THE PRESIDENT'S SCIENCE ADVISORY COMMITTEE
EXECUTIVE OFFICE BUILDING
WASHINGTON, D.C. 20506

September 4, 1971

MEMORANDUM FOR

Members and Consultants
President's Science Advisory Committee

Several PSAC members requested copies of the attached charts presented by Mr. Peterson on foreign trade.

Dave

David Beckler
Executive Officer

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2. INTERNATIONAL RESERVES
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SHARE OF WORLD GNP

1. US share of GNP is falling gradually but is still the biggest share compared to EC, LDC's and Communist bloc nations.

2.. EC share including Britain (even with Britain declining) is growing rapidly.

3. Communist and less-developed area shares of world GNP are also growing.

4. Japan shows exploding growth -- ~~doubling~~ more than doubling its share in each of the last 10 years.

INTERNATIONAL RESERVES

1. Total reserves are growing but not as rapidly as trade.

2. US and UK relative position has declined significantly.

3. European Community holdings continue to improve substantially.

4. Japanese reserve holdings are growing rapidly.

WORLD EXPORTS

1. World exports are more than doubling every ten years.

2. EC is experiencing rapid growth, expanding from 15% in 1950 to 23% in 1960 to 28% in 1970 (about 1/2 of that internal within the Common Market).

-- Expanded Community has grown approximately 40% since 1950. Nearly 50% growth in exports of manufactured products alone vs. about 15% for the U.S. or 3 to 1. This must be kept in mind as we think about areas for tariff reductions.

3. Even is you exclude exports intra-European Community, their growth in exports is 50% larger than U.S.

4. UK has grown from 10% in 1950 to 8% in 1960 to 6% in 1970.

5. Japan has grown from 1% in 1950 to 3% in 1960 to 6% in 1970.

6. Less-developed countries have declined from 33% in 1950 to 23% in 1960 to 19% in 1970.

U.S. GNP - GOOD AND SERVICES

1. As U.S. economy grew to trillion dollar level, the structural shift from goods toward a service economy became evident.

2. This partially explains our changing trade position . . . goods are becoming less important, as services increased as a share of U.S. GNP from 30% in 1950 to 41% in 1970.

EXPORTS IN RELATION TO PRODUCTION

1. World dependence on exports is growing generally.

2. Exports are much more important to many other major economies than to ours. Not only are exports more central to them but it is also more important that they focus on solving trade problems.

3. This also helps explain why some economies have not revalued their currencies upward which would make their exports more expensive and their imports less expensive.

4. Note the high dependence on trade by Canada, and U.K., compared to the U.S.

US SHARE OF WORLD EXPORTS AND IMPORTS

1. This chart shows that the general trend of US exports as a share of world exports has declined slowly from 15% in 1960 to about 14% in 1970. US is still the single largest trader with over $40 billion compared to about $30 billion for Germany.

2. Our share of world imports has risen slowly from 10.2% in 1960 to 12.3% in 1970.

3. Note that in 1964 our overall merchandise trade surplus was $6.9 billion, compared to about $2.7 billion in 1970.

U.S. FOREIGN TRADE

1. Imports and exports both now exceed $40 billion a year.

2. As noted before, imports have tended to grow more rapidly than exports.

3. Note the importance of "technology intensive" manufactured products . . . about $20 billion or almost half of our total.

U.S. FOREIGN TRADE TRENDS

1. Experts differ on the breakdown of manufactured products as far as technology goes.

2. However, if the past is prologue, as these charts show, our future is in:

   -- Agriculture

   -- Technology intensive manufactures

3. It is predictable that our imports of fuels and raw materials will grow, as will pressure on non-technologically intensive products. Lower cost industrialized countries will focus on items such as shoes which are relatively easy to make and which don't take too much capital.

4. New entrants in the export markets will also emphasize simple products such as hand tools, textiles, bicycles, household utensils, sports equipment.

U.S. AGRICULTURE

1. Agricultural productivity is high.

2. As the agricultural work force declined in 20 years from 7 to 3.5 million workers, output grew.

3. We do have a "comparative advantage" in agriculture . . . it would seem important that we capitalize on it.

TRADE AND TECHNOLOGY

1. Except for automobiles and telecommunications apparatus we do well in such areas as computers and nuclear reactors.

2. Note, however, the problems in the non-technologically intensive items, especially iron and steel products.

U.S. RATIO OF IMPORTS TO CONSUMPTION

1. This chart shows market penetration and if you will look at the last three categories you will see the impact of imports on Audio Cassette Recorders, molton picture cameras and 35mm still cameras.

2. Assessing these ratios from the standpoint of possible imposition, there are many problems more serious than textiles and nonrubber footwear.

U.S. TRADE WITH CANADA

1. Canada is the most important of our principal trading partners. Note the relatively recent $2 billion deficit in our balance with Canada.

2. The increase in U.S. imports and the decline in our surplus in technologically intensive manufactured goods is in good measure attributable to:

   (1) auto parts imports;

   (2) under valuation of the Canadian dollar, which now appears to be resolved since the Canadian exchange rate has "floated up" by 7-8%.

U.S. TRADE WITH THE EUROPEAN COMMUNITY

1. Our surplus of exports over imports in 1970 is almost $2 billion. The surplus on agriculture alone is $1 billion.

2. If we had a breakdown, we would note that the agricultural growth is in items not subject to the variable levy system . . . largely soybeans. Those subject to the levis have declined.

3. We are maintaining a rather healthy surplus on technologically intensive products.

U.S. TRADE WITH JAPAN

1. Growth rates for both imports and exports are higher with Japan than with any other trading partner. About 30% of Japanese exports are to U.S. . . only about 6% to EC . . . even though EC is a much more important trading group. Looked at from the Community's standpoint, only 2% of exports go to Japan.

2. Pressure on the import side is intense.

Undervaluation of the yen may be part of the explanation.

Another part of the explanation is the Japanese concentration on technology.

3. Note that only with Japan do we have a deficit in the trade of technology intensive manufactured products . . . and it is steadily growing.

FREE WORLD TRADE WITH USSR AND EASTERN EUROPE

1. Business is being done by our allies, providing increasing employment opportunities.

2. Note, however, how closely balanced imports and exports are.

3. This is almost inevitable considering the Communist trading system . . . Barter, currency convertibility problems.

AVERAGE TARIFF RATES (AFTER KENNEDY ROUND)

1. Rates for manufactured and semi-manufactured products are virtually the same among the major industrialized countries, with UK and Japan slightly above US and EC.

2. Remaining rates are highly significant: they are twice as large as the rate cuts of the Kennedy Round, which are credited with sharply expanding trade as a result.

3. Tariffs on manufactured goods from the LDC's were relatively higher after the Kennedy Round since most of the reductions were on more advanced manufactures. The LDC position will be improved by the proposed general preferences.

TARIFF DISTRIBUTION

1. US has substantial disparity in its tariffs, and along with Japan has the largest number of both low rates and high rates.

QUANTITATIVE RESTRICTIONS ON AGRICULTURAL IMPORTS

1. This chart includes voluntary restrictions, such as our meat program, as well as mandatory quotas and EC variable levies.

2. EC is most protective of its agriculture, compared to the US and UK.

3. Our quantitative restrictions are also a major political irritant with the LDC's -- particularly Latin America.

FREE WORLD OFFICIAL DEVELOPMENT ASSISTANCE

1. As a percentage of GNP, ratio of U.S. development assistance has declined gradually, dropping from 3rd to 11th place among free world nations since 1963.

CURRENT ACCOUNT BALANCE

1. This chart measures trade in goods and services and shows a continuing surplus -- though reduced sharply from mid-1960's.

2. Strong features are trade surplus and especially large and rapidly growing income from our foreign investments . . . gross amount now at $8 billion vs. only $1.7 billion 20 years ago.

3. These are partly offset by our large overseas military expenditures and foreign travel by Americans.

BASIC BALANCE

1. Adds long-term capital movements to current account balance.

2. Main difference is US foreign direct investment, which shows big annual outflows (more than offset of course by income on earlier investment, included on current account).

3. Also includes large US investment in foreign, mostly Canadian securities.

4. This trend is partly offset by foreign investment in US.

5. Note the relatively steady deficit in $2-3 billion range throughout the postwar period.

LIQUIDITY BALANCE

1. Adds short-term movements of US capital to basic balance.

2. It is therefore more volatile than preceding balances.

3. Measures potential claims of all foreigners -- private citizens as well as officials -- against US reserves; in almost the same way that countries whose currencies are undervalued are reluctant to appreciate their currency; countries whose reserves are too low or going down or decreasing feel a much greater sense of urgency to take "action" than those whose reserves are "too high" or increasing. . .

4. Paul McCracken has pointed out that strong advice to the US to solve "our" balance of payments problem is to try to reconcile some rather inconsistent external payments objectives of other countries.

5. Note the steady deficits throughout postwar period, a bit larger than basic balance deficits.

OFFICIAL SETTLEMENTS BALANCE

1. This includes all short-term private capital and is thus extremely volatile.

2. US is in surplus on this concept in three of last five years, as our tight monetary policy attracted foreign capital and kept domestic money at home.

3. But we are in huge deficit in 1970 and so far this year due to our early monetary situation.

4. Huge gyrations in world capital movements due to our economies being in different stages of the business cycle and significant differences in interest rates demonstrate how world is on a "de facto dollar standard" . . . . and how careful one must be before taking actions for balance of payments reasons that may have undesirable effects on our economy and sometimes our international relationships.

TRENDS IN US LIQUID FOREIGN ASSETS AND LIABILITIES

1. This shows the short-term liquidity position of the US, comparing our reserve assets with foreign liquid claims on US.

2. Total foreign claims, official and private, now exceed our reserves by about $30 billion.

3. Even foreign external claims have now exceeded our reserves by $9 billion.

4. Foreigners could therefore obviously not cash in their dollars for US gold or other assets; this is one sense in which world is on a "dollar standard".

US FOREIGN ASSETS AND LIABILITIES

1. This shows overall US balance sheet in world economy, including long-term as well as liquid assets and liabilities.

2. Here we have huge net surplus: almost $70 billion, due largely to our huge stock of foreign direct investment ($71 billion).

3. So US international financial situation is "in trouble" only in a short-term liquidity sense; our long-term assets swamp our long-term liabilities.

GROWTH OF FREE WORLD GNP

1. DCs and LDCs grew at similar aggregate rates in the 1960's, for the LDC's performance in the 1960's was better than in the previous decade.

2. However, population growth is much more rapid in LDCs so per capita income growth there is significantly less: under 3% vis-a-vis 4% in the DC's.

3. Per capita income gap between DC's and LDC's ~~is~~ thus continues to grow rapidly.

PER CAPITA GNP

1. Huge gap between per capita income on DCs ($3,000) and LDCs ($200). This represents as much as 2/3 of the people of the world.

2. Gap is growing, because per capita income is growing faster in DCs -- dollar gap would grow even if DC growth were not faster, since DC base is so much larger that it requires much smaller percentage growth to provide larger absolute growth. For example, 6% - 7% growth in per capita income in U.S. equals entire LDC per capita income.

FREE WORLD FINANCIAL FLOWS TO LDCs

1. US share of total financial flows, including private investment as well as government aid, is now only about 1/3 of world total, more than 1/2 as recently as 1966.

2. US share of government aid only has dipped below 1/2 of total for first time, though of course our dollar amounts are still way above that of any other single country.

3. Note that private foreign flows to LDCs are rising rapidly, while US private flows have fallen off sharply. We are examining why other industrialized countries are making these increased investments at a much faster rate than we are . . . raw materials seem to be one of the answers.

U.S. FOREIGN DIRECT INVESTMENT ABROAD

1. Investment abroad has more than doubled in ten years ($32 billion in 1960 to $71 billion in 1969).

2. Total investment in Europe has tripled during this period, and its share of the total has risen from 21% to 30%.

3. Latin American total investment has grown the most slowly, and its share has declined noticeably.

4. Note the tiny amount in Japan which represents less than 2% of the total.

U.S. INVESTMENT TRENDS (PLANT & EQUIPMENT)

1. Domestic investment is much greater than foreign investment.

2. However, foreign investment has increased more than twice as fast as domestic investment over the last decade.

3. Foreign investment now amounts to about 15% of total U.S. investment, whereas exports amount to only about 4% of total GNP and 13% of goods produced.

U.S. DIRECT EXPORTS vs. SALES OF U.S.-OWNED FOREIGN AFFILIATES

1. Sales of our foreign affiliates are now double our direct exports.

2. They have also been growing more than twice as fast throughout the last decade.

3. This raises the basic issue of the intricate relationship between trade, investment, and balance of payments.

THE MULTINATIONAL CORPORATION

1. Of the 50 largest multinational companies, 39 are headquartered in the U.S.

2. Through its size, geographic diversification, and integrated activities, this type of corporation can use its resources to best advantage throughout the world.

3. Transfer of knowhow abroad has impact on competitive position of U.S. firm technology intensive exports in world markets.

4. Multinational horizon exceeds limits of national states.

5. Sales of foreign manufacturing affiliates increasing rapidly in last decade affecting exports of U.S. manufactured commodities raising issues of domestic employment declines in export related areas.

UNIT LABOR COSTS IN MANUFACTURING

1. U.S. had good record through 1967, but costs have been up sharply since then.

2. U.K. helped greatly by 1967 devaluation of 14.3% (chart is in dollar equivalents), but they are at it again.

3. German costs (in dollar terms) have sharply increased . . . the 1969 revaluation of 9.3% played an important role.

4. Japan's unit labor costs have been unchanged throughout the 1960s in spite of annual wage increases in the range of 10-15%, leading to the sharp increase in their share of world exports noted earlier.

