REPORT
ON
EXPORT OF THAI PRODUCTS

YOSHIHIKO HASEGAWA

MINISTRY OF COMMERCE

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OVERSEAS TECHNICAL COOPERATION AGENCY

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ACKNOWLEDGEMENT

I have been to Thailand one year and four months from January 1972 at the request of Government of Thailand to "identify primary products and manufactured goods which Thailand should promote for export to Japan for the next five to ten years and develop the plans for their production and export".

Competative power of Thai products with other countries' merchandises in the international market is presumably the utmost neccesity to promote export of Thai products either manufactured or non-manufactured goods. Competative power of exporting goods should not be defined as price and/or quality only. It should be defined as making-up of economic environment or atmosphere under which trading partners willingly want to make access to the exporting countries with reliance. In addition to the price and quality of the exporting commodity, delivery of the goods, quick steps to settle claim in the export business, continuous supply of quality controlled commodity — all these trading factors to make trade easier should be included under competative power of export business.

If the export promotion is to be provided as building-up of competative power of Thai products as mentioned above, many inter-related programs about production and marketing are needed to accomplish expected objective, and cannot be done in a short period. Ministrial regulation of Japanese Government was amended to allow import of Thai meat products and foot-and-month vaccine processing plant is scheduled to be contributed from Japanese Government to build up meat production at the same time. This is one of the expamples of inter-related program recommended by me for export promotion of Thai Products.

In order to know the capacity and perspective of both Thai economy and export, this report contains three parts;

1. Economy and Trade of Thailand,
2. Export of Thailand, and
3. Statistical Analysis for Increment of Export

The last part of the report has a kind of suggestion about export promotion of Thai products in both qualitative and quantitative analysis.

One year and four months is not enough to continue further analysis on a commodity-by-commodity basis to find more detailed recommendation upon plans for production and export which Thailand should develop as shown in case of meat products.

I wish to take this opportunity to express my heartful appreciation and thanks to Mr. Somphorn Thepsithar, Director-General, Department of Business Economics, Ministry of Commerce, whose full support created good environment which greatly enhanced the achievement of objectives and goals of the project.

Yoshihiko Hasegawa

CONTENTS

VIII   Appendix: Statistical Section for Part 3

ECONOMY AND TRADE OF THAILAND

MAY 1972

CONTENTS

STATISTICAL SECTION CONTENTS

I BRIEF REVIEW OF ECONOMIC DEVELOPMENT OF THAILAND

I Brief Review of Economic Development of Thailand

1.1 Review of Economic Development of Thailand in 1960's

In the past ten years, the Thai economy has developed rapidly and without disturbance and has steadily built up basic social facilities. At the same time, Thailand has maintained a favourable international reserve fund.

Reviewing the general trend of GNP growth, the economic capacity of the country has been continuously expanded and its growth rate is averaged at as high as about 8% per annum in real terms (Table 1 - 1). Such high GNP growth rate, which doubled size of national economy, within ten years, can be found in few countries.

Rapid economic growth inevitably has various repuercussions upon different sectors of economic activities, and several signs of change can be found in Thailand's economy. Some of them are summerized as follows:

(i) Diversification of agriculture has produced various kinds of new commercial agricultural commodities in addition to rice. In the case of Maize, production had grown so fast that crop produced reached more than five times as much as produced only ten years before. All people concerns, including farmers and traders both domestic and international, have much interest in such development.

(ii) Several kinds of manufacturing industry have been established in the past, some of which are jointly ventured with foreign capital and technology. Thai domestic capital employed in trade and/or commerce in the past started to flow into manufacturing industry.

(iii) The consumption pattern of behavior of the Thai people at large has also experienced big changes, according to the

increased per capita income. New merchandises both made in Thailand and imported have been introduced and are utilized widely among general consumers. For example, imports of T. V. amount to eight times and passenger cars, twelve times as much as the imports of those commodities ten years ago. Also, large numbers of cars and television sets are now assembled in the country.

(iv)   The remarkable development of the road system has facilitated the inter-regional transportation of both people and goods, contributing to the development of domestic commerce and, thus, to the growth of the national economy.

1. 2   Observations upon Specific Economic Aspects of Thailand in the 1960's

The per capita GNP has grown up steadly in the past and is estimated at about 190 U. S, $ equivalent in 1970 (rough estimation derived from data on expenditure of GNP, NEDB). This level of per capita GNP can be said to be the first stage of economic take-off to industrialization even in consideration of the high growth rate of the population. The per capita GNP of 190 U. S. $ is almost equivalent to Japan's per capita GNP in the early 1950's.

Several conspicuous features can be observed in the rapid and steady development of the Thai economy in the previous decade. Remarkable aspects are as follows:

(i)   The growth rate of the GNP in real term ranged from 4% to 10%. Such size of fluctuation should not be said serious bias. Thailand has developed her economy safely and carefully and has never experienced a year of negative growth, as were the cases for other countries

(ii)   Price has been always stable all through the period in spite
of the high rate of economic growth, and at the same time, national
currency of Baht has kept good balanced value with international
currency. Thailand has never experienced an inflational spiral.

(iii)   Investment in private sector or capital formation increased
in the 1960's, owing to incentives to establish factories under the
scheme of industrialization promotion program.

(a)   The increased capacity of factories contributed to the domes-
tic productive power, and also increased the import of capital and
material goods.
The ratios of capital formation in the private sector to GNP were 6.8%
in 1960, 11.5% in 1963, 20.5% in 1966 and 24.5% in 1969. Private
capital formation can be said to have played an important role to
GNP growth in the past ten years. Without such high growth of
private capital formation, the country could never have enjoyed its
prosperous economic growth through the 1960's.

(b)   The U.S. armed force special expenditure must be borne
in mind in connection with investment. The U.S. expenditure has
grown up so fast in Thailand from 1965, owing to the so-called
escalation of the conflict in VietNam. These expenditures increas-
ed the demand for construction, services, and manufacturing of
certain goods. Such kinds of demands may be believed to have
attracted the new investment.

(iv)   Three sectors - agriculture, manufacturing and trade and
commerce - contributed 60% of GNP growth in the past decade.
The agriculture sector contributed about one fourth to GNP growth
and the other two each contributed about one fifth. Thailand might
be said to be still an agricultural country. (Table 1 - 2)

We can see here the new sign of important role of trade and commerce in providing a new tie of economic activity between the agriculture and manufacturing industries.

(v)   The shares of the GNP of various industries have changed over the past ten years, owing to the change of industrial pattern of the country.

The share of the agricultural sector has decreased from 38.9% in 1960 to 31.9% in 1969, and the share of the manufacturing sector has grown from 10.5% to 14.7% within the same period. (Table 1 - 2 - 2, 1 - 2 - 3)

However, a high percentage of the labour force, about 80%, is still engaged in agriculture. This figure does, however, indicate a slight decreasing trend recently. (Table 1 - 3)

Although agriculture sector lost 7% of its GNP share within ten years, the large percent of the labor force employed in agriculture did not decrease appreciably. Favour of economic growth can be said to have been mostly concentrated to other economic sectors with less employment during the period.

(vi)   Fast economic growth in such sectors as manufacturing, construction, commercial trade and services should, however, take up underemployed agricultural labour forces, at the same time, agriculture must become more diversified and to find out outlets for its products abroad.

1.3   Some Signs of Economic Change

After rapid progress throughout the 1960's, signs of change can be seen in the economic atmosphere of Thailand.

It is very difficult to point out exactly when such changes began to take place, but the economy is believed to have started to move in

a slightly different direction. The signs of change, according to the few Thai economic indicators on hand, were felt in the latter half of 1969. The following few points may be noted:

(i)   General domestic consumption expenditure has begun to decrease in activity. Although it is difficult to indicate with economic indicators, it can be pointed out that increased rate of currency in circulation shows a downward trend as compared with the previously experienced. (Table 1-4, column II) Such a declining rate might be considered a kind of signs of slump of general expenditure for business activity. A few more comments can be made upon the present economic positon, according to figures in the GNP account.

(a)   Expenditure for consumption in the private sector as a percentage of the GNP has been continuously high, with a few exceptions, a little under 70% during the past ten years. The percentages of the GNP occupied by private expenditure in 1969 is preliminarily estimated at 68.3% and in 1970, at 68.5%. This percentage is not expected to reach the previous level in the following few years.

(b)   Investment or capital formation in the private sector gives us worse sign. Thailand has never experienced actual decreased amount against the previous year in the sector at least in the past ten years.
Capital formation in private sector in 1970 is preliminary estimated at less than the previous year by about one billion Bahts, even if official estimate is not yet announced.

(c)   The share of the GNP occupied by economic activity in the private sector ($C_p + I_p$ in Table 1 - 5) is exptected to decrease from 85.7% in 1968 to 83.4% in 1971. In anticipation of slowing

economic activity, private capital formation is not expected to increase to as high percentage of the GNP as was the second economic plan period in the following period.

(ii) The decrease of international currency reserves cannot, of course, be overlooked.

Thailand had accumulated a international reserve fund year after year, mainly due to foreign capital inflow and U. S. aid & special services purchasement, in spite of unfavourable commodity or visible trade account. Thailand lost reserves in 1969 for the first time, and a much bigger loss was experienced in 1970.

(a) Visible trade balance

Thailand has enjoyed a favourable trade balance since she opene her doors to trade in 1855. (Refer to descriptions of trade in th next Chapter II).

However, Thailand has suffered from an unfavourable visible trade account throughout the past decade.

The visible trade imbalance was small or negligible before 1963, but a deficit in the visible trade account suddenly appeared in 1964 and reached the level of more than 10 billion Bahts. Such big imbalance in the visible trade has always appeared in the following years with exceptions of two years, 1965 and 1966. (Table 1 - 6)

According to the preliminary estimate of 1971, the visible trade deficit was narrowed to below 1 billion Bahts - 0.95 billion Bahts.

Thus narrowed deficit comes from slumped economic activity especially in domestic expenditure in the private sector in both consumption and investment which resulted in decreased imports and increased exports.

(b) Decrease in invisible income of foreign currency is serious
problem in the Thai economy as it results in a loss of reserved
funds.

With the exeption of income from tourism, each item under this
category shows a downward trend from 1969. (Table 1 - 7)
Tourism contributed remarkably to earn foreign currency.
According to data prepared by T. O. T. , income from tourism
increased as follows:

1966	754 mil. B
1967	952 mil. B
1968	1,220 mil. B
1969	1,770 mil. B
1970	2,175 mil. B

However, the expenditures of Thai people for the purpose of
travel, also, increased. The balance for travel is shown in
Table 1 - 7, 4. 1. The major items of invisible incomes show
diminished figures: the special supply of goods and services
to U. S. armed forces (Table 1 - 7, 1. 2) and grants from the
U. S. was cut down from 1969 and the inflow of foreign cpaital
investment decreased from 1970.

II BRIEF REVIEW OF TRADE OF THAILAND

II Brief Review of Trade of Thailand

2.1 Trade of Thailand

(1) General Review

With a few exceptions during the last war, Thailand has not experienced an unfavourable balance in commodity or visible trade from the time she first opened her doors to trade with Western countries until the 1950's, mainly involving export of rice. Thailand, which had no invisible income except from commodity export in prewar days, spent these favourable trade accounts every year through about a century mainly upon:

(a) payment for borrowed capital and its interest to European countries,

(b) remittance of Chinese immigrants to Home Country and

(c) import of gold and silver.

The imports of gold and silver are estimated to have been very important in the past. During the world depression in the early 1930's, the depressed export price of rice had a serious effects upon the commodity trade balance of the country. Thailand had suffered from difficulties about import of gold for the first time in her history and then was forced to abandon the gold standard in 1931/1932. Thailand enjoyed favourable commodity export balance continuously until the 1950's after recovery from the depressed export price of rice in the world depression in early 1930's. (Table 2 - 1)

(2) Commodity Review

Thailand's exports have traditionally been and continue to be agricultural products. Four export items - rice, rubber,

teak and tin occupied about 70 - 80% of total exports until the mid-1950's.

The ranking of these items changed, from time to time, with fluctuations in domestic production and foreign demand. Rice, however, has continuously ranked first with a slightly decreasing share in her export from the 1930's owing to the expanded production and export of rubber. The export share of rice out of total exports registers a sharp downward trend after 1950, although export tonnage of rice remains large as well as in old days. Tin and teak are also losing their shares in export percentage after 1950. (2 - 2)

(a) Rice export has developed remarkably after the beginning of trade of the country, with a few interruptions in poor corp years during the very early stage of trade. Exports as a percentage of total production of rice are estimated at about 5% at the most in the early years of trade.

Rice export developed rapidly supported by the growing demand mainly in the neighboring Asian countries. The ratio of export to rice production jumped up to the 40% level in the 1920's and then the 50% level in the 1930's. the highest ratio , 65.6%, was recorded in 1934/1935. (Table 2 - 3)

Per capita consumption of rice has never been sacrificed at any time throughout more than a century, in spite of this rapid expansion of exports of rice. (Table 2 - 3) Thailand, with high population growth rate right now of about 3%, has still exported continuously 1.2 - 1.5 million tons of milled rice throughout the postwar period. Thailand had been experiencing decreasing paddy yield per rai since the 1920's, mainly because of expansion of paddy

fields to marginal low yield farmland, but, yield per rai
of paddy started to increase remarkably from 1960 and
recovered to the level enjoyed in the 1920's.

Newly initiated varieties in the so-called "Green Revolu-
tion" have not yet been introduced to farmers in Thailand.
However, the development of the high yield of paddy through
both the research of Thai agricultural scientists and the
genius of Thai farmers can be said to be another type of
"Green Revolution" accomplished by Thailand in compli-
ance with her environmental conditions. (Chart 2 - 1)

(b)   Agricultural diversification started from the mid-
1950's in Thailand, resulting from new demand abroad
for upland crops and the growing labour force. New agri-
cultural products which emerged as export items are maize,
tapioca, and jute & kenaf among others. Within only 10
years, maize, tapioca, jute and denaf increased from over
1 billion Bahts (40% of rice export) in 1960 to 3.8 billion
Bahts (150% of rice exports) in 1970.

Marine products, the largest percentage of which is
shrimp, are another newly introduced export item.

Japan has been a good customer of these new products with
the exception of tapioca products.

The four main agricultural products - rice, maize, jute-
kenaf and tapioca now occupy 45 - 55% of the total exports
of Thailand. New agricultural products including oil bear-
ing seed are expected to become important in the coming
decade. (Table 2 - 4)

Rice export is, however, anticipated to maintain its import-
ance for both Thailand and food deficient countries and the
rice industry has to be carefully developed to export. Such

a target, rice export of 1.5 million ton, might be po*
throughout the coming decade from the standpoint of |
technical development of capable Thai scientists rega
paddy production and the effort of Thai farmers.

(3)   Thailand's Trade Partners:

(a)   Before the war, Thailand's customers for ric‹
fered from those of the two other neighbouring big ric
exporters in the so-called "rice bowl of the world".
The trade of the two other countries heavily depended
directly upon their sovereign countries and their econ
bloc, in both export and import. Thailand, on the cor
had quite different trade partners, perhaps because of
long history of independence.
According to the record in the 1930's, 40% of Thailand'
imports came from industrialized countries (21% from
Japan) and Thailand exported only 4% of her total expo
these countries (1.3% to Japan) (Table 2 - 5). Thailar
trade customers have been, for a long time, non-indu‹
lized countries, especially in Southeast Asia. (Table ‹
World War II disorganized prewar international trade ‹
nels, and new trade patterns were formed after the wa
The trade of Thailand was no exception and Thailand is
developping closer trade links directly with industriali
countries.

(b)   Thailand's exports to industrialized countries jur
from almost none (e.i. 3.8%) in the 1930's to 58% in 19
and the import share from industrialized countries slo‹
grew up from 40% in the 1930's to 57% in 1960. (Table
Such changes, especially the growth of exports to indus

lized countries reflect the expansion of Thailand's export trade.

(c)   After 1965, the trade pattern of Thailand shifted again.   Export to industrialized countries started to decrease and imports from industrialized countries to increase rapidly.   In 1965, Thailand's exports to industrialized countries were 42 % of total exports, and imports from industrialized countries, 75 % of total imports.

In 1968, these percentages were 44 % for exports and 89 % for imports.   (Exports to industrialized countries had fallen from 58 % in 1960.)

In 1968, the increase in the value of imports was marked, and the total value of exports from Thailand decreased compared with the previous year.   There was more than 10 billion Bahts deficit balance in commodity trade in that one year (Table 1 - 6), but Thailand still accumulated an additional 22 million dollars equivalent in her international reserved fund.   Expenditures of the U. S. armed forces in the period is probably a main factor for this accumulation of reserved fund.

(d)   The year of 1969 may be siad to be a turning point for Thailand.   There was a smaller percentage of imports from industrialized countries even than before.   (Table 2 - 7) By 1970, the percentage of exports from Thailand to industrialized countries had recovered to the 50% level and imports from industrial countries to 70%.

(e)   In reviewing the changing trade pattern of Thailand and in case if Thailand is admitted to be listed in the Non-

industrialized countries, the table 2 - 8. B would be available to make some senses.

According to the preliminary estimates of world trade for the mid-'70's or approximately the target year of the third economic and social development plan of Thailand (1976), industrialized countries have the capacity to buy about 70 % of total world trade, and non-industrialized countries will export about 16 % of all exports. (Remaining percentage out of 100 % will be shared by central planning countries.) 74 % of the exports of non-industrialized countries is expected to go to industrialized countries in the said year. Such figures are, of course, averaged figures and each individual country would differ.

(f)   Thailand's exports to industrialized countries as a percentage of total exports, about 50 % in 1970, is lower than the average, as mentioned in the preceeding paragraph. Thailand has rice available to export to non-industrialized countries, but more emphasis might be placed on exporting to industrialized countries in order to improve the balance of payment in visible trade. (See Tables 2 -6, 2 -7, 2 -8)

2.2   Trade between Thailand and Japan

(1)   Trade Imbalance

Thailand and Japan have had a closer trade relationship than any other countries before and since World War II. (Table 2 - 5, 2 - 6)

Thailand usually had a favourable account against Japan until 1955 and the account turned out to be unfavourable in 1956. (Table 2 -9) The genearl trade account turned unfavourable for

Thailand already in 1952. (Table 2 - 1) In one sense, Japan may be said to have supported the export of Thai products for some years. The favourable trade account for Japan between the two nations has become continuously wider since the turning year of 1956 with some exceptions in the early 1960's. The imbalance increased rapidly from 1966 with the tremendous increase of Thailand's import mostly from industrialized countries. (This increased imports might be considered as results of increased expenditure on consumption accelerated mainly by the U. S. armed force's expenditure in the period.)

Exports of Thai Products have almost ceased to grow during the years from 1966 through 1970, with only 687 million Bahts increase from 14,099 million Bahts export in 1966 or only 4 % export growth in five years. (Table 2 - 10)

Thailand's imports, on the other hand, grew by 46 % in the same period (Table 2 - 1). The export - import ratio (exports divided by imports) decreased from 76 % in 1966 to 56 % in 1970. Since, in the fourteen years from 1952, the year in which Thailand's commodity trade account was first unfavourable, the export-import ratio decreased by only 12 %, this big change in the export-import ratio within only 4 years (20 %) would be exptected to have various impacts favourable and unfavourable upon different sectors of economic activities in the country.

Both before and after the war, about 50 % of Thailand's imports from industrialized countries have come from Japan, and the share of the deficit trade balance of Thailand against industrialized countries of Japan has been about 50 %. This figure of about 50 % has been unchanged both before and after the war. Even when she had big unfavourable account against Japan, actual deficit amount against Japan has still been about 50 % of

whole trade deficit between industrial countries and Thailand.

(2)   Contribution Share to Growth of Thailand's Export

Exports of Thailand have slowed to only 4 % growth, or 687 million Bahts growth during the period from 1966 through 1970. Many trade customers of the country no longer import from Thailand.   Of the eight major customers accounting for 71 % of total exports from Thailand in 1966, (Table 2 - 10) and 70 % in 1970, only four countries still remain major importers of Thai products.   Who, or what countries, have imported Thai products these years ?   According to the formula indicated in the Table 2 - 10 ,   two big supportors of Thailand's exports were the Netherlands and Japan with contribution shares of more than 100 % each, and the U.S. and Hong Kong with about 30 % each of the additional 687 millions export of Thai products against 1966 figures.

The other four customers in 1966 show negligible or negative signs in supporting exports from Thailand.   (Table 2 - 10, last column) Japan is still expected to remain a good supporter of exports of Thai products in the future.

III   PROJECTION FOR THE ECONOMY OF THAILAND

III   Projection for the Economy of Thailand

Economic development of Thailand in the past ten years has enjoyed a rate of high growth unequaled in her long history. The Kingdom marked 4 - 10 % growth rate every year during this period. High economic growth during the period offset the high population growth of 3. 1 % per annum, and per capita GNP indicates a steady upward trend (Table 3 - 1, Chart 3 - 1).

3. 1   Population and Labour Force

Population growth may be said to be a key factor in strengthening the economy in those countries such as Thailand where various sectors of economic activity, both agriculture and manufacturing industries, are labour-intensive. In the 3rd economic and social development plan of Thailand (October 1971 - September 1976), a population growth rate of 2. 5% is set up as the target for the end of the period.

According to the Thailand population census of 1970 which has just been preliminarily tabulated, the population has increased by 7, 849, 000 during the inter-census period between 1960 and 1970   to 34, 152, 000. The report, however, made adjustment to estimate a population of 35. 5 million taking into consideration possible errors in enumeration. The goal of a 2. 5 % population growth rate might be rather optimistic in view of the past trend. However, based upon 2. 5 % population growth rate in the target year under assumption of 0. 1 % less growth every year from the census year of 1970, the estimated population may be 41. 7 millions in 1976 from the adjusted population figure of 35. 5 million in 1970. The population in Thailand is shown throughout the planned period as follows;

1971	1972	1973	1974	1975	1976
36. 5	37. 5	38. 6	39. 6	40. 5	41. 7
(3. 1%)	(2. 9%)	(2. 8%)	(2. 7%)	(2. 6%)	(2. 5%)

Remarks: unit = million people

( ) = population growth rate in each
year.

The population of Thailand is definitely expected to reach the level
of 40 millions before 1975. (Table 3 - 1)

3. 2   Per Capita GNP Productivity

Per capita productivity has grown rather fast, showing espe-
cially large increases in 1965 (19. 9 %), 1966 (13. 0 %) and 1969 (10. 5%)
because of exceptionally large expenditures by the U. S. armed forces,
and is averaged at 6. 7 % during the past 10 years.   When the above
mentioned years are excluded, the growth rate is averaged at 2. 4 %.

When productivity per person is low, percentages of growth rate
seem large, even if the increase in productivity is not extremely great.

Now that Thailand per capita productivity has attained the level
of about 4, 000 Baht, it will be more difficult to maintain an average
growth rate of 5 % throughout the coming planned period.

(a)   According to the 3rd economic and social development
plan, GNP is estimated to be 177. 8 billion Baht, at the 1962
constant price, in the target year of 1976.   The GNP growth
rate is expected to be 7 % in the later part of the planned period
and less in the earlier part.   This estimated GNP at 1962 cons-
tant value may be a little more than 205 billions of Baht in 1976
price, if the past trend of price is allowed to apply for convert-
ing constant value to current price.   Per capita GNP can be
estimated at about 5, 000 Bahts, when the estimated GNP is

divided by the estimated population of 1976.

(b)   When the simple averaged growth rate actually experienced in the past ten years is applied to the coming years in line with the past trend, per capita productivity may be about 4,600 Bahts at 1976 prices, in 1976.

(c)   When the averaged growth rate in the past ten years excluding 1965, 1966, and 1969 is applied to the coming years, per capita productivity may be about 4,400 Bahts at 1976 price in 1976. Because special factors, such as those which boosted the Thai economy in the 1960's are not expected to play a part in stimulating the economy during the period through 1976, and the per capita productivity and population estimates in the 3rd economic and social development may be a little optimistic, GNP will reach 195 - 200 billions of Baht, but will probably not be over 200 billion Baht in 1976.   (Table 3 - 1, chart 3 - 1)

3.3   Labour Force in Employment

According to various data already published, the followings can be said about the empoyed labor force.

(a)   48.2 % of the total population is estimated to be employed in the labour force according to the preliminary report of the labour force survey for 1966-1967.   The labour force in employment differs as a percentage to the total population by area, with 37.9 % employed in urban areas and 50.4 % in rural areas. (Table 3 - 3)

(b)   It is estimated that the ratio of the labour force engaged in agriculture to the total labour force in employment has gone down from 81.5 % in 1960 to 79.2 % in 1970.   The labour force engaged in other main industries has also changed as in the followings:

(i)   from 455,000 (3.6 %) in 1960 to 711,000 (4.1 %) in 1970 in manufacturing,

(ii)   from 744,000 (5.9 %) in 1960 to 1,176,000 (6.9 %) in 1970 in wholesale and retail trade, and

(iii) from 644,000 (5.1 %) in 1960 to 1,199,000 (7.0 %) in 1970, in the services industry.

In 1970, for the first time, the services industry had the second largest percentage of the labour force next to agriculture. (Table   3 - 2)

(c)   The percentage of the labour force engaged in agriculture to the whole labour force in employment has been decreasing slowly by 2.3 % within the 10 years from 1960 to 1970.   (Table 3 - 4, 3 - 2)

The plan estimates that the agriculture labour force will occupy 75 % of the total labour force in 1976. Since the decrease within ten years mentioned above was only 2.3 %, this estimated percentage decrease of 4.2 % within 5 years may be said to be rather optimistic, unless some big changed economic factors occasions a sizable movement of labour from agriculture to other industries. Even with 75 % of the labour force in employment engaged in agriculture, 15.8 million people would be engaged to work on farming in 1976. It is estimated that more than 16.3 million people are employed in agriculture at least (Table 3 - 5) in 1976.

3.4   Expenditure for Investment in the Private Sector and Manufactur-ing Industry

Private investment expenditure from 1965 through 1971 was as follows: (Tables 1 - 4 - 2, 1 - 5)

	Investment in private sector (bil. B.)	Increase over previous year (%)	As % of GNP (%)
1965	10.6		12.5
1966	13.6	28.3	13.5
1967	16.6	22.0	15.4
1968	18.5	11.4	15.9
1969	21.2	14.6	16.2
1970 p/	20.1	-5.4	14.9
1971 p/	20.7	2.9	14.3

Private investment increased through 1969 and its percentage of GNP also rose above 16 %. From 1970, however, private investment decreased in both actual investment amount and as a percentage of the GNP.

The manufacturing industry growth rate per annum is usually below the growth rate of investment in the private sector.

	Growth rate of private investment	Growth rate of manufacturing
1966	28.3 %	15.8 %
1967	22.0 %	15.8 %
1968	11.5 %	9.3 %
1969	14.6 %	9.1 %

GNP data by industrial origin for 1970 and 1971 are not yet available. It wil be interesting to see growth rate of the manufacturing industry when the growth rate of investment is as slow as estimated preliminarily by NEDB for 1970 and 1971. According to the 3rd economic and social development plan, private investment is expected to grow average of 6.1% per annum throughout the period. The estimate

of private investment growth ratio by year, based upon the scheduled program, is as follows:

1972	6. 9 %
1973	5. 1 %
1974	4. 9 %
1975	5. 9 %
1976	7. 9 %

Even when it is understood that relationship between the growth rate of private investment and that of the manufacturing industry in the 1970's cannot be compared directly to that of the 1960's, the doubt has been expressed wheather the manufacturing industry, with such small investment as shown in the estimate, can supply enought goods for export in the coming years to attain the goal of 7 % GNP growth which is the average per annum growth for the period. If the Thai economy slows its growth because of the low investment, more people than projected in Table 3 - 5 might remain on farms.

