method is ideal because
it matches the cost of the specific item sold with proceeds from its sale.
But this method suffers from the following practical shortcomings ; (1)
This is not applicable to all sorts of inventories, (2) application of this
method allows artificial controls of periodic income (say, by means of
selling goods in the order of the amount of their unit costs) or variation
of the amount of net income by an accidental occurrence of a certain flow
of goods (which has no significance for the firm concerned).   In these
cases allocation of inventory costs between the cost of sales and the cost
of inventory at the year-end should be made by another method, such as
the lifo or average cost method.   The fifo method is usually supported on
the ground that the assumption of the "cost flow" underlying this method
(the first-in first-out) generally reflects the actual physical flow of goods,
namely that the objective of matching cost of sales with the revenue from
the sale of identical goods can be approached fairly well without the
trouble of specific identification of goods sold.   The same reason has also
been given to justify the average cost methods.   In other words, (1) when
the goods received are intermingled with one another during storage the
assumption of the cost flow underlying the average cost method (the cost
of goods taken out from a given stock is composed of proportionate shares
of the costs of all goods received during a given time-period) coincide
with the physical flow of goods ; (2) even when the goods move in the
first-in first-out pattern, the average cost methods tend to assign com-
paratively new acquisition costs to the inventory at the year-end and

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(16) Most accountants seem to share this view consciously or unconsciously, but it is Pro-
      fessor Susumu Watanabe that has clearly developed this way of systematizing the in-
      ventory pricing methods for the first time. (Cf. S. Watanabe, Inventory Accounting,
      op. cit., PP. 383~384).

relatively old costs to goods consumed or sold during the year, so that it will result in an inventory cost allocation similar to that achieved by the fifo method.[17]

The above explanation has clearly shown that the inventory pricing methods belonging to the "fifo" group aim at such an inventory cost allocation as will reflect the actual flow of goods. But is this belief in the "physical flow" unconditionally justified? On this problem William A. Paton properly pointed out as follows ; The final test is always use- fulness. If it can be shown that more significant, more helpful conclusions can be drawn from arrays of financial data that disregard physical arrange- ments and sequences to some extent one would not be justified in insist- ing that such arrays are improper or invalid."[18] If the final test of an accounting method is its usefulness, the inventory pricing methods based upon "physical" flow of goods should also be reconsidered in order to know whether or not these methods have any usefulness and, if any, to ascertain "what kind of usefulness" it is.

Our opinion on this problem is that the inventory pricing methods be- longing to the fifo group intend to determine the amount of "monetary income" which is the difference between the revenue in the current period and the actual historical costs of the goods consumed or sold to get the revenue. This kind of business income may be called "monetary income" because it means the difference between recovered money" (vz. revenue) and originally "invested money" related with the revenue (vz. costs). And this monetary income concept seems to have the following three theoretical characteristics ; (1) this concept is based upon the interpretation of business activity as "Cash→Cost factors→Product→Receivables (or Cash)." When this cycle terminates and the cash is collected, it is assumed that the re- covered cash can be invested in any direction freely, namely that "initial investment is made as an alternative to all other possible uses of funds and, as recovered, again becomes 'free' for re-investment or any other proper business use."[19] But now that a substantial portion of inflowing funds

(17) Susumu Watanabe, Allocation of Inventory Costs, op. cit., PP. 142~151.; ditto, Inventory Accounting, op. cit., PP. 73~124.

(18) William A. Paton, Asset Accounting, New York 1952, P. 66.