U.S. USE OF NATURAL RESOURCES

1. Along with men, methods, and money . . . access to low cost raw materials is a major factor in the competitiveness of a society.

2. We now import 15% of our mineral requirements.

3. We are already net importers of each key mineral as oil, bauxite, copper, and raw ore.

4. But we <u>will</u> import 30-50% of our requirements by the year 2000.

5. Some of our competitors . . . particularly the Japanese . . . are moving vigorously on this front.

PRIVATE SECTOR R&D

1. A US trade surplus requires US to stay ahead in high-technology industries, so our R&D must keep us ahead of other countries.

2. Yet in these relative terms, UK has passed us with major government programs of investment grants and tax incentives for R&D.

3. And other countries are close to us, though Japan in particular has in fact imported R&D cheaply with licensing and minority interests, and thus caught up very quickly in the high-technology areas.

4. Some might attribute major industrial fallout to our US defense and space R&D. However, the evidence does not indicate positive results from that expenditure in terms of its relative impact on our country's commercial or industrial strength.

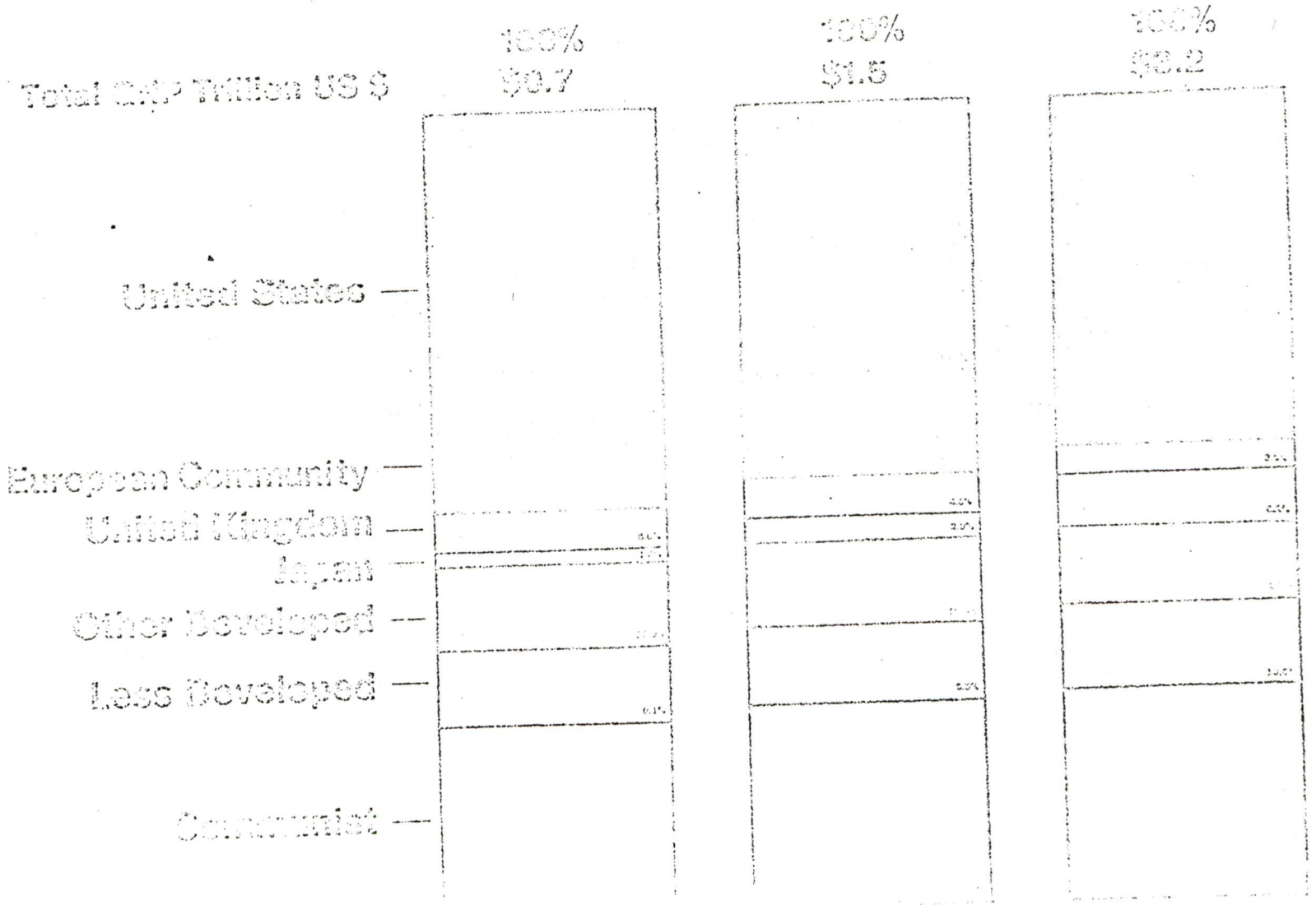
JAPAN, INC.

INDUSTRIAL IMPORTS FROM OECD COUNTRIES SUBJECT TO QRs

1. Japan has the most (81) but has reduced them sharply (from 132 in 1963) and will bring them below the US (67) and EC (65) levels by next year.

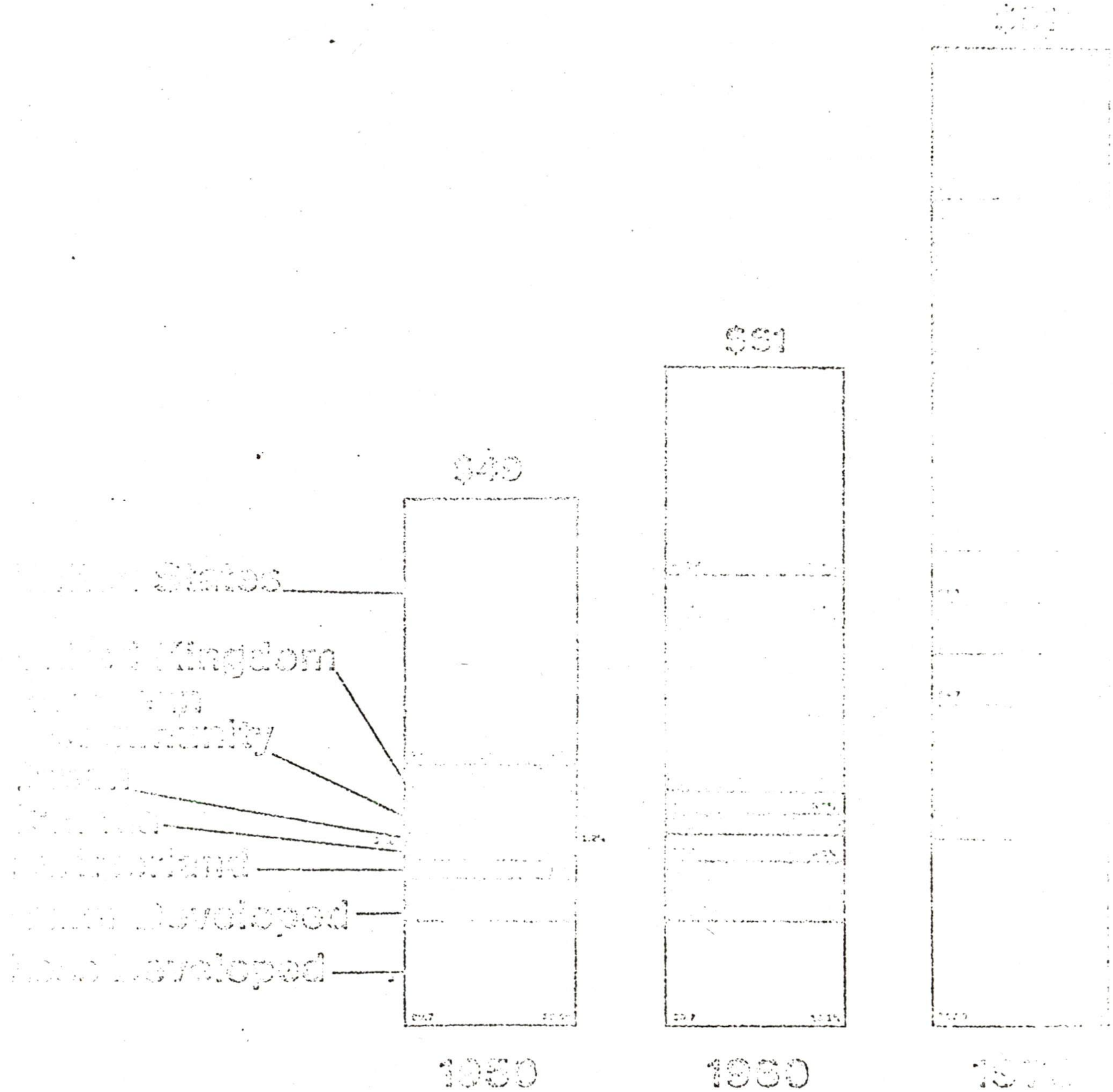
2. US restrictions, again including voluntary restraints, have grown faster than anyone else's since 1963: from 7 to 67 items.

3. In addition, however, EC and UK maintain a large number of special restrictions only against Japan. If EC could take more Japanese products . . . it could obviously relieve some of the import pressure on the US.

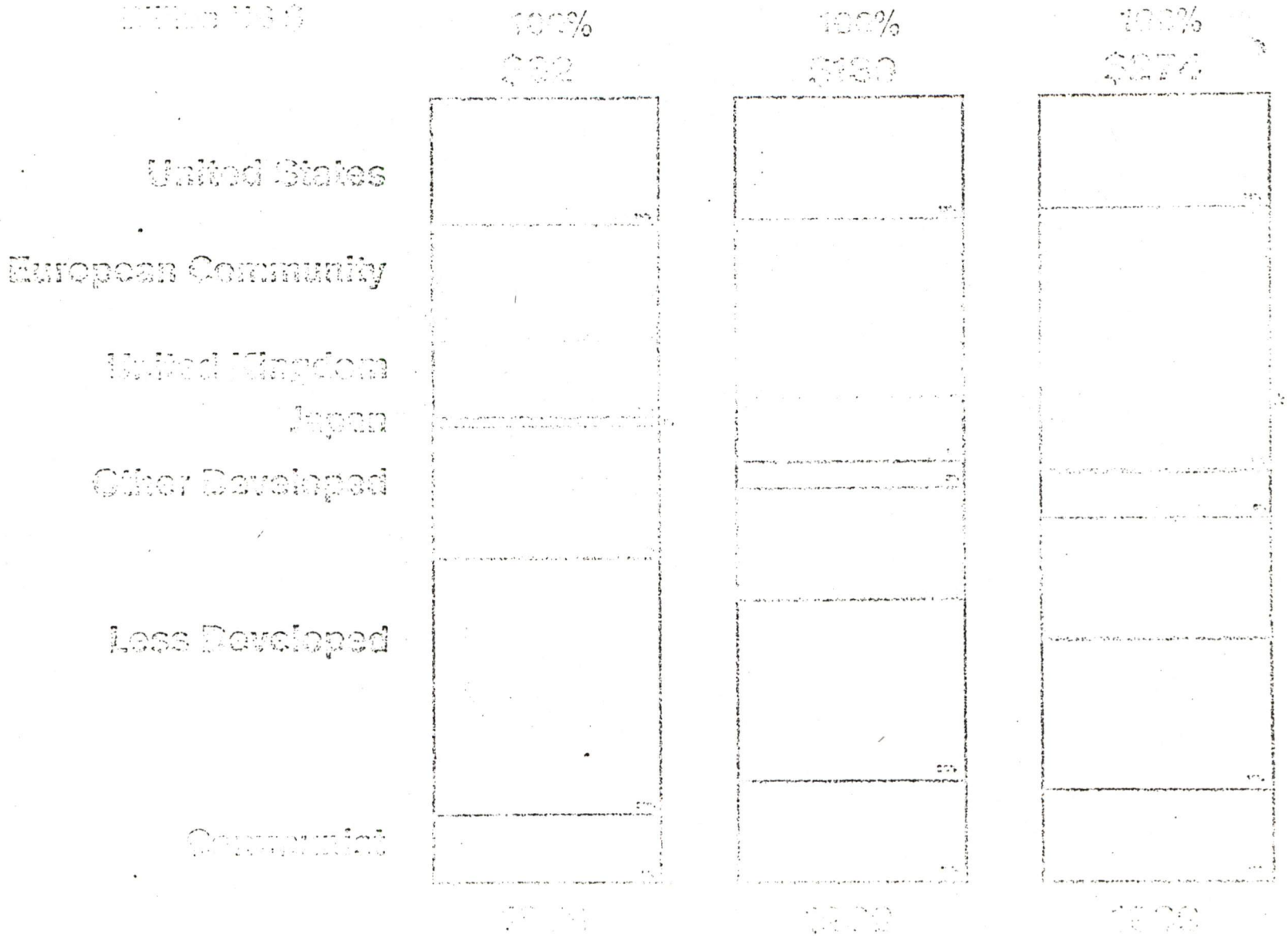

Total GNP Trillion US $
100%
$0.7
100%
$1.5
100%
$3.2
United States
European Community
United Kingdom
Japan
Other Developed
Less Developed
Communist