3. 5   Regional Distribution of Population

According to statistical year books, population growth in the central region has usally been higher than other regions for at least 50 years, from first census 1911 to 1960, as many farmers moved to the delta area of Menam Chaophya to engage in rice growing in response to the demand of foreign countries for rice. The population in the central region increased by 238 % and reached 338 % of 1911 population; compared with 204 % increase in the other regions. (Table 3 - 5)

(a)   Bangkok and Thonburi area has experienced much urbanization in the postwar days.

Population censuses conducted three times in the postwar peiod, in 1947, 1960 and 1970, show us the concentration of population to the capital city area. About 10 % of the population of whole Kingdom is now concentrated in a small area in and

around the capital.

(b)   Rural parts of the central region excluding Bangkok and
Thonburi marked a lower population growth rate (13 %) than the
rate of other rural regions (32%) in the ten inter-census years
between 1960 and 1970.   (Table 3 - 5) Such a changed pattern
of population growth rate in the rural area has an important
meaning for the outlook of Thailand's agriculture.   Some com-
ments should be made here upon the lower population growth in
rural parts of central region than in the other regions.

(i)   In the period from 1947 to 1960, the population of the three
rice growing provinces of Ayuthya, Anthong and Singburi, the
so-called "Good wet land" of the central plain, has grown at
slower rates (28 %, 31 % and 33 %) than the nation-wide average
rate in rural areas (48 %) excluding Bangkok and Thonburi.
Such decentralization of the population from the center of the
rice bowl is shown more clearly and definately in the following
ten years from 1960 to 1970.   This area has experienced in
almost negligible growth rate in comparison with the nation-
wide rate of 29 % (Table 3 - 6).
According to the Statistical Year Book, in case of province of
Ayuthya whose area is 1,550   thousands rais, 1,425 thousands
rais, i. e. 88.9 % of the province area, were already used for
paddy farming in 1949.
This suggests that the paddy growing delta area has reached the
point where it would be necessary to make efforts to keep the
population to a reasonable size.

(ii)   The population growth rate in the outskirts of the delta
area (refer to chart 3-2, the non-shaded part of the central
plain or Title III area in the Table 3 - 6 comes under this

category; Lopburi, Nakon Sawan, Pisanloke, Sukuthai and so)
was higher than the nation-wide averaged growth rate (48 %) in
the 13 years from 1947 through 1960.

Some provinces, namely Lopburi, Nakon Sawan and Saraburi,
however, have started to show less population growth than the
average (29 %) in the recent inter-census ten years, after a high
growth rate in the period from 1947 through 1960. (Table 3 - 6)

(c)   Such changes in the population distribution by provinces
and regions suggest that the farmers' frontier of agriculture
was concentrated in the delta area in the early part of this century
and then became decentralized from the delta to the outskirts of
the delta in the 1950's as a result of the introduction of upland
crops. (Maize production was begun in the mid-1950's.)

(d)   The Lopburi, Saraburi and Nakon Sawan, famed maize
producing areas, experienced less population growth rate than
the average in the past ten years. Many farmers moved to far-
away provinces - Petchaboon, Kamphaenphet and so - to look
for a new agriculture frontier in an area where farmers cannot
be provided with enough water supply to grow paddy rice.
(Table 3 - 6, chart 3 - 2, 3 - 3, 3 - 4) Most of them are
believed to plant upland crops in the non-shaded area in chart
3 - 2.

Diversification of agriculture from paddy rice to various kinds
of upland crops is expected to increase, accoridng to movement
of farming labour force to upland crops area from paddy field
as mentioned above in the coming years.

3. 6   Projection for Agriculture in Thailand in 1976

With the exception of rubber, most upland crops were planted
for self-subsistence until 1950, with small sales to nearby markets.

Acreage in upland crops including rubber prior to 1950 is estimated at about 10 % of all planted acreage. About 90 % of all planted acreage was in rice paddies about half of which was in the central region. We can recognize several specific changes in the distribution of planted area from 1960.

(i)   So far as the area in paddies is concerned, the central region has been overwhelmed by other regions.

(ii)   Agricultural diversification, small sign of which could be seen from the mid-1950's, became very evident from 1960.

(iii)   All kinds of upland crops were introduced for commercial sales including tree crops — fruits.

(iv)   Maize production has shown dramatic expansion from none to one third of all acreage of upland crops within only twenty years from 1950 to 1970.

Good wet land for paddies in the central plain is estimated at 18. 5 - 20. 0 million rai according to chart 3 - 2. Almost all good wet land for paddies is guessed to have been used for rice production until the early 1960's. We cannot see any conspicuous acreage increase of paddies in the central plain since that time. (Table 3 - 7)

Assuming that agriculture in Thailand will expand in line with the pattern experienced in the past ten years, with increased planted acreage of 6. 7 rais for each additional farmer, agricultural land in Thailand is estimated at more than 86 million rais in 1976.

The projection of upland crops acreage would be more than 35 million rais, including about 10 million rais of tree crops. Paddy field would be about 50 million rai with less expansion than that of upland crop acreage. The ratio of upland crops fields to paddy fields would be 7:10 in 1976, compared with 3:10 in 1960. (Table 3 - 8, Chart 3 - 3)

IV BASIC CONCEPTS OF EXPORT
PROMOTION FOR THAI PRODUCTS

IV Basic Concepts of Export Promotion for Thai Products

4.1 Basic Concepts of Export Promotion

(1) Agriculture of Thailand in the Future

Thailand had been depending on rice monoculture for centuries. However, when her population increased to 25 million and the so-called "good wet land" had been covered by paddy field, she started to diversify her agriculture to include upland crops. Such diversification is said to be plane-geometric or two-dimensional expansion of agriculture. It is not clear how many rais will be available for cultivation or how many rais will be the marginal limit of agriculture in Thailand. To cite the statement of the first economic and social development plan, "Land is one of the most important natural resources in Thailand and about 50 million rais more could be available for agriculture, if needed" This statement was made in 1960, when rais in cultivation totalled about 50 million. No problem in finding acreage for cultivation would be expected during the 3rd economic and social development plan. When possiblly available farm land would be occupied by farming labour force in some future just as in case of paddy field,in the central , "Thai economy must be built up, not as one storey flat house but as two storey house in some parts. " That is economic development in three dimensional - i. e. three crops in two years and/or double cropping each year in expanded areas in Thailand and export of manufactured goods in manufacturing industry.

(2) Considering the factors mentioned above, Thailand could take the following steps:

(a) Strengthen the manufacturing industry through investment and technical innovation to compete with industries in neighbouring countries and elsewhere and to employ labour now engaged in agriculture.

(b)   Develop more yield per rai and increase per capita pro-
ductivity in agriculture, in particular, create new cash crops
which are competitive with other supplying countries in the
international market. Encourage upland crops (including live
stock industry) which are forecast to undergo rapid expansion,

When both manufacturing and agriculture are strengthened,
commerce, which ties up the two sectors, will flourish and take
over some percentage of the labour fource.

(c)   Encourage the tourism industry which should become one
of the most important items of invisible trade. Foreign currency
gained from tourism could improve Thailand's invisible trade
account which has for a long time shown deficits.

More detailed comments on action which might be taken
follows:

(a)   Manufacturing

Modern industry can be defined as massive production of
homogenious goods under exact quality control, and manufactured
goods which are not processed under such a system cannot com-
pete in the international market. Machinery and industrial tools
are needed, to accomplish modern industry. Fortunately for
Thailand, she has already set up machinery and tool industry to
a comprehensive extent, under the umbrella of automobil assem-
bly plants.

Knitted and sewed wearing apparel will be available for export
in the near future.

According to the 1964 Industries census in this country 50% of in-
dustrial establishment was in the food processing industry. Because
of the usually greater return ratio of foreign currency in this industry,
when they are exported and the anticipation of expansion of upland crops, 1/
internationalization of the food industry might be the first step in

1/ refer to remark in the next page.

- 35 -

developing the manufacturing industry.

(b) Agriculture

(i) In anticipation of expansion of upland crops and the expected trend to plant a second crop after the first harvest of the rice paddies, it is necessary to set up an expanded program to introduce some new upland crops which can be exported and compete well with other countries in international market. Fortunately, Thailand has had long experience with an irrigation system and now that Chainert dam and other dams in various places are already completed or under construction, it is anticipated that in the future, the Menam Chao Phya plain and other plains will be covered by green for upland cash crops, even during the dry season.

(ii) Thailand had much experienced in research on paddy rice and a good net work of experimental stations. Research work for upland crops is a little different from paddy rice, especially in the treatment of soil. Initiation of certain kinds of new research work is recommended in this stage. For example, Thailand had already eradicated Rinderpest, and foot-and-mouth disease (one of the most important diseases to be controlled) is now paying large amounts to farmers for animal sanitation and other reasons. Special research

1/ return ratio of foreign currency = domestic materials & labour cost divided by sales proceedings

work and eradication measures may prove useful in the future. This is the only one example and same basic concepts can be applied to any other upland crops which are new to Thai farmers.

(iii) Rice will still be an important item for the Thailand economy. It is expected that on the average, about 1.2 million M/T of rice will be exported per year in spite of the high growth rate of the population. Intensive scientific research, as carried out in the past, has to be done on rice production.

(c) Others

(i) Port facilities
Thailand will have to load and unload a massive amount of commodities in the future. The estimate for exports of major items is 1.2-1.5 million M/T for rice, 2.0-3.5 million M/T for meize, 1.5 Million M/T for tapioka and 0.4-0.5 million M/T for sugar at least.

Freight rates for ocean-going vessels are relatively low from the Mexican Gulf to Japan via the Panama canal to transport maize because of a huge 50,000 ton tanker. Further, the U.S. deep-sea ports equipped with modernized loading and unloading facilities allow products to compete in CIF price at ports of any destinations.

(ii) Establishment of "industrial estate" and effective measures to reimburse import duty levied on imported materials used in manufacturing goods for export are under consideration to promote the export of manufactured goods.

4.2   Perspective of Thailand - Japan Trade

Since the ratio of Japanese exports to GNP is about 10 % and the Japanese GNP is predicted to be about $ 400 billion around the middle of the 1970's, Japan's exports would grow to about $ 40 billion.

2.8 % of Japanese exports now go to Thailand. If the present percentage is simply applied, Japan would export about $ 1.1 billion to Thailand around the middle of the 1970's, but the recent trend is for a smaller percentage of Japanese exports being sent to non-industrialized countries including Thailand. So this figure is probably too large. It is expected, however, that the value of Japanese exports to Thailand will increase in the future as both countries' economics develop. (One private research institute suggests that $ 700 - 800 million will be exported from Japan to Thailand around the mid - 1970's.) One important point to be borne in mind is that 50 % of Thailand's total import from industrialized countries come from Japan. Thailand will have to promote exports to industrialized countries in her trade in the future, thus narrowing her trade imbalance with industrialized countries including, of course, Japan.

Several comments on the perspective for additional exports of Thai products to Japan are as follows:

1.   Maize

Japan imported 5.4 million M/T of maize in 1970.   3.3 million M/T came from the U.S.. Thailand exported 649 thousand M/T in the same year. Japanese demand for mixed feed is still growing. Japan is in a position to import more, and Thailand has the capacity to supply more.   The U.S. would have interest in expected expansion of upland crops acreage of Thailand to produce and supply more feed grains to Japan in the future. Maize from Mainland China may compete with Thai maize in the future.

Port facilities for the loading of bulk cargoes in Thailand must be improved if Thailand is to compete with other feed grain supplying countries at CIF prices in Japan.

2.   Shrimp

Where Japan was a shrimp exporting country prior to the 1960's, in 1970, she imported 57 thousand M/T, amounting to $ 137 millions, Thailand supplied about 10 % of this total.

Japanese demand for shrimp is estimated to increase about 9 % per annum.   However, the shrimp-catch in Thailand is reportedly at a standstill and because of poor handling after the catch, the unit price is a little below that of shrimp from other countries.   The reported total catch has reached the level of 80 thousand M/T, but the actual catch of the several varieties of shrimp available for international trade is only about 15,000 M/T.   (The international trade standard shrimp varieties are Panacus Merguiensis, Penacus Monodon, Penacus Semisalcatus, Penacus, and Metapenaus.)

3.   Oil bearing seeds

The import of oil bearing seeds of Japan amounted to $ 542 million in 1970 of which Thailands' share was only 1.5 % or $ 8 millions. Major items from Thailand were:

1.8 % of Japan's total import for cotton seeds,

58.7 % of Japan's total import for castor seed,   and

28.9 % of Japan's total import for Kapok seed

Soybean is the most important oil seed imported to Japan, and Japanese import of soybeans show the following rise in quantity.

Year	Quantity (1,000 M/T)	Value (mil. $)
1968	2,420	274
1969	2,590	821
1970	3,244	366

Soybeans constitute 60 % of Japanese imports of oil bearing seeds in value. Thailand might also promote exports of soybean and/or soybean cake to Japan, otherwise, Thailand might be difficult to export oil seeds to Japan in substance.

4. Crude rubber

Total Japanese imports of crude rubber amounted to 272 thousands M/T. Thailand exported 136 thousands tons to Japan. Thai rubber unit price is a little cheaper than rubber from other sources because of its quality standard.

5. Jute and Kenaf

72 thousand tons or 10 million $ worth of jute and kenaf were imported to Japan from Thailand in 1970. Paper bags and Vyneel bags are now being substituted for bags of jute and kenaf, and imports of jute and kenaf show a declining curve. The future outlook is not promising.

6. Other items

Canned pineapple, gems, cuttlefish or squid, floor materials and silk have emerged in the list of Thailand exports to Japan, imports of these items, still small in amount, are growing little by little. Some of them, such as silk and accessaries including gems, can be developed as good trade items, even if they can not become major export items of Thailand, if efforts are made for marketing development.

Japan is now one of the largest markets in the world, importing about $ 20 billion including $ 2.6 billion of agricultural products and the Japanese market is expected to become larger. Thus, although there are several problems involved in increasing trade between Japan and Thailand, Japan has the basic capacity to import more from Thailand. Both countries must know more about each others potentialities for supply and demand. The following steps might be taken to improve Japan-Thailand bilateral trade.

1. Steps which should be taken by Japan

(1) Since diversification of Thai export items branching out from the present items is extremely necessary for Japan to increase its imports from Thailand, Japan should find products which can be introduced for development in Thailand or developed more thoroughly.

Japan should provide cooperation in the form of funds, transfer of technology, etc. to facilitate the quality improvement of products and development of new products in Thailand.

2. Steps which might be taken by Thailand

(i) Direct sales promotion exhibitions in Major markets

(ii) Intensive market research work for major marketable products to find proper channels, etc.

(iii) Set up standards of homogeneous quality and an internationally reliable indication of this quality. This does not necessarily mean Government inspection. A brand and/or label authorized commercially in international trade is enough.

(iv) Industrial estate in bond and/or effective reimbursement of import duties levied upon imported materials for

manufacturing goods for export would boost exports of manufactured goods to foreign countries including Japan.

STATISTICAL SECTION CONTENTS

No. 1 - 1   Economic Growth Rate of Thailand in the Past (%)

Year	Growth rate at current price	Growth rate at constant Value 1962
1958	2. 2	0. 8
1959	7. 0	10. 4
1960	10. 7	11. 8
1961	7. 5	4. 2
1962	8. 9	5. 4
1963	5. 9	9. 9
1964	7. 0	6. 0
1965	14. 4	7. 9
1966	20. 2	12. 2
1967	6. 9	5. 6
1968	8. 5	9. 1
1969	10. 4	9. 4
1970	3. 8 1/	3. 7 2/
1971	6. 8 1/	6. 7 2/

(1960-1969 a. v. = 8. 15 % at constant value)

Source: Data of NEDB from 1958 to 1969

1/ Growth rates at current price for 1970 and 1971 come
from NEDB preliminary estimates of GNP at 135. 8 bil.
B. and 145. 1 bil. B. for 1970 and 1971.

2/ Preliminary estimates of GNP at current price are ten-
tatively divided by price index (1962 = 100) to get GNP
at constant value.

No. 1 - 2　　Contribution Shares to GDP Growth by 1/
　　　　　　　　Selected Industrial Sectors (%)

		1960-1966	1966-1969
1.	Agr. Forestry and Fisheries	25.3	21.8
2.	Mining & Querring	2.3	2.2
3.	Manufacturing	17.2	18.5
4.	Construction	8.8	9.1
5.	Electricity and Construction	1.8	2.5
6.	Transportation and Communication	7.5	6.2
7.	Wholesales and Retail Trade	18.5	18.2
8.	Banking, Insurance, and Real Estate	5.7	6.0
9.	Ownership of Dwellings	2.1	1.0
10.	Public Administration and Defence	3.5	4.0
11.	Services	1.6	10.5

Source: Calculated from data of statistical year book
and prepared by NEDB.

Remark 1/ Contribution share = Growth amounts of
classified industrial sectors divided by
total growth of GDP in real term in the
period.

No. 1 - 2 - 2   GDP by Industrial Origin

(unit in billion bahts)

	G D P	Agriculture	Manufacturing	Others
1938	0.958	0.436 (45.5)	0.095 (9.9)	0.427 (46.6)
1950	25.6	14.6 (57.0)	3.2 (1.3)	7.8 (41.7)
1955	39.5	17.8 (45.2)	5.0 (12.6)	17.3 (42.2)
1960	55.8	21.4 (38.9)	7.3 (10.5)	27.1 (40.6)
1963	68.9	29.1 (36.4)	7.8 (11.4)	34.0 (52.2)
1966	101.3	37.3 (36.4)	13.9 (12.0)	44.6 (52.9)
1969	130.8	36.6 (31.9)	17.8 (14.7)	71.0 (55.4)

Source: 1938-1955: ECAFE, Economic Survey of Asia and Far East 1957, (in current price)

1960-1966 Statistical Year Book (in current price)

1969   Monthly Bulletin; Bank of Thailand

Contribution Share to GDP Growth by Industrial Origin 1/

(%)

1938-1950	55	12	32
1950-1955	23	9	68
1955-1960	22	18	60
1960-1966	25	17	58
1966-1969	22	19	59

1/ refer to the remark in the proceeding page.

No. 1 - 2 - 3   GNP Shared by Industrial Origins
and Growth Rate over the Previous Years
                                                    (unit = %)

		1965	1966	1967	1968	1969
1.	Agriculture	38.4(3.6)	36.4(13.8)	32.5(5.9)	31.5(1.3)	31.9(10.1)
2.	Mining & Querry	2.1(26.8)	1.9(18.8)	1.9(14.9)	1.8(9.2)	1.9(7.4)
3.	Manufacturing	14.2(16.0)	13.7(11.7)	14.8(9.9)	15.0(10.1)	14.7(10.6)
4.	Construction	5.6(11.1)	6.1(21.5)	6.8(19.0)	7.0(8.9)	6.6(4.6)
5.	Electricity and Water Supply	0.8(27.4)	1.9(32.9)	1.0(21.4)	1.1(21.0)	1.2(20.1)
6.	Transportation	7.1(4.9)	6.3(1.2)	6.3(8.5)	6.2(5.2)	6.1(11.3)
7.	Whole Sales and Retail Trade	16.5(6.0)	16.8(10.2)	17.5(12.3)	17.3(8.6)	17.5(9.1)
8.	Banking and Real Estates	2.6(14.8)	2.8(22.7)	3.2(17.1)	3.5(16.2)	3.7(15.7)
9.	Ownership of Devellers	2.4(3.1)	2.2(3.9)	2.2(4.0)	2.1(4.1)	1.9(4.6)
10.	Public Administration	4.3(7.8)	3.8(2.4)	4.0(8.1)	4.2(14.0)	4.3(9.2)
11.	Service	9.6(10.5)	9.1(9.9)	9.8(10.0)	10.3(11.1)	10.2(7.4)
	G D P	100	100	100	100	100
	at current price (in bil. B.)	84.3	101.3	108.4	117.6	130.8
	at 1962 constant price (in bil. B.)	79.5(7.9)	89.2(12.2)	94.1(5.6)	102.6(9.1)	112.4(9.4)

(   ) = Growth rate over previous year.

No. 1 - 3   Population and Labour Force Status

		1960	1966	1970 a/
1.	Population (mil.)	26. 4	31. 7	35. 5 1/
2.	Labour Force in 2/ employment (mil.)	12. 7	15. 2	17. 8
	2-1 employment ratio to population (2÷1)(%)	48. 1	48. 5	50. 1
3.	Agricultural labour force 3/ in employment (mil.)	10. 34	12. 19	14. 09
	3-1 farming labour force ratio to labour force in employment (3÷2)(%)	81. 6	79. 8	79. 2

1/   34. 2 is preliminarily tabulated based on population census 1970
35. 5 is made after preliminary coverage error adjustment.

a/   other figures in 1970 column than population are borrowed from preliminary report of labour force survey, July, September, 1969.

2/, 3/   Data prepared by NEDB.

No. 1 - 4   Recent Economic Changes in Thailand (1)

	I 1/		II 2/.1		III 2/.2		IV 2/.3	V 2/.3					
	Economic Growth		Currency in Circulation		International Reserve		Balance of Trade (mil. $)	Error and Ommision (mil. $)	Invisible Income (mil. $)			Other Income c/	
	GNP (bil. B)	Growth rate to the Previous (%)	End of Year (mil. B)	Growth rate to the Previous (%)	End of Year (mil. $)	Changes (mil. $)			Total (mil. $) (A-B-C)	Foreign Capital c/	Total c/ (D - E)	U.S. Grant and Service Purchase c/ 2/.4	Others c/
						A	B	C	D	E			
1963			7,988										
64	73.7	7.0(6.0) b/	8,751	9.4	609.6	69.1	-98	17	150	82	68	41	27
65	84.3	14.2(7.9)	9,706	10.9	705.0	95.4	-123	31	174	84	90	64	26
66	101.3	20.2(12.2)	11,007	13.2	863.8	158.8	-215	65	309	66	243	151	92
67	108.4	6.9(5.6)	11,576	5.1	916.4	52.6	-405	5	453	107	346	245	101
68	117.6	8.5(9.1)	12,667	9.4	938.0	21.6	-512	46	488	115	377	305	72
69	130.8	10.4(9.4)	13,219	4.3	894.0	-44.0	-543	14	485	125	360	275	85
70	135.9 a/	3.8(3.7)	14,320	8.3	766.5	-127.5	-589	20	441	101	340	240	100
71	145.1 a/	6.8(6.7)	15,650	8.5	765.8	-0.7	-457 p/	47 p/	409	73 p/	326	216 p/	110

Source:

1/   Table No. 1-1

2/   Monthly Bulletin, Bank of Thailand

2/ 1   including coin; statistical Sec. I.4

2/ 2   statistical Sec. III.13

2/ 3   derived from data in statistical Sec. III.11 conversion factor $ = B20.80

2/ 4   statistical Sec. III.13

a/   Preliminary Estimate by NEDB, subject to future change.

b/   Growth rate in real term.

c/   Rough estimated $ value converted from Baht value at $ = B20.0

p/   Preliminary

No. 1 - 4 - 2　　Recent Economic Change in Thailand (2)

(unit = billion Bahts)

	1965	1966	1967	1968	1969	1970(p)	1971(p)	1972(p)	1973(p)
I Expenditure for consumption	66.9(79.3)	76.0(75.4)	85.7(79.3)	94.8(81.0)	104.2(80.0)	109.8(81.1)	114.3(78.5)	115.2(74.9)	133.5(80.4)
1. Cp private expenditure	58.6(69.5)	66.7(66.0)	75.0(68.7)	81.7(69.8)	89.5(68.2)	92.9(68.5)	99.9(68.9)	106.5(69.5)	114.2(68.8)
2. Cg government expenditure	8.3(9.8)	9.3(9.4)	10.7(10.6)	13.1(11.2)	14.7(11.7)	16.9(12.6)	14.4(9.6)	18.7(5.4)	19.3(11.6)
II Expenditure for investment	16.0(18.9)	20.4(20.2)	24.8(22.8)	27.8(23.8)	30.9(23.6)	30.8(22.7)	30.9(21.3)	31.9(20.7)	35.1(21.2)
1. Ip private investment	10.5(12.5)	13.5(13.5)	16.6(15.4)	18.5(15.9)	21.2(16.2)	20.1(14.9)	20.7(14.3)	21.2(13.8)	22.6(13.6)
2. Ig government investment (Plus)	5.4(6.4)	6.7(6.7)	8.2(7.4)	9.3(7.9)	9.6(7.4)	9.9(7.8)	10.3(7.0)	10.7(6.9)	12.5(7.6)
III Export of good and services	15.4(18.3)	19.4(19.2)	21.4(19.8)	21.6(18.4)	22.2(16.9)	22.2(16.4) [22.1]	23.5(16.2) [24.0]	24.5(17.2)	25.8(14.9)
1. X1 goods	12.9(15.3)	14.3(13.1)	13.7(12.7)	14.7(12.55)	14.8(10.5)	14.3(10.5) [14.8]	15.8(10.9) [17.3]	17.1(11.3)	19.1(11.4)
2. X2 services	2.5(3.0)	5.1(6.1)	7.7(7.1)	6.9(5.9)	7.4(5.6)	7.9(5.9) [7.3]	7.7(5.2) [7.0]	7.1(4.9)	6.7(3.5)
IV Import of goods and services	16.5(19.5)	19.7(19.5)	23.8(22.0)	26.4(22.5)	27.9(21.3)	29.3(20.8) [26.9]	28.4(19.5) [28.6]	29.3(19.6)	31.2(18.8)
1. M1 goods	15.4(18.2)	18.5(18.3)	22.2(20.5)	24.1(20.6)	25.9(19.9)	27.0(19.8) [27.0]	25.7(17.9) [26.7]	26.4(17.2)	28.0(16.9)
2. M2 services	1.1	1.2	2.3	1.7	2.0	2.3 [1.9]	2.7 [1.9]	2.9	3.2
V Change in stocks	1.0	3.5	-0.1	0.5	3.1	3.0	x	x	
VI Error and omission	1.5	1.9	0.2	-1.1	-1.9				
VII G.D.P.	84.3	101.4	108.2	117.4	130.6				
VIII Net income from abroad	-0.01	x	0.2	0.3	0.2				
IX G.N.P. at current price	84.3 (100)	101.4 (100)	108.4 (100)	117.6 (100)	130.8 (100)	135.8 (100)	145.1 (100)	153.69 (100)	155.80 (100)

Source: Monthly Bulletin, Bank of Thailand　　(p) = NEDB, Preliminary Estimate subject to future change

Remark ( ) = Percentage of the sector to G.N.P.　　☐ = Actual figures in recent announcement

No. 1 - 5   Change in Thai Economics   (unit %)

	1965	1966	1967	1968	1969	1970	1971	1972	1973
C	79.3	75.4	79.3	81.0	80.0	81.1	78.5	74.9	80.4
I	18.9	20.2	24.8	23.8	23.6	22.7	21.3	20.7	21.2
$C_p + I_p$	82.0	79.5	84.1	85.7	84.5	83.4	81.2	83.3	82.4
$C_g + I_g$	16.2	16.1	18.0	19.1	19.1	20.4	16.6	18.3	18.2
X	18.3	19.2	19.8	18.4	16.9	16.4	16.2	17.2	14.9
X_1	15.3	13.1	12.7	12.5	11.3	10.5	10.9	11.3	11.4
X_2	3.0	6.1	7.1	5.9	5.6	5.9	5.2	4.9	3.5
M	19.5	19.5	22.0	22.5	21.3	20.8	19.5	19.0	18.8
M_1	18.2	18.3	20.5	20.6	19.9	19.8	17.9	17.2	16.9
V	84.3	101.4	108.4	117.6	130.8	135.8	145.1	153.7	165.8
	(14.4)	(20.2)	(6.9)	(8.5)	(10.4)	(3.8)	(6.8)	(5.9)	(7.8)

(   ) = GNP Growth rate over the previous year

Japanese case	1971	1965	1966	1969
C	60.7	65.9	64.0	58.2
I	35.4	30.4	31.5	35.6
$C_p + I_p$	79.9	76.5	75.9	76.9
$C_g + I_g$	16.2	18.5	19.2	16.3
X	11.7	17.0	11.1	11.5
M	10.5	10.8	10.6	10.2
V	10.8	10.6	16.7	18.3

C   = Consumption

Cp = Consumption Expenditure in Private Sector

Cg = Consumption Expenditure in Government Sector

I   = Investment or Capital Formation

Ip = Capital Formation in Private Sector

Ig = Capital Formation in Goevernment Sector

X   = Export

X_1 = Visible Export

X_2 = Invisible Export

M   = Import

M_1 = Visible Import

V   = G. N. P.