(19) Price Level Changes and Financial Statements, Supplementary Statement No. 2, Com- mittee on Concepts and Standards Underlying Corporate Financial Statements (American Accounting Association), (included in: Accounting and Reporting Standards for Corpo- rate Financial Statements and Preceding Statements and Supplements, American Ac- counting Association) P. 26.

must be used to replace the production factors consumed if the productive resources of the enterprise are to be maintained, the above pattern of business activity and the assumption of free availability of collected funds do not seem to reflect the real activity of a business faithfully.   (2) As the above cycle of business activity underlying the "fifo group" does not always coincide with the reality of business operations, it follows that the business income calculated using any inventory pricing method belonging to the fifo group becomes only a "partial" reflection of real business activities.   So long as goods held for speculative purposes are concerned, the monetary income can reflect the result of these speculative sales transactions realistically. But when it comes to the production factors that are consumed and immediately replaced in order to keep the activity of a going concern, the real pattern of business operations must be regarded not as "cash→cash" but as "cost factors→products→cash→cost factors."   (3) Since in a period of rising prices the real cycle of business activities must be interpreted as "cost (production) factors→cost (production) factors", the monetary income based upon the cycle of "cash→cash" does not reflect the "short-term" results from business operations, but it must remain a part of the "long-term" results allocated to each period.   When a long period from the organization of a business enterprise till its liquidation or at least a time-period covered by long-term plans of activities of a firm is concerned, the profit or loss during such a period could properly be computed as the difference between "invested money" to and "collected money" from the business operations during the period.   Namely, the monetary income holds good in computing such a "long-term result".   But when it comes to the calculation of a "short-term result" (say, during a year or half a year) from business operations, the real pattern of such a short-term business activity (cost factors→cost factors) requires that part of the monetary income corresponding to the difference between current acquisition costs and original historical costs of the production factors consumed in earning that income should not be distributed to interested parties outside the firm but reinvested to replace the consumed production factors and also that such a replacement should constantly be made without regard to possible changes of their prices in the future.   As a result of these requirements, this part of the monetary income of a period is neither available for free distribution nor is it a good

measure of the effectiveness of management.   This latter result is due to
the fact that the above difference is derived not from a free choice of the
management in the timing of acquisition of production factors but from the
necessity of almost automatically replacing consumed goods and services at
a certain point of time to keep the activities of a going concern.   In short
it is doubtful whether this part of "monetary income" properly constitutes
business income in the sense of the "short-term" results of business activities.

Advocates of the "dual systematization" theory on inventory pricing
methods have paid attention to this part of monetary income, and they
regard the development of the base stock method and lifo method ("lifo"
group) as attempts to exclude this part from business income.   Contrary to
the "fifo" group, these methods are based upon the assumption that the
short-term reality of business operations follows the pattern "cost factors→
cost factors" rather than "cash→cash" and that the difference between the
historical costs and the current costs of production factors related with the
current revenue is not any "realized profit (or loss)" but it is still "un-
realized" in the sense that they have not yet become freely distributable.
In this context "realization" is interpreted to mean "free availability of the
funds" expressed by the monetary income rather than a concept merely
requiring the recognition of revenue to be objective and definite.[20]   Such
a realization concept may be justified on the ground that the traditional
concept of "realization" has been developed not only for the purpose of
"objective" income computation but also for the purpose of recognizing
business income at a stage when it has become "distributable" enough
through conversion of products into cash (or its equivalents).   In the
normal case of a going concern, however, it has gradually come to be
recognized that "realization" in the latter sense of the term cannot be said
to have taken place merely by sales of products since the cash (or its
equivalents) received must immediately be reinvested to replace the consumed
production factors.   "Real" realization occurs and the part of monetary

(20) Such an interpretation of "realization" concept was once suggested by some advocates of
      the base stock method and the lifo method in the United States of America (Cf. Henry
      B. Arthur, Inventory Profit in the Business Cycle, the American Economic Review,
      March 1938, P. 28), and recently taken over by Professor Karl Hax in his capital
      maintenance theory (Cf. Karl Hax, Die Substanzerhaltung der Betriebe, Köln und
      Opladen 1957).

income which has been reinvested into the production factors becomes freely distributable when the business enterprise concerned comes to an end or at least when long-term plans of business operations terminate.   Then, this part of income comes to be really realized and can be treated as business income.