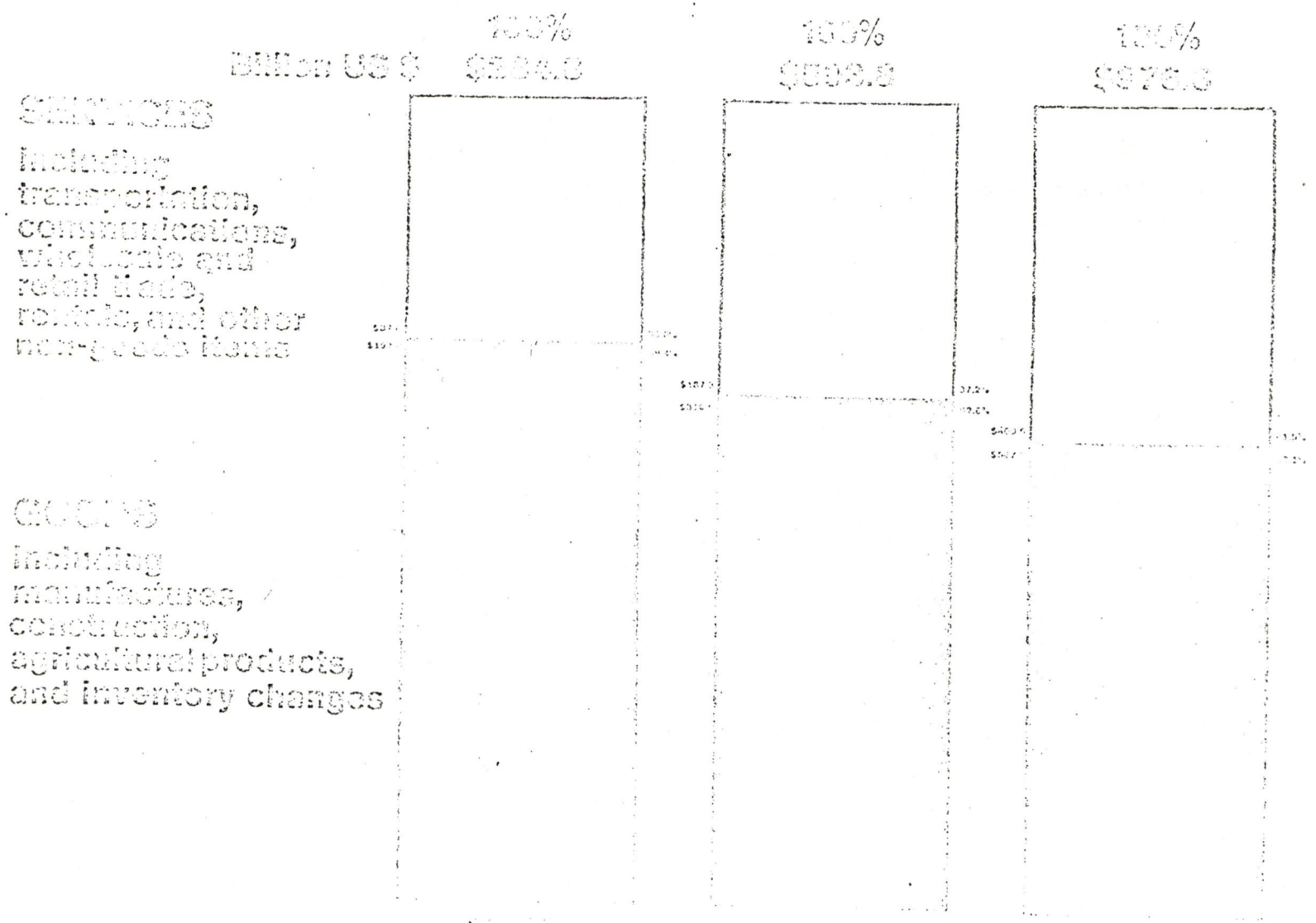
...national Reserves*

...llion US $



*Includes gold, SDR's reserve position in the IMF & foreign exchange

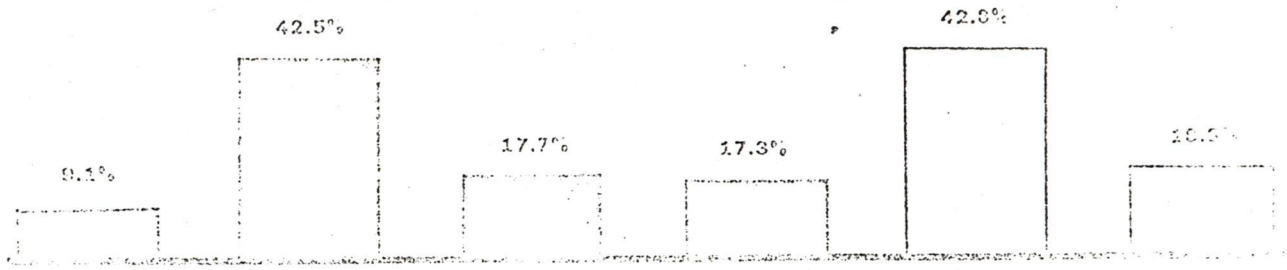

United States
European Community
United Kingdom
Japan
Other Developed
Less Developed
Communist


Billion US $
SERVICES
Including transportation, communications, wholesale and retail trade, rentals, and other non-goods items
GOODS
Including manufactures, construction, agricultural products, and inventory changes