No. 1 - 6 Value of Exports and Imports (unit = billion Bahts)

	Export [1]	Import	Balance of Trade
1960	8.6	0.6	- 1.0
1963	9.7	12.8	- 3.1
1964	12.3	25.3	-13.0
1965	12.9	16.2	- 3.3
1966	14.3	18.5	- 4.4
1967	14.2	22.2	- 8.0
1968	13.7	24.1	-10.4
1969	14.7	26.9	-12.2
1970	14.8	27.0	-12.2
1971 [2]	17.3	26.7	- 9.4

Source: Quartery Bulletin of Statistics; O. N. S.

[1] including re-export

[2] figures in 1971 = Monthly Bulletin, Bank of Thailand

No. 1 - 7 Changes in Invisible Foreign Currency Income
(in Million dollars)

	1966	1967	1968	1969	p/ 1970	Changes 1969-1970
I. Commercial Trade Deficit	-215	-405	-512	-543	-589	- 46
II. Changes in International Reserves	159	53	22	-44	-128	-128
III. Invisible Income (II - I - IV)	306	453	488	463	411	- 52
1. Official Transfer Payment	46 (748)	58 (1,024)	75 (1,407)	57 (1,098)	48 (954)	- 9
1.1 From U.S. Grant	22 (439)	40 (800)	59 (1,172)	43 (864)	37 (613)	
1.2 From other Gov't	13	9	8	3	16	
1.3 From other source (1-1.1-1.2)	11	9	8	11	-5	
2. Foreign Capital	66	107	115	125	101	- 24
3. Official transfer and Capital (1 + 2)	112	165	190	182	149	- 33
4. Services Export and other Income (III - 3)	197	288	298	281	262	- 29
4.1 Travel	- 75 (-149)	13 (267)	25 (496)	16 (317)	16 (321)	
4.2 Others (4-4.1)	272	275	273	275	246	
4.3 Receipt from Military Services	130 (2,59)	205 (4,11)	246 (4,02)	231 (4.63)	220 (4,19)	- 9
4.4 Net Income other source: excl. 4.3 (4.2 - 4.3)	142	70	27	44	26	- 18
IV. Error and Omssion	65	5	46	36	50	- 16

Source: Bank of Thailand = Monthly Bulletin
( ) = in billion B., $ value is converted
tentatively by $ = 20 B.
p/ = preliminary estimate

No. 2 - 1   Historical Record of Thai Trade
(in million Bahts, after 1960, in billion Baht)

Year	Export (mil)	Import (mil)	Balance (mil)	Export/Impo (%)
1896	47. 5	34. 1	11. 4	136
1899-1907 a. v.	85. 9	63. 8	22. 1	134
1908-1913 a. v.	95. 8	78. 8	17. 0	121
1914/1915	101. 6	78. 5	23. 1	131
1919/1920	177. 3	138. 4	38. 9	128
1924/1925	203. 1	169. 4	33. 7	120
1929/1930	219. 8	206. 7	13. 1	106
1934/1935	172. 9	101. 7	31. 2	169
1939/1940	216. 6	194. 6	22. 0	111
1946	449. 5	565. 4	-110. 9	80
1950	3, 576. 3	2, 881. 2	795. 1	124
1951	3, 576. 3	3, 014. 9	708. 6	116
1952	4, 618. 8	5, 524. 5	-908. 0	88
	bil.	bil.	bil.	
1960	8. 61	9. 62	-1. 01	89
1963	9. 68	12. 62	-2. 94	77
1965	12. 9	15. 4	-2. 5	84
1966	14. 10	18. 50	-4. 40	76
1967	14. 16	22. 18	-8. 02	64
1968	13. 68	24. 10	-10. 42	56
1969	14. 72	25. 9	-11. 24	57
1970	14. 79	27. 00	-12. 21	56
1971	17. 3	26. 7	-9. 4	65

Source: Series of Statistical Year Book
Bulletin of Bank of Thailand (1965-1970)
1971 = announcement of Ministry of Economic
Affairs.

No. 2 - 2 Historical Record of Rice Export (unit, mil. Bahts)

	Total Export	Rice Export	Rice/Total
1920/1921 - 1924/1925	169. 8	115. 4	64. 1
1925/1926 - 1929/1930 a. v.	246. 5	169. 6	68. 7
1930/1930 - 1934/1935 a. v.	152. 9	91. 2	59. 7
1935/1936 - 1939/1940 a. v.	187. 2	94. 6	50. 5
1940-1944 a. v.	164. 7	99. 3	60. 2
1950	3, 576. 3	1, 742. 8	48. 7
1955	7, 009. 7	3, 094. 2	44. 2
1960	8. 61 bil.	2. 57 bil.	29. 9
1963	9. 68 bil.	3. 42 bil.	35. 2
1966	13. 82 bil.	4. 00 bil.	21. 7
1969	14. 72 bil.	2. 95 bil.	20. 1

Source: Statistical Year Bank of Thailand.

No. 2 - 3   Rice Export and Production in Thailand

(unit = refer to every column)

	Production		Export	Export ratio to Production	Domestic Uses	Population	Percapita consumption
	Paddy	Milled Rice	(mil.		(mil.		
	(1000M/T)	(Mil. piculs)	piculs)	(%)	piculs)	(mil.)	(picul)
	1/	2/	3/	(3/ ÷ 2/)	4/	5/	(4/ ÷ 5/)
1920/21 - 1924/25 a. v.		49.5	21.0	42	28.5	10.1	2.82
1925/26 - 1929/30 a. v.		48.4	22.0	45	26.4	11.3	2.34
1930/31 - 1934/35 a. v.		52.7	26.6	51	26.1	12.9	2.02
1935/36 - 1939/40 a. v.		48.5	23.8	49	24.7	14.7	1.68
1940/44 a. v.		52.2	8.5	15	46.7	16.8	2.78
1945-49 a. v.		60.7	12.2	20	48.5	18.0	2.69
1950-55 a. v.		77.4	21.9	28	55.5	19.8	2.50
1956-60 a. v.*	7,150	4,760	1,315	28	3,445	24.9	2.31(138)a/
1961-65 a. v.*	9,252	6,199	1,598	26	4,601	28.8	2.38(160)a/
1966-68 a. v.*	11,326	7,588	1,441	19	5,676	32.7	2.90(174)a/

Remarks: I * From 1956, all figures are in M/T
   1/ 3/ Source: Statistical Year Book
   3/   In consideration of export season and farming
        season, Export Quantity in the following years
        in the period are average.
   2/   convertion factor for paddy to milled rice is 0.67
   a/   bracketed figures are in Kg.

II   Highest Export ratio to production recroded at 65.6%
       in 1934/1935.

Chart 2 - 1 Trends of Rice Yield Per Rai by Specified Period (Picul per rai in harvested area)
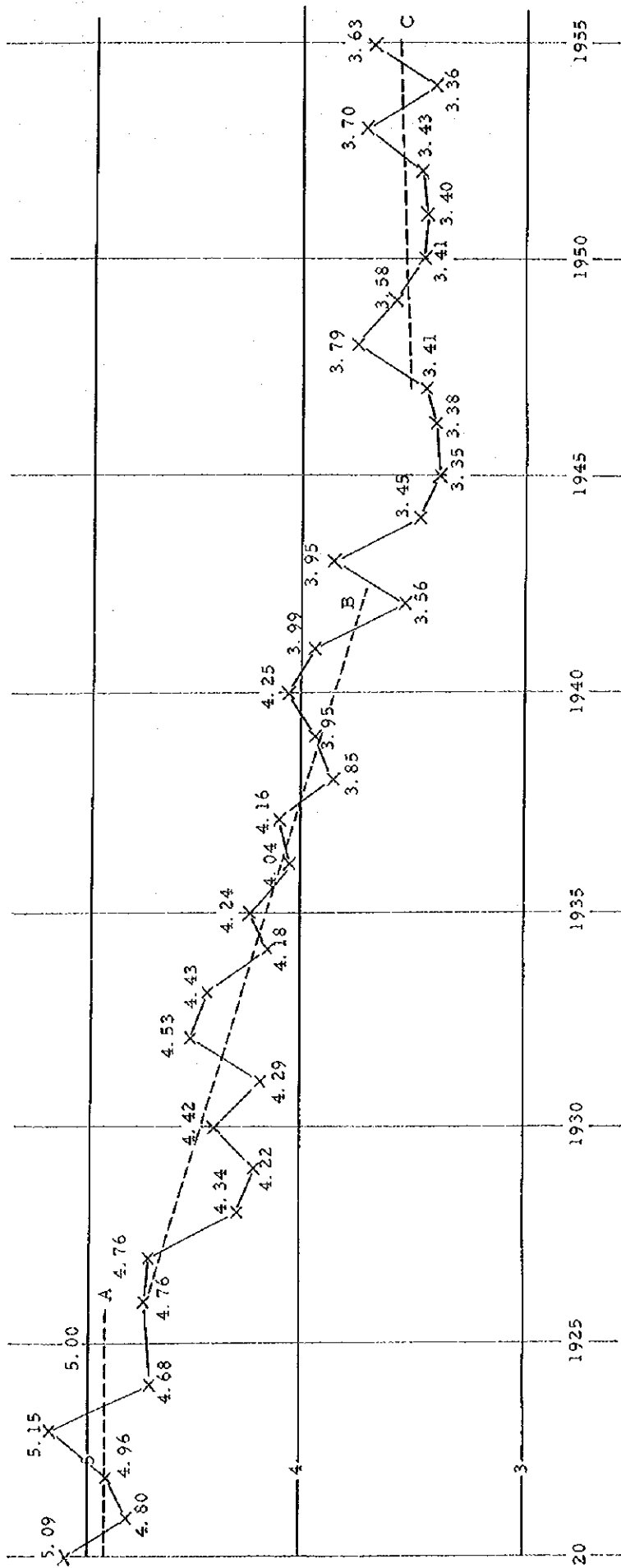
A = Trend of 1920 - 1926   4.953 - 0.006t(1920 = t₀)
B = Trend of 1926 - 1942   4.6404 - 0.053 (1942 = t₀)
C = Trend of 1947 - 1955   3.5053 + 0.002t(1947 = t₀)

Chart 2 - 1 (Continued) Trends of Rice Yield Per Rai by Specified Period (Picul per rai in harvested area)
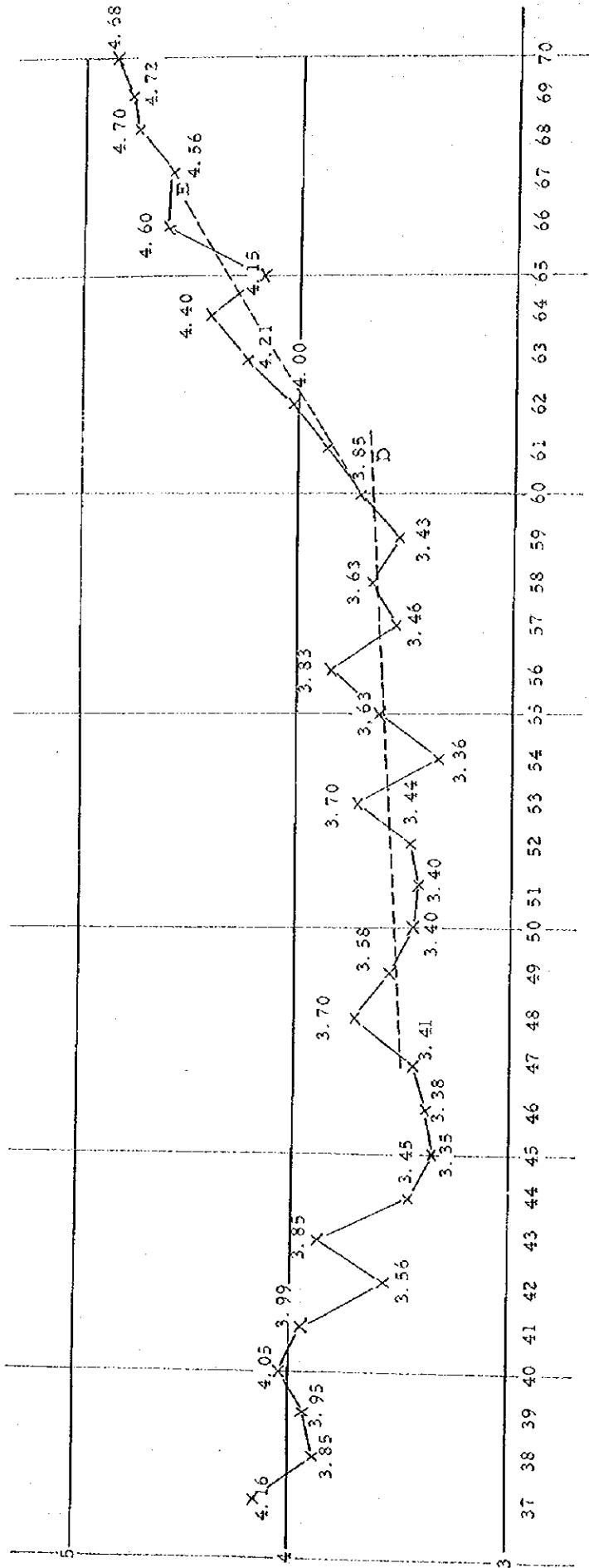
D = Trend of 1947 - 60   3.4651 + 0.0147t (1947 = t₀)

E = Trend of 1960 - 66   3.7337 + 0.1321t (1960 = t₀)

Data = 1967, 68, 69, 70 come from Bulletin of Statistics, N.S.O. in planted area.

- 59 -

No. 2 - 4   New Agricultural Products in Export Trade

(unit billion B)

	1960	1963	1966	1969	1970
1. Rice	2.57	3.42	4.00	2.95	2.52
2. Meize	0.55	0.83	1.52	1.67	1.85
3. Tapioca	0.29	0.44	0.64	0.87	1.22
4. Jute & Kenaf	0.23	0.36	1.61	0.78	0.72
5. Other marine procucts than fish	--	0.01	0.19	0.34 e/	0.31 e/
6. Sub-total	3.24	5.05	7.80	6.61	6.62
Sub-total excl. Rice	(1.07)	(1.64)	(2.80)	(3.56)	(4.10)
Total Export	8.61	9.68	13.82	14.72	14.82
Sharing % of 4 items in total export	36	52	57	45	44

e/ over 90% is estimated shrimp, and 1969 &
1970 figures are estimated from Japanese
Shrimp Import.

No. 2 - 5   Trade Pattern of Three Major Rice Exporters
                    in the Prewar Period   (unit %)

		Thailand	Burma	F. Indochin
I	Import from			
	A. Industrialized Countries	40. 3	79. 2	63. 8
	1. Sovereign country and her bloc	-	(67. 6)	(57. 1)
	2. Japan	(20. 8)	(0)	-
	B. Non-Industrialized Countries	59. 7	20. 8	26. 2
	1. S. E. Asia	35. 8	3. 8	13. 1
	2. Others	23. 9	17. 0	23. 1
II	Export to			
	A. Industrialized Countries	3. 8	80. 1	55. 0
	1. Sovereign country and her bloc	-	(77. 6)	(50. 2)
	2. Japan	(1. 3)	(2. 3)	-
	B. Non-Industrialized Countries	62. 2	19. 9	45. 0
	1. S. E. Asia	50. 9	7. 3	11. 6
	2. Others	45. 3	12. 6	33. 4

Source: International Trade Statistics 1933
         - negligible

No. 2 - 6   Trade Pattern of Thailand in the Postwar Days

(unit = %)

		Export to	Import from
A 1966			
I	Industrialized Countries	45	76
	Japan	(21)	(36)
II	Non-Incustrialized Countries	55	24
	1. S. E. Asia	41	18
	2. Others	11	6
III	Total Value	14. 1 bil. B.	18. 5 bil. B.
B 1970			
I.	Industrialized Countries	51	72
	Japan	(26)	(37)
II	Non-Industrialized Countries	49	28
	1. S. E. Asia	22	5
	2. Others	27	13
III	Total Value	14. 8 bil. B.	27. 0 bil. B.

No. 2 - 7   Thailand Trade Pattern as Compared with Average
          Non-Industrial Countries' Trade Pattern

		Export to Industrialized Countries	Import from Industrialized Countries
Average non-industrialized countries a/	1960	70%	72%
	1969	73%	71%
	1975	74%	72%
Thailand			
b/ Prewar period		4%	40% 1/
	1960	58%	57%
	1965	42%	75%
	1966	45%	76%
	1967	44%	89%
	1969	51%	83%
	1970	51%	72%

1/   refer to Table (2 - 5)

a/   processed from GATT. Report (refer to 2 - 8)

b/   Source: Monthly Bulletin, Bank of Thailand.

No. 2 - 8   Flow of World Trade

A. Flow of World Trade in the Past

From \ To	Year	Industrialized countries %	Non-Industrialized countries %	Central planning countries %	Total %
Industrialized countries	1960	42.3	16.4	2.2	63.7(81.5)bil. $
	1969	50.7	13.1	2.6	68.6(186.5)bil.
Non-Industrialized countries	1900	15.0	4.9	1.0	21.5(27.5)bil.
	1969	13.0	3.6	0.9	17.9(48.3)bil.
Central planning countries	1960	2.2	1.0	8.5	11.7(15.0)bil.
	1969	2.5	1.6	6.7	10.8(29.4)bil.
Total	1960	61.8	22.8	11.8	100.0(128.0)bil.
	1969	68.2	18.8	10.2	100.0(272.3)bil.

Source: GATT Report.

B. Perspective World Trade Flow about Middle of 1970s

From \ To	Industrialized Countries %	Oceania %	Developing Countries %	Communism Countries %	Total %
Industrialized Countries	54.36	2.36	12.25	2.74	71.71
Oceania	1.78	0.13	0.43	0.07	2.41
Non-industrialized Countries	11.61	0.43	2.89	0.87	15.80
Central planning Countries	2.87	0.02	1.75	5.44	10.08
Total	70.61	2.94	17.32	9.12	100.00

Remarks: Total World Trade about middle of 1970s is estimated at 400 bil. $.

No. 2 - 9   Trade Records in Recent Years
             between Thailand and Japan   (unit: mil. $)

	Export to Thailand	Import from Thailand	Trade Balance for Japan
1955	63. 0	63. 4	-0. 4
1956	60. 9	35. 1	25. 8
1958	83. 8	21. 7	62. 1
1960	117. 7	72. 3	45. 5
1965	219. 1	130. 8	88. 3
1966	300. 8	153. 2	147. 6
1967	341. 0	160. 0	181. 0
1968	365. 4	147. 0	218. 4
1969	433. 8	167. 4	266. 4
1970	449. 2	189. 6	259. 6
1971	445. 8	229. 7	216. 1

Source: Statistics of Custom of Japan.

No. 2 - 10   Major Importing Countries of Thai Products

(in mil. B)

	1966	1967	1968	1969	1970	70/66 %	Contribuiton share to Thai export %1/
Japan	2,930	3,000	2,874	3,192	3,770	128	+122.2
U.S.A.	1,752	2,024	1,789	2,168	1,985	122	+ 32.4
Malasia	1,166	1,211	1,038	1,079	830	71	- 48.7
S' Pore	1,021	962	1,181	1,154	1,018	100	
The Netherland	373	708	967	1,030	1,276	342	+131.7
Hong Kong	932	1,084	921	1,156	1,112	120	+ 26.2
India	1,374	763	782	530	530	7	-185.2
U. Kingdom	521	403	435	406	305	57	- 34.2
Total (incl. others)	14,099	14,166	13,679	14,722	14,786	104	100.0

1/   Contribution Share to Thai Export =

$$\frac{\text{Individual country's Import} (1970-1966)}{\text{Total Export} (1970-1966) = 687}$$

Total number of plus marks in last column is 311 and total of minus marks is - 267. Difference (-44) between two totals shall be distributed to other countries not specified in this table.

Records of Populatio, GNP and Per capita Productivity

	1/ Population (mil.)	2/ GNP at current price (bil. baht)	3/ Percapita Productivit (baht)
1960	26.4	55.7	2.190
61	27.2		
62	28.0		
63	28.9	68.9	2.384
64	29.8	73.7	2.774(3.1)
65	30.7	84.3	2.746(10.9)
66	31.7	101.4	3.205(13.0)
67	32.7	108.4	3.315(3.4)
68	33.7	117.5	3.451(1.0)
69	34.7	130.8	3.798(10.5)
70	35.5	a/ 135.8	3.825(0.7)
71	36.5	a/ 145.1	3.986(4.0)
72	37.5	b/ 153.7(135.2)	4.198(5.3)
73	38.6	b/ 165.8(144.5)	4.295(2.3)
74	38.6	b/ 198.2(155.1)	4.500(4.7)
75	40.7	b/ 193.2(166.6)	4.746(6.1)
76	41.7	b/ 208.2(198.8)	4.992(5.2)

Remarks: 1/   Source; - Some important statistics of Thailand.
- Populations in 1960 and 1970 are based on Population census.
- Population after 1970 are derived under assumption of 2.5 % growth ratio in 197 with 0.1 % decreased rate in each year from 1970.

2/   Source; - Bulletin of Bank of Thailand

a/   Preliminary estimate on GNP by NEDB.

b/   Converted to current price from constant price 1962, bracketed figures estimated by NEDB.

3/   2/ + 1/

Chart 3 - 1   Per Capita GNP Growth

(unit = Baht)

X   Actual percapita productivity at current price.

O   Percapita productivity derived from data
    preliminarily prepared by NEDE's 3rd
    economic development plan.

△   Projected productivity based upon past ten
    years (1960-71) - A -

◉   Projected productivity based upon
    past trend excluding three years
    1965, 66, and 69 with extraordinary
    economic growth. - B -

5,000 ⟋ O 4,992

⟋4,746

△4,600

4,500 ⟋ O 4,500   ◉4,450
⟍ Ⓑ

O 4,295

O 4,198

4,000 O 3,986

O 3,825
X 3,798

3,500

X 3,451

X 3,315

X 3,205

3,000

Ⓐ

X 2,746

2,500

X 2,474

X 2,384

X 2,109

2,000

1960 61 62 63 64 65 66 67 68 69 1970 71 72 73 74 75 76 76

No. 3 - 2 Labour Force Distribution by Industries

(in thousands)

Labour Force in Employment	1960 b/	1970 a/
	12,680	17,157
	(100%)	(100%)
1. Agriculture, Forestry and Fisheries	10,342 (81.5%)	13,596 (19.2%)
2. Mining and Querry	28	25 (0.1%)
3. Manufacturing	455 (3.6%)	771 (4.1%)
4. Construction	68	151 (0.9%)
5. Electricity, etc.	15	20 (0.1%)
6. Commerce	744 (5.9%)	1,171 (6.9%)
7. Transportation	164	273 (1.6%)
8. Services	644 (5.1%)	1,199 (1.0%)

Source: a/ Labour Force Survey 1969 preliminary Report

b/ Data prepared by NEDB.

No. 3 - 3   Employment Status 1966   (in thousand)

	number	persons [1] under 11 years	labour force not in employment [2]	labour force in employment
I. Municipal Area a/	4,697(100%)	1,501(32%)	1,415(03.1%)	1,780(379.9%)
II. Rural Area b/	26,607(100%)	9,710(35.1%)	4,046(14.8%)	13,408(50.4%)
III. Total	31,304(100%)	11,211(34.1%)	5,461(17.1%)	15,188(48.2%)[3]

[1]   about 1/3 of population is under 11 years old and cannot be counted in labour force.

[2]   17% of total population are students, homemakers and old aged persons who have already retired and/or are unable to work, even if they are counted in labour force.

[3]   a little less than half population is labour force in employment, dicounted 1/ & 2/ from total population.

Source: Some Important Statistics 1968-1969

a/   Labour force Survey in all Municipal Area 1967
b/   Labour force Survey in Rural Area 1966-1967

No. 3 - 4   Population and Labour Force in Census Year

	I Total Population	II $\underline{1/}$ Labour Force in Employment	III Employment in Agri Fisheries & Forestry	IV III/II%
1929	11,506	7,520	6,330	84
1937	14,464	6,825	6,045	89
1947	17,925	8,992	7,623	85
1960	26,258	12.7	10.34	82
1970 $\underline{p/}$	35,550	17.8	14.69	79

$\underline{1/}$ Definition of labour force in employment was changed in 1937, and number in column II in this year indicates decrease in spite of increased total population.

$\underline{p/}$ Preliminary estimate of 1970 population census.

No. 3 - 4 - 2 Farming Labour Force Outlook

	1960	1966	1970 [a]	1976
1. Population (mil)	26.4	31.3	35.5	41.7
2. Labour Force in Employment (mil)	12.7	15.2	17.8	21.2
2.2 Ratio of Employment to population (%) (2 ÷ 1)	48.1	48.5	50.1	51.0
3. Farming Labour Force in Employment (mil)	10.34	12.19	14.09	15.8 or 16.3
3.2 Ratio of Farming to labour force in Employment (%) (3 ÷ 2)	81.5	79.8	79.2	75.0 or 77.0
4. Farming Labour Force to Population (%) (2.2 x 3.2)	39.2	38.7	39.6	38.2 or 39.3

a/   Population is based on pupulation census, others in 1970 column are Labour Force Survey 1969.

No. 3 - 5 Population and Its Regional Distribution
in Population Census Years   (thousands)

1911	8, 266 (100)	3, 267 (100)	4, 999 (100)
1919	9, 206 (111)	3, 520 (108)	5, 687 (114)
1929	11, 506 (139)	4, 582 (140)	6, 927 (139)
1937	14, 464 (175)	5, 748 (176)	8, 716 (174)
1947	17, 317 (209)	7, 000 (214)	10, 317 (206)
excl. Bangkok and Thonburi			
	16, 267 "100"	5, 872 "100"	10, 317 "100"
1960	26, 258 (318)	11, 042 (338)	15, 216 (304)
excl. Bangkok and Thonburi			
	24, 122 "148"	8, 866 "151"	15, 216 "147"
1970	34, 152 (413)	14, 037 (429)	20, 085 (400)
excl. Bangkok and Thonburi			
	31, 101 "191"	10, 986 "170"	20, 085 "193"
1970			

A. Population Growth excluding Bangkok and Thonburi

1960/47	48%	51%	47%
1970/60	29%	13%	32%

B. Population Growth in Bangkok & Thonburi

1960/47	2, 136/1, 052	+103%
1970/60	3, 051/2, 136	+ 43%

1/   Population of Region is that classified by the
series of Statistical year book to trace the
continuity.