As is well known, that part of monetary income has been called "inventory profit (or loss)" by advocates of the base stock method and the lifo method.   And we may be allowed to designate the income computed by one of these methods as "real income".   As implied above, this income concept holds good only within a relatively short period (viz. so long as a given plan of production is followed and no great change has occurred relating to the kind of production factors used in the firm concerned). And it must also be pointed out that even within this relatively short period the profit or loss from speculative operations is most properly calculated as the difference between "invested money" and "collected money" relating to these speculative transactions.

Thus far we have fully explained the theory of the "dual systematization" of inventory pricing methods and pointed out that in this theory the "fifo" group aiming at calculation of the "monetary income" and the "lifo group" intending to compute the "real income" are regarded as sharply confronting each other and that in this theory the latter group is preferred to the former on the ground that the lifo group can exclude the "inventory profit (or loss)" from monetary income and thereby make the business income a more correct reflection of the short-term reality of business activities.   But why must we know about short-term realities?   Is it not more persuasive to think that the short-term income concept and the long-term income concept should be the same (homogeneous) and that the income concept relating to normal business operations should be the same as that relating to speculative operations, since the ultimate purpose of a business is to get the difference between invested money and collected money, viz. the "monetary income"?   This writer's answer to this possible question is that the final test of any accounting concept or procedure lies in the usefulness of the informations provided by following that concept or procedure, and that adoption of the monetary income concept in annual reports will lead to misinterpretation and misunderstanding on the part of the

readers.   Decision-making made by readers of annual reports should be based upon current, short-term realities of the business.   Income which is neither "disposable" nor a good "measure of business efficiency" as long as the current plans of business operation are followed will be of no use to investors.   Since the distant future does not permit any direct prediction, they had best develop their predictions using the income figure which is the most correct reflexion of short-term realities of a given enterprise, namely using the "real income" explained above.

ORGANIZATIONAL SLACK AND ADAPTIVE
BEHAVIOR IN THE FIRM

Hideki YOSHIHARA

I

"The behavioral theory of the firm," as is developed by such persons as R. M. Cyert and J. G. March, is a new theory of the firm. The theory is concerned with an explanation and prediction of the behavior of firms. That is, it is a descriptive theory of firm behavior.

The aim of this article is to examine through a case study the ability of the behavioral theory of the firm to explain adequately the behavior of firms. The plan of the article is as follows. Section II gives a summary of a case study which focuses on a cost-down behavior in a certain firm. In section III, it is shown that the classical economic theory of the firm can not adequately explain the cost-down behavior. In section IV, the concept of organizational slack is clarified. In section V, an attempt is made to explain the cost-down behavior using the concept of organizational slack. The last section VI provides some concluding remarks.

II

This section presents a summary of a case study which was conducted by the writer. The subject of the case study is the cost-down behavior of a certain firm.

The cost-down behavior was one component of problem-solving activities which were motivated by a problem and were directed toward finding a solution to the problem. So, before we enter into the cost-down behavior, we will have to answer the following two questions. (1) When the problem was recognized by the firm? (2) What strategies were used by the firm to solve the problem?

A problem is recognized when a firm fails to perform up to expectations or when such a failure can be anticipated in the immediate future. Table 1 shows the movement of sales and profits of the firm which the

writer investigated.   From Table 1, it is rather apparent that the firm re-
cognized problems twice.   The firm faced a problem immediately before
or during 1962 (business year) for the first time.   The second problem
was recognized during 1964 and the first half of 1965.