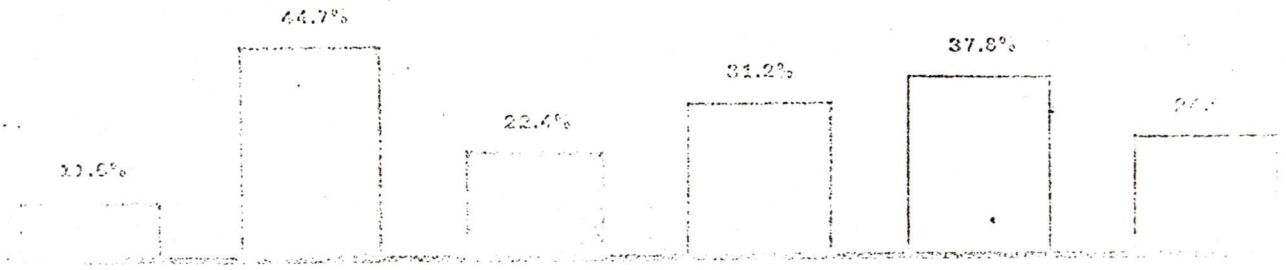
Exports in Relation to Production*

* Including agriculture, forestry, fishing, mining, quarrying, and manufacturing

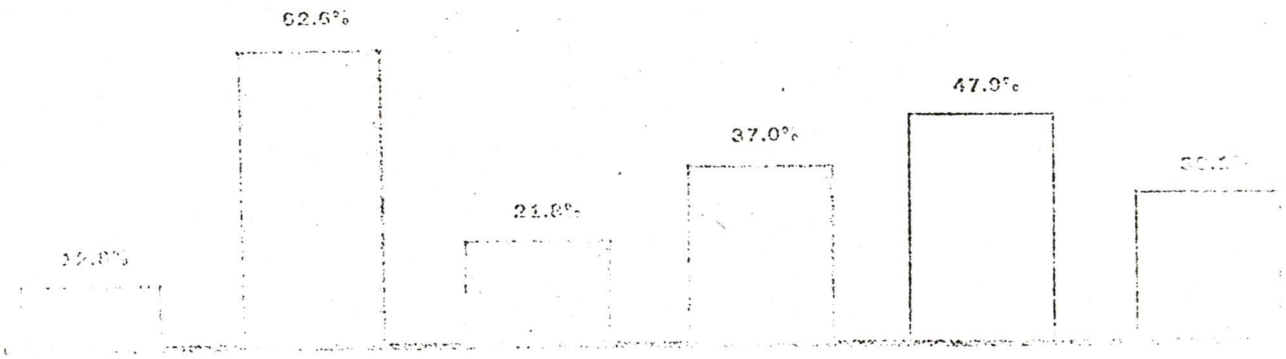
1950



1960



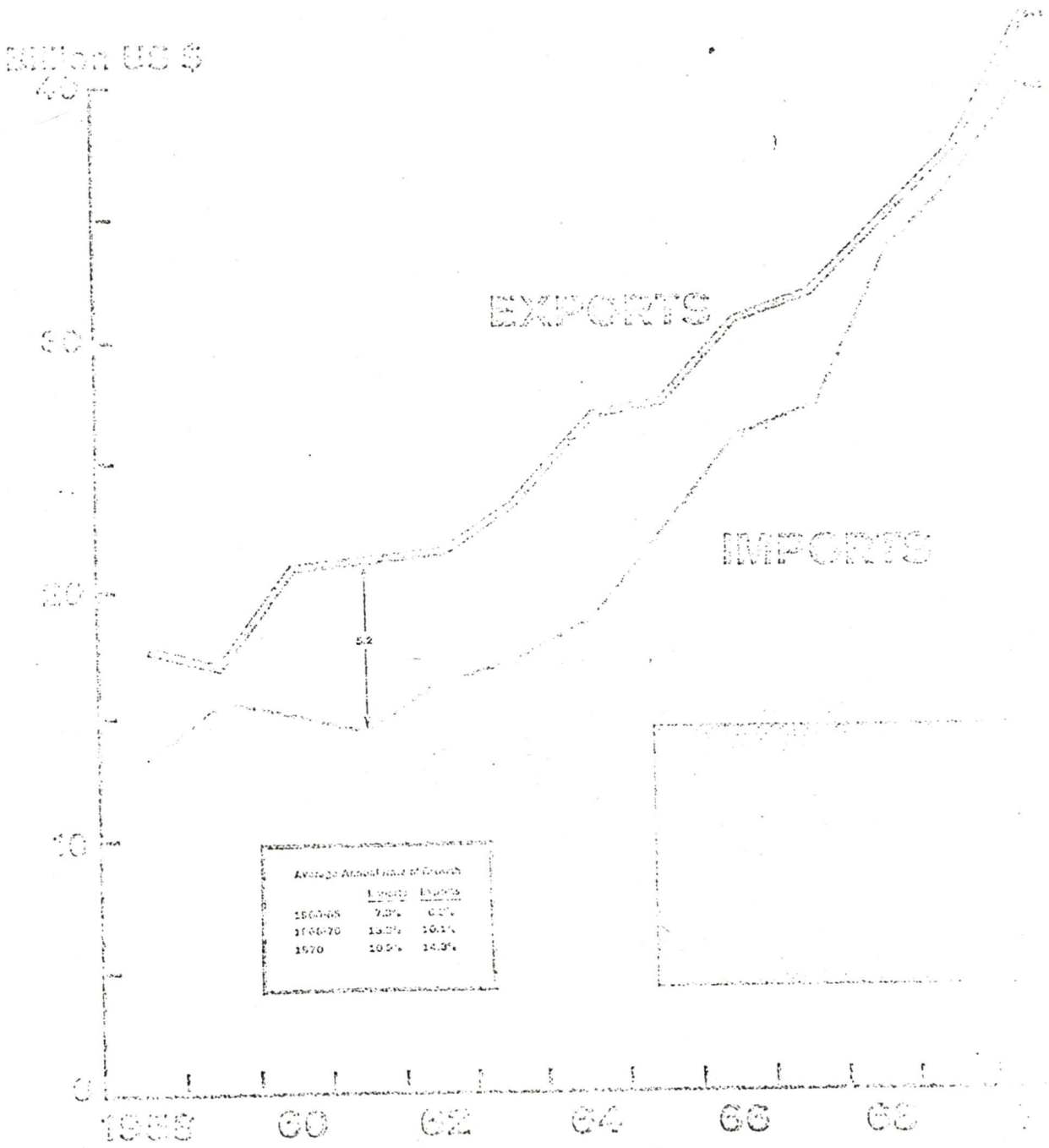
1968



USA Canada EEC (Excludes Intra-trade) West Germany UK Japan


EXPORTS
IMPORTS
15%
10%
1960
65
1970

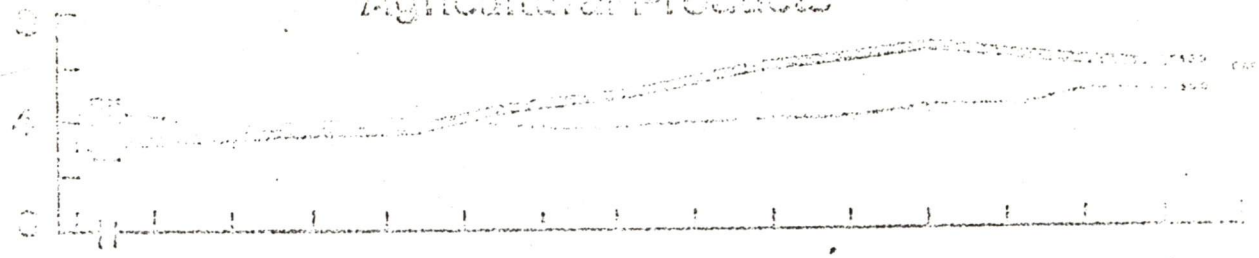
US Foreign Trade



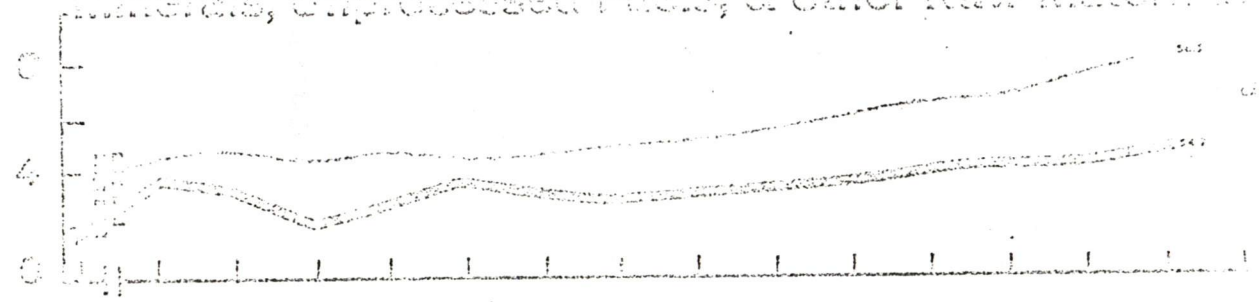
U.S. Foreign Trade Trends

Billion U.S.$

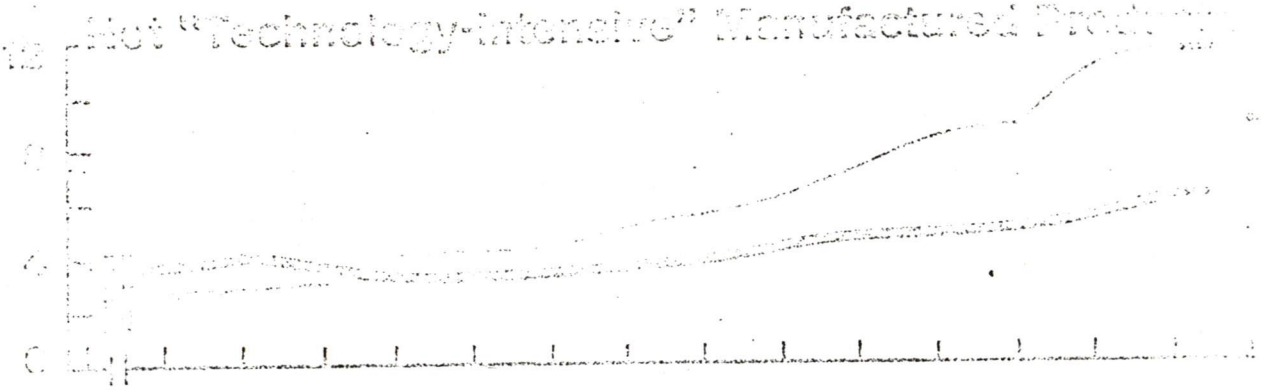
Agricultural Products



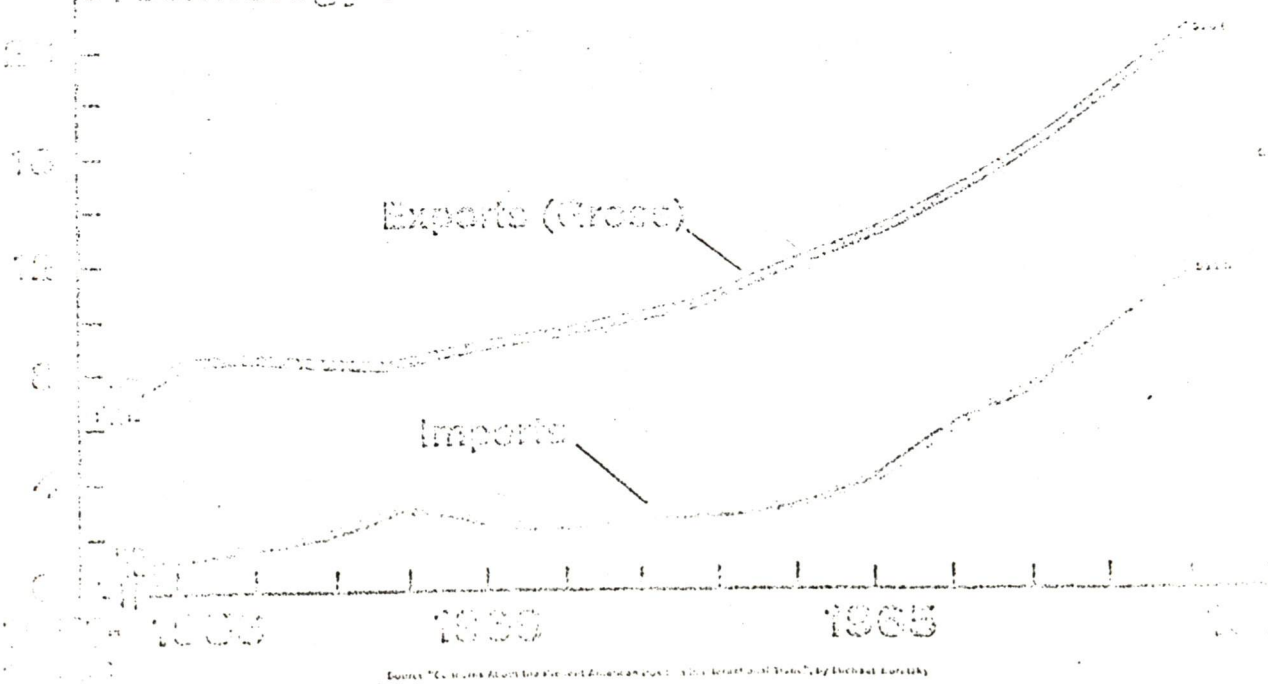
Minerals, Unprocessed Fuels, & other Raw Materials

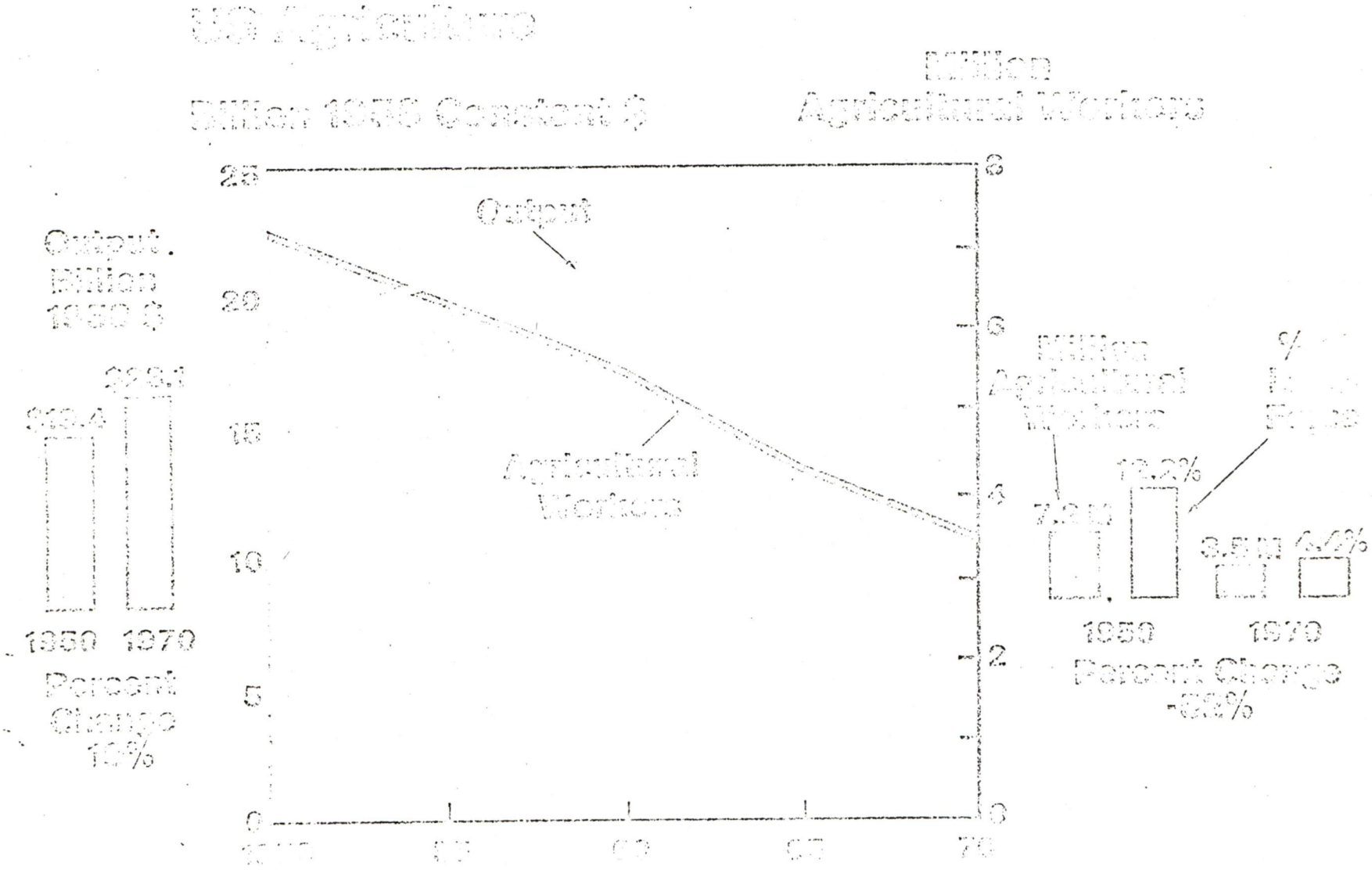


Most "Technology-Intensive" Manufactured Products



"Technology-Intensive" Manufactured Products




US Agriculture
Billion 1958 Constant $
Billion Agricultural Workers
25
20
15
10
5
0
6
4
2
0
Output
Agricultural Workers
Output, Billion 1958 $
$19.4
$29.1
1950
1970
Percent Change 50%
Billion Agricultural Workers
7.2 M
12.2%
3.5 M
4.4%
1950
1970
Percent Change -38%

#10, #11

Charts indicating trend, i.e. what happened in the last 10 years would be more informative

[illegible]

[illegible] Technology Intensive Manufactured Products

Technology Intensive Manufactured Products	Million US $ Exports	Imports	Balance
Aircraft and parts	2398	283	+2115
Motor vehicles and parts	3788	4624	− 836
Medicinal and pharmaceutical products	363	53	+ 310
Telecommunications apparatus	619	1006	− 387
Metalworking machinery	343	183	+ 160
Electronic computers	728	15	+ 713
Scientific and professional instruments and controls	798	333	+ 465
Nuclear reactors	44	0	+ 44
Agricultural machinery and parts	644	264	+ 380

Non-Technology Intensive Manufactured Products	Exports	Imports	Balance
Manual typewriters	2	11	− 9
Sewing machines (including industrial machines)	42	115	− 73
Footwear	9	488	− 479
Textiles	576	1019	− 443
Iron and steel	972	1809	− 837
Nonferrous metals	712	1635	− 923
Paper and manufactures	565	1061	− 496
Alcoholic beverages	16	647	− 631
Furniture	65	192	− 127
Clocks, watches, and parts	[illegible]	[illegible]	− [illegible]
[illegible]	[illegible]	[illegible]	− [illegible]