No. 3 - 6   Changing Distribution Pattern of Population in Thailand

(unit thousands)

		1947	1960			1970	
				change	%		change
I.							
	1. Bangkok	890	1,577	687	77	2,132	565
	2. Thonburi	289	569	280	93	919	350
II.							
	1. Ayuthaya	374	479	105	28	501	22
	2. Anthong	151	198	47	31	217	19
	3. Singburi	116	154	38	33	162	8
III.							
	1. Lopburi	202	336	134	66	433	97
	2. Nakonswan	379	647	268	71	758	111
	3. Kamphaenphet	68	173	105	154	333	160
	4. Pisanuloke	202	352	150	74	492	140
	5. Sukothai	189	316	127	67	394	78
	6. Saraburi	269	304	97	47	342	38
	7. Petchabun	163	320	157	96	513	193
IV. (million)							
Whole Kindgom							
	1. incl. Bangkok and Thonburi	17.4	26.3	8.9	51	34.2	79
	2. excl. Bangkok and Thonburi	16.3	24.1	7.8	48	31.1	7.0

Remark: I.   Urbanization Area
II. Center of Rice Growing area
III. Outskirt of Nenam Delta area

Chart 3 - 2

Thailand Central Plain

1. Elevation:
   under 100m
   100 - 200m
   above 200m
2. Flood Area
   useful flooded area
   marginal flood area

BURMA

Chiangmai

Nan

LAOS

Lampang

Uttaradit

Nongkai

Loei

Udorn

Sukothai

Tak

Phisanloke

Kamphaengphet

Phichit

Petchabun

Khon Khaen

Nakon Sawan

Chaiyapun

Uthai

Chainart

NakonRajsima

Buriram

Lopburi

Anthong

Supan

Saraburi

Ayuthya

Nakon Nayok

Kanchanaburi

Prachin

Nakon Pathom

Bangkok

Chachoeng Sao

Rajburi

CAMBODIA

Petruri
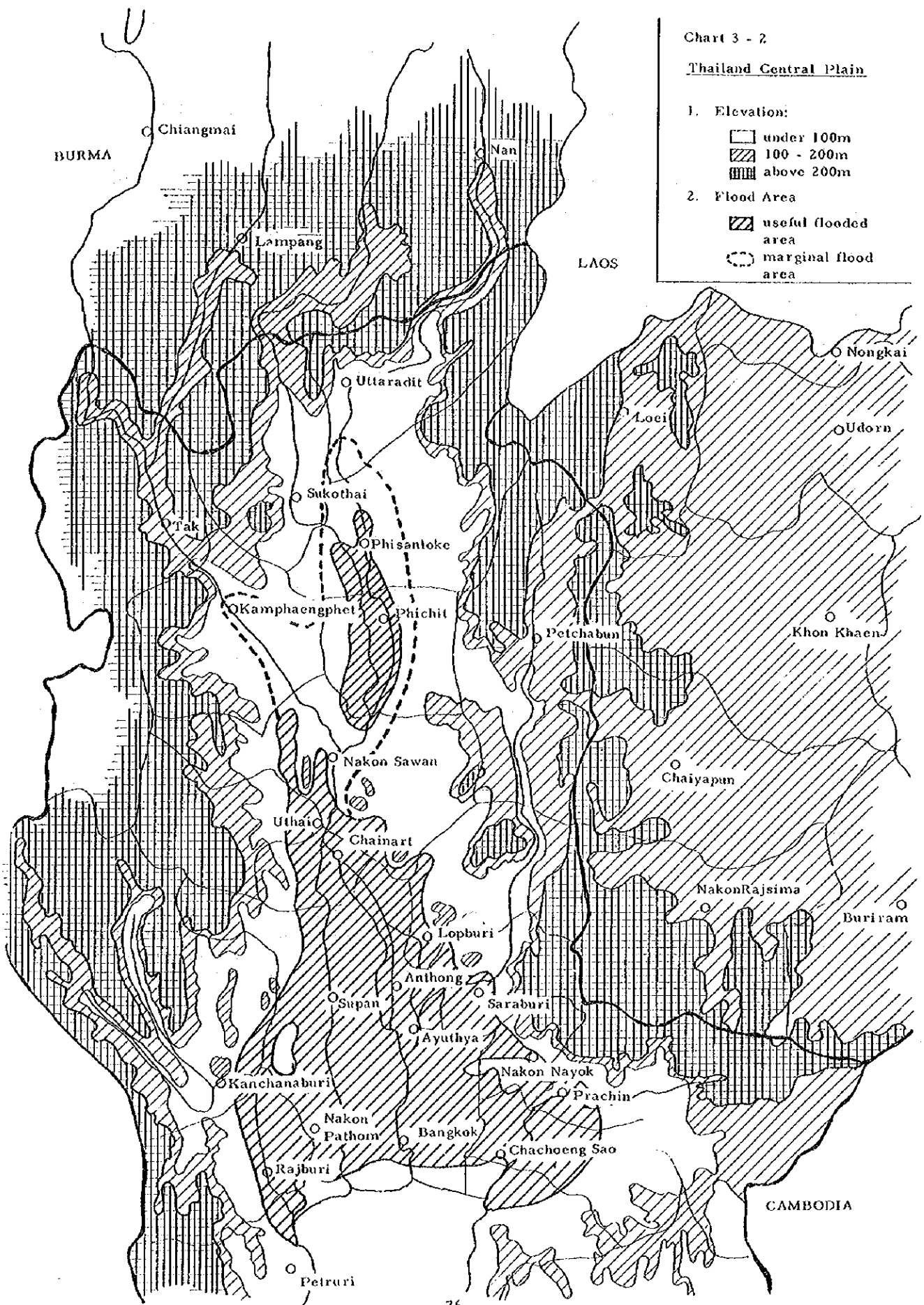
No. 3 - 7   Estimates for Planted Area of Major Crops   (million rais)

	All Crops	Rice		Other Crops	Upland Crops		Rubber & Fruits	
		Total	Center	Total	Total	Maize	Total	Rubber
1950	39.3	34.6	16.7	4.7	2.6	--	2.1+a	2.1
1954	40.6	34.7	17.1	5.9	3.4	0.3	2.5+a	2.5
1960	48.5	37.0	17.0	11.5	7.8	1.8	3.7	3.0
1961	51.5	38.6	17.6	12.9	8.2	1.9	4.0	3.1
1962	54.3	41.6	18.1	12.7	7.6	2.1	4.1	3.1
1963	56.1	41.3	18.5	14.8	9.4	2.6	4.4	3.3
1964	56.7	40.9	19.5	15.9	11.5	3.5	4.4	3.3
1965	58.3	40.5	19.4	17.8	14.2	3.6	4.8	3.3
1966	68.1	46.1	20.4	21.9	17.8	4.1	6.2	4.6
1967	63.5	40.1	*13.5 (19.9)	23.4	17.1	4.6	6.3	4.6
1968		1/ 44.3	*12.1 1/ (19.1)	+	17.0	4.8	+	+
1969		1/ 47.4	*13.4 1/ (20.5)	+	18.3	5.3	+	+
1970	73.1	1/ 46.1	*12.7 1/ (21.0)	27.0	19.5	6.5	7.5	5.2

Source: All figures prior to 1968 are coming from Agricultural Statistics of Thailand 1967.

1/   Quarterly Bulletin of Statistics, National Statistics Office.

*   From 1967 on, North Region took over 9 upper Nemam provinces formerly included in Central Region in the Statistics, totaling now 16 provinces. Prior to 1966, Northern Region consisting 7 provinces shared about 2.7 mil. rai 2.7 mil. rai in 1964, 65, and 66 respectively. In consideration of statistical continuity, Adjustment is made to get bracketed figures.

No. 3 - 8 Projection of Thailand Agriculture in 1976

(unit million)

	1960	1970	changes	1976	changes
I. Agriculture Labour Force in employment	10. 34	14. 09	3. 75	16. 1	2. 0
II. Total Planted Area	48. 5	73. 1	24. 6	86. 5	13. 4
1. Rice	37. 0	46. 1	9. 1	50. 7	4. 6
1-1 Central	17. 0	21. 0	4. 0		
2. Other Crops total	11. 5	27. 0	15. 5	35. 8	8. 8
2-1 Upland Crops total	7. 8	19. 5	11. 7	26. 2	6. 7
2-2 Maize	1. 8	6. 5	4. 7	9. 1	2. 6
2-3 Rubber and Fruit total	3. 7	7. 5	3. 7	9. 6	2. 1
2-4 Rubber	3. 0	5. 2	2. 2		

Chart 3 - 3   Historical Record and Projection of Farming Area (Planted Area Basis)
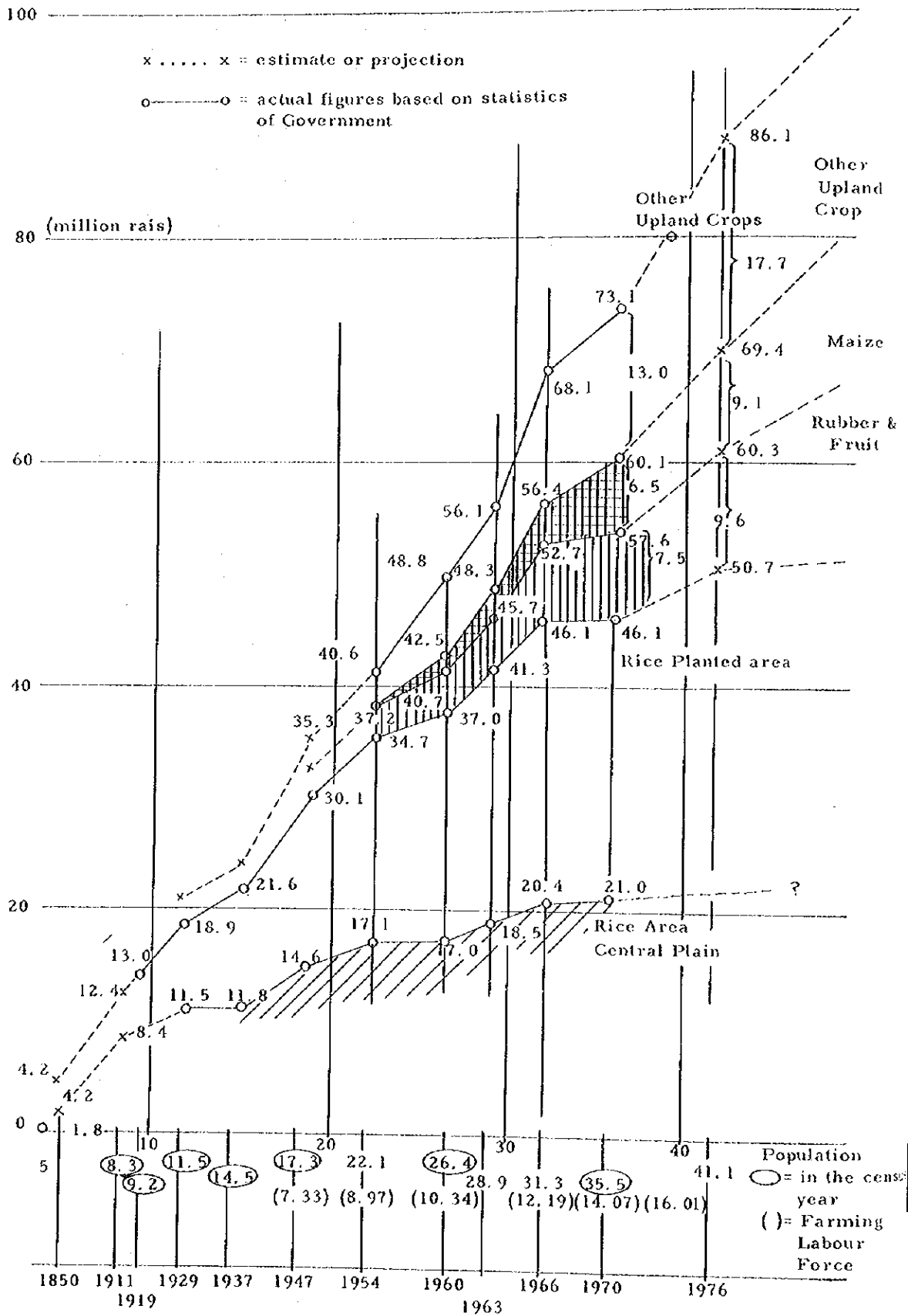
Chart 3 - 4　　Projection of Upland Crops Area
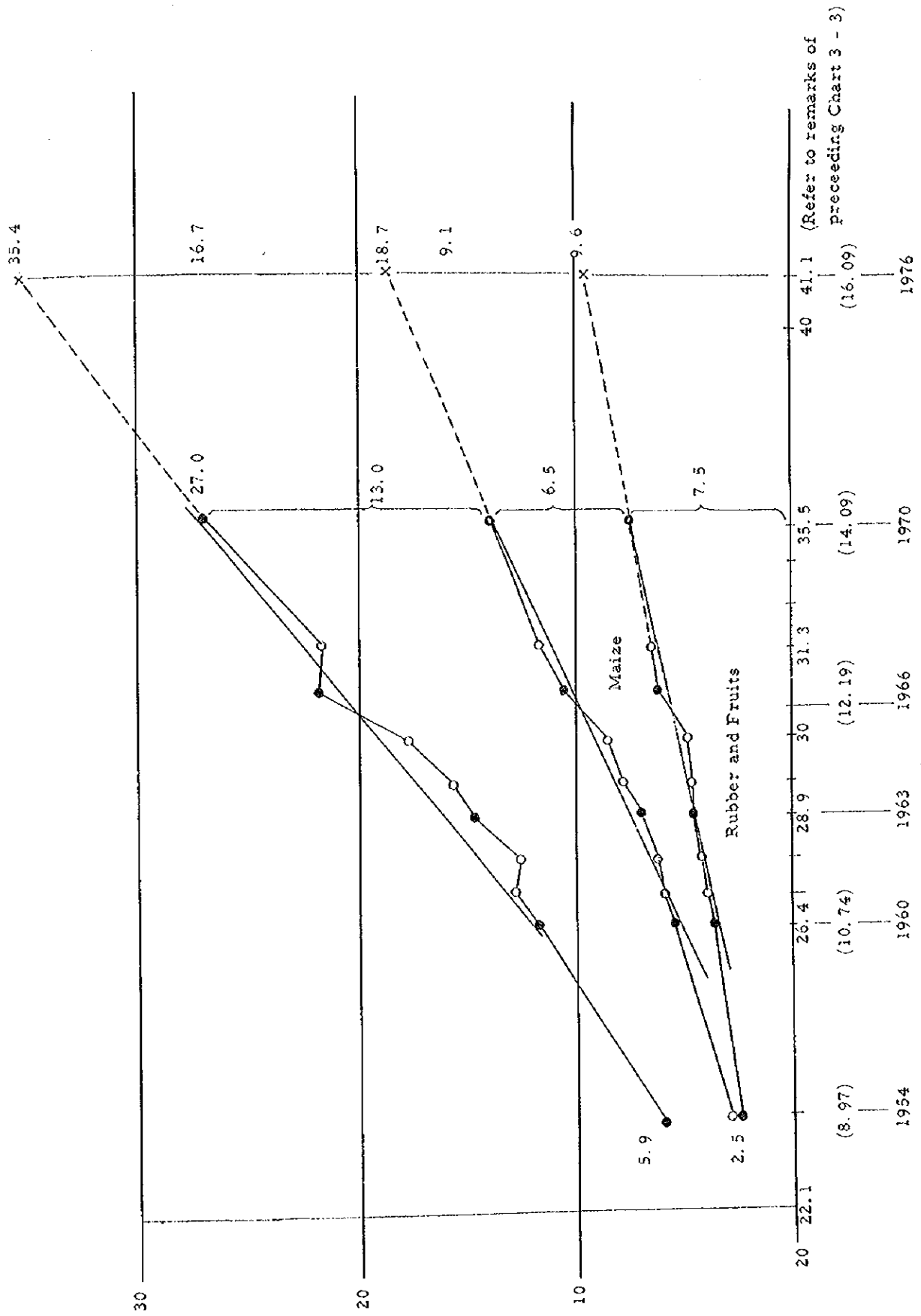
EXPORT OF THAILAND

NOVEMBER 1972

CONTENTS

CONTENTS OF TABLES AND CHARTS 115

SUMMARY

I   The general world trade pattern shows that about 70 % of exports from less-developed-countries are now going to developed-countries and about 74 % of export from less developed countries is anticipated to go to developed countries around the middle of 1970's. Thailand, however, exports about 50 % of her products to developed countries.

II   From 1971, Thailand started to emphasize exports of "manufactured goods". However, her exports are still mainly agricultural and/or its processed goods. As to Japan imports of 3.4 billion dollars worth of major selected agricultural products out of 30.8 billion dollar world trade, Thailand provides only 119 million dollars. Japan is one of the biggest importers of oil seeds, cake/meal and sugar. Thailand has a negligible share in trade of these products to Japan.

III   Traditional export items of Thailand are rice, rubber, tin and teak. These four items occupied more than 80 % of her exports in early 1950's. When export percentage of these four items went down to 75 % around the end of 1950's, three new agricultural products emerged in her export list, tapioka, jute and kenaf and especially maize. Around the end of the 1960's, exports of the traditional four items plus the three new agricultural products as a percentage of total exports reached 75 %. Other products in Thailand's exports are now showing sharp upward tendency. However, it is now very difficult to find out outstanding export items like the above-mentioned new agricultural products which emerged in the 1960's.

IV   During the ten years of the 1960's, Thailand experienced 6, 158 million Bahts export growth from 8, 614 million Bahts to 14, 722 million Bahts. The traditional four export items contributed 7. 8 % to this export growth. The three new agricultural products and other remaining items shared 44. 3 % and 52. 1 % of the export growth respectively.

Ten major developed countries shared 74. 7 % of the export growth during this period. The biggest contributer is Japan, with 36. 5 %, followed by the Netherlands, 18. 1 %, the U. S. , 12. 7 %, seven South East Asian countries, 13. 2 %, and other countries 11. 5 %.

Statistically speaking, it is complicated to trace general tendency of both export volume and unit export price in rice exports, and nothing will be said on the subject here.

Maize export grew at the rate of 17 % per annum before export reached the level of 500 thousand tons and 8. 5 per annum up to one million tons export. Maize export is now growing 4 % per year under normal weather conditions.

After foreign investment of about 10 million dollars 1965, textiles began to be exported. Export of textile is now growing in line with the accumulation of capital.

I General Trade Pattern of World

1. 1 General Pattern of World Trade

According to a recent report of GATT, less developed countries are now exporting more than 70 % of their exports to developed countries, as shown in the table on the next page. Less developed countries exported 70 % of their products to developed countries in 1960 and 73 % in 1967. Such change is, conceivably, a result of the growing buying capacity of developed countries supported by a higher economic growth rate than less developed countries in these years.

It is generally accepted by the authorities concerned that the trend for less developed countries to export a larger percent of their total exports to developed countries will be further accelerated in the coming future. The export to developed countries from less developed countries is estimated at 74 % against total exports from less developed countries around the middle of the 1970's. World trade value is anticipated to reach more than 400 billion dollars. (No. 1 - 1)

World Trade in the Past

I Flow of World Trade (as percentage of whole trade)

From \ To		D. C. %	L. D. C. %	C. P. C. %	Total %	bil. $
D. C.	1960	42.3	16.4	2.2	63.7	(81.5)
	1969	50.7	13.1	2.6	68.6	(186.5)
L. D. C.	1960	15.0	4.9	1.0	21.5	(27.5)
	1969	13.0	3.6	0.9	17.9	(48.5)
C. P. C.	1960	2.2	1.0	8.5	11.7	(15.0)
	1969	2.5	1.6	6.7	10.8	(29.4)
Total	1960	61.8	22.8	11.8	100.0	(128.0)
	1969	68.2	18.8	10.2	100.0	(272.3)

Source: Report of GATT

Remarks: D. C. = Developed countries
L. D. C. = Less developed countries
C. P. C. = Centrally planned countries

II Ratio of Export to D. C. from average L. D. C. against Total Export

1960	=	70 %
1969	=	73 %
1975	=	74 %

(estimated)

Remark: 1975 estimate = refer to the table No. 1 - 1 in the section of statistical data.

1.2   Trade Pattern of Thailand

Exports of Thailand show us a slightly different pattern as compared to exports from less developed countries on the average. Thailand has, for a long time, been sending and is continuing to send large quantities of her traditional export item, rice to neighbouring Southeast Asiatic countries. Exports from Thailand to developed countries as a percentage of her total exports is accordingly lower than the average. However, this percentage, 45 % in the former part of 1960's, grew to 57 % in 1970.

How this percentage has developed in recent years can be understood in the table on the next page.

Economic development and expansion of trade has proceeded faster in developed countries in the past and the trend is expected to continue. Thailand must therefore, make efforts to export more to developed countries, which have more importing or purchasing power than developing countries. Thailand's export ratio to developed countries against her total export increased to 57 % in 1970, but it is, still lower than the average figure for less developed countries. How much this figure can be increased is a key point for the success of Thailand's efforts to boost exports in the coming years.

Change of Thai Trade Pattern
(Classified by Country)

	1960 (%)	1965 (%)	1970 (%)	1971 (%)
1. Ratio of Export to Developed countries against Total Export C/A	45.3	44.0	57.8	56.8
2. Ratio of Export to S.E. Asia against Total Export D/A	43.5	39.1	30.9	25.8
3. Ratio of Export to others against Total Export E/A	11.2	16.9	11.3	17.4
4. Share of Export to Japan from Thailand				
a. Ratio against Export to D. C.	39.2	41.4	44.2	45.5
b. Ratio against Total Export	17.7	18.2	25.5	24.8

Refer to Tables No. 4 - 2 and 4 - 3 in detail in the statistical section.

Remarks: A = Total Export of the year
C = Ten Developed countries
D = Specified South East Asian countries
(refer to remarks of Table No. 4 - 2)
E = Other Unspecified countries

2.1   Preparatory Note

From 1971, Thailand started to emphasize the export of "manufactured goods". Some of the export items listed as so-called "manufactured goods" of Thailand, could be classified as "agricultural processed goods", including sugar, coir, oil and oil cakes etc., These export items which could be defined as "agricultural processed goods" or "agro-industry goods" account for about a half of all exports of the so-called "manufactured goods" of Thailand. (Refer to attached data pp. 136 - 137)   About 75 % of Thailand's exports are still agricultural and agricultural processed products in 1971.

2.2   Selected Agricultural Products Trade in the World

According to the report of F. A. O. as shown in the next page, major selected agricultural products amounting to 30.8 billion dollars were traded in 1970. Most of the wheat, coarse grain, oil and oil cake, meat and wool were exported from developed countries, with less developed countries exporting sugar, coffee, cotton and rubber. (Refer to the table in the next page.)

Almost half of the agricultural products in 1970 were exported from developed countries and half from less developed countries.

Trade in agricultural products has increased 3 % per annum in the past decade with the trade in agricultural products of developed countries increasing 4 % each year and that of less developed countries, 2 %.

Growth rate per annum of individual agricultural commodity in the trade is different. Some of them are traded in expansion, indicating higher growth rate than the average, and others are exported in less growth rate than the average. The growth rate of exports of coarse grain, oil and oil cake, meats, cocoa beans etc. , was higher

Growth Rate of Export of Major Agricultural Products

	Estimated Value, 1970			Change 1969-70 1/			Averaged change per annum 1962-1969 1/		
	L.D.C. mil. $	D.C. mil. $	World 2/ mil. $	L.D.C. %	D.C. %	World 2/ %	L.D.C. %	D.C. %	World 2/ %
Basic Food and Feed									
Wheat & its flour	133	2,845	2,978 3/	-32	+19	+15 3/	+3	+1	* 3/
Coarse Grain	734	2,026	2,760 3/	+56	+28	+34 3/	+8	+5	+6 3/
Rice	368	455	917	-13	*	- 8	-1	+13	+5
Oil 4/	1,175	2,029	3,578	+16	+62	+37	-	+3	+3
Oil Seeds Cake and meal 5/	861	1,713	2,648	+26	+37	+31	+5	+12	+9
Beef & Veal	455	1,147	1,677 6/	+3	+15	+11	+11	+10	+11
Lam & Mutton	24	306	366 6/	+14	+3	+4	+8	+7	+8
Pork	11	438	468 6/	+9	+10	+10	+10	+16	+14
Canned Meat	161	449	700 6/	-2	+7	+5	+4	+7	+6
Sugar	1,838	479	2,525	+18	+31	+20	+1	+1	
Tropical Crops									
Banana	461	78	539	+1	+1	+1	+4	+14	+5
Coffee	2,918	*	2,918	+24	*	+24	+4	*	+4
Coca a bean & its products	990	*	990	+8	*	+8	+10	*	+10
Tea	532	1	533	+17	*	+17	-2	*	-2
Agricultural Material Products									
Cotton	1,734	442	2,577	+15	+31	+18	+2	-11	*
Wool	176	1,099	1,336	-6	-18	-16	-6	-1	-2
Jute & Kenaf	150	*	150	-28	*	-28	*	*	*
Hard Fibre	88	*	88	+2	*	+2	-10	*	-10
Rubber	1,059	*	1,059	-12	*	-12	+2	*	+2
Hide	172	493	674	-16	-14	-15	*	+6	+4
World Total	14,070	15,188	30,814	+12	+20	+15	+2	+4	+3

* = negligible
Remarks to this page refer to next page.

Remarks to the table page 12.

1/   change of percentage is round number.

2/   centrally planned countries included.

3/   centrally planned countries excluded.

4/   butter excluded and also excluding estimated value of the cake and meal contained in oil bearing seed. export; oil bearing seeds included.

5/   estimated value of cake and meal contained in oil bearing seed exports included.

6/   U. S. S. R. and Asian centrally planned countries are excluded.

L. D. C.   =   less developed countries

D. C.   =   Developed countries; Western Europe, North America, Australia, New Zealland, Japan, Israel and South Africa are included.

than the average, and exports of hard fibre, etc., decreased each year.

Special attention should be made to the growth rate of trade in agricultural material products. With the exception of hides, the growth rates of all commodities in this category are decreasing relative to the 3% average annual growth rate of agricultural commodities as a whole during last decade.

Fibre material products from both animals and plants show signs of standstill or a sharp downward tendency. The downward tendency of exports of hard fibres was praticularly unexpected.

2.3 **Trade in Selected Agricultural Products between Thailand and Japan**

Table on the next page shows that Japan imported 3.4 billion dollars of products specified in the table in 1970, or about 11 % of the 30.8 billion dollars worth of agricultural products traded in the world in that year. In recent years, Japan has become the world's biggest buyer of agricultural products.

In 1970, Thailand's exports of 119.7 million dollars of the listed agricultural products to Japan accounted for only 3.5 % of Japanese imports of these commodities.

Items of Japanese import of more than 300 million dollars, coarse grain, oil and cake/meal, cotton, wool, sugar and wheat & flour, occupied almost four-fifths of total Japanese import of the selected items in Table on the next page.

Thailand, does not export a substantial amount of these commodities to Japan.

Table 2 - 2   Selected Major Agricultural Products Trade

	Estimated World 1/ Trade Value 1970 (mil. Dollar)	Japanese Import 1972 2/ (mil. Dollar)	
		Total	From Thailand
Basic Food & Feed			
1. Wheat and flour	2,978	318	--
2. Coarse Grain	2,760	701	38.5
3. Rice	917	2.5	2.1
4. Oil and Cake/Meals	6,226	593	9.4
5. Beaf and Veal	1,677	24	-
6. Lam and Mutton	336	50	-
7. Pork	468	21	--
8. Canned Meat	700	1	-
9. Sugar	2,525	339	2.9
Tropical Crops			
10. Banana	539	144	--
11. Coffee	2,918	79	--
12. Cocaa bean & its products	990	46	--
13. Tea	533	17	-
Material Products			
14. Cotton	2,577	470	-
15. Wool	1,336	350	-
16. Jute and Kenaf	150	10	9.7
17. Hard fibre	88	*	0.2
18. Rubber	1,059	129	56.4
19. Hide and Skins	674	120	0.5
Total	30,814	3,414	119.7

Source   = 1/ FAO, 2/ Custom Statistics of Japan
Remarks   = * negligible
              - nil

2.4 Anticipated Trade of Agricultural Products between Thailand and Japan

Japan is now the biggest importer of agricultural products in the world. And in Thailand, about 80 % of the labour force is now engaged in agriculture, ever if some labor is diverted into other industries in the future. Thailand will still be an agricultural country in the near future. It should thus be possible to develop trade in agricultural products between two countries, by supplementing the demand of Japan and increasing the supplying capacity of Thailand. (Refer to table on the next page.)

Means of possible adjustment can be foreseen in the tables of the proceeding and next pages. Thailand could supply oil cake/meal and sugar if she improves productivity of these goods to cope with other competitors and promotes her exports through proper trade channels.