Table   1

Business Year	Sales (1956=100)	Profits (1956=100)
1956	1 0 0	1 0 0
1957	1 2 3	1 5 7
1958	1 4 8	1 6 1
1959	2 6 8	4 1 3
1960	4 2 7	5 0 9
1961	5 9 4	5 6 5
1962	5 8 7	2 9 1
1963	9 0 6	8 5 2
1964	1, 1 4 2	7 7 0
1965 (the first half)	1, 1 1 3*	7 0 9*
1965 (the latter half)	1, 2 3 8*	9 0 0*
1966 (the first half)	1, 6 0 6*	1, 6 6 5*
1966 (the latter half)	1, 9 9 7*	1, 9 9 3*

* Computations are made after doubling sales and profits respectively.

When a firm recognizes a problem, it starts problem-solving activities
to find a solution to the problem.   This kind of problem-solving activities
are specifically called problemistic search and problem-oriented innovation.[1]
The problem-solving activities taken by the firm to solve the first problem
consisted of the following three strategies.   They were (1) the strategy to
increase sales, (2) the strategy to activate developing and commercializing
new products, and (3) the strategy to engage in export trade on a full
scale.   And these three strategies were successful in solving the first
problem.

(1) R. M. Cyert and J. G. March, *A Behavioral Theory of the Firm* (Englewood Cliffs,
     N. J. : Prentice-Hall, 1963), PP. 120—122, PP. 278—279.

It must be pointed out here that these three strategies were formulated and executed upon the policy of "Sales First."   The firm held the belief that to increase sales led to the success of the firm.   The firm's chief attention was concentrated on sales activity, and research and development activity.   Cost problems were outside its attention focus at that time.

In order to solve the second problem, the firm employed the following three strategies.   They were (1) the strategy to increase sales, (2) the strategy to expand export trade, and (3) the strategy of cost-down.   As has been indicated above, both the first and the second strategies were based on the policy of "Sales First." The strategy of cost-down, however, does not come out of that same policy.   Before a cost-down strategy can be formulated, it is necessary for the firm to pay special attention to cost problems in the firm.   So, next, we have to examine the factors that turned the firm's attention toward cost problems.

The second problem was perceived by the firm in the following way. (1) A slight decrease in sales was accompanied by a sharp decrease in profits.   (2) Return on sales showed a downward tendency.   (3) It became necessary for the firm to reduce the cost of products while competing with foreign companies in export trade.

This perception of the second problem turned the firm's serious attention toward the cost problems in the firm for the first time. The firm immediately set up an Efficiency Enhancement Department (E. E. D.) to analyse costs in detail.

Cost analysis by E. E. D. revealed that cost situations were steadily getting worse.   It became apparent that general administrative expenses showed a rather rapid increase.   Cost analysis also revealed that both manufacturing costs and financial costs showed an upward tendency.

The result of a cost analysis by E. E. D. seemed to convince the executives of both the necessity and the possibility of cost-down.   Unless cost-down was realized, the firm would not be able to expect high profitability and rapid growth in the future.   There was much room for cost-down.   The top management seemed to reach a judgment in this way.

The cost-down strategy was put into operation from the beginning of the latter half of 1965.   The costs which became the target of the cost-down strategy can be classified into four cost classes.   The first cost class

was "A Expenses."   They consisted of fuel and light expenses, allowances
made for wear and tear, packing and transportation costs, communication
charges and office supplies costs.   The second cost class was "B Expenses."
They consisted of repairs charges, travelling charges, entertainment expenses,
expenses for books and newspapers, advertising expenses and miscellaneous
expenses.   The third was financial costs, while the last cost class was
material costs.

What was the result of the cost-down strategy?   Table 2 gives a rough
calculation of the result.

<p align="center">Table 2</p>

	Latter half of 1965	First half of 1966	Latter half of 1966
A Expenses⎱ B Expenses⎰	3. 8	4. 2	2. 5
Financial costs	1. 0	1. 0	1. 9
Material costs	4. 0	5. 2	5. 8
Total	8. 8	1 0. 4	1 0. 2

<p align="right">(million of Yen)</p>

The cost-down strategy achieved about a one hundred million yen cost-
down every period for three periods successively.   We may regard this as
an excellent result.   To realize the bigness of a one hundred million yen
cost-down in one period, we only have to compare this figure with the
profits figure.   Profits before tax in the latter half of 1965 were about
four hundred million yen.   In fact, the top management was surprised at
the big figure of the cost-down result which was beyond expectation.   In
sum, the cost-down strategy achieved a large amount of cost-down.