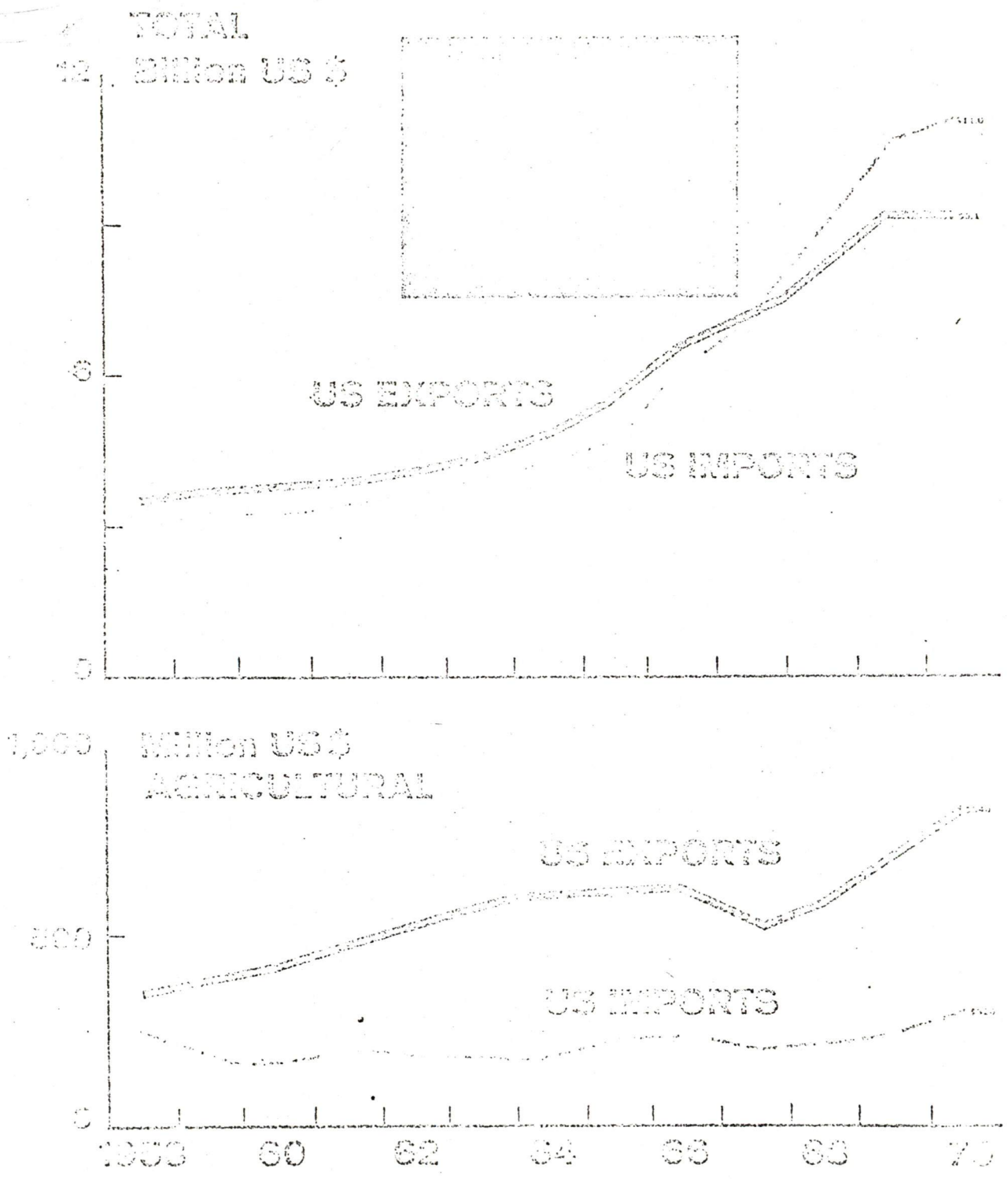
U.S. Ratio of Imports to Consumption

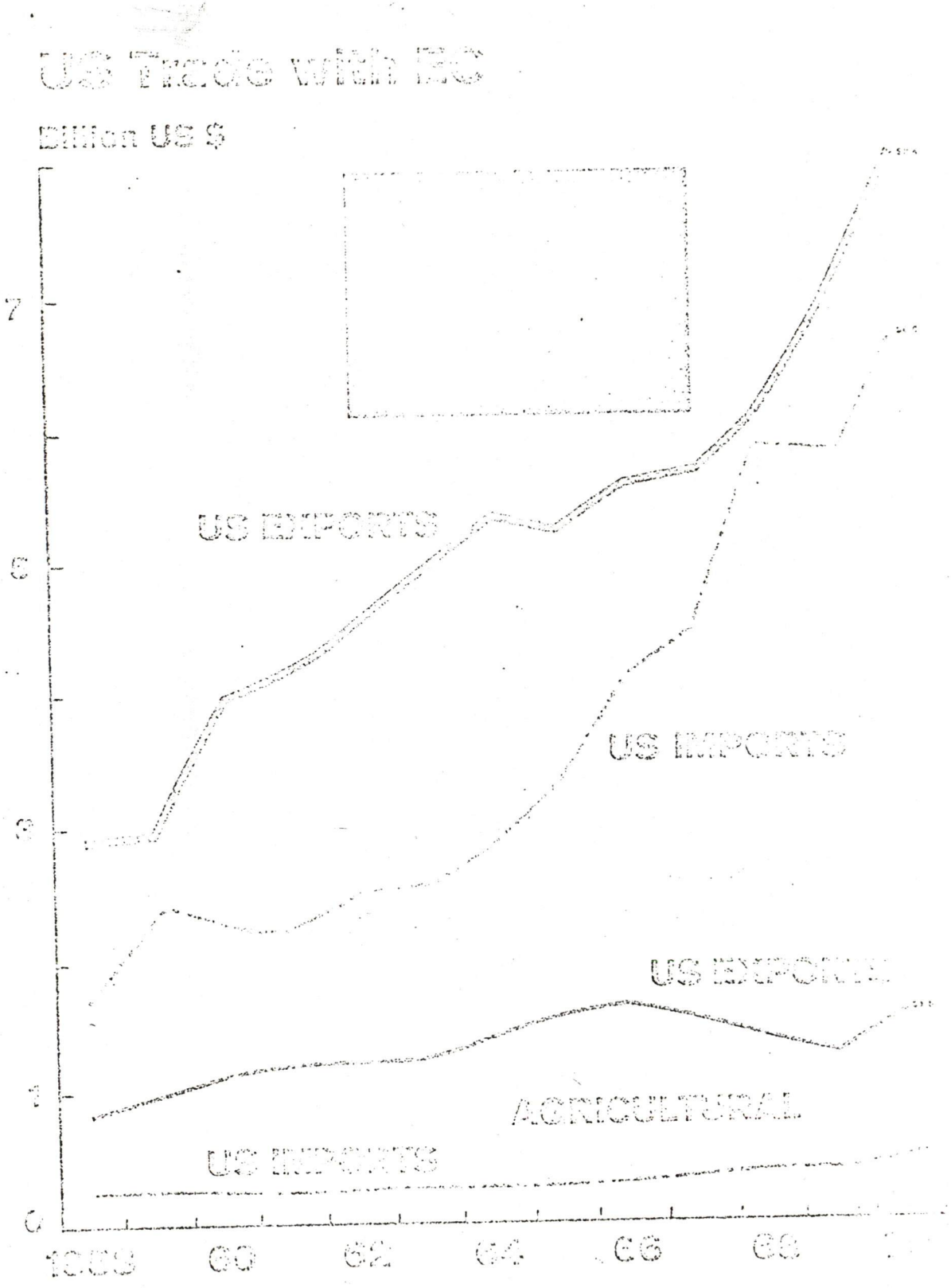
(by value)

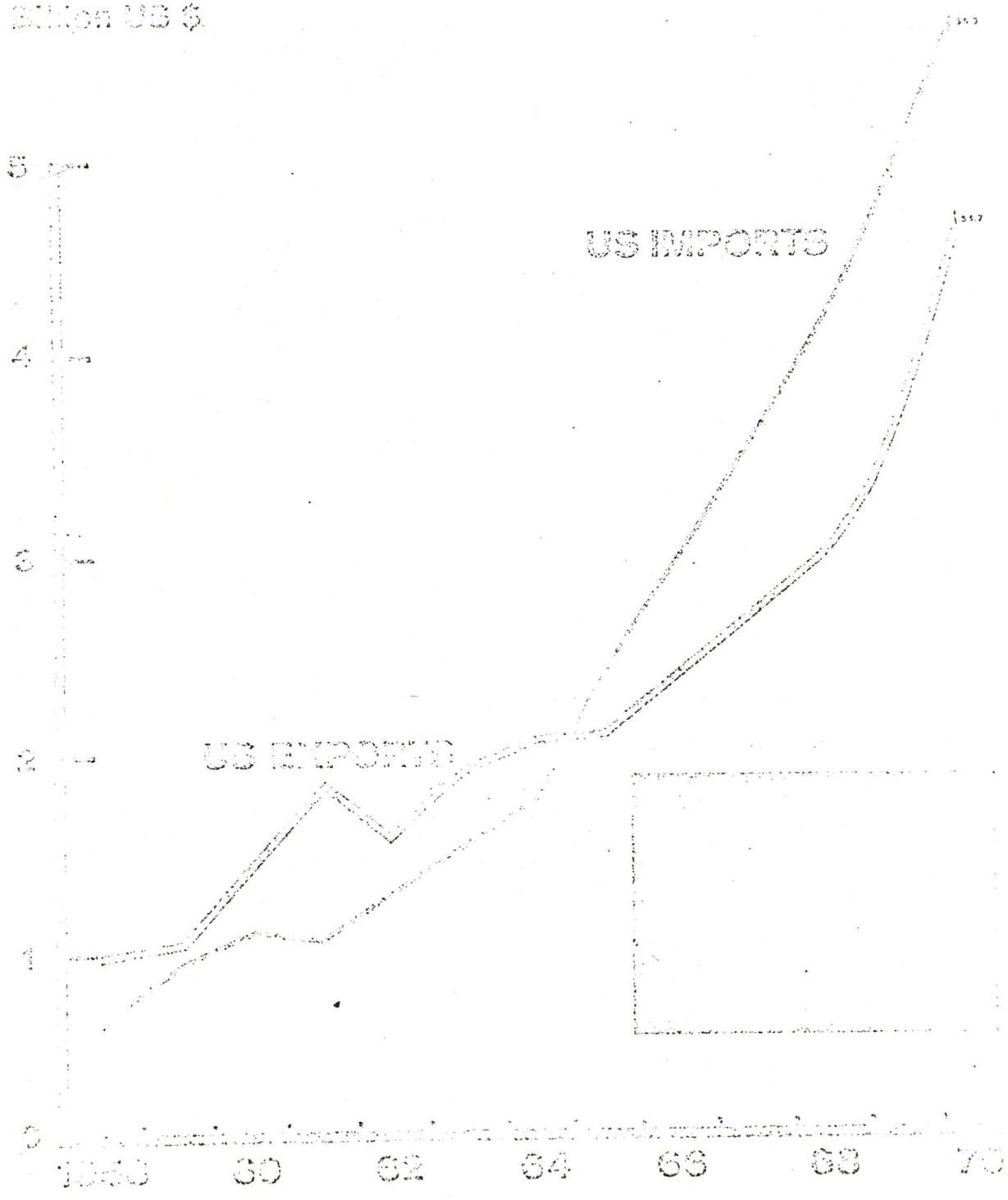
19[illegible]

Footwear (non rubber)	16%
Steel	9%
Black and white televisions	23%
Leather gloves	26%
Household and car radios and radio-phonographs	32%
Handmade glassware	42%
Sewing machines	52%
Calculating machines	62%
Hairworks, toupees and wigs	82%
35mm still cameras	100%
Amateur motion picture cameras	86%
Audio cassette recorders	[illegible]6%

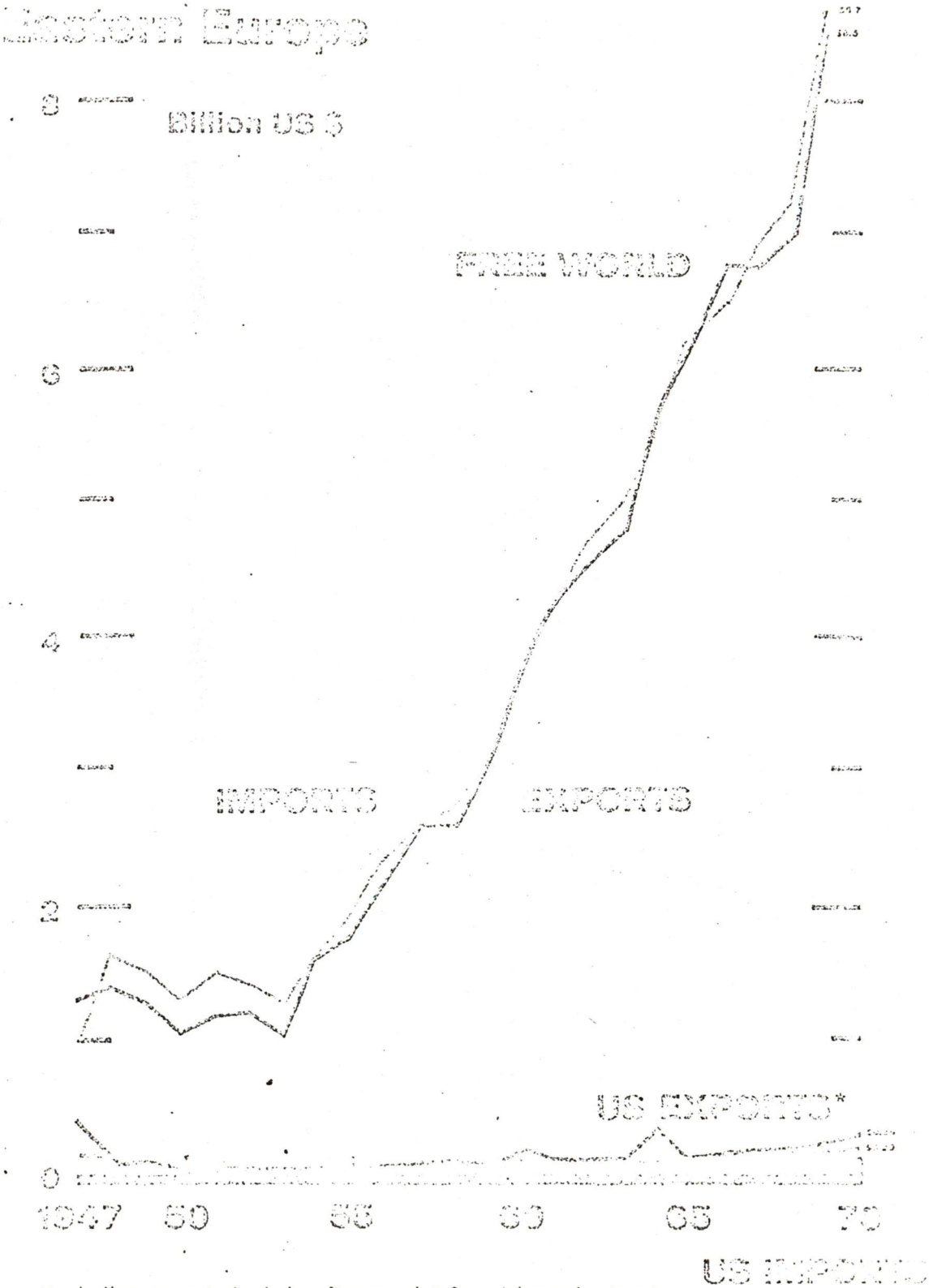
US Trade with Canada




US Trade with EC
Billion US $
7
5
3
1
0
US EXPORTS
US IMPORTS
US EXPORTS
AGRICULTURAL
US EXPORTS
60
62
64
66
68