Japanese Import 1970 (million U. S. dollars)

	Total Import I	From Thailand II	Thailand Share in Total Import (II / I) %
(A) Selected Major Agri- cultural products listed in the table of p. 95 1/	3,414	119.7	3.5
(B) All Agricultural 2/ products 3/	4,198	140.0	3.3
(C) Fisheries products	318	14.3	4.5
(D) Forestry products	1,732	3.0	0.2
(E) Products of Agr., 2/ Fisheries and Forestry	6,248	158.0	2.5
(F) Import Total 2/	18,881	187.0	1.0

Source   = =   Custom Statistics of Japan

Remarks =   1/ refer to table of p. 95.
            2/ round numbers
            3/ Difference between A and B includes Beans,
               Molacess, other fruits than Banana and so.

	Total Import of Japan %	Import from Thai- land to Japan %
A/F	18.1	64.0
B/F	22.2	74.9
C/F	1.7	7.6
D/F	9.2	1.6
E/F	33.1	84.5

III   Development of Export of Thailand

3.1   Four Traditional Export Items and New Agricultural Export
Products

The purpose of this chapter is to study general tendencies in the development of Thailand's exports as a means of forecasting and providing for the future.

Traditionally more than 80 % of the exports of Thailand have been rice, rubber, tin and teak before she started to diversify her agriculture around mid-1950s. Rice has been and continues to be the leading export item among these four items. However, the export of rice as a percentage of total exports from Thailand has been declining recently. (No. 5 - 1, 1/xt) (No. 3 - 1)   Declining percentage of rice export means the appearance of new export items in substantial quantity.

In the 1950s, more than eighty percent (80 %) of the exports of Thailand were in the four traditional export items. This percentage declined to 75 % towards the end of '50's when three agricultural products began to be exported in substantial quantities. (No. 3-1)

In the 1960's, the export of the these newly introduced agricultural products, maize, tapioka and kenaf increased remarkably in response to increased overseas demand. The total exports of the three new agricultural products and the four traditional items attained the level of 80 % of total exports. Then, this percentage decreased 75 % towards the end of the period as other new products were introduced.

3.2   75 % is conceivably a significant figure in Thailand export

Four major traditional export items had, for a long time, continuously shared more than 80 % of total exports of Thailand.

The percentage occupied by the four traditional major products went down to 75 %, when the three new agricultural products emerged on her export list. (No. 3-1)

Export of the three new agricultural products plus the four tra-
ditional export items shared more than 80 % of total exports of Thailand
from 1957 through 1967. The percentage declined to the point of
seventy-five percent (75 %) in 1968, and then sharply went down, from
72. 6 % in 1969 to 69. 9 % in 1970 and to 63. 2% in 1971.   (No. 3 - 1)

As the export of seven major export items from Thailand has
declined under seventy-five (75) percentage of total export of the country,
various kinds of commodities have emerged as export items.   Export
items as outstanding as the three new agricultural products which developed
in the 1960's are not apparent.

In general, many kinds of export items have increased in volume,
and t a few predominant items are not playing such a significant role
in the exports of the country as did the three new agricultural products
in the 1960's.   (No. 3-2, No. 3-3, and No. 3-4)

3. 3   Outlook for Future Exports

(i)   Traditional four export items have declined somewhat since
1965 (No. 3-2), and the new agricultural products, with exception
of maize, are not showing as promising expansion after 1965.
There was a sharp drop in exports of jute and kenaf from 1967.
(No. 3-3) Jute and kenaf is under category of hard fiber, world
trade of which declined substancially in the past ten years.

On the page 101 you will see "trees" with new "sprouts" and
"twigs" which should develop into major export items for Thailand.

When the new products for export become more developed,
Thailand must cope with many other competitors, including U. S. ,
Australia and other agriculturally developed areas, because these
items would be expected to come mostly from upland crops.

(ii)   Recently Thailand has started to promote the export of "manu-
factured goods" about fifty percent of which could be termed

agricultural processed goods and materials thereof come mostly from upland crops. Upland crops may be processed increasingly in the future. (No. 3-4) One can realize the importance of Thailand's upland crops in the future.

Tree of Thai Export

Teak
2.8
Rubber
Tin
0.8(others)
Rice
3.5
1950

Rubber
Teak
5.6
Tin
1.5(others)
Rice
7.1
1955

Rubber
Teak
5.8
Tin
Rice
New Agr. Products.
(1.0)
Others
(1.5)
1960

Rubber
Tin
Teak
7.7
Maize
Jute & Kenaf
New Agr. Products
2.7
Others
2.6
Rice
1965

Rubber
Maize
New Agr. products
3.8
Tin
Jute &
Teak
Kenaf
Tapioka
Other classified
6.5
Agr. products
1.9
Rice
Others
2.5
1970
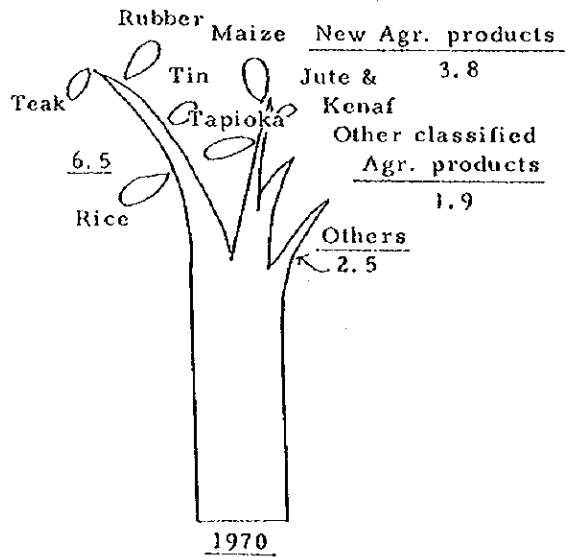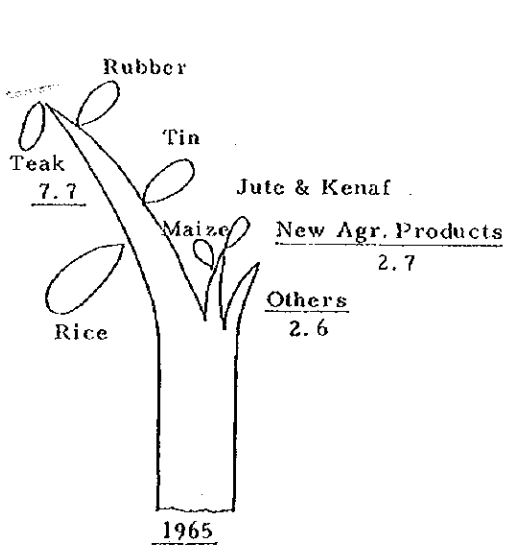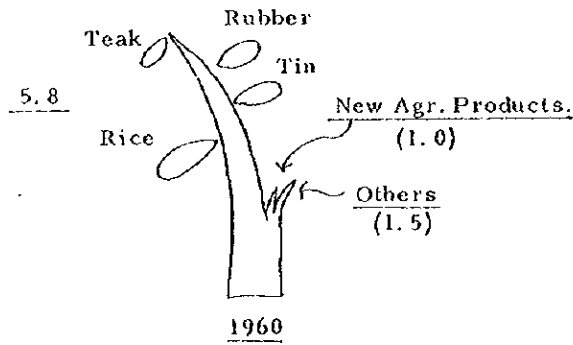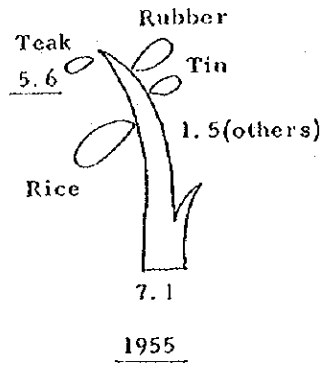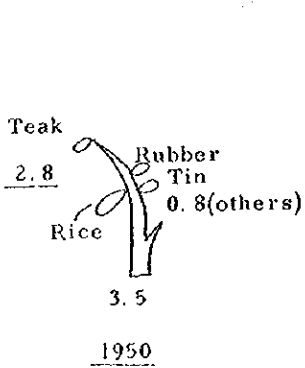
(Sizes of trees are proportioned with actual exports' values of the years.)

- 101 -

IV   Future Analysis of Thailand's Exports

4. 1   Contribution Share of Commodities to Export Growth of Thailand

(a)   Export from Thailand increased by 4,327 million Bahts during the period from 1960 through 1965. The four traditional major export items (rice, rubber, tin and teak) contributed 36. 0 % to the said export growth. The three new agricultural export items contributed 38. 8 %, and the seven export items including both traditional and new agricultural items contributed 75 % of the growth of total exports during the period. (No. 4-1)

(b)   The situation changed substantially in the latter part of the 1960's. Export from Thailand increased by 1,831 million Bahts during the period from 1965 to 1970. The exports of four traditional items decreased by 1,078 million Bahts, and then the contribution share of the traditional export items of the country was minus 58. 9 % (- 58. 9 %) to the export growth of the country. New agricultural products, on the contrary, contributed 57. 5 % to export growth. The growth of the latter has been just off set by the decline of the former. Export growth of other items than seven major export products during the period from 1965 through 1970 amounted to 1,857 million Bahts. These items other than seven items contributed greatly to export growth in this period. (No. 4-1)

(c)   When we look on changes in the trade pattern of commodities in the past decade,

        (i)   The export contribution share of the four traditional items
        in the export growth of the country is only 7. 8 %. With the
        exception of tin , every item declined in export value. (No. 4-1)

        (ii)   The three new agricultural products contributed 44. 3 % and

        (iii) other miscellaneous export goods contributed 52. 1 % of the
        total export growth of 6, 158 million Bahts. (No. 4 - 1)

(d) Various kinds of export items other than the seven major items are predicted to contribute more to the export growth of the country in the future. Thailand will have to cope with other competitors in order to find a market for such goods.

4.2 Contribution Share of Countries to Export Growth of Thailand

(a) In the early part of the 1960's from 1960 through 1965, Thailand's exports increased by 4,312 million Bahts, and developed countries contributed 41.6 % to the total export growth, buying goods worth 1,793 million Bahts more from Thailand in 1965 as compared with 1960. South East Asian countries contributed 3.5% and other countries 27.9%. (No. 4 - 3)

Countries whose purchases in this period accounted for large percentages of Thailand's export growth were India (19.8 %) and Japan (19.2 %). Countries with a minus contribution share included the U.S., Singapore, and Indonesia.

India shared two thirds (2/3) of the contribution of South East Asian countries, and Japan had 41.6% of the contribution share of developed countries'.

(b) From 1965 through 1970, the situation changed tremendously. Thailand 's exports increased by 1,830 million Bahts during the period. South Asian countries and unclassified countries had a minus contribution share, cutting down their imports from Thailand by about 500 million Bahts or -27 % respectively. Developed countries had a contribution share of 154.8 % against total export growth, buying Thai products worth 2,835 million Bahts more. (No. 4 - 3)

Malaysia and India decreased their import from Thailand by a surprisingly large amount during this period.

Of the developed countries, the U.K., W. Germany and France became minus contribution-share-countries in these five years.

Big contribution-share-countries in the period were Japan, the U.S., the Netherlands and Taiwan. Japan had also about a half of

percentage of developed countries' contribution share, occupying 77 % of 155 %.

(c) From 1960 through 1970, developed countries contributed 75 % of total export growth, or 6,143 million Bahts of Thailand. Japan's share was 37 %. South East Asian countries and other countries shared about a half of remaining 25 %, respectively. (No. 4-3)

(d) This trade pattern from 1960 through 1970 may be expected to continue in the future, and it is suggested that Thailand would produce products answering the demand in developed countries and reinforce the productivity of such products to cope with competitors.

4.3 Case Study on Specified Export Commodity

(a) Rice

According to statistical data from 1955 to 1971, (No. 4-4) equations of both export value and export quantity are set up as described in the following I and II.

I   Rice Export Value

Formula

$P = a + bt$ P = Total Export Value
                t = Numbers of years (1955-1971)

$P = 3,412 + 22.74t$
   ($R^2 = 0.0384$)

II   Rice Export Quantity

Formula

$Q = a + bt$ Q = Total Export Quantity
                t = Numbers of years (1955-1971)

$Q = 1,374 + 2,215t$
   ($R^2 = 0.0088$)

III   Rate of Change

Formula

$$\sum_{1} \frac{Xm - Xn}{\frac{1}{n} Xi}$$

Xm = Maximum number in the Period
Xn = Minimum number in the Period
Xi = Actual number in the year throughout the Period
n = Numbers of the years through the Period (1955 - 1971)

1. Unit Value

$$\frac{3,535(68) - 1,747(71)}{2,501} = 0.7125$$

2. Export Value

$$\frac{4,653(67) - 2,516(70)}{3,412} = 0.6263$$

3. Quantity

$$\frac{1,896(64) - 1,023(69)}{1,374} = 0.6541$$

Correlation coefficients (R^2) in both equations are not good enough to trace the past or future movements in the value or quantity of this item.

The rate of change of the "unit export price" is too high. The arithmetically averaged export unit price in the past is 2,501 Bahts per metric ton. Any other economical trend can not be found with regard to rice export trade both in the past and in the future.

Rice export is affected mainly by fluctuation in both domestic production and overseas demand. Rice trade business is supposed to have more affection of other unknown or unclear factors than economical factors, such as unit price and export volume, etc..

(b) Maize

With a rate of change of 29 %, the "unit export price" of maize is more stable than the rice export price as mentioned above.

According to equations as shown in the followings, set up by export records of maize in the past (Talbe No. 4-5), one can say important tendencies of maize export growth as follows;

I   Rate of Change

    Unit price

$$\frac{1,388 - 1,015}{1,158.3} = 0.291$$

II   Export Quantity

1.   1955 - 61

            $\log Y = 2.2293 + 0.1760t$

            $R = 0.9483$

2.   1959 - 65

            $\log Y = 2.7626 + 0.0851t$

            $R = 0.8593$

3.   1963 - 71

            $\log Y = 3.0751 + 0.0402t$

            $R = 0.7569$

            $Y = $ Annual Export Quantity

The quantity of exports increased.

(i)   by 17 % per annum   during the period from 1955 to 1969, to 500 thousand tons from almost none,

(ii)   by 8 % per annum   from 1959 to 1965, from 500 thousand tons to one million tons and

(iii)   by 4 % per annum   from 1963 to 1971, exports in 1964 amounted to over one million tons and continuously went up, with the exception of 1965.

(iv) If weather in 1972 is normal, over 2 million tons of maize should be exported in 1972-1973 maize trade season for the first time in the history of Thailand, according to the equation 3.

The growth rate in the export of maize will probably decline further after Thailand achieves 2 million tons of maize exports, as the growth rate has decreased from 17 %, and 8% to 4%. Under normal weather conditions, the quantity of exports will grow, even as the growth rate declines.

The tendency of maize exports from Thailand can be easily explained by semi-logarithmic chart on the next page.

(c)   Textile export as example of manufactured goods export promotion

To increase the quantity and improve the export of manufactured goods, the productive power of the manufacturing industry must be reinforced by new investment to provide new facilities.

Private investment has been steadily growing up in actual amount and its percentage of G. N. P. towards the end of 1960s.

	Investment in private sector (bil. B)	Growth ratio the previous year (%)	As % of G. N. P. (%)
1965	10. 5		12. 5
66	13. 6	28. 3	13. 5
67	16. 6	22. 0	15. 4
68	18. 5	11. 4	15. 9
69	21. 2	14. 6	16. 2

The relationship between the growth rate of private investment and the growth rate of manufacturing industry products as shown in the in the page 109, discloses how new investment is needed to produce more manufactured goods in Thailand.

Maize Export From Thailand

(Quantity unit = 1,000 t)

log Y = 2.7626 + 0.0851 t
R = 0.8593
(59 - 65)

log Y = 3.0751 + 0.0402 t
R = 0.7569
(63 - 71)

log Y = 2.2293 + 0.1760 t
R = 0.9483
(55 - 61)

Y = Export Quantity
t = Year
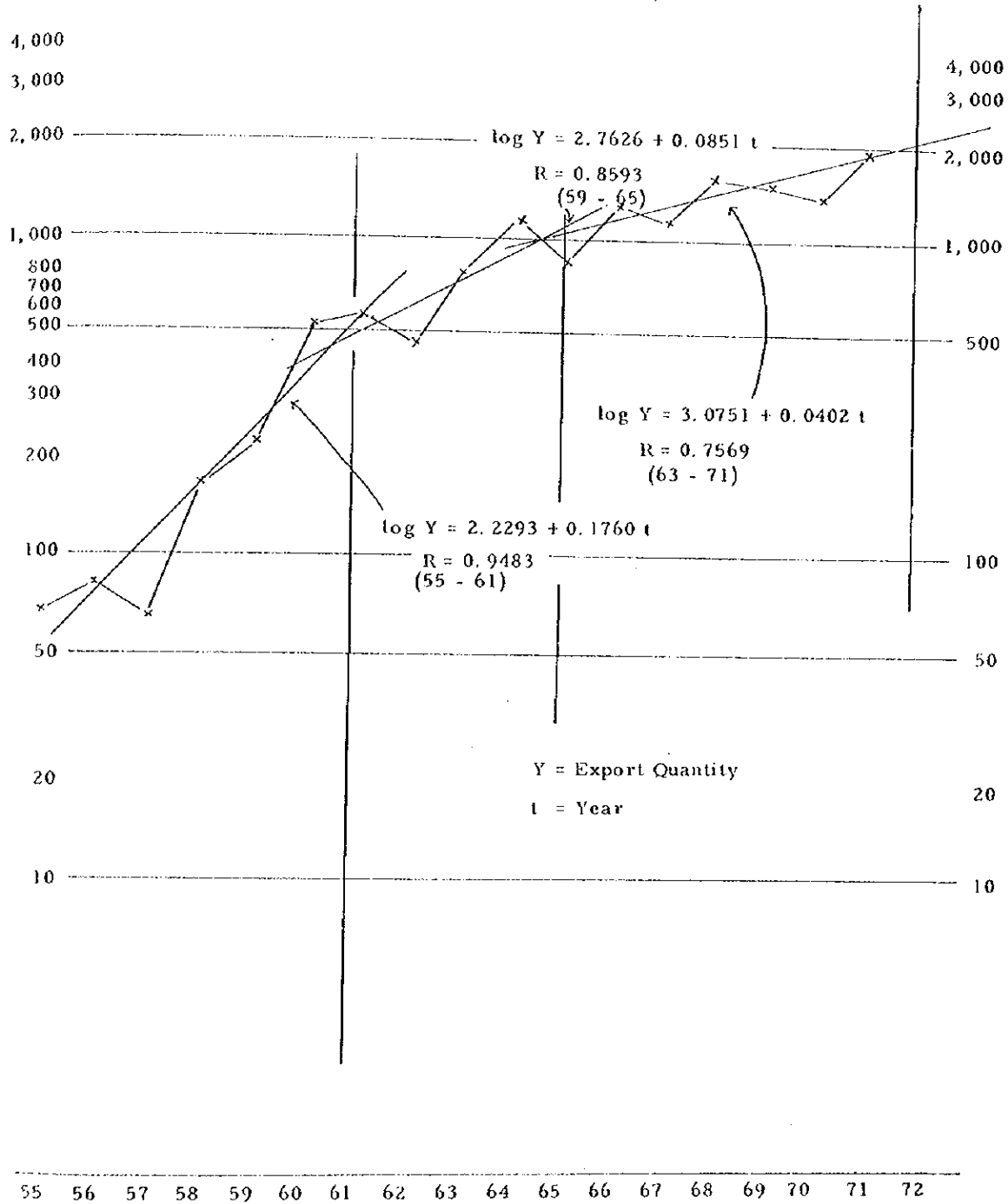
	Growth Rate of Private Investment %	Growth Rate of Manufactured Goods %
1966	28. 3	15. 8
67	22. 0	15. 8
68	11. 5	9. 3
69	14. 6	9. 1

Detailed data on the G. N. P. in 1970 and 1971 is not yet available. What will be the growth rate of industrial goods production when the growth rate of investment is not anticipated to be as large as in the preceeding years.

Investment by foreign concerns is, of course, included in these private investment.

To review the relationship of Japanese capital investment in Thailand textile industry and export of textile from Thailand overseas, Thailand experienced a sharp decline in the import - consumption ratio of textile and increased export of this item in these year, largely because of increased accumulation of Japanese capital investment in this industry of Thailand. These relationships can be clearly identified in the chart on the next page.

According to the 3rd economic and social development plan, private investment is expected average 6. 1 % growth throughout the period. Although the relationship of the growth rates in private investment and manufacturing industry products in the 1960's may not extend into the 1970s, one wonders whether, in the long term, the manufacturing industry, with less investment growth than in previous years, can supply enough manufactured goods. Investment means new potentiality for the production of manufactured products.

Chart of Japanese Investment
in Thailand Textile Industry
and Export of Textile from
Thailand

(Million $)

25

114

102

(Index number of
Import-Consumption
ratio; 1960=100)

26.18

120

110

100

90

100

92

90

22.38

78

68

80

70

20

68

56

60

50

44

40

16.39

15

Investment Accumulation
in Textile Industry

10

10.58

9.93

10.00

9.68

8.19

7.91

5.33

5.26

Export of Textile

5

1.88

2.03

1.90

0.02

0.23

0

1960   61   62   63   64   65   66   67   68   69   70
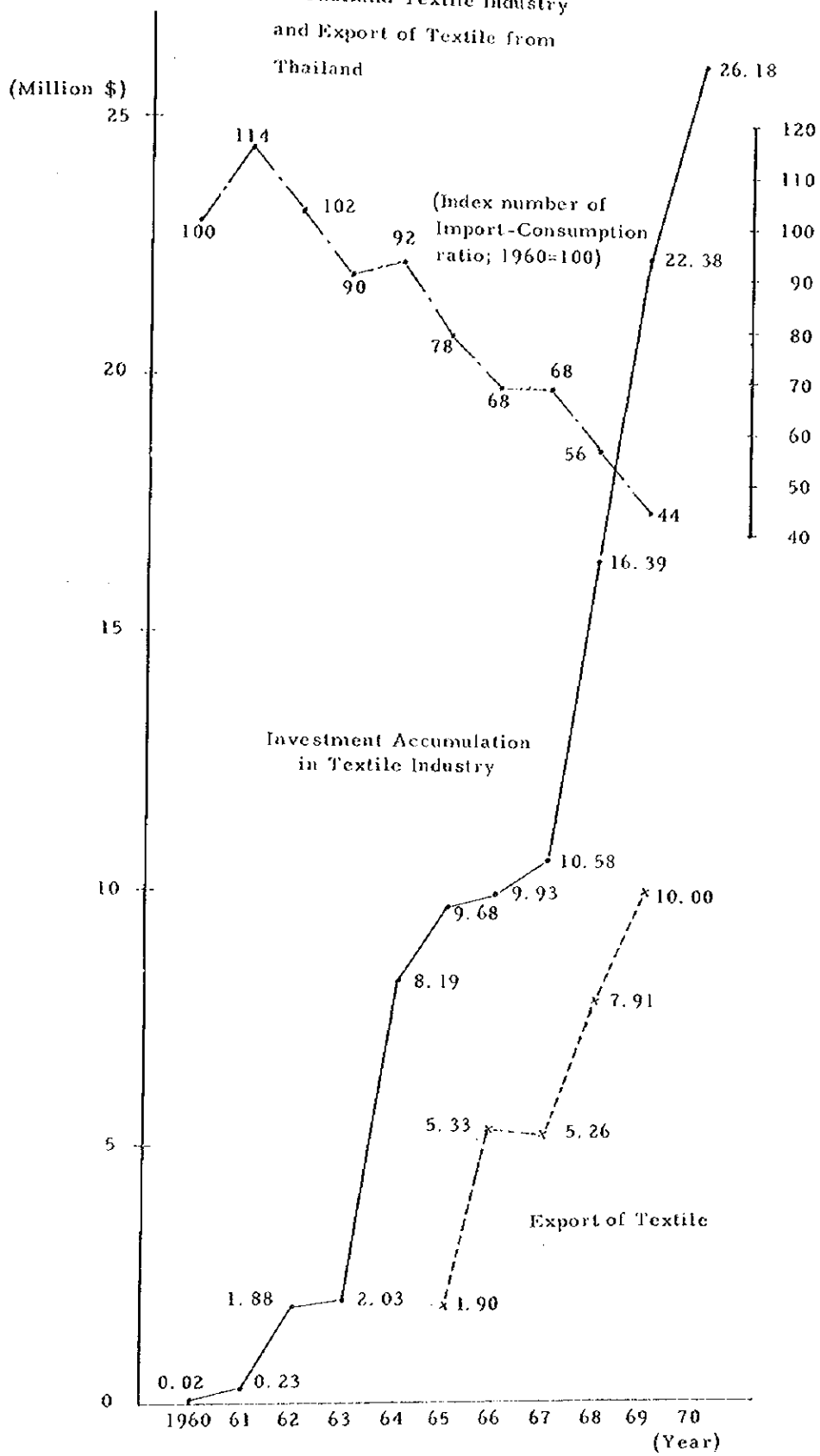
(Year)

The following equations show the relationship between invest-
ment accumulation and export of textile in Thailand.

(i)   X   = $-4,800.9 + 1,736.8 \log I$

                $(R^2 = 0.8384)$

(ii)   X   = $-79.2 + 0.498 \ I$

                $(R^2 = 0.814)$

      X   =   Export of textile in the year

      I   =   Investment accumulation in both equations
                 unit = 10,000 $

The former equation means:

(a) Exports cannot be made when the capital investment is under
5,810 thousand dollars.

(b) In order to make exports of 17,368 thousand dollars, ten
times the present amount of investment accumulation is needed.

The latter equation means:

(a) Export of textiles from Thailand would be a little under a
half of actual investment accumulation. In the early stages, a
small amount of investment will allow for exports, but, in matured
stages, it is important to accumulate more capital goods in order
to promote a substantial amount of textile exports. The chart
drawn according to two equations said above clarifies more the
relationships between capital accumulation and export of textile
from Thailand on the next page.

(b) In order to make another export of 17,368 thousand dollars,
amount of ten times investment accumulation thereof is needed.