<p align="center">III</p>

It is the theory of the firm that deals with the behavior of firms in
economics.   The theory of the firm is now often called the classical
economic theory of the firm.

In the classical economic theory of the firm, it is assumed that (1) the
firm decides the output quantity and the price level to the point where

marginal costs are equal to marginal revenues, and (2) the firm achieves the least costly combination of factors of production.   In other words, the theory of the firm assumes that the firm behaves in a perfectly rational manner toward the goal of profit maximization.   This is a skeleton of the classical economic theory of the firm, presented as simply as possible.

Is the classical economic theory of the firm able to explain and predict adequately the actual behavior of firms?   Do firms actually behave in the way assumed by the classical theory?   This kind of question has been asked by many students interested in business behavior.   At present the following answer is given to the question.[2] The classical economic theory of the firm can not adequately explain and predict the actual behavior of firms.   The theory is primarily a theory of markets and purports to explain at a general level the way resources are allocated by a price system.

It should be noted here that the classical economic theory of the firm meets insuperable difficulty in explaining the cost-down behavior presented in the previous section.   In the firm whose profits (before tax) in one period were about four hundred million yen, about a one hundred million yen cost-down was accomplished in three periods successively.   This fact can not be adequately explained by the classical theory.   The marginal productivity theory is that aspect of the classical theory of the firm which deals with the costs of production.   This theory assumes that the firm achieves the least costly combination of factors of production.   That is, in the classical theory the firm is assumed to operate under a minimum cost condition.   So, the vast sums of the cost-down result which show that the firm did not achieve the minimum cost condition is a fact to illustrate the inability of the classical economic theory of the firm to explain adequately the actual behavior of firms.   In order to explain satisfactorily the vast sums of a cost-down result, a new theory of the firm is necessary.

IV

In this section, the concept of organizational slack is clarified.[3]

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(2) *Ibid.*, PP. 15—16.

(3) This section is based on the following. R. M. Cyert and J. G. March, "Organizational Factors in the Theory of Oligopoly," *Quarterly Journal of Economics*, vol. 70, (February, 1956), PP. 53—55 ; R. M. Cyert, E. A. Feigenbaum and J. G. March, "Models in a Behavioral Theory of the Firm," *Behavioral Science*, vol. 4, no. 2 (April, 1959), P. 82, P. 94 ; R. M. Cyert and J. G. March, *op. cit.*, PP. 36—38, PP. 278—279 ; C. P. Bonini, *Simulation of Information and Decision Systems in the Firm* (Englewood Cliffs, N. J. : Prentice-Hall, 1963), P. 19, PP. 37—38, P. 45.

In the classical economic theory of the firm, as has been seen, the firm is assumed to be an omnisciently rational system. In contrast to the classical theory, the behavioral theory of the firm characterizes the firm as an adaptively rational system. Let us consider this difference from the standpoint of decision making.

The classical economic theory of the firm is essentially an explanation of business behavior under conditions of certainty. In the classical theory, the decision maker (entrepreneur, firm) is assumed to know all the courses of action open to him and also what the outcome of any course will be. He is also assumed to have a clear cut goal, that is, the goal of profit maximization. Then, the decision maker selects that one best course of action which will maximize profits. In short, the rational behavior of the decision maker in the theory of the firm is an optimal decision making.

In this optimizing model of decision making, it should be pointed out, the decision maker evaluates all the alternatives at the same time and selects the one best alternative. Therefore, it can not happen that alternatives better than the alternative chosen are missed by the decision maker. In the optimizing model, the alternative chosen is always the best alternative.