US IMPORTS
US EXPORTS
5
4
3
2
1
0
1960
65
62
64
66
68
70

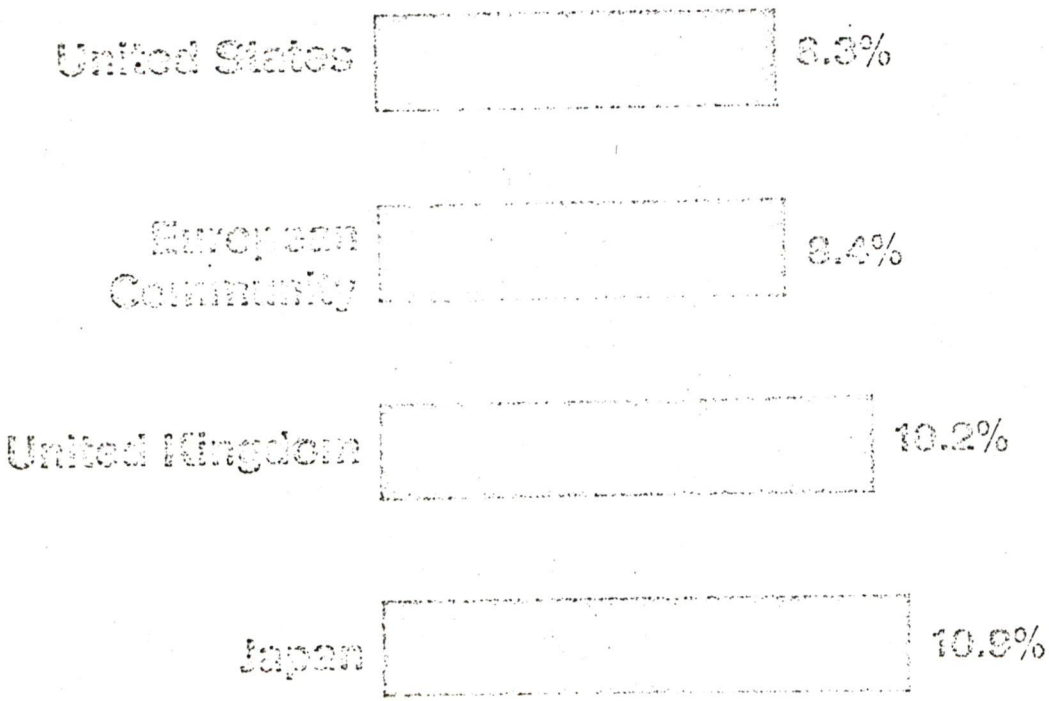
Free World Trade with USSR and Eastern Europe



*Including exports to Asian Communist Countries prior to 1952

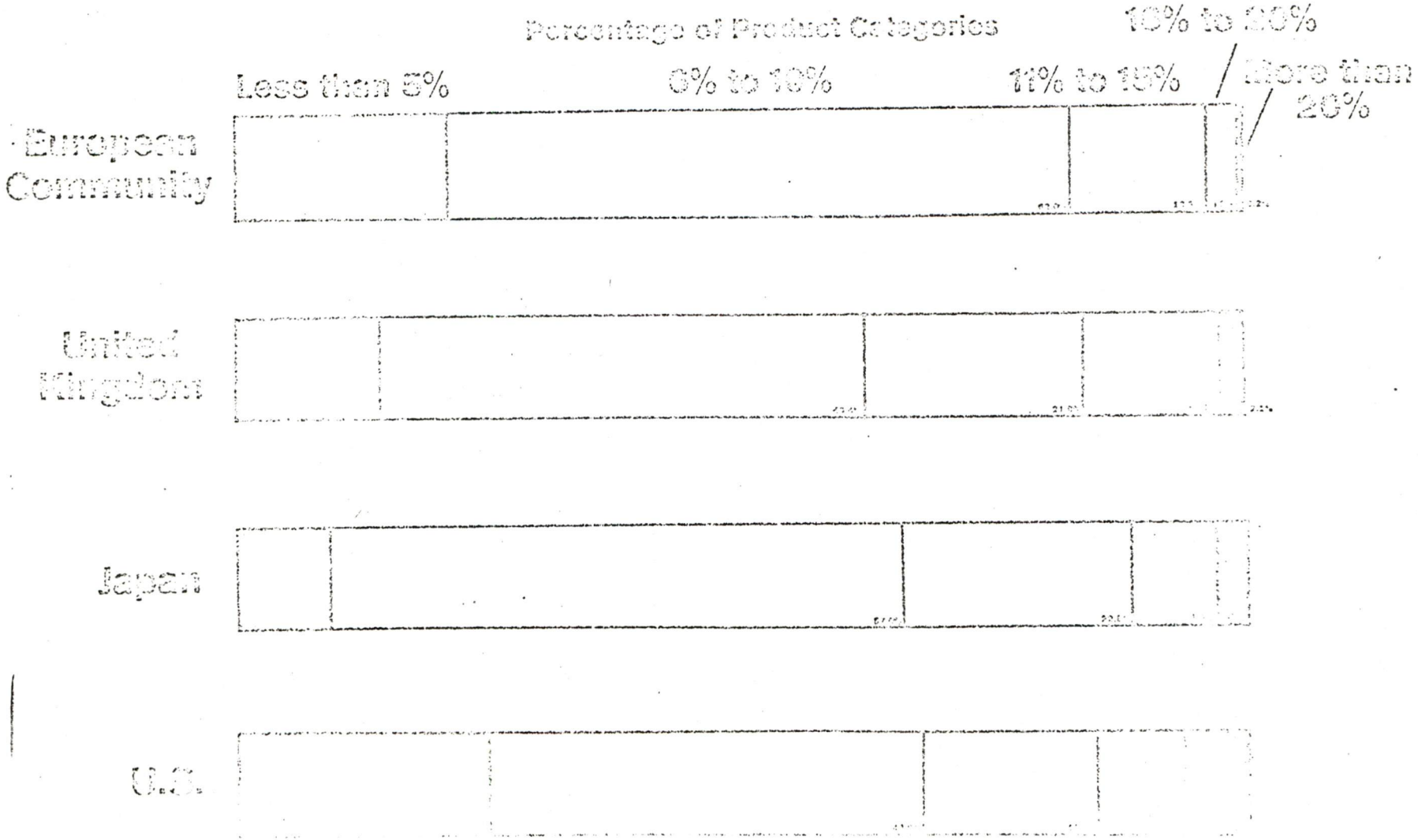
Average Tariff Rates after [Kennedy Round]

[Manufactured & Semi-manufactured Products]
(Weighted by OECD Trade)

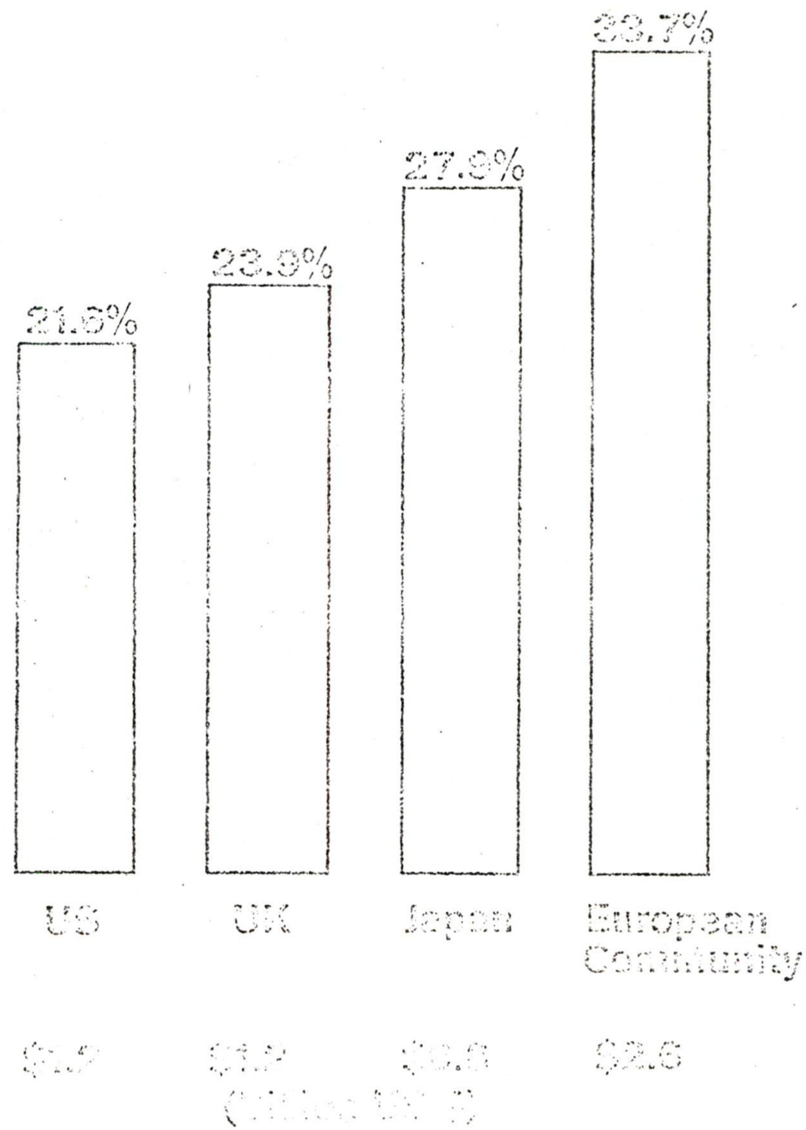


Percentage Reduction in [Kennedy Round]

Total Trade		Total [illegible]
32 — US	—	[illegible]
39 — EC	—	35
35 — UK	—	32
25 — JAPAN	—	40


Percentage of Product Categories
Less than 5%
6% to 10%
11% to 15%
16% to 20%
More than 20%
European Community
United Kingdom
Japan
U.S.

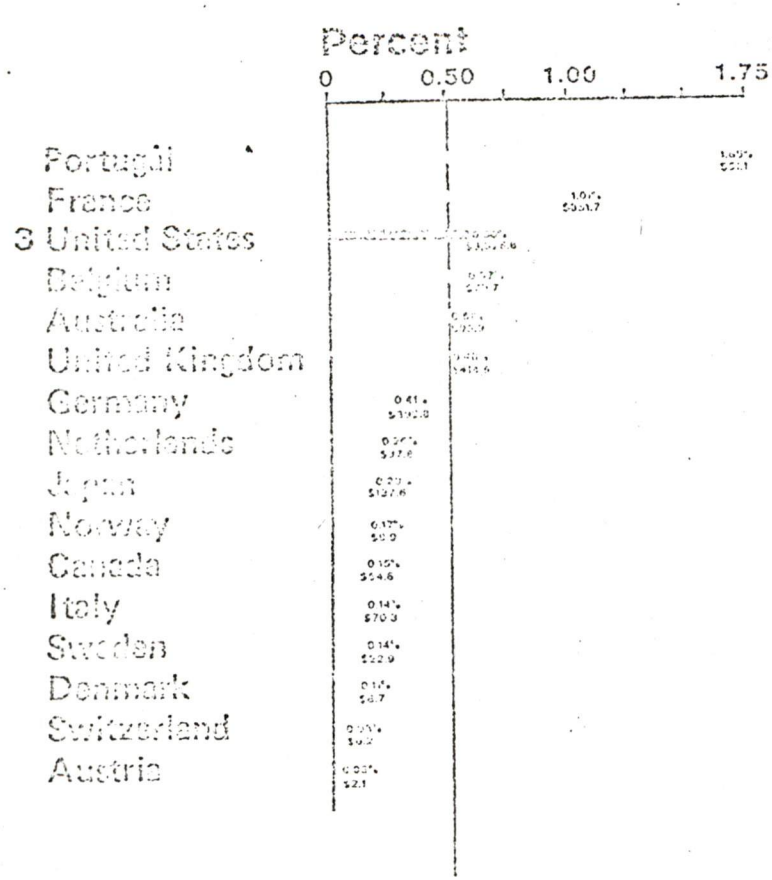
Quantitative Restrictions on Agricultural Imports