Chart of Japanese Investment
in Thailand Textile Industry
and Export of Textile from
Thailand

4,847

I (Investment Accumu Accumulation)

(10,000 $)
4,000

3,500

3,000

2,500

2,000

1,500

1,000

(581.0)
500

(159.0)

$X = -4,800.9 + 1,736.8 \log I$
$(R^2 = 0.8384)$

3,371

$X = -79.2 + 0.498 I$
$(R^2 = 0.814)$

69 ×

×68

67
×
×
66

× 65

0   200   400   600   800   1,000   1,200   1,400   1,600

(10,000 $)

X (Export of Textile)
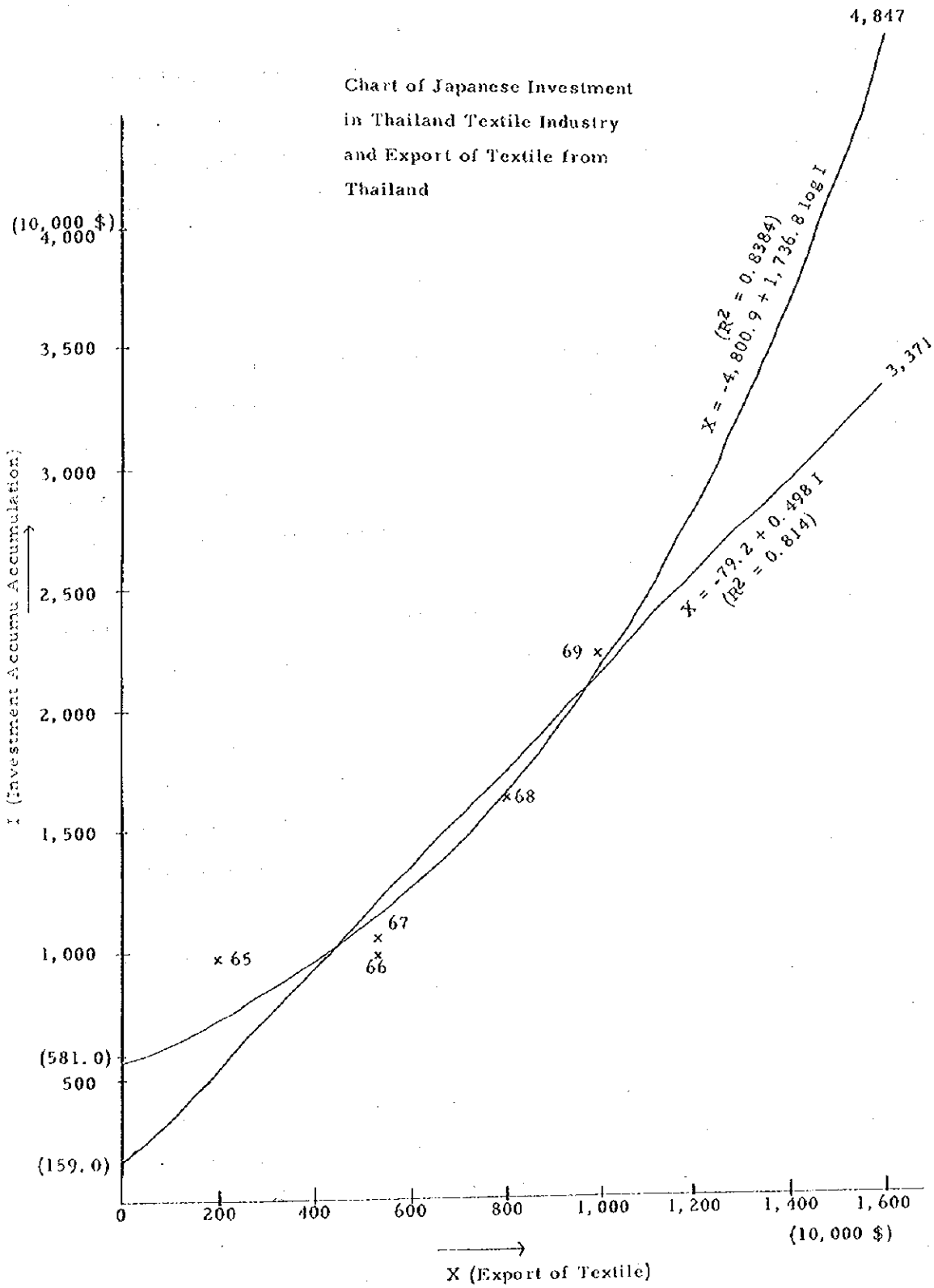
V   Observation

1.   In consideration of the present trade pattern of Thailand, a rela-
tive low percentage of export to developed countries in comparison
with the general trade pattern of less developed countries, emphasis
should be made upon exporting to developed countries. Especially,
every effort should be tried to export more to Japan, the U.S. and the
Netherlands, in that order, because of the large contribution share of
those countries in Thailand export growth in the past.

2.   So far as agricultural products are concerned, Japan is a vast
market for products including oil seeds and cake/meal and sugar.
Thailand and Japan must adjust the export flow of these commodities
from Thailand, and Thailand should increase its production, (Oil seeds
and cake/meal must compete with non-tropical agriculturally advanced
countries; meat products must be screened by quarantine regulation.
Sugar export is now ruled out under international agreement.) Otherwise,
difficulties may arise in the development of exports from Thailand in the
future.

3.   In order to export "manufactured goods", inducement to invest
in modernized and exportable industries is badly needed to keep overseas
customers as indicated in the textile industry analysis. Competition in
textile industry is usually very severe. Thailand should always look
ahead 3 or 5 years to improve her market development. The concept
of the so-called "free trade zone" is essentially necessary to export
"manufactured goods" in competition with other countries.

4.   Improvement of the productivity of upland crops, including oil
seeds, fibre crops and sugar is extremely helpful for the promotion of
exports of Thailand and provides materials for the manufacturing
industry. The improvement of upland crops productivity (including
livestock industry) will decide the destiny of the Thailand economy as

long as the country keeps a large percentage of its labour force in farming.

APPENDIX: Tables and Charts

No. 1 - 1   Estimate of World Trade around Mid-1970s

From \ To	D. C. %	Oceania %	L. D. C. %	C. P. C. %	Total %
D. C.	54. 36	2. 36	12. 25	2. 74	71. 71
Oceania 1/	1. 78	0. 13	0. 43	0. 07	2. 41
L. D. C.	11. 61	0. 43	2. 89	0. 87	15. 80
C. P. C.	2. 87	0. 02	1. 75	5. 44	10. 08
Total	70. 61	2. 94	17. 32	9. 12	100. 00 2/

Remarks: 1/   Oceania is specified from D. C.

2/   World Trade is estimated at over 400 bil. $.

No. 1 - 2   Change of Thai Trade Pattern

(Classified by Commodity)

	1960 (%)	1965 (%)	1970 (%)	1971 (%)
1. Ratio fo Traditional Export items (Rice, Rubber, Tin, Teak) against Total Export B/A	70. 1	58. 7	44. 2	37. 7
2. Ratio of New Agr. Products (Maize, Tapioca, Jute & Kenaf) against Total Export C/A	12. 4	21. 2	25. 7	25. 5
3. Ratio of Export of both Traditional Export Items and New Agr. Products against Total Export D/A	825.	79. 9	69. 9	63. 2
4. Ratio of other Export items against Total E/A	17. 5	20. 1	30. 1	36. 8

Refer to Table No. 5 Series.

As to A, B, C, D and E, see remarkes in Table No. 4 - 2, p. 124.

No. 3 - 1 Chart of Thai Trade Pattern (1)

Rice

29.8

Traditional
Export Item
(Ol/Xt)

40.5

64.9

35.9

38.5

34.7

New Agri.
Export Items
(On/Xt)

32.2

32.7

29.5

26.5

25.9

22.8

23.4

21.1

20.3

19.5

18.9 19.1   19.3

17.7

18.3

14.8

19.4 19.0 19.2

14.5

Other
Export Item (E/Xt)

13.4

12.8

10.0

9.6

8.4

6.2

Unclassified
Items (Ex/Xt)

%

1950 51 52 53 54 1955 56 57 58 59 1960 61 62 63 64 1965

⟶ Year

No. 3 - 1 Chart of Thai Trade Pattern (2)

Rice

No. 3 - 2 Change of Export Pattern of Thailand (Whole Export)

Ex Unclassified

E5 Mnf'tured Products

E3 Other Agr. & Pressed Goods

C New Agr. Export Items

B Traditional Four Items.

Maize

Rice

B Traditional Four Major Export Items

Rice, Rubber, Tin & Teak

C New Agricultural Export Items

Maize, Tapioka products & Jute & Kenaf

17

15

10

5

0

1950 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71

(excluding traditional item)

Billion of Bahts

Agr. & its Processed Goods

Manufactured Products

Unclassified Goods

6

4

3

2

1

50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71
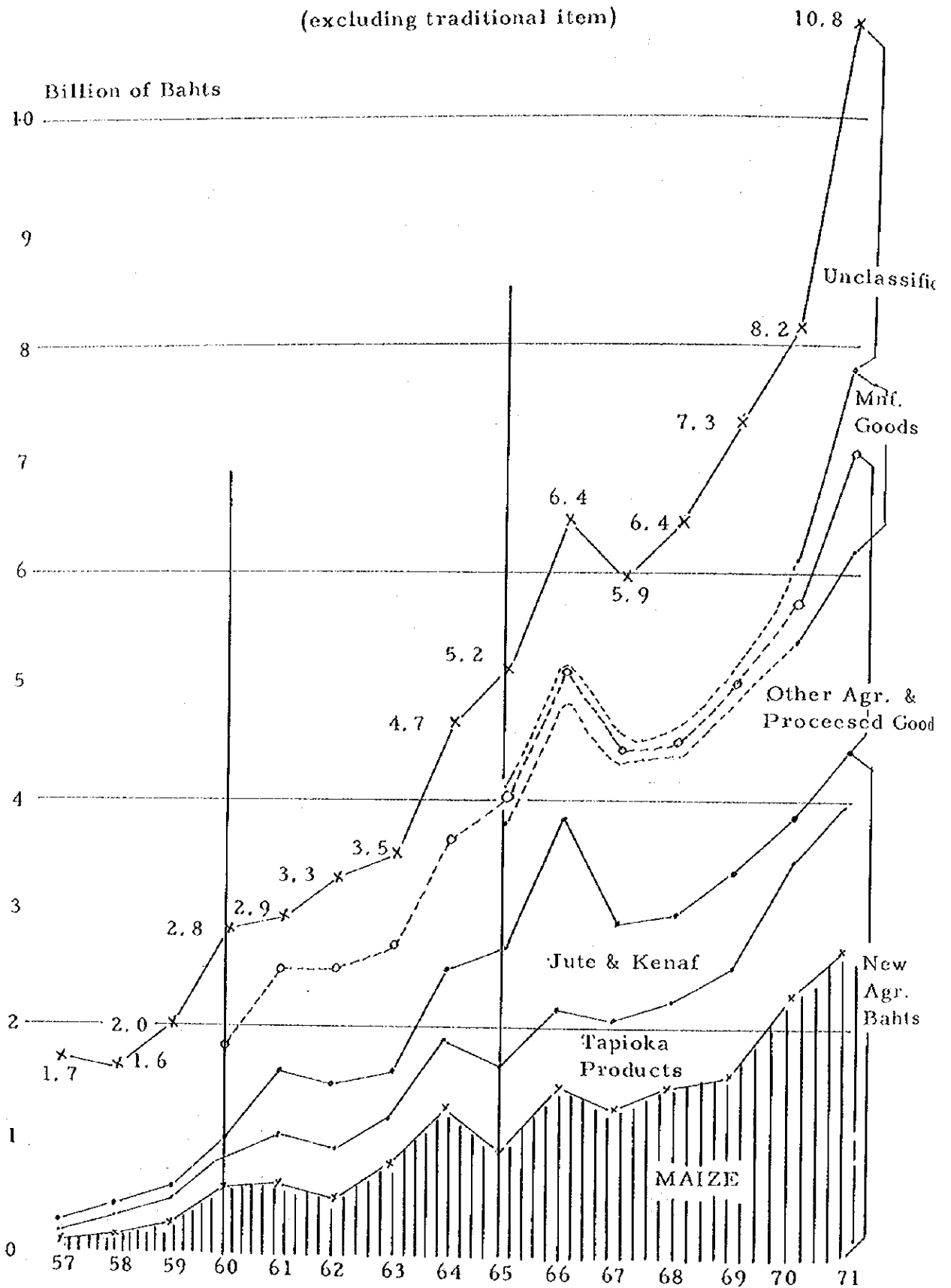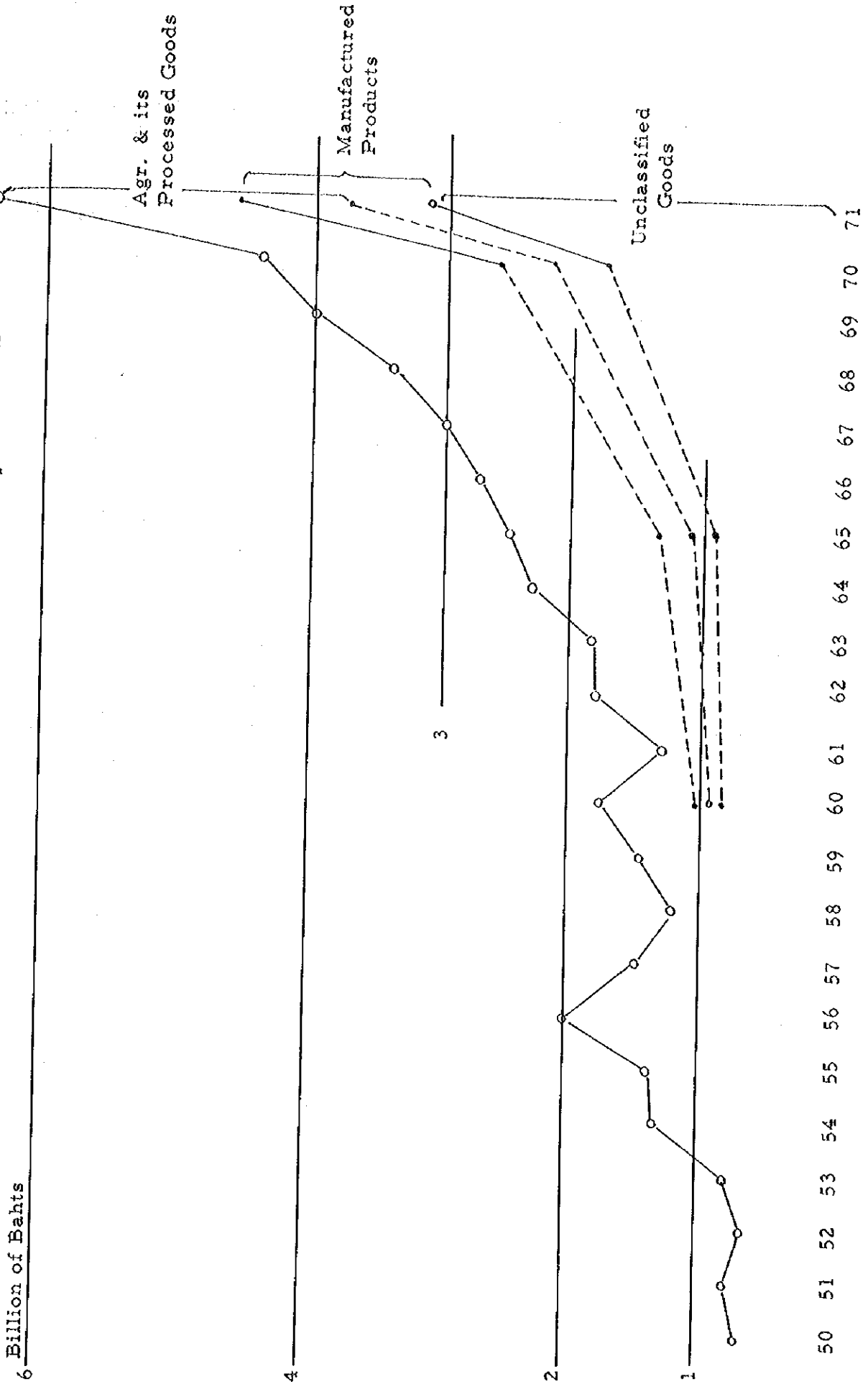
No. 4 - 1   Contribution Shares by Commodities to Export Growth of Thailand

(mil. Bahts)

| | | 1960 - 65 | | 1965 - 70 | | 1960 - 70 | |
		1/ change	%	1/ change	%	1/ change	%
A.	Total	4,327	100.0	1,831	100.0	6,158	100.0
B.	Traditional Four Items	1,558	36.0	-1,078	-58.9	480	7.8
	1. Rice	1,764	40.8	-1,818	-99.3	-54	-0.9
	2. Rubber	-580	-13.4	233	12.7	-347	-5.6
	3. Tin	529	12.2	552	30.2	1,081	17.6
	4. Teak	-155	-3.6	-45	-2.5	-200	-3.3
C.	New Major Export Items	1,678	38.8	1,052	57.5	2,730	44.3
	5. Maize	418	9.7	888	48.5	1,306	21.2
	6. Tapioka	388	9.0	547	29.9	935	15.2
	7. Jute & Kenaf	827	20.2	-383	-20.9	489	7.9
D.	Major Seven Items (B + C)	3,236	74.8	-26	-1.4	3,210	52.1
E.	Others	1,091	25.2	1,857	101.4	2,948	47.9

Remarks: 1/ changes are derived from table No. 5-3.

Export Values by Selected Countries

(Million of Baht)

		1960	1965	1970	1971
A.	Total	8,629	12,941	14,772	17,281
	1. U.K.	337	547	305	435
	2. U.S.	1,204	870	1,985	2,264
	3. France	15	194	146	157
	4. W. Germany	431	637	533	640
	5. Itary	32	250	288	220
	6. Netherlands	164	513	1,276	1,386
	7. Japan	1,530	2,359	3,770	4,277
B.	Sub-Total (1-7)	3,713	5,470	8,303	9,379
	8. Australia	25	20	76	161
	9. Belgium	33	110	106	206
	10. Denmark	134	98	48	77
C.	Sub-Total (1-10)	3,905	5,698	8,533	9,823
	11. H.K.	753	857	1,113	1,152
	12. Taiwan	71	80	720	498
	13. S'pore	966	779	1,018	1,225
	14. Malaysia	1,477	1,887	830	731
	15. Indonesia	350	261	342	248
	16. India	36	890	102	178
	17. Laos	98	291	434	421
D.	Sub-Total (11-17)	3,751	5,065	4,559	4,453
E.	Others (A=C-D)	973	2,178	1,680	3,005

Remarks: A. Total export in the year
B. Major industrialized seven countries
C. Developed ten countries
D. Specified South East Asian countries
E. Unspecified other countries

Source: Monthly Bulletin of Bank of Thailand

No. 4 - 3   Contribution Shares by Countries
to Export Growth of Thailand   (mil. Bahts)

		1965 - 1965		1965 - 1970		1960 - 1970	
		Change	&	Change	&	Change	%
A.	Total	4,312	100.0	1,831	100.0	6,143	100.0
	1. U.K.	210	4.9	-242	-13.2	-32	-0.5
	2. U.S.	-234	-5.4	1,015	5..4	781	12.7
	3. France	179	4.2	-48	-2.6	131	2.1
	4. W. Germany	206	4.8	-104	-5.7	102	1.7
	5. Italy	218	5.1	38	2.1	256	4.2
	6. Netherlands	349	8.1	763	41.7	1,112	18.1
	7. Japan	829	19.2	1,441	77.1	2,240	36.5
	Sub-Total (1-7)	1,753	40.8	2,833	154.7	4,590	74.7
	8. Australia	-5	-0.1	56	3.1	51	0.8
	9. Belgium	77	1.8	-4	-0.2	73	1.2
	10. Denmark	-36	-0.8	-50	-2.7	-86	-.14
C.	Sub-Total (1-10)	1,793	41.6	2,835	154.8	4,628	75.3
	11. H.K.	104	2.4	256	14.0	360	5.9
	12. Taiwan	9	0.2	640	35.0	649	10.6
	13. S'pore	-167	-3.9	219	12.0	52	0.9
	14. Malaysia	410	9.5	-1,057	-57.7	-647	-10.5
	15. Indonesia	-89	-2.1	81	4.4	-8	-0.1
	16. India	854	19.8	-788	-43.0	66	1.1
	17. Laos	193	4.5	143	7.8	336	5.5
D.	Sub-Total (11-17)	1,314	30.5	-506	-27.6	808	13.2
E.	Others	1,201	27.9	-498	-27.2	707	11.5

Remarks: B.   Major industrialized seven countries

C.   Developed ten countries

D.   Specified South East Asian countries

E.   Unspecified other countries

Source: Monthly Bulletin, Bank of Thailand

No. 4 - 4   Data of Rice Exports from Thailand

	I Quantity (1,000 M/T)	II Value (mil, Baht)	III Unit Price Baht / M.T.
1950	1,418	1,762	1,179
51	1,474	1,823	1,237
52	1,548		
53	1,358	2,629	1,936
54	1,001	3,746	3,742
1955	1,236	3,086	2,497
56	1,264	3,133	2,479
57	1,570	2,860	1,822
58	1,133	3,622	3,197
59	1,091	2,968	2,360
1,60	1,202	2,569	2,137
61	1,576	3,598	2,283
62	1,271	3,239	2,548
63	1,417	3,423	2,416
64	1,896	4,388	2,314
1965	1,895	4,334	2,287
66	1,507	4,001	2,655
67	1,482	4,653	3,140
68	1,068	3,775	3,535
69	1,023	2,945	2,879
1970	1,063	2,516	2,367
71	1,661	2,901	1,747

No. 4 - 5   Maize Export from Thailand

	I Quantity (1, 000 ton)	II Value (mil. Baht)	III Unit Price Baht/ M. T.
1950	12. 6	10. 5	833
51	22. 6	21. 3	943
52	25. 2	27. 9	1, 107
53	34. 7	46. 9	1, 352
54	36. 9	56. 1	1, 520
1955	68. 2	80. 0	1, 173
56	81. 5	96. 1	1, 179
57	64. 3	74. 4	1, 157
58	162. 0	182. 7	1, 112
59	236. 0	249. 5	1, 056
1960	514. 7	550. 7	1, 071
61	567. 2	597. 2	1, 053
62	472. 4	502. 2	1. 063
63	744. 0°	828. 2	1, 113
64	1, 115. 4	1. 345. 6	1, 207
1965	804. 4	968. 5	1, 205
66	1, 218. 5	1, 519. 9	1, 247
67	1, 090. 7	1, 355. 4	1, 242
68	1, 480. 8	1, 556. 0	1, 051
69	1, 476. 1	1, 674. 0	1, 134
1970	1, 337. 5	1, 857. 0	1, 380
71	1, 829. 0	2, 251. 0	1, 230

No. 5 - 0   Export of Thailand by Commodity Groups (unit: mil. Bahts)

	1950	1955	1960	1965	1970	1971
Total Export (Xt)	3,472	7,120	8,614	12,941	14,772	17,335
Four Traditional Export Items (X4)	2,794	5,617	5,798	7,700	6,522	6,544
New Agr. Produckts (On)	35	139	1,069	2,747	3,799	4,413
Other Export (E)	643	1,364	1,747	2,594	4,451	6,378
X4/Xt (%)	80.5	78.9	67.3	59.5	44.2	37.8
X4+On/Xt (%)			79.7	80.7	69.9	63.2
E/Xt(%)			20.3	19.3	30.1	36.8
Major Agr., Fisheries & Forestry Products (E1)			820.6	1,147.8	1,554.8	1,863.7
Major Agr. processed good (E2)			58.8	222.9	365.1	783.4
E1 + E2			879	1,370	1,920	3,731
Manufactured goods (E5) including E2			150	365	794	1,448
E2/E5			39.3	61.1	45.9	52.7
Fluorite (E8)			0.4	19.7	222.4	310.8
Unclassified (Ex)			531	1,071	1,880	2,755
Ex/Xt (%)			6.2	8.4	14.2	17.7

All figures in this table are derived from following papers.

No. 5 - 1   Four Traditional Export Items

(units Millions of Bahts)

	Rice 1	Rubber 2	Tin 3	Teak 4	Total x4	Total Export xt	I/Xt %	Other Export I O1(Xt-X4)	O1/Xt%
1950	1,672	723	257	142	2,794	3,472	48.2	687	19.5
51	1,823	1,461	187	158	3,629	4,412	41.3	783	17.7
52	2,629	1,002	223	96	3,950	4,618	56.9	668	14.5
53	3,746	740	300	133	4,919	5,771	64.9	852	14.8
54	3,086	1,060	373	211	4,730	6,177	50.0	1,447	23.4
1955	3,133	1,798	440	246	5,617	7,120	44.0	1,503	21.1
56	2,860	1,520	9	305	4,694	6,923	41.3	2,229	32.2
57	3,622	1,406	531	261	5,820	7,540	48.3	1,720	22.8
58	2,967	1,318	255	239	4,779	6,446	46.0	1,667	25.7
59	2,575	2,296	434	244	5,549	7,560	34.1	2,011	26.6
1960	2,569	2,336	537	356	5,798	8,614	29.8	2,816	32.7
61	3,598	2,597	617	252	7,046	9,997	36.0	2,951	29.5
62	3,239	2,130	685	170	6,224	9,529	34.0	3,305	34.7
63	3,423	1,003	741	137	6,204	9,676	35.4	3,472	35.9
64	4,388	2,060	962	179	7,589	12,339	35.6	4,750	38.5
1965	4,334	1,999	1,166	201	7,700	12,941	33.5	5,241	40.5
66	4,001	1,861	1,516	243	7,621	14,009	28.4	6,478	45.9
67	4,653	1,574	1,822	194	8,243	14,166	32.8	5,923	41.8
68	3,775	1,861	1,510	169	7,270	13,679	27.6	6,409	46.9
69	4,945	2,664	1,631	166	7,406	14,722	20.0	7,366	50.0
1970	2,516	2,232	1,618	156	6,522	14,772	17.0	8,250	55.8
71	2,901	1,901	1,561	181	6,544	17,335	16.7	10,791	62.2

(unit = Millions of Baht)

	Maize 1	1/Xt %	Tapioka Products 2	Jute & Kenaf 3	Sub Total On	Other Exports (II) E(O1-On)
1950	10	0.3	24	1	35	643
51	21	0.5	12	4	37	746
52	27	0.6	18	3	48	620
53	46	0.8	36	7	89	763
54	56	0.9	58	11	125	1,322
55	79	1.1	52	8	139	1,364
56	96	1.4	19	18	133	2,096
57	74	1.0	138	46	258	1,462
58	183	2.8	192	69	444	1,223
59	250	3.3	224	88	562	1,499
960	551	6.4	288	230	1,069	1,747
61	597	6.0	446	626	1,669	1,282
62	502	5.3	423	579	1,504	1,801
63	828	8.6	439	358	1,626	1,847
64	1,346	10.9	653	495	2,494	2,256
965	969	7.5	676	1,102	2,747	2,494
66	1,520	10.8	644	1,614	3,778	2,700
67	1,355	9.6	726	865	2,846	2,977
68	1,556	11.4	772	674	3,002	2,407
69	1,674	11.4	876	780	3,330	4,036
970	1,857	12.6	1,223	719	3,799	4,451
71	2,251	13.0	1,299	933	4,413	6,378

No. 5 - 3   Export Value by Classified Commodities

(Millions of Baht)

		1960	1965	1970	1971
A.	Total	8,614	12,941	14,772	17,335
1.	Rice	2,570	4,334	2,516	2,901
2.	Rubber	2,579	1,999	2,232	1,901
3.	Rin	537	1,066	1,618	1,561
4.	Teak	356	201	156	181
B.	Sub-total (1-4)	6,042	7,600	65522	6,544
5.	Maize	551	969	1,857	2,251
6.	Tapioka products	288	676	1,223	1,229
7.	Jute and Kenaf	230	1,102	719	993
C.	Sub total (5-7)	1,069	2,747	3,799	4,413
D.	Sub total (1-7)	7,111	10,347	10,321	10,957
E.	Others	1,503	2,594	4,451	6,378

Remarks: A   Total Export of the year

B   Traditional Four Major Export Items

C   New Farm Products

D   Specified Major agricultural products

E   Unspecified Items

Source: Bulletin of Bank of Thailand.