On the other hand, the adaptive behavior of firms may be portrayed in the following way. Figure 1 will be helpful in explaining.
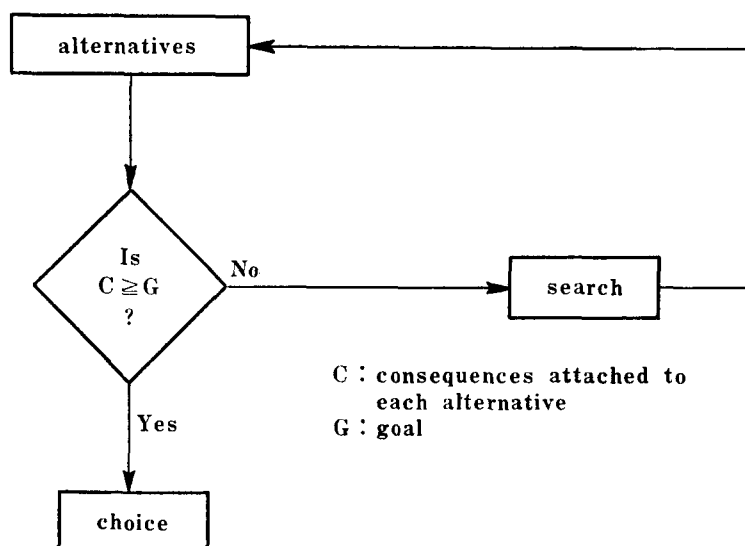
Figure 1

Let us suppose that a firm recognizes a problem.   Then, the firm will start a search activity to find a solution to the problem.   The firm will discover some alternative solutions by this search activity.   Then, these alternatives will be evaluated.   That is, in Figure 1, C is determined and the comparison between C and G is made.   If there is an alternative which satisfies the goal $(C \geq G)$, it will be accepted as a solution to the problem. And the decision making process or problem-solving process will terminate. But, if all the alternatives discovered on the previous round of search activity prove not to satisfy the goal $(C < G)$, a new burst of search activity will be initiated.   If persistent search still fails to discover an alternative which satisfies the goal, then attention will be turned to the goal that an alternative must satisfy.   The goal will be revised downward so that a satisfactory alternative can be found.   With this new goal, the problem-solving process will be again tried.   The above description gives us a skeletal sketch of the descriptive theory of decision making.   It may be called the satisficing model of decision making as contrasted to the optimizing model.

In the satisficing model, as is shown in Figure 1, if an alternative under consideration satisfies the goal, it will be accepted as a satisfactory solution by the decision maker and search activity will terminate.   That is, if an alternative which exceeds certain criteria of satisfaction is accepted, an effort to look for new alternatives will terminate.   The process of decision making is concerned with the discovery of not an optimal but a satisfactory alternative.   Therefore, the alternative chosen by the decision maker is not necessarily the best alternative.   It should be noted that, so long as decision making is conducted under the satisficing criteria, there always is the possibility of missing alternatives which are better than the alternative chosen.   And missing of better alternatives gives rise to a form of organizational slack.

In a word, organizational slack is an unrecognized better alternative which results from the fact that decision making is concerned with the discovery of not an optimal but a satisfactory alternative.

Then, how does organizational slack show itself in the process of organizational equilibrium of the firm?

The process of organizational equilibrium, as Chester I. Barnard has

made clear, depends upon two interrelated classes of process.   They are the process of effectiveness and the process of efficiency.   In the former process, organizational utility which is the source of inducements offered to participants are created.   The latter refers to the process in which inducements are distributed among various participants in the organization.

In the process of effectiveness, organizational slack presents itself as good opportunities missed by the organization.   Unrecognized good opportunities are, for example, methods of marketing more profitable than the present one, promising investment opportunities or production methods less costly than the present one, unrecognized by the firm.   In the process of efficiency, organizational slack takes the form of excess payments.   Excess payments are payments of inducements to participants in excess of what is required to keep them within the organization.   Dividends paid in excess of those required to keep stockholders within the organization, and wages paid in excess of those required to maintain employees are example of excess payments.