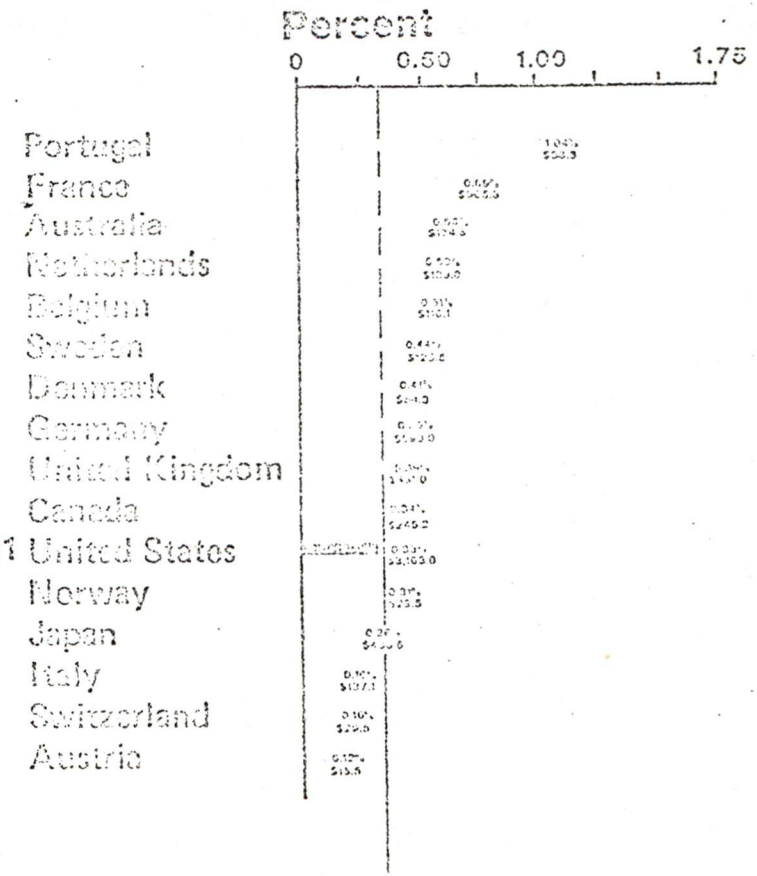


Official Development Assistance

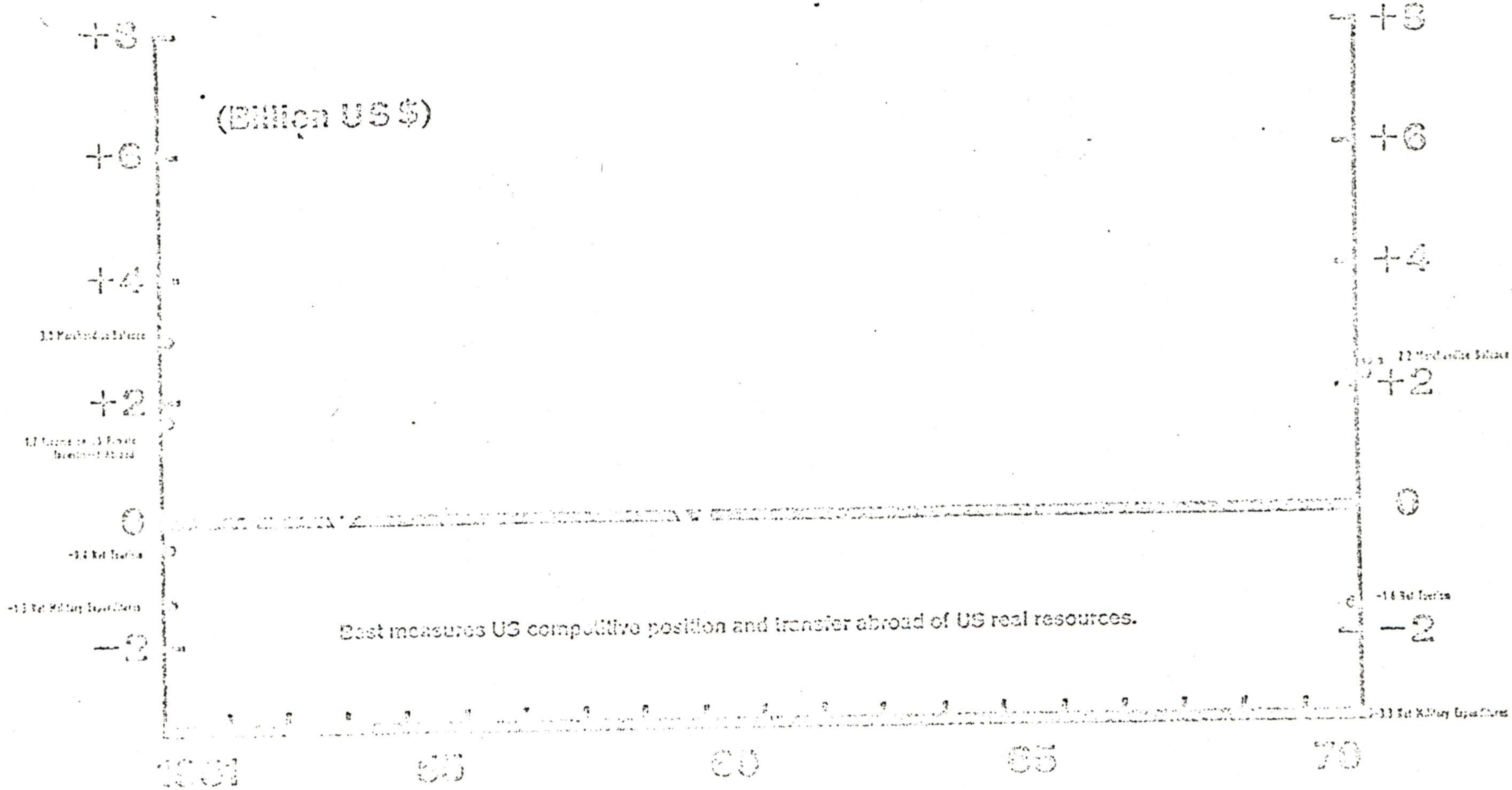
As a percent of GNP (market prices)

Figures in Million US $



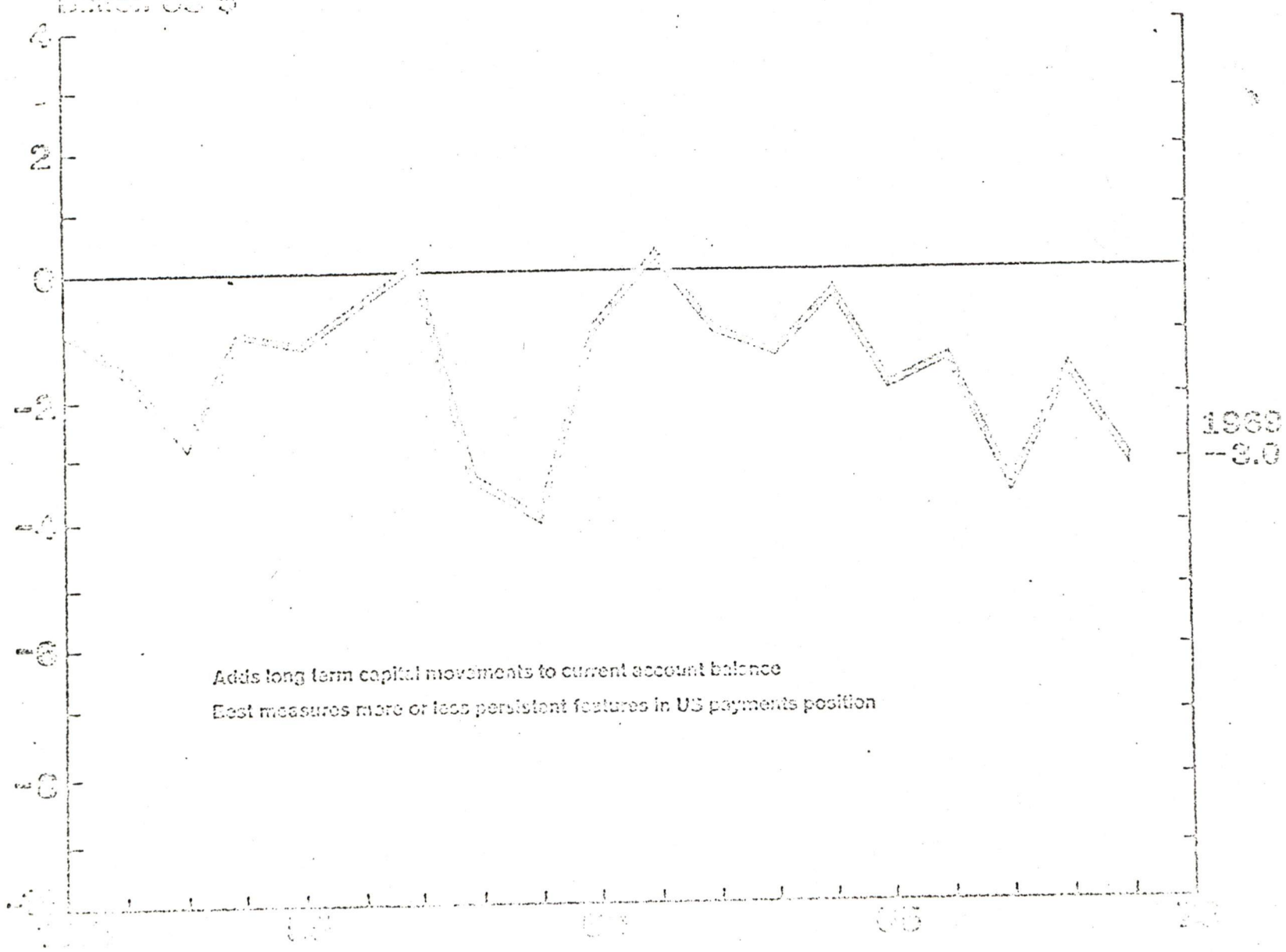


(merchandise, investment income, services, military, and transfers excluding government grants)