No. 5 - 4   Classified Details in Other Export Items

	1960	1965	1970	1971
E. Others	1,503	2,594	4,451	6,378
E. 1 Major Agri. livestock, Fisheries & Forestry Products	820.6	1,147.8	1,554.8	1,863.7
1. Food crops	59.0	192.6	384.4	457.7
a. many beans	48.3	100.6	255.0	254.2
b. white beans	2.4 *	2.3 *	3.0 #	1.6 #
c. red beans	2.9 *	7.5 *	5.7 #	14.1 #
d. other beans	5.4 *	21.2 *	17.3 °	31.6
e. sorgham	- *	61.0 *	103.4 #	156.2 #
2. Oil Seeds	161.2	214.8	216.8	245.4
a. Castor beans	71.2 *	65.7 *	92.9 #	124.0 #
b. cotton seed	7.5 *	8.6 *	54.2 #	30.0 #
c. Kapoi seed	20.6 *	44.8 *	17.6 #	14.9 #
d. ground nut	39.3 *	73.9 *	28.9 #	18.8 #
e. soybeans	8.5 *	4.5 *	16.2 #	17.1 #
f. sesame seeds	14.1 *	17.3 *	27.0 #	40.6 #
3. Fibre				
a. Kapok fibre	67.7 *	112.4 *	133.9	141.2 #
4. Fruits	5.3*	26.3*	22.2 *	29.4
5. Tobacco leaves	12.4	88.6	197.1	235.9
6. Livestock products	327.7	227.3	200.4	215.8
a. mide & skins	82.2	59.5	52.0	47.3
b. feather	8.4	20.8	18.3	24.3

	1960	1965	1970	1971
c. bone, animal	11. 2*	12. 1*	14. 7 *	23. 0 #
d. egg fresh	126. 2	31. 8	42. 6	30. 1
e. buffalo & cattle	99. 7	103. 1	72. 8	91. 1
7. Fisheries Product	**33. 1**	**146. 5**	**311. 6**	**410. 3**
a. fish (fresh, frozen dried salted)	29. 0	30. 5 *	48. 7 #	66. 6 #
b. Mussell (dried)	1. 1 *	1. 0 *	1. 2 #	1. 6 #
c. Shrimp	3. 0	109. 0	224. 0	276. 0
d. Cuttle fish	--	--	37. 7 #	96. 1 #
8. Forestry products	**154. 2**	**139. 3**	**88. 4**	**128. 0**
a. Yang	89. 3 *	56. 3 *	13. 0 #	15. 9 #
b. Wood others	12. 7 *	19. 2 *	38. 9 #	52. 1 #
c. Seedlac & Sticklac	52. 2 *	63. 8 *	36. 5 #	60. 0 #
E2. Major Agricultural processed goods	**58. 8**	**222. 9**	**365. 1**	**783. 4**
1. Sugar cane products	26. 8	138. 2	138. 8	446. 3
a. sugar	8. 1	100. 5	93. 7	381. 6
b. mollacess	18. 0 #	37. 7 #	45. 1 #	84. 7
2. Oil and cakes	15. 7	45. 8	72. 5	57. 4
a. bean oil	1. 7 *	4. 5 *	12. 8 #	14. 5 #
b. copra cake	5. 2 *	12. 4 *	8. 2 #	39. 9 #
c. bean cake	8. 8 *	28. 9 *	51. 5 #	
3. Canned Pine-apple	--	--	55. 4 #	44. 1 #
4. Gannybags	--	1. 2 #	62. 7 #	178. 5 #

	1960	1965	1970	1971
5. Coir fibre	-	5. 7 #	2. 1 #	6. 7 #
6. Woven fabric of silk	17. 0 #	32. 0 #	33. 6 #	30. 4 #
E3. Agri. & their processed products (E1 + E1)	880. 1	1, 370. 7	1, 919. 9	2, 647. 1
E4. Unspecified Others (E - E3)	622. 9	1, 223. 3	2, 531. 1	3, 730. 9
E5. Manufactured products	149. 9	365. 1	739. 8	1, 448. 4
1. Processed Agri. product 1/	58. 8	222. 9	365. 1	783. 4
a. oil and cakes	15. 7	45. 8	72. 5	57. 4
b. sugar	8. 1	100. 5	93. 7	381. 6
c. mollacess	18. 0	37. 7	45. 1	84. 7
d. canned pine-apple	-	-	55. 4	44. 1
e. ganny bags	-	1. 2	62. 7	178. 5
f. coir fibre	-	5. 7	2. 1	6. 7
g. woven fabric of silk	17. 0	32. 0	33. 6	30. 4
2. Cemment	51. 3	41. 0	83. 4	89. 7
3. Handicrafts	39. 8	101. 2	178. 8	295. 7
a. precious stones	17. 4 #	66. 2 #	137. 4	232. 4
b. Articles of woods	17. 0 #	32. 0 #	26. 4 #	51. 1 #
c. Spoons and forks of copper bronze	5. 4	3. 0 #	15. 0 #	12. 2 #
4. Woven fabric of cotton			16. 1 #	12. 2 #
E6. Sub total (1+2+3+4)	149. 9	365. 1	663. 4	1, 224. 2

		1960	1965	1970	1971
E7.	Other manufactured goods specified in attached paper 2/ (E_5 - E_6)	n. a.	n. a.	129.4	224.2
E8.	Fluorite	0.4 #	19.7 #	222.4 #	310.8 #
E(x)	Unclassified others (incl. flaulite) (E_1 - E_5 + $E_{5.1}$)	531.8	1,081.1	2,102.4	3,065.9
Ex	Unclassified Others (Excl. Fluorite)	531.4	1,071.4	1,880.0	2,755.1

Source: No mark, Monthly Bulletin, Bank of Thailand July, 1972.

      *   Agricultural statistics 1967.

       #   Statistics of Customer

Remarks: 1/   all figures come from E_2

           2/   Attached papers are prepared by Department of Commercial Intelligence.

Prepared by Dept. of Commercial Intelligence,

Ministry of Economic Affairs.

Quanity - M. ton,   Value - Million baht

	1969		1970		1971	
	Quantity	Value	Quantity	Value	Quantity	Value
I. Goods produced primarily for Export						
Pineapple canned	9,502	36.5	13,640	55.3	10,470	44.1
Watch cases (1,000 Unit)	140	1.6	-	-	-	-
Clock and Watch parts	-	0.03	-	16.9	-	3.1
Veneer	-	-	-	-	-	-
Rubber tyres for aircraft	-	-	-	-	-	-
Coir fibre	416	1.2	696	2.1	2,076	6.7
Twine cordage ropes cable of jute	404	2.2	165	1.0	1,543	8.7
Twine cordade ropes cables of coir	1,145	3.7	1,654	5.0	263	0.6
Twide cordage ropes cables of synthetic fibres	-	-	1,249	1.5	29	0.3
Articles of appereland clothing	-	15.9	-	18.2	-	74.5
Human hair worked and wigs	-	-	2	1.3	-	0.4
Toys, games and sprots requisites, parts	-	2.4	-	4.1	-	3.1
Furniture and parts	-	0.4	-	0.2	-	0.4
Articles of furskin	-	-	-	-	-	-
II Goods which are in excess of local demand						
Vegetable fats and oils (1,000 litre)	478	2.4	1,957	12.8	3,061	17.5
Residues and cake of bean and coconut	22,496	39.0	1,766	33.5	12,409	20.4
Cotton and kapok seed cake	-	-	22,239	27.3	6,795	8.6
Other oil cake and residues from the extraction of vegetable oils	19,579	17.2	1,828	1.8	13,925	10.9
Food wastes and prepared animal food	3,467	5.1	8,574	9.6	15,220	19.5

Items	1970		1970		1971	
	Quantity	Value	Quantity	Value	Quantity	Value
Rubber tyres for vehicles. (Unit)	243	0.3	3,557	1.5	27,496	9.5
Iron and steel:-	--	33.1	--	43.4	-	50.0
- Wires and rods	1,212	3.2	1,314	2.2	1,032	3.9
- Tubes and pipes	5,482	18.3	7,652	26.2	10,304	27.3
- Sheets and plates	2,423	11.0	1,568	7.1	407	2.1
- Bridges, bridge section, lock gate of iron or steel	--	-	-	--	3,669	4.8
Other	-	0.6	-	7.9	-	11.9
Cotton linters	785	8.2	1,736	8.6	364	2.6
Woven fabric of cotton (100 sq.yd)	23,058	24.8	14,350	16.1	122,117	55.4
Ganny bags (1,000 Unit)	15,883	74.1	12,118	62.7	35.341	178.2
Portland cement	95,356	38.3	150,677	83.4	238,996	89.6
Sugar	16,102	47.0	56,248	93.7	174,521	381.4
molasses	82,761	32.5	11,1528	45.1	237,776	84.7
Parts and accessories of motor vehicles	182	2.0	24	0.4	72	0.6
Parts and accessories of motor cycles and bicycles	5	0.06	20	0.2	2	0.04
III Handicraft products						
Woven fabric of silk. (100 sq. yd.)	5,645	38.8	5,179	33.6	4,500	30.4
Pearls and precious stone	-	150.3	-	137.4	-	232.4
Articles of Wood	454	17.1	1,045	26.4	1,614	51.1
Blocks and strips for parquet and other flooring assembled	1,006	6.5	932	5.8	1,305	7.1
Spoons forks similar kitchen table ware of copper bronze	87	9.6	176	15.0	114	12.2
IV Others						
Yarn of true hemp and jute	6,967	35.2	5,300	26.4	5,563	29.5
Plywood	115	0.9	1,594	3,5	7.201	14.3
Total	-	646.39	-	793.8	-	1,448.44

Source: Department of Customs

1971 : Preliminary figures

STATISTICAL ANALYSIS FOR INCREMENT OF EXPORT

MARCH 1973

CONTENTS

INTRODUCTION

The present analysis is an attempt to characterize export trade of Thailand in a simplified mathematical model. While the weaknesses of the approach are fully understood, it is believed that certain export characteristics, important for formulating development principles, can be more readily detected on a macro-scale in such simplified form, than on a micro-scale in a commodity-by-commodity study. With this in view, the preliminary results, which are of an interim character, are presented herewith. They will form the basis for more detailed studies.

Before analyzing the relationship between trade (export and import of goods) and other economic factors by economic model, general trends of both export and import are presented in the following chart for convenience.

According to the chart, the following three points are characteristics of Thailand trade.

(1)　Thailand changed to commodity trade deficit country from 1952, but the actual value of the deficit was not so serious prior to the early 1960's.

(2)　Thailand's exports decreased from the previous years where the agricultural products suffered from poor crops due to unfavourable weather. 1955, 1957, 1961, 1967 and 1968 were poor crop years and in the following years, 1956, 1958, 1962 and 1968, Thailand exports decreased than the previous years. 1968 was also poor crop year, however, not so poor as 1967. In 1969, the following year of 1968, export of Thailand marked a little higher than 1968.

(3)　Prior to 1960, when exports decreased, imports usually decreased or did not grow as much as the previous year as indicated in 1956 and 1958.

This export - import pattern changed after 1960 in that, although Thailand experienced a severe drought in 1967 and the export of goods went down in 1968, import went up remarkably. The trade gap was widen tremendously in this year.

The objective of this subject is mainly to find out basic principles in the mathematical relationship between the trade of goods (export and import of goods) and economic factors which may be implemental in estimating the future value of both export and import.

Estimates processed from parameters in the above-mentioned mathematical relationship would be helpful in forming and implementing export promotion measures.

Import and Export of Thailand

unit: billion Baht

o ――――o Export (FOB)

x―――――x Import (CIF)

( ) % of Export and
Import against G. D. P.

o indicate the years where the exports
were less than the previous years

27.0 (19.4)
x
26.7
(18.4)

25.9 x
(19.5)

24.1
x
(20.2)

22.1 x
(20.2)

18.5
x
(17.9)

17.3 o
(11.5)

15.4 x
(17.9)

(18.8) x 14.1 14.2   14.7 14.7 (10.5)
14.2   (13.6) o (12.8) o (10.9)

(18.4) x 12.9   13.7
12.8   (15.0)   (11.3)

(17.6)   12.3(16.3)
11.5 x

10.2
x

9.6 o   9.7(14.0) o
8.9   9.9
8.5   8.2   9.5(14.8)
x   x
7.5   7.6   7.5   8.6
7.0   7.5 o
x
6.4   7.1 6.9
5.5   o 6.2
x   5.7
4.4   o 4.6
o
0.5
x 3.7
x 2.6

International
Reserves cahnges
(mil $)   7.7 -19.2   44.7   62.3   69.1 158.8   21.6   -127.5
                    6.2   78.6 45.6   95.4   52.6   -44.0   -0.7

Import (%) from Industriazlied Countries   72   75   72   72   72   71   73   71

Export (%) to Industrialized Countries   43   42   48   49   49   52   56   54

-0 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71

- 142 -

I   Basic Model and Methodology

1.1   Basic model

In order to express the relationship between export and other economic factors of Thailand, the following simplified mathematical model, based upon statistical data during thirteen years from 1960 through 1972, was set up.

The economic model is set up in general equilibrium of demand and supply, and every economic factors, including imports and export are produced as endogenous variables with the exception of the Gross Domestic Product, that is to say, the exogenous variable which equals gross per capita productivity multiplied by population.

In the "Flow chart of Gross Domestic Products" an mathematical attempt is made to get an relationship among major economic factors. Important economic sectors (variables) in the chart are specified by marks such as V, M, X and so. Equations which present the relationship expressed in the "chart" are shown in the equilibrium economic model on the next page.

Flow Chart of Gross Domestic Products

$$V = c.P$$

V
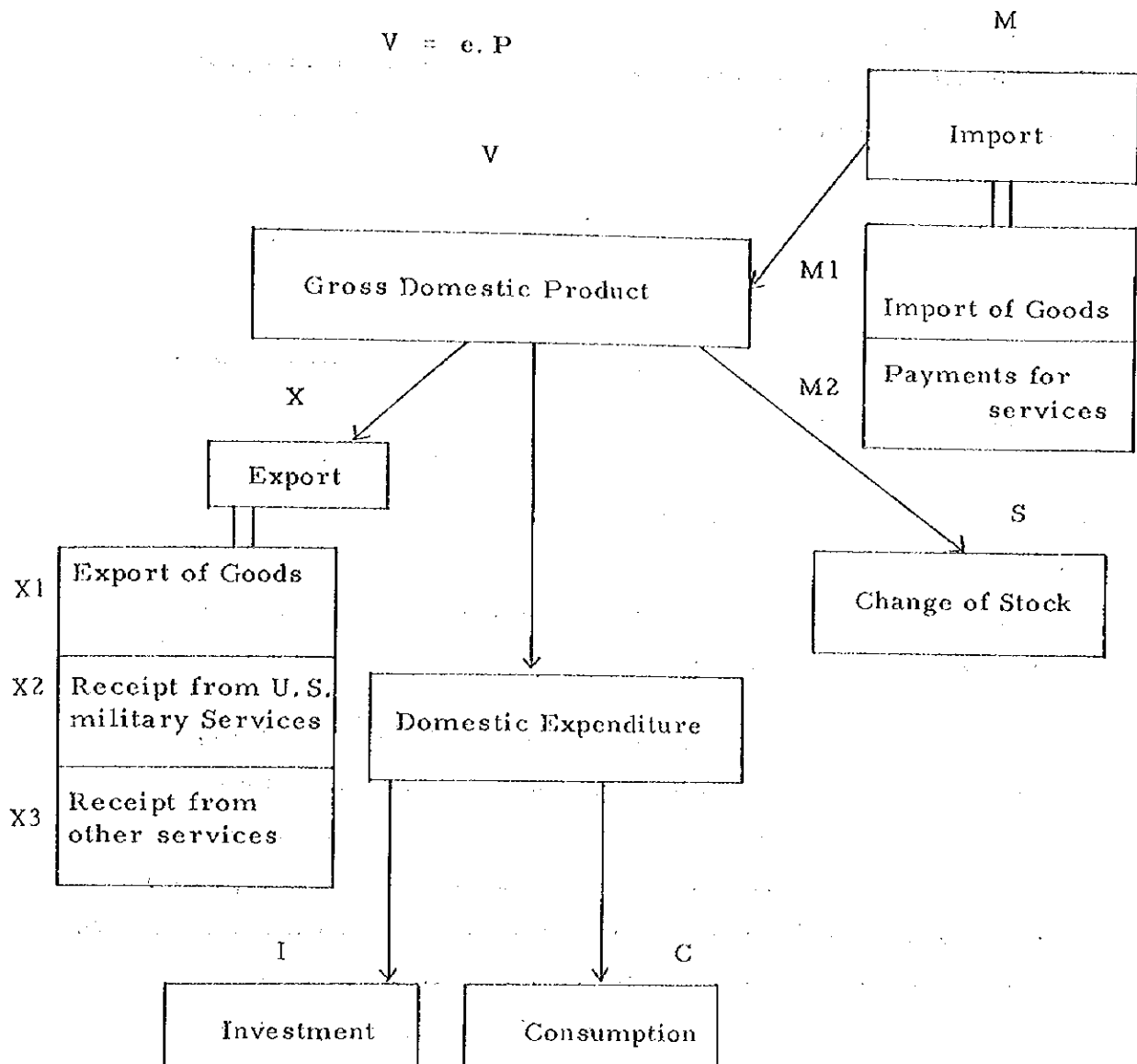
Basic Model

$$V = C + I + X - M + S + E$$

Where,
V	=	G. D. P.
C	=	Expenditure on consumption
I	=	Fixed Capital Formation
X	=	Export
M	=	Import
S	=	Change of stock
E	=	Error and omission

1.2   Methodology

The following three basic equations are selected to find proper functional relationships as a result of several testing operations.

$$Y = a + bX \dots\dots\dots\dots\dots(1)$$
$$\log Y = a + b \log X \dots\dots\dots\dots(2)$$
$$Y = a + bt\dots\dots\dots\dots\dots(3)$$

Equation (1) means that the growth of (Y) factor will be a percentage of the value of the (X) factor.

In equation (2), both economic factors (Y) and (X) are defined as elastisity. When (X) factor grows by 10 %, (Y) factor will grow by (b) x 10 %.

Equation (3) is defined as time trend, (Y) factor will grow or decrease by amount of (b) per annum.

An attempt was made to produce both estimated value of export of goods (X_1) and import of goods (M_1) which are to be formulated through various equations from the estimated G. D. P. , which is implicit factor processed from estimated percapita productivity and population, as said in page p. 143. The G.D.P. should be 204.2-207.6 billion Bahts in 1976 and 265. 1-274. 2 billion Bahts in 1980. How these figures are derived will be introduced later in part II Gross Domestic Product. (p. 147)

All statistical data are based upon expenditure on Gross Domestic Product at the current price of the years covering, 13 years from 1960 through 1972, data for which has already been published. This information is presnted in the accompanying sheets (A).

The dependability of economic factors is checked by the rates of change of the percentage of the factors against G. D. P. These co-efficients, processed from data in accompanying sheets (B), are presented on the next page.

Rate of Change Factors

	Y max. Y min.	$\bar{Y}$		Rate of change
C/V	(0. 8344 - 0. 7492)	/0. 8040	=	0. 1060
I/V	(0. 2371 - 0. 1399)	/0. 1966	=	0. 4944
X/V	(0. 1977 - 0. 1639)	/0. 1795	=	0. 1833
X_2/V	(0. 1629 - 0. 1049)	/0. 1307	=	0. 4438
X_1/V	(0. 0419 - 0. 0032)	/0. 0223	=	1. 7354
M/V	(0. 2248 - 0. 1854)	/0. 2034	=	0. 1937
M_1/V	(0. 2016 - 0. 1762)	/0. 1834	=	0. 1349

Remarks = Formula to get rate of change

$$(Y \text{ max.} - Y \text{ min.}) / \bar{Y}$$

where,　Y max.　= maximum figure in the period.

Y min.　= minimum figure in the period.

$\bar{Y}$　$= \dfrac{\Sigma Y}{n}$

II   Gross Domestic Product

formula 1. $V = e.P$

where, V = Gross Domestic Product

            e = gross percapita productivity

            P = Population

Gross Domestic Product is produced by multiplying gross per capita productivity by population. In this analysis, Gross Domestic Product is defined as an exodenous variable, that is to say, an implicit factor. We processed both e and P as described in 2.1 and 2.2 to get V or G. D. P.

The estimate of gross per capita productivity in 1976 and 1980 processed from time series data are 4,850 Bahts and 5,700 Bahts respectively. (2.1) The estimate of population are 42.1 - 42.8 million in 1976 and 46.5 - 48.1 millions in 1980. (2.2) Using the time series data, we can summarize the estimate of G. D. P. as follows:

	Gross Per capita productivity (Bahts)	Estimate of population (million)	Estimate of G. D. P. (Billion Bahts)
1976	4,850	42.1 - 42.8	204.2 - 207.6
1980	5,700	46.5 - 48.1	265.1 - 274.2

2.1   Gross Per capita Productivity

Gross per capita productivity is the value of Gross Domestic Products divided by population. The averaged growth rate of gross per capita productivity as explained in the next page, omitting the period from 1965 through 1970, is 4.6 %. The period from 1965 to 1970 experienced an exceptional growth rate because of especially large receipts from U. S. military services and grants which affected Thailand's economic growth.

Two formula are selected to estimate future gross per capita productivity.

$$E = e(1 + a)^t \ldots \ldots \ldots \ldots \ldots (1)$$

where,   e = gross per capita productivity.

        a = per capita productivity growth rate per year.

        E = future gross per capita productivity

           (omitting 1965 - 1970)

$$e = a + bt \ldots \ldots \ldots \ldots \ldots (2)$$

where,   a = constant value

        b = growth value per year for per capita productivity.

In case of (1), when averaged per capita productivity growth rate derived from table in the page 150 i.e. 4. 6% is simply applied to the coming years, per capita productivity will be 4, 864 Bahts in 1976 and 5, 822 Bahts in 1980.

In case of (2), we can make four equations for different periods as follows:

(i) $e = 3,047 + 185.1 t$ (1960 - 1972)

            $(R^2 = 0.9768)$

(ii) $e = 2,267 + 110.3 t$ (1960 - 1964)

            $(R^2 = 0.9923)$

(iii) $e = 3,299 + 232.0 t$ (1965 - 1969)

            $(R^2 = 0.9499)$

(iv) $e = 3,936 + 103.2 t$ (1969 - 1972)

            $(R^2 = 0.9444)$

where,   e = gross per capita productivity.

Every equation above is found to have good correlation through the examined period. However, in case of (ii) and (iv) the period examined is rather short in order to make future projections and in

case of (iii), the economy of Thailand experienced an unexpected big change, with receipts from U. S. military services and U. S. grants both of which increased in the former part of the period and gradually decreased in the latter part of the period (table in the next page). Thus, equation (i) is selected to apply to future projection. The value of e will be then 4,898 Bahts in 1976 and 5,638 Bahts in 1980 respectively.

The estimated value of gross per capita productivity derived from the said two formula are summarized as follows:

	1976	1980	(unit = Baht)
formula (1)	4,864	5,822	
formula (2)	4,898	5,638	

It can be concluded, with rather reliable exactness, that values of gross per capita productivity will be around 4,850 Bahts in 1976 and 5,700 Bahts in 1980.

Table No. 1 Record of Gross Per Capita Productivity

| | Gross Per capita productivity [1/] | Growth rate against previous year | Remarks [2/] | | |
| | | | Receipt from U.S. millitary services | | U.S. Grants |
	(Baht)	%	(mil. Baht)	% to G. D. P.	(million Bahts)
1960	2,046				
1961	2,167	5.9			
1962	2,274	4.9	204	(0.3)	555
1963	2,354	3.5	361	(0.5)	636
1964	2,504	6.4	438	(0.6)	395
1965	2,742	9.5	922	(1.1)	357
1966	3,198	16.6	2,589	(2.6)	439
1967	3,312	3.6	4,109	(3.8)	799
1968	3,482	5.1	4,918	(4.2)	1,172
1969	3,760	8.0	4,630	(3.5)	864
1970	3,796	1.0	4,192	(3.1)	613
1971	3,919	3.2	3,789	(2.6)	519
1972	4,063	3.7			

Remarks   1/   G. D. P. divided by population

2/   Source: Bulletin of Bank of Thailand.

2.2 Population

Population and/or labour force is one of the main factors in building up the economic size. The growth of the population is a key factor in estimating future economic size of population.

A population growth rate of 3.1 % per year is used to prepare the estimated population of inter-census years in the period through 1960's instead of the rate of 3.0 % formerly used according to the statistical year book of Thailand. When the 3.1 % growth rate is applied again to the estimated population of 1969 in the statistical year book, the estimated population for 1970 is 35,815 thousand. (Table of the next page)

In the 3rd Economic and Social Development Plan of Thailand (October 1971 - September 1976), a population growth rate of 2.5 % is set up as the target for the end of the period. Under the assumption that, in every year from 1970, the population growth rate will decline by 0.1 %, and this population growth rate of 2.5 % per year is applied continuously to every year after 1976, the estimated population would be 42.2 million in 1976 and 46.5 million in 1980.

If a population growth rate of 3.0 % is applied to eveyr year from 1971 to 1980, the estimated population would be 42.7 million in 1976 and and 48.1 million in 1980.

Table on the page 153 gives the estimated population in Thailand from 1970 through 1980, on basis of these different population growth rates.

Table No. 2   Estimated Population of Thailand

Year		Population	
1937	1/	14, 464, 105	
1947	1/	17, 442, 689	
1960	1/	26, 392, 000	
1961		27, 210, 000	
1962		28, 054, 000	
1963		28, 923, 000	
1964		29, 820, 000	
1965		30, 744, 000	
1966		31, 698, 000	
1967		32, 680, 000	
1968		33, 693, 000	
1969		34, 738, 000	
1970	e/	35, 815, 000	2/

Source   = Statistical Year Book Thailand 1967 - 1969.

Remarks = 1/ Population census
Beginning 1960, estimates of population have been
prepared by assumming a constant growth rate at
3. 1 % per year.

e/ prepared by 3. 1 % population growth rate on
basis of 1969 population estimate.

2/ Thailand population census in 1970 has just
been preliminary tabulated, revealing 34, 152, 000
in the whole kingdom and an increase of 7, 849, 000
during inter-census period between 1960 and 1970.
The report, however, made adjustment to estimated
population at 35. 5 millions in the whole kingdom,
in consideration of coverage error in enummeration.
- Preliminary report of the 1970 population and
Housing census of Thailand, National Statistical
Office. E - Cr. pop - No. 1 - 7

Estimated Population of Thailand

	Growth Rate	Population	Growth Rate	Population
1971	3.0	36,889,000	3.0	36,889,000
1972	2.9	37,959,000	3.0	37,996,000
1973	2.8	39,022,000	3.0	39,136,000
1974	2.7	40,076,000	3.0	40,310,000
1975	2.6	41,118,000	3.0	41,519,000
1976	2.5	42,146,000	3.0	42,765,000
1977	2.5	43,199,000	3.0	44,048,000
1978	2.5	44,279,000	3.0	45,369,000
1979	2.5	45,386,000	3.0	46,730,000
1980	2.5	46,521,000	3.0	48,132,000

2.3 Other Comments on Per Capita Productivity

(1)   Actual per capita productivity should be calculated by dividing the G. D. P. by the number of people employed.

Since the following definitions and formula are based on labour force basis rather than total population, the formula may be a little more theoretical.

U   =   f. P

L   =   g. U

P   =   population

U   =   workable labour force (number of persons under 11 year old being deducted from P, for example, in Thailand)

L   =   Actual number of labour force in employment (number of students, housewives, persons over 60 years old who have already retired and those who are unable to work, being deducted from U)

These variables are used to get the following model about productivity of labour.

V   =   e. L

instead of

V   =   e. P

e   =   per capita productivity

(2)   Since per capita productivities in different sectors of industries vary with the economic efficiency of the industry and productive efficiency in agriculture in term of value is usually lower than that of other sectors of industries, it is usual to employ a more detailed model to get more exact economic analysis.

The following formula may be said one of more theoretical or sophisticated ones.

$$V = e1 \cdot L1 + e2 \cdot L2 + e3 \cdot L3$$

$$L = L1 + L2 + L3$$

where,

L = Number of people employed

L1 = Agriculture labour force in employment

L2 = manufacturing labour force in employment

L3 = other business labour force in employment

e1 = per capita productivity of agriculture

e2 = per capita productivity of manufacturing industry

e3 = per capita productivity of other business

(3)   The simplest formula ($V = e \cdot P$) is employed here for convenience. Also, the ratio of people employed against total population remains almost unchanged at 50 % (48.1 % in 1960, 48.5 % in 1966 and 50.1 % in 1970) and farming labour force percentage against labour force in employment is also little changed (81.5 % in 1960, 79.8 % in 1966, and 79.2 % in 1970), so a large bias is not expected, even if the simplest model is employed in estimating future per capita productivity.

Further detailed analysis should be made, by a more theoretical model such as the above, if circumstances permit.

III   Import

(equations)

The following eight (8) equations are set up to find out relation-ship between import and other economic factors which are considered to be closely related to imports.