In sum, in the process of organizational equilibrium of the firm organizational slack shows itself as unrecognized good opportunities and excess payments.

Finally, we have to make clear the role which organizational slack plays in the adaptive process of firms in a changing environment.

When a firm has been successful in achieving its goal for a period of time in a favorable environment, it becomes satisfied with the achievements and tends to stop making further efforts to achieve a better performance.   Pressures are relaxed in the firm and various forms of organizational slack begins to accumulate.   The firm becomes insensitive to good opportunities.   It also tends to distribute excess inducements to participants. Because of accumulation of organizational slack, the results of operations do not rise so high in proportion to the rate of improvement of the environment.   Accumulation of organizational slack acts as a kind of retarder to the rise of performance of the firm.

On the other hand, when the environment becomes less favorable and the firm fails to satisfy its goal, the firm begins to make serious efforts to achieve its goal.   Within the firm pressures build up and various forms of organizational slack are reduced.   The firm discovers some previously

unrecognized good opportunities for improving the performance through search activity.   As to distribution of inducements, it tries new bargaining and cuts heavily into the excess payments introduced during good times. Because of reduction of organizational slack, the firm's performance does not fall so rapidly as expected from the adverse change in the environment. Reduction of organizational slack acts as a kind of accelerator to the recovery of performance of the firm.

In short, organizational slack plays an important role in the adaptive behavior of firms in a changing environment.   Adaptive process to changing environment may be said, in one view, to be an accumulation of organizational slack during good times and its reduction during bad times.

V

In this section, an attempt is made to explain the cost-down behavior presented in section II with the aid of the concept of organizational slack.

In the behavioral theory of the firm, as has been discussed, it is assumed that the behavior of firms is adaptively rational. It is assumed to be a satisficing behavior.   Each firm has an aspiration level and takes this as a goal to be achieved.   When the firm has been successful in achieving its goal for a period of time, it tends to become satisfied with the result and to stop making further efforts for better results.   Once the firm fails to satisfy its goal or anticipates such a faiure in the immediate future, however, it begins to make serious efforts to achieve its goal. These efforts are problemistic search and problem-oriented innovation.   Since the firm was satisfied and relaxed its efforts while it was successful in achieving its goal, search activity of the firm is generally successful in discovering some previously unnoticed devices for improving performance.   Problem-solving activities stimulated by a problem cut heavily into organizational slack which accumulated during relatively good times, and this cutting leads to improvement in performance of the firm.

Now, we have to return to the case of cost-down behavior presented in section II.

The firm which the author investigated had been enjoying both high profitability and rapid growth till it faced the first problem.   There was no problem calling for serious problem-solving activities of the firm.   In

the meantime, however, the firm failed to satisfy its expectations and re-
cognized a problem.   In order to solve the first problem, the firm employed
three strategies.   They were the strategy to increase sales, the strategy to
activate research and development, and the strategy to begin export trade
on a full scale.   These three strategies were successful in solving the pro-
blem. And the firm again began to enjoy better performance.

It should be noted here that the firm had not turned its serious atten-
tion toward the cost side of the firm till it faced the second problem.   It
did not conduct any search activity concerning cost problems.   Thus, it
may well be expected that various forms of organizational slack accumulated
on the cost side of the firm.   These accumulated organizational slacks
were discovered and reduced by the searching and innovating activities
which were stimulated by the second problem.   And reduction in organiza-
tional slack resulted in the large amount of cost-down for the three succes-
sive periods.

As has been tried above, the behavioral theory of the firm, especially
the concept of organizational slack, can explain rather satisfactorily the
cost-down strategy and the large amount of cost-down gained by the strategy.

VI

The behavioral theory of the firm came into the world as an alter-
native theory to the classical economic theory of the firm.   It has at its
root a criticism that the classical theory can not adequately explain the
actual behavior of firms.   And it purports to explain and predict the
actual behavior of firms.   This article which showed that the behavioral
theory was able to explain satisfactorily the cost-down behavior of a certain
firm which could not be explained by the classical theory affords evidence,
though insufficient, for the adequacy of the behavioral theory of the firm.

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HISTORICAL SKETCH

In 1919, a research organization named the Institute for Commerce was founded in Kobe Higher Commercial School, one of the chief predecessors of Kobe University, with a gift made by F. Kanematsu & Company, a leading mercantile firm in Kobe.   The organization was designed to carry on and facilitate integrated research on business and commerce and to formulate and publish the results of these studies and investigations in such form as to make them available to the business community.

With the founding of Kobe University of Commerce, successor of Kobe Higher Commercial School, in 1929, the Institute extended its research activities by adding several divisions.   One was the famous Latin-American Library, which soon became the center of research in this field in Japan. A room for statistics equipped with various computing machines was established and began publication of "Juyo Keizai Tokei" monthly and "Sekai Boeki Tokei" annually.   A filing room was prepared to deposit press clipping files systematically arranged by topics and dates.   Another room was designed to become the center of all possible original records and data having to do with the beginning and progress of Japanese business.

On the campus of Kobe University of Commerce, another organization named the Institute for Business Mechanization was founded in 1941 utilizing business machines donated by the IBM Corporation and others. With Professor Yasutaro Hirai as its head a broad and forward-looking plan for business mechanization in Japan was developed.

In 1944, Kobe University of Commerce changed its name to Kobe University of Economics. After the war, however, the University was consolidated with three other colleges in Hyogo Prefecture to become Kobe University. With this development, the two Institutes were also amalgamated into the Research Institute for Economics and Business Administration, Kobe University. At present, the Institute, with its seventeen full-time professional staff members, carries on studies and investigations in international economy, business administration, and business mechanization in Japan.

LOCATION AND BUILDINGS

The Research Institute for Economics and Business Administration is located on the campus of Kobe University, Rokko, Kobe. It is a three-story building named the Kanematsu Kinenkan and has a floor space of about 2,900 square meters, which includes a president's room, forty-one offices, six rooms used as a library, a room for statistics, three conference rooms, etc. Adjoining is a one-story building recently built to install business machines.

ORGANIZATION

Under the directorship of the president, the Institute operates with two research groups, each has five sections respectively. Each research group and its sections are as follows:

A Group of International Economy
   (1)   International Trade
   (2)   Economy of Latin-America
   (3)   Maritime Economy
   (4)   International Finance
   (5)   International Law of Economy

B Group of Business Administration

(1) Business Administration and Business Mechanization

(2) Accounting

(3) International Management

(4) Business Statistics

(5) Labor Problems

Besides the regular work of the Institute organized in this manner, research committees may be created to carry on any special work requiring the joint study of academic and business circles. At present, there are three committees, that is, the Finance Committee, Latin-America Committee, and International Economy Committee.

For convenience and greater efficiency in carrying out its research activities, the Institute has a general office which is responsible for, 1) the collection and preservation of a comprehensive collection of books, periodicals, pamphlets, and original records and data of finance, trade, commerce, industry and business generally; 2) the classification, cataloguing, indexing, arranging, annotation and compilation of these research materials; and 3) the formulation and publication of the results of the investigations and studies accomplished by the professional staff members of the Institute.

As an affiliated institute, the Documentation Center for Business Analysis has been recently established. It is the first systematic information facility in the field of business administration in Japan that has been recognized and authorized by the Ministry of Education. The purpose is to collect and to make intensive control of all kinds of materials on business administration and to make them available to scholars, universities, governments, and business world with the aid of modern documentation techniques.