Import of goods and services, (M);

Formula 2 $M = -2,004.5 + 0.2465 \; V$ (1960 - 72)

$(R^2 = 0.9873)$

Formula 3 $\log M = -1.3229 + 1.1268 \log V$ (1960 -72)

$= (R^2 = 0.9970)$

Formula 4 $M = -129.6 + 0.1637 \; C + 0.3726 \; I$ (1960 - 72)

$(R^2 = 0.9976)$

Formula 5 $M = -0.4738 + 0.6943 \log C + 0.3321 \log I$

(1960 - 72)

$(R^2 = 0.9981)$

Import of goods (M1);

Formula 6 $M1 = -1,356.6 + 0.2027 \; V$ (1962 - 71)

$(R^2 = 0.9797)$

Formula 7 $M1 = -1.1842 + 1.0918 \log V$ (1962 - 71)

$(R = 0.9845)$

Formula 8 $\log M1 = 0.2519 + 0.3428 \log C + 0.5427 \log I$

(1962 - 71)

$(R^2 = 0.9983)$

Import of services (M2);

Formula 9 $M2 = 2,065.5 + 266.7 \; t$ (1962 - 71)

$(R^2 = 0.9492)$

$(t = 0.1967)$

Remarks:

V = G. D. P.

C = expenditure on consumption

I = Fixed capital formation

M = Import of goods and services

$M1$ = Import of goods

$M2$ = Import of services

where,

M = M1 + M2

(Comment)

In formulas 2, 3, 6, and 7, the value of import of goods and services (M) and value of import of goods (M1) are formulated directly from the Gross Domestic Product.

In formulas 4, 5, and 8, the values of import and values of import of goods are related to the two factors of expenditure on consumption and investment, because most import is for consumption or investment.

Formulas 3, 5, and 8 are defined as logarithmic equations.
Formula 9 is a simple time-trend equation.

Values of coefficients of correlation (R^2) in all equations indicate good values, but it is found that the said coefficients are a little better in the form of logarithmic equations and still better in the forms related to the two factors of consumption and investment.

(Meaning of Equation)

(1) Import of goods and services (M) will grow by about 24 % of the value of Gross Domestic Product (V) in formula 2.

(2) Import of goods and services (M) will grow by 11. 3 % if the Gross Domestic Product (V) grows by 10 % in formula 3.

(3) Import of goods and services (M) will grow by 16 % of expendi-ture on consumption (C) and by37 % of expenditure on investment (I) in formula 4.

(4) Import of goods and services (M) will grow by 6. 9 % and by 3. 3 % in case of 10 % growth of expenditure on sonsumption (C) and investment (I) respectively in formula 5.

(5) In case of equations as to import of goods (M1) in formula 6, 7, and 8, the above mentioned meanings apply.

(6) Formula 9 indicates that the import of services (M2) is growing, by 266 million Bahts a year on the average.

(Ratio of Import of goods against G. D. P.)

The ratio of import of goods against G. D. P. (M1/V) averaged 18. 3 % during the period from 1962 through 1971, with the highest 20. 16 %, in 1968 and the lowest, 17. 6 % in 1962, followed by 17. 9 % in 1966 and 18. 4 % in 1971.

Since the rate of change of this percentage during 10 years from 1962 to 1971 is 0. 1349, it can be said that the percentage of the import of goods against Gross Domestic Product has been stable.

IV   Export

(equations)

The following six equations are set up to find the relationship
between export and other economic factors which are considered to
have close relationship with exports.

Export of goods and services (X):

Formula   10   X   =   325.5 + 0.1762 V   (1960 - 72))

$$(R^2 = 0.9716)$$

Formula   11   log X   =   0.7706 + 1.0069 log V

(1960 - 72)

$$(R^2 = 0.9758)$$

Export of goods (X1):

Formula   12   X1   =   6,048.1 + 0.06737 V (1962 - 71)

$$(R^2 = 0.8239)$$

Formula   13   X1   =   1.3815 + 0.5456 log V

(1962 - 71)

$$(R^2 = 0.8397)$$

Formula   14   X1   = 2.7189 - 0.1117 log c
                              + 0.4492 log I   (1962 - 71)

Receipt from services other than U.S. military services (X3)

Formula   15   X3   =   2,985.1 + 410.2 t   (1962 - 71)

$$(R^2 = 0.9363)$$

$$(t = 0.1967)$$

Remarks;

       V   =   G. D. P.

       C   =   expenditure on consumption

       I   =   Fixed capital formation

       X   =   Export of goods and services

       X1   =   Export of goods

X2 = Receipt from U.S. military services

X3 = Receipt from export of other services

where,

X = X1 + X2 + X3

(Comment)

Value of export (X) is to be broken down into two categories - export of goods (X1) and receipt from export of services. The latter is further devided into receipt from U. S. military services (X2) and receipt from export of other services (X3). Export is composed of export of goods (X1), reciept from U.S. military services (X2) and receipt from export of other services (X3).

(1) Total export including goods and services (X) and export of goods (X1) are formulated in relation with the Gross Domestic Product (V) in the equations of formula 10, 11, 12 and 13. Formula 11 and 13 are formulated in logarithmic equation.

(2) In formula 14, an attempt has been made to show the relationship between the export of goods and both consumption and investment in a logarithmic equation.

(3) An equation has not been established about receipt from U. S. military services (X2), because its rate of change of percentage aginst G. D. P. is too large (1. 7354). This factor is defined as an exogenous factor provided completely according to terms which cannot be traced in any economic formula.

(4) Receipt from export of other services (X3) is processed as time series equation, because this factor including receipt from tourism conceived to be affected more by outside factors than by the domestic factors listed in attached sheets (A), and then formulated independently.

(Meaning of equation)

Export of goods and services (X)

(1) Export of goods and services (X) will gorw by 17% of the competent value of G. D. P. (V) in formula 10.

(2) Export of goods and services will grow by 10 % if the gross domestic product (V) grows by 10 % in formula 11.

Export of goods (X1)

(1) The above statements on export of goods and services also apply to the equations on export of goods in formula 12 and 13. Fromulas 12 and 13 show that the export of goods (X1) will grow by 6. 7 % of G. D. P. (V) and by 5. 4 % with 10 % G. D. P. (V) growth.

(2) Export of goods (X1) will go down by 1. 1 % if expenditure on consumption (C) grows by 10 % and will grow up by 4. 5 % if invest- ment (I) gorws by 10 % in formula 14.

Receipt from other services (X3)

This factor will grow steadily by 410 million Bahts a year in formula 15.

(Ratio of export against G. D. P.)

(1) The export of goods and services as a percentage of theG. D. P. (X/ V) averaged 17. 95 % in the past period, with the highest, 19. 77 %, in 1967 and the lowest, 16. 47%, in 1963.

(2) Export of goods as a percentage of the G. D. P. (X1/V) is averaged at 13. 07 % in the past period from 1962 through 1971, the highest being 16. 29 % in 1964 and the lowest 10. 42 % in 1970, followed by 10. 92 % in 1969 and 11. 28 % in 1968.

(3)   The percentage of receipt from U. S. military services against G. D. P. (X2/V) grew from almost none (0. 32 %) in 1962 to 1. 1 % in 1965, jumped up to 4. 2 % in 1968 and then declined gradually to 2. 6 % in 1971.

(4)   The percentage of receipt from other services (X3/V) grew steadily year by year from about 1. 8 % in early 1960 to about 3. 3 % in 1971.

V   Expenditure on Consumption and Investment

(equations)

The following four equations are formulated to introduce expenditure on both consumption and investment from the gross domestic product.

Formula   16 $C = 2,551.9 + 0.7744\ V$ $(1960 - 72)$

Formula   17 $\log C = 0.1324 + 0.9539 \log V$ $(1960 - 72)$

$\qquad\qquad (R^2 = 0.9956)$

Formula   18 $I = -6,198.6 + 0.2677\ V$ $(1960 - 72)$

$\qquad\qquad (R^2 = 0.9958)$

Formula   19 $\log I = -2.9207 + 1.4439 \log V =$ $(1960 - 72)$

$\qquad\qquad (R^2 = 0.9701)$

$V = $ G. D. P.

$C = $ expenditure on consumption

$I = $ Fixed capital formation

(Comment)

Values of both expenditure on consumption (C) and investment (I) are introduced directly from the gross domestic product (V) in the usual way.

Formula 16 and 18 are simple equations. Formula 17 and 19 equations are formulated in logarithm.

(Meaning of equation)

Expenditure on consumption will grow by 77. 4 % of the value of the gross domestic product in case of formula 16 and by 9. 5 % with 10 % growth of G. D. P. in formula 17. Expenditure on investment will grow by 26. 8 % of the value of the gross domestic product in case of formula 18 and by 14 % with 10 % growth of G. D. P. in formula 19.

(Ratio of consumption and investment against G. D. P.)

Consumption as a percentage of the G. D. P. (C/V) averaged 80. 4 % and investment (I/V), 19. 6 %.

The rate of change of the former (C/V) is better than the latter (I/V).

In case of the latter, the percentage grew up from 14. 0 % in 1960 to 20 % in 1966 and jumped to 23. 7 % in 1968. From this peak figure, the percentage is going down. The preliminary estimate for 1972 is around 20 %.

VI   Results of Analysis

6. 1   Selection of Equators and Summarized Result

As explained in I Basic Model 1. 1, Gross Domestic Product (V) is an exogenous variable which is processed independently from outside factors in the equiliblium model, in this case, - V = C + I + X - M + S + E. Other variables (C, I, X and M) are to be processed directly from V or indirectly from other variables which have been already processed from V.

(1)   Selection of equations

a.   Gross Domestic Product (V)

This item is already explained in II, it is estimated at between 204. 2 billion and 207. 6 billion Bahts in 1976, which represents the growth rate of 7. 3 - 7. 7 % per annum at current prices.

The growth rate of per capita productivity per annum during the period up to 1976 given as 181. 5 Bahts each year in this calculation, can be converted to the growth rate of 4. 5 % per annum. (4. 5 % is the figure for growth rate of per capita production used in Thailand's 3rd five year economic and social development plan.)

b.   Expenditure on Consumption (C)

Logarithmic equation (log C = 0. 1324 + 0. 9537 log V, Formula 17) is selected as usual way to process consumption value directly from G. D. P. value (V).

c.   Expenditure on Investment (I)

Non-logarithmic equation (I = -6, 198. 6 + 0. 2677 V, Formula 18) is selected, although the correlation coefficients of both logarithmic and non logarithmic equations have almost no difference. The rate of change of the percentage of this item agsinst G. D. P. (V) is found much bigger than that of consumption, and it is found that the percentage has been showing downwards tendency from 23. 71 % in 1968,

the highest peak to 19. 89 % in 1972 in the recent year. Such tendency cannot justify the selection of logarithmic equation.

d. Export (X)

Logarithmic equation to produce export value (X) directly from G. D. P. (V) is selcted as usual way as selected in the above said b. to produce value of consumption directly from value of G. D. P. and Fourmula 11 (log X = -0.7706 + 1. 0049 log V) is selected.

e. Import (M)

Import (M) value is formulated undirectly from G. D. P. (V), in other words, import value is processed from both consumption (C) and investment (I) which are direct derivatives of G. D. P.

In case of import value of the country, it has better correlation coefficient to process the figure undirectly from G. D. P. than any other directly processing method from G. D. P.

Formula 4, (M = -129.6 + 0. 1637 C + 0. 3726 I) is selected among 4 equations as to Import (M).

f. 1 Receipt from U. S. military services (X2)

The rate of change (1.7354) is too big to make any formula and then no mathematical effort is made to trace the tendency.

f. 2 Receipt from other services (X3)

Formula 15(X3 = 2,981.5 + 410. 2 t) is formulated to process the figures in time - series trend.

f. 3 Export of goods plus receipt from U. S. military services
(X1 + X2)

The above mentioned value of X3 is deducted from value of X to get value of (X1 + X2), because X equals X1 + X2 + X3 by definition.

Value of X1 can be, of course, processed through various equations independently, however, only value of (X1 + X2) was introduced through the formation of (X1 + X2) = (X - X3) to make consistency among value of X Group, and to get rid of numbers of controvercial problems.

g. 1   Import of services (M2)

Value of import of services (M2) is calculated by time-series-trend method - Formula 9, (M2 = 2,065.5 + 266.9 t).

g. 2   Import of goods (M1)

Value of import of goods (M1) is produced from value of import of goods and services (M) which is processed by Formula 4, mentioned in e. of this subject, the value of M2 is deducted therefrom.

The value of import of goods can be processed through various possible independent equations just as mentioned about import of goods, however, it is simply introduced by method of deduction of value of M2 from value of M in order to get rid of possible controvercial problems in this case as shown in case of X1.

(2)   Summerized results

Number of figures as to necessary items, in other words, V, C, I, M, X etc. produced by number of equations as selected by foregoing (1) are summarized in the next page for convenience to see.

The table will be helpful to know how to operate equations and how a number of figures keep consistency each others.

Analized Figures in the perspective

		formula No.	1976	1980
(e)	Per capita productivity		4,850	5,700
	$e = 3047 + 185.1t$ (1966; $t = 0$)			
(P)	Population		42.1-42.8	46.5-48.1
(V)	Gross Domestic Product			
	$V = e.p$	formula 1	204.2-207.6	265.1-274.2
(C)	Expenditure on Consumption			
	$\log C = C.1324 + 0.9539 \log V$	formula 17	157.6-160.1	202.1-208.8
(I)	Expenditure on Investment			
	$I = -6198.6 + 0.2677 V$	formula 18	48.5-49.4	64.8-67.2
(X)	Export of Goods and Services			
	$\log X = -0.7706 + 1.0049 \log V$	formula 11	36.8-37.4	47.8-48.6
(X1 = X2)	Export of Goods and Receipt from U.S. military Services	X - X3	30.1-30.7	39.5-40.3
°(X3)	Receipt from other services			
	$X3 = 2985.1 + 410.2 t$ (1967; $t=0$)	formula 15	6.7	8.3
(M)	Import of Goods and Services			
	$M = -12..6 + 0.1637 C + 0.3726 I$	formula 4	43.7 - 44.5	57.1-59.1
(M1)	Import of Goods	(M - M2)	39.2-40.0	51.6-53.6
(M2)	Import of Services			
	$M2 = -2005.5 + 260.9 t$ (1967;			
	$t = 0$)	formula 9	4.5	5.5
(S)	Change of Stock	$S = \bar{S} = \frac{\Sigma S}{n}$	1.7	1.7
(E)	Statistical Discrepancy			
	$E = V - C - X - S + M$		3.3-3.5	5.8-7.0

Unit = e = Baht
       P = Million
others = Billion Bahts
(formula Million Bahts)

6.2 Evaluation and Comment on the Analized Results

(1) Statistical Discrepancy

Statistical Discrepancy (E) appeared in the table summerizing the analized results on the proceeding page, higher in 1980 than in 1976.

It is unavoidable matter to make such discrepancy in the process of making figures by independent equations in the frame of equilibrium model and to make discrepancy bigger in the longer period.

(2) Possible adjustment

a. Statistical discrepancy (E)

Statistical discrepancy appearing in the summerized table, has important meaning in this case. It has a meaning of possible adjustment to the individual analized figures under a certain stipulation. What figures, how and why, are possible to be adjusted? It is needed to know completely how and why these figures are processed by different kind of equations. It is needed to understand the meaning of the selected equations and the meaning of the discrepancy in this case.

A few examples of possible adjustment is as follows;

Discrepancy in this case has to be distributed to consumption, Investment, Export and/or Import to adjust the figures more comprehensively. G.D.P. is established figure from where every values were introduced. G.D.P. has to be said implicit factor which cannot be adjusted in the case.

In case if the all value of the discrepancy is distributed to Import, the value of import would be adjusted by so far, and the value of it would be decreased by the value of discrepancy. A part of value of the discrepancy is also possibly distributed to import and then the value of import would be adjusted by so far. The latter possibility

is understood probably so high in the analysis for this time.

b. Receipt from other services (X3)

The value of this item produced in the preceeding table is pro-
duced by time-series simple equation. In consideration of actual
figures presented in attached sheet (B) indicating that the figures of
this categories are growing rapidly in the recent years, mainly owing
to boost of tourism industry here, it is possibly expected that the
figures in this item will grow and will be over perspective figures
in 1976 and 1980 in the preceeding table. If so, value of X3 will
gain more than listed values in the table. 1/

Other figures under X group should be shaffled to adjustment
to keep consistency each other, and the figures of statistical dis-
crepancy will be adjusted by so far.

1/ in case of equations   X3 $= f(t)$ value of 1976 $= 6.7$ bil. B

                      X3 $= f(1 + R)^n$ value of 1976 $= 10.0$ bil. B

         where,   R $= \left(n\sqrt{\dfrac{X3^n}{X3^o}} - 1 \right)$

                      X3 $= f(V)$ value of 1976 $= 9.1 - 9.2$

VII   Prelimiary Assessment of Development Strategies for Increasing
      Export

Although Formula 14 (log X1 = 2.7189 - 0.1117 log C + 0.4492 log I) is not selected to summarize analized result, this formula has important meaning in increment for export of goods in economic activity. This formula forms linear constraint function for export of goods (X1). Consequently the following strategic basis for increasing export of goods can be derived by the above mentioned formula.

The strategic basis is not different from classical logic to the effect that export of goods will be made both by saving of consumption on the one hand and by expanded production through investment on the other hand. This logic is expressed in quantitative form in this equation.

One measure to solve one problem is expected to produce another controvercial problems from time to time, and the one measure prc- bably cannot be good enough to solve dilemma. For instance, export will be some time inflational factor in the economic activity, and import is deflational factor. In such sense, export has to be made without inflational movement according to expanded economic activity, in other words, expanded productivity which is achieved by expaned investment. Otherwise only one meaure to promote export without any counter measure supporting export will bring about not only dilemma, but also unsought trilemma and further multilemma impos- sible to settle down.

The equation clearifies how important the investment is to in- crease the export. The equation indicates, as explained before, two facts under normal circumstances.

(1) The export will go down by 1.1 %, in case when expenditure on consumption increases by 10 %. (in other word, will go up by 1.1 % by 10 % less consumption) In case of Thailand, population is growing up by about 3 % per year. Even under assumption of same per capita

consumption in comparison with the previous year, the export would go down by about 0. 4 % without any expanded production.

(2) The export will go up by about 4. 5 % when the investment increases by 10 % as comapred with the previous year.

The definition of investment here, includes both Government and private investment.

Investment may be generally grouped into 3 categories as follows;

1. investment for research work

2. investment for infrastructure

3. investment for industry, agriculture and other economic sectors to produce economic value.

What kind of investment is provided either by government or private sectors? It is different by countries. Some times a certain project is invested from both government and private sources together according to the character of the project.

Two case studies are to be introduced here how the investment of both agriculture and industry improves the production and expands the export of goods from Thailand in recent years.

a. According to the study of L. E. Small (An economic evaluation of water control in the northern Region of the Greater Chao Phya Project - roughly 3. 7 million rai project), the report evaluated the rice productivity between the "Before" and "After" periods of investment of water control in the Chao Phya Project as explained in the next table. Some of added production are believed to be exported from this region.

Components of the Increase in the Wet Season Paddy Production
between the "Before" and "After" Periods

Source of Increase	Magnitude of Increase (1,000 M/T, Paddy)	Cal. 2 as % of total Production in the area [a]
Total	215.5	18.7
Factor not related to water control	47.9	4.1
a. Not effect of difference in weather	1.0	0.1
b. Fertilizer	10.5	1.4
c. Pesticides and herbicides	3.9	0.3
d. Improved management associated with use of chemical	20.5	2.3
Factor related to water control	167.6	14.6
a. Change in method of planting	18.2	1.6
b. Reduction in damaged area	37.4	3.3
c. Other increase in yield per unit area harvested [b]	112.0	9.7

[a] Based on average annual production (1965 - 1969) of 1,150 thousand metric tons.

[b] Estimated as a residual.

Further, according to the report of ECAFE, (WRD/MKG/INF L. 566, 4 Januarry 1973) Capital elasticity for yield of paddy is estimated at 0. 39 in Central Thailand, 0. 53 and 0. 26 in Northeast and North Thailand respectively.

b. The study on relationship between investment and export of textile of the Thailand established two equations which have already been explained in IV, 4. 3, (c) in the previous part. (from the page 107)

(i) $\qquad$ X $\quad =$ $\qquad$ -4, 800. 9 + 1, 736. 8 log I
$$(R^2 \quad = \quad 0. 8384)$$

(ii) $\qquad$ X $\quad =$ $\qquad$ -79. 2 + 0. 498 I
$$(R^2 \quad = \quad 0. 814)$$

Where,

X $\quad =$ $\quad$ Export of textile from Thailand

I $\quad =$ $\quad$ Accumulation of Investment in textile industry in Thailand.

These equations show how important the investment is to develop the manufactured goods export.

It is not too much saying to mention that general strategy for export promotion may be effective investment to provide productivity of both "manufactured goods" and "agricultural products" mainly for export use.

APPENDIX

Statistical Section

Attached Sheet (A)

Expenditure on Gross Domestic Product at Current Price

(Unit : Value = Million Bahts, Growth Rate = %)

		1960	1961	
		Value	Value	Growth rate
Consumption expenditures	(C)	44,670	48,113	7.7
Private	(Cp)	39,328	42,492	8.0
Government	(Cg)	5,342	5,621	5.2
Gross fixed capita formation	(I)	7,555	8,315	10.1
Private	(Ip)			
Government	(Ig)			
change in Stocks	(S)	903	604	
Export of goods and services	(X)	9,441	11,076	17.3
Export of goods	(X1)			
Receipt from U.S. military services	(X2)			
Receipt from other services	(X3)			
Import of goods and services	(M)	10,184	10,932	7.3
Import of goods	(M1)			
Payments for servides	(M2)			
Statistical discrepancy	(E)	1,600	1,789	
Expenditures on gross domestic product (at current prices)	(V)	53,984	58,970	9.2

Source: National Income of Thailand, NEDB; 1968 - 1969 Edition.
National Income of Thailand, NEDB; 1970 - 1971 Edition
Receipt from U.S. military services (X3);
Monthly Bulletin of Bang of Thailand

Remark: Receipt from other services $(X_3) = (X) - (X_1) - (X_2)$

	1962		1963		1964		1965	
	Value	Growth rate	Value	Growth rate	Value	Growth rate	Value	Growth rate
C	53,032	10.2	56,808	7.1	61,091	7.5	66,908	9.5
Cp	46,752	10.0	49,884	6.7	53,613	7.5	58,574	9.3
Cg	6,280	11.7	6,924	10.3	7,478	8.0	8,334	11.4
I	10,093	21.4	12,085	19.7	14,519	20.1	15,986	10.1
Ip							10,542	
Ig							5,444	
S	1,644		2,535		469		1,026	
X	10,838	-2.1	11,161	3.0	14,039	28.8	15,387	9.6
X1	9,435		9,578	1.5	12,163	27.0	12,664	4.1
X2	302		361	77.0	438	21.3	922	110.5
X3	1,199		1,222	1.9	1,436	17.5	1,801	25.4
M	12,194	11.5	13,551	11.1	15,188	12.1	16,488	8.6
M1	11,242		12,547	11.6	14,015	11.7	15,091	7.7
M2	952		1,004	5.5	11,173	16.8	1,397	19.1
E	380		-959		-262		1,485	
V	63,793	8.2	68.079	6.7	74,667	9.7	84,303	12.9

		1966		1967		1968		1969	
		Value	Growth rate	Value	Growth rate	Value	Growth rate	Value	Growth rate
C		75,951	13,5	85,705	12.8	94,831	10.6	104,202	9.9
	Cp	66,663	13,8	75.007	12.5	81,697	8.9	89,489	9.5
	Cg	9,288	11.4	10,698	15.2	13,134	22.8	14,713	12.0
I		20,364	27.4	24,789	21.7	27,814	12.2	30,860	11.0
	Ip	13,636	29.3	16,603	21.8	18,490	11.4	21,123	14.7
	Ig	6,738	23,8	8,186	21.5	9,325	13.9	9,647	3.5
S		3,544		-105		578		3,141	
X		19,342	25.7	21,398	10.6	21,596	0.9	22,206	2.8
	X1	13,817	9.1	13,817	0.0	13,228	-4.5	14,267	7.9
	X2	2,598	180.8	4,109	58.7	4,918	19.7	4,630	-5.9
	X3	2,936	63.0	4,472	18.3	3,450	-0.6	3,309	-4.1
M		19,706	19.5	23,803	20.8	26,370	10.8	27,931	5.9
	M1	18,172	20.4	21,813	20.0	23,646	8.4	25,423	7.5
	M2	1,534	9.8	1,990	29.7	2,724	36.9	2,508	-7.9
E		1,879		242		-1,143		-1,865	
V		101,375	20.3	108,224	6.8	117,307	8.4	130,613	11.3

	1970P		1971P		1972P		Annual Averaged
	Value	Growth rate	Value	Growth rate	Value	Growth rate	Growth rate
C	107,597	-3.3	114,246	6.2	123,727	8.3	8.8
Cp	92,008	2.8	96,917	5.3	105,844	9.2	8.6
Cg	15,589	6.0	17,329	11.2	17,883	3.2	10.6
I	31,824	3.1	31,552	-0.9	30,682	-2.8	12,4
Ip							19.1
Ig							15.4
S	3,166		1,861		2,134		
X	22,720	2.3	25,055	10.3	28,350	13.2	9.6
X1	14,256	-0.1	16,567	16.2			6.5
X2	4,192	-9.5	3,789	-9.6			38,4
X3	4,272	29.1	4,699	10.0			16.0
M	29.316	5.0	29,735	1.4	31,955	7,5	10.0
M1	26,407	3.9	26,606	0.8			10.0
M2	2,909	16.0	3,129	7.6			14.1
E	-42		1,581		1,303		
V	135,949	4.1	144,560	6.3	154,239	6.7	9.1

Attached Sheet (B)

Ratios of Economic Factors against Gross Domestic Product

	1960	1961	1962	1963	1964
C/V	0.8275	0.8159	0.8313	0.8344	0.8182
Cp/V	0.7285	0.7206	0.7329	0.7327	0.7180
Cg/V	0.0990	0.0953	0.0984	0.1017	0.1002
I/V	0.1399	0.1410	0.1582	0.1775	0.1945
Ip/V					
Ig/V					
X/V	0.1749	0.1878	0.1699	0.1639	0.1880
X1/V			0.1479	0.1407	0.1629
X2/V			0.0032	0.0053	0.0059
X3/V			0.0188	0.0129	0.0192
M/V	0.1886	0.1854	0.1911	0.1990	0.2034
M1/V			0.1762	0.1843	0.1877
M2/V			0.0149	0.0147	0.0157
V/p (e)	2,046	2,167	2,274	2,354	2,504

(Per Capita
G. D. P. Bahts)

	1965	1966	1967	1968	1969
C/V	0.7937	0,7492	0.7920	0,8084	0.7977
Cp/V	0.6948	0.6576	0.6931	0.6964	0.6851
Cg/V	0.0989	0.0916	0.0989	0.1120	0.1126
I/V	0.1896	0.2009	0.2291	0.2371	0.2363
Ip/V	0.1250	0.1344	0.1534	0.1576	0.1624
Ig/V	0.0646	0.0665	0.0756	0.0795	0.0739
X/V	0.1825	0.1908	0.1977	0.1841	0.1700
X1/V	0.1502	0.1363	0.1277	0.1128	0.1092
X2/V	0.0109	0.0255	0.0380	0.0419	0.0354
X3/V	0.0214	0.0290	0.0321	0.0294	0.0253
MV	0.1956	0.1944	0.2199	0.2248	0.2138
M1/V	0.1790	0.1793	0.2016	0.2016	0.1946
M2/V	0.0166	0.0151	0.0184	0.0232	0.0192
V/p (e)	2,742	3,198	3,312	3,482	3,760

	1970P	1971P	1972P
C/V	0.7915	0.7903	0.8021
Cp/V	0.6768	0.6704	0.6862
Cg/V	0.1147	0.1199	0.1159
I/V	0.2341	0.2183	0.1989
Ip/V			
Ig/V			
X/V	0.1671	0.1733	0.1838
X1V	0.1042	0.1146	
X2/V	0.0308	0.0262	
X3/V	0.0314	0.0325	
M/V	0.2156	0.2057	0.2072
M1/V	0.1942	0.1840	
M2/V	0.0214	0.0216	
V/p (e)	3,796		