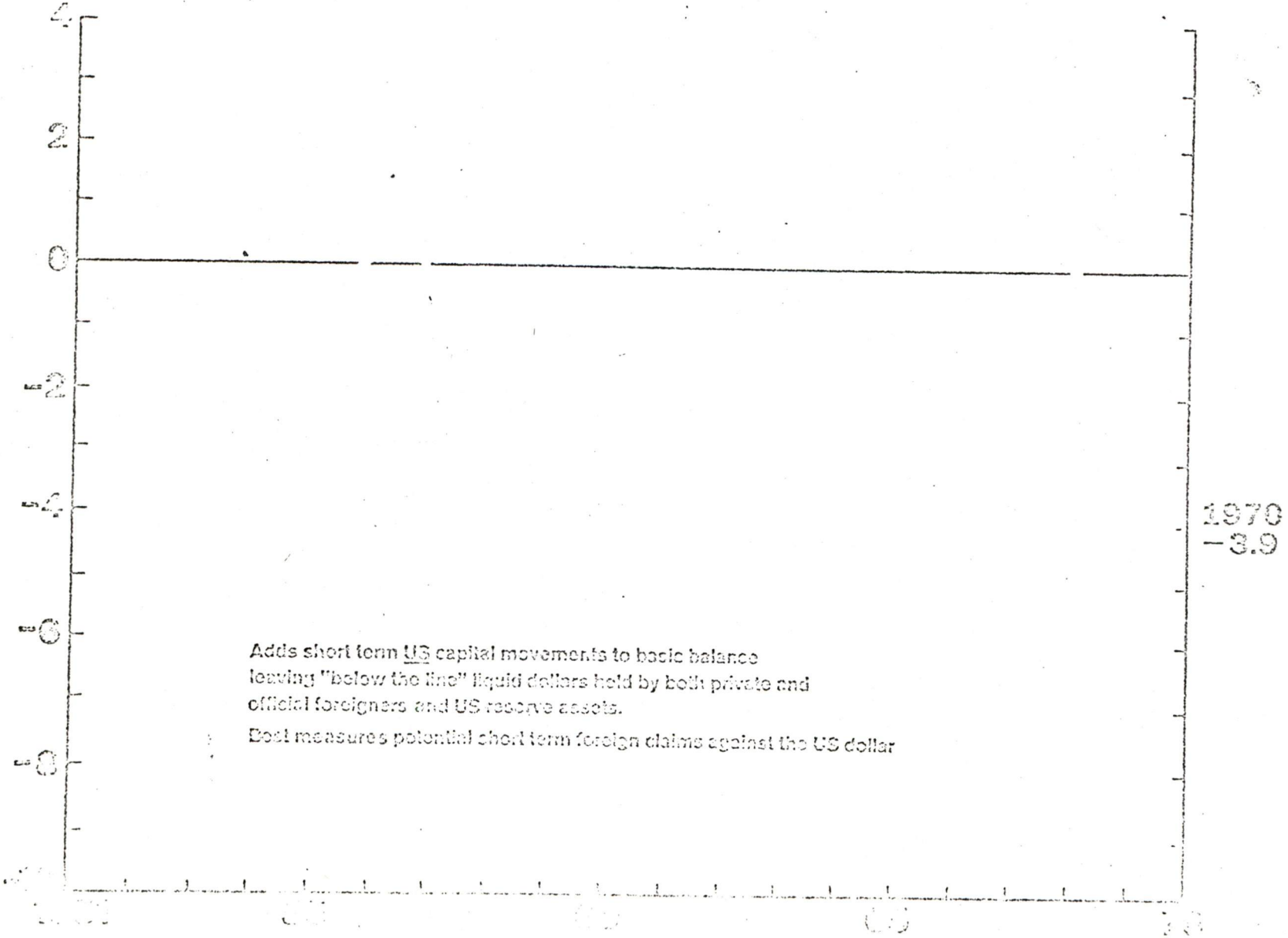
US Trade Balance

Billion US $



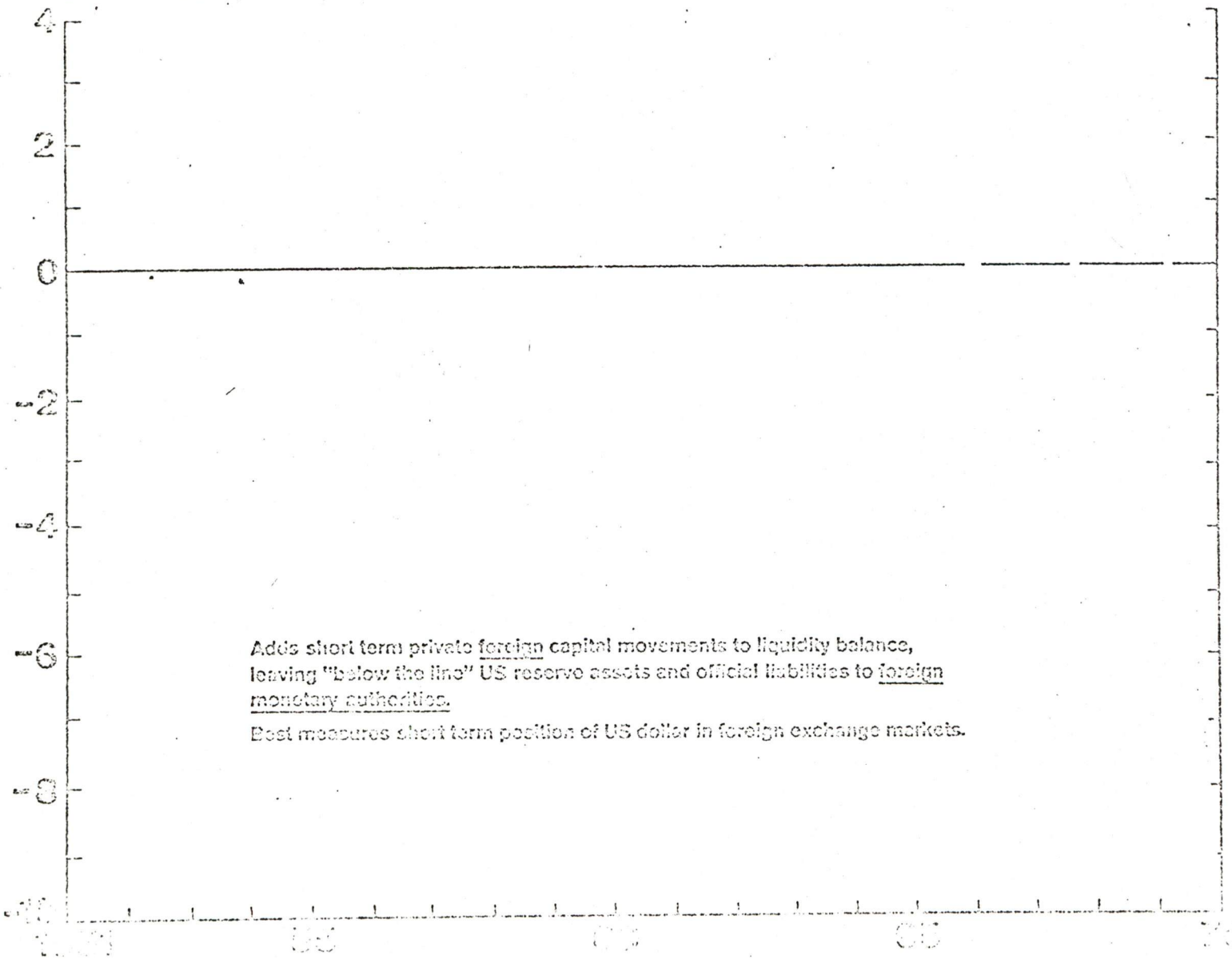
US Liquidity Balance

Billion US $



US Official Settlements Balance

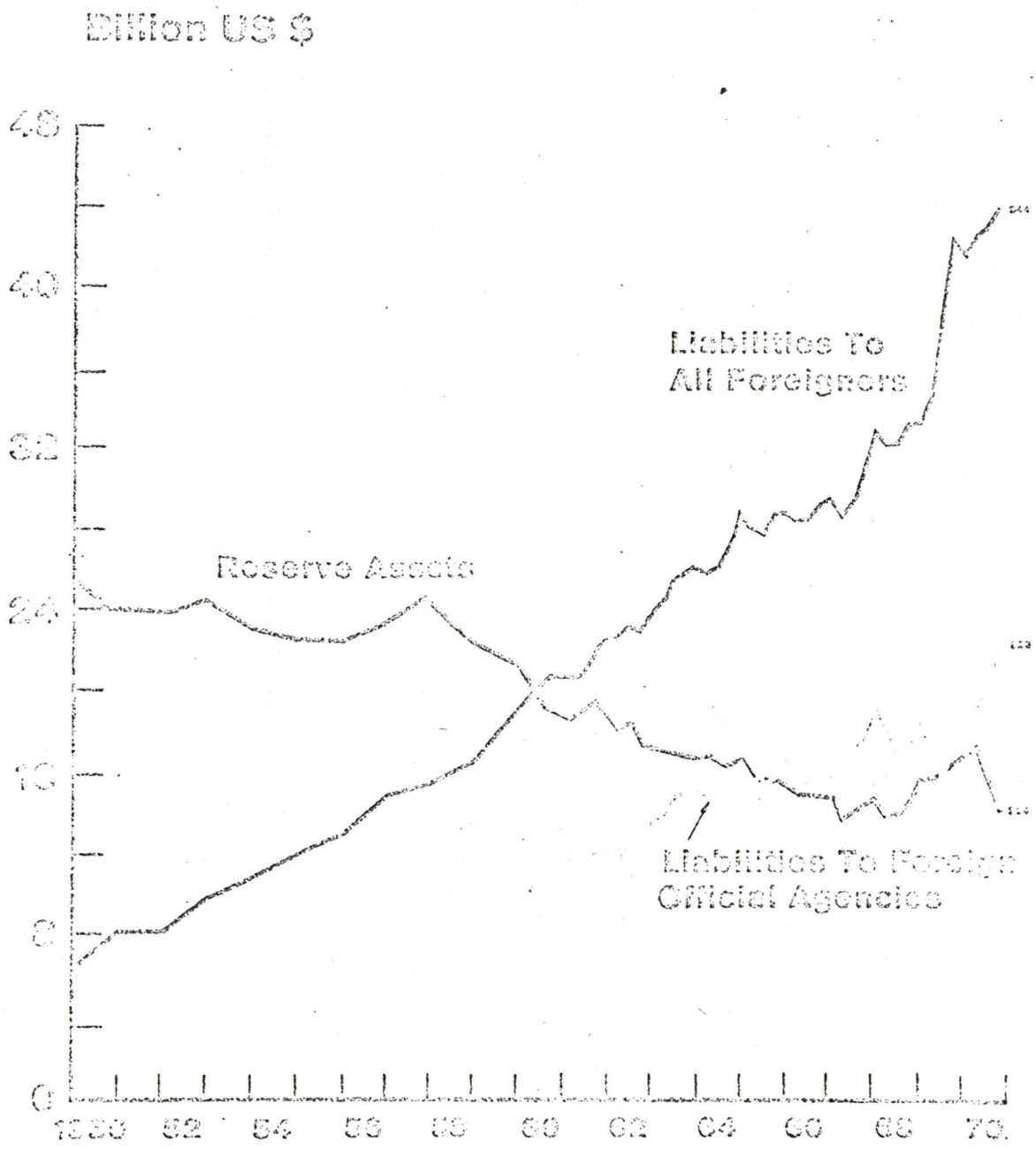
Billion US $



Adds short term private foreign capital movements to liquidity balance, leaving "below the line" US reserve assets and official liabilities to foreign monetary authorities.

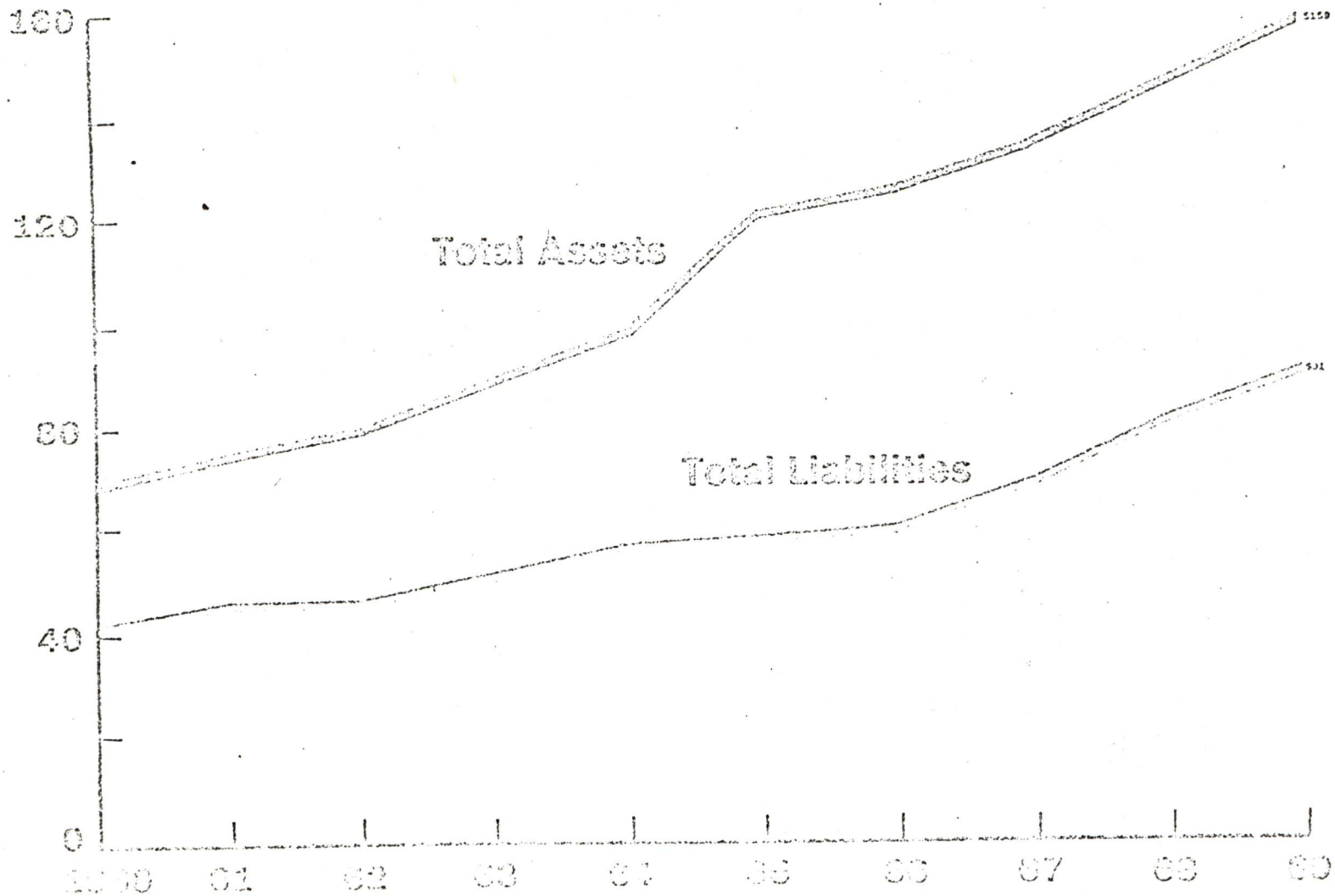
Best measures short term position of US dollar in foreign exchange markets.

Trends in US Liquid Foreign Assets and Liabilities



US Foreign Assets and Liabilities

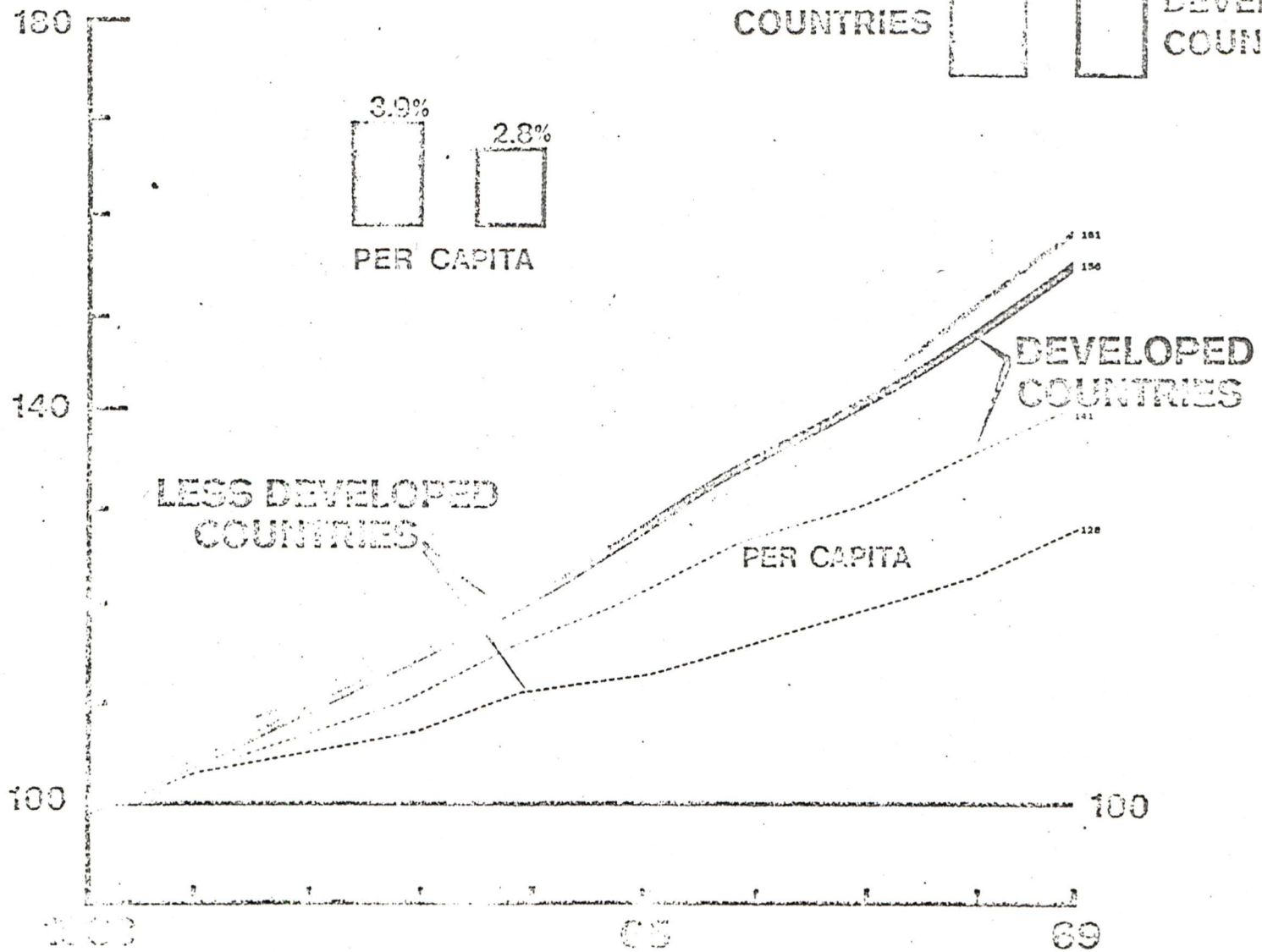
Billion US $



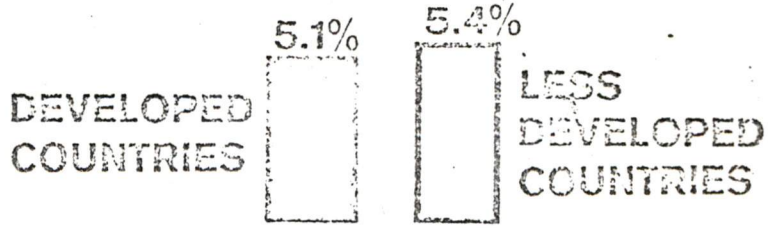
Growth of Free World GNP

In Constant 1963 Prices

(Index 1960=100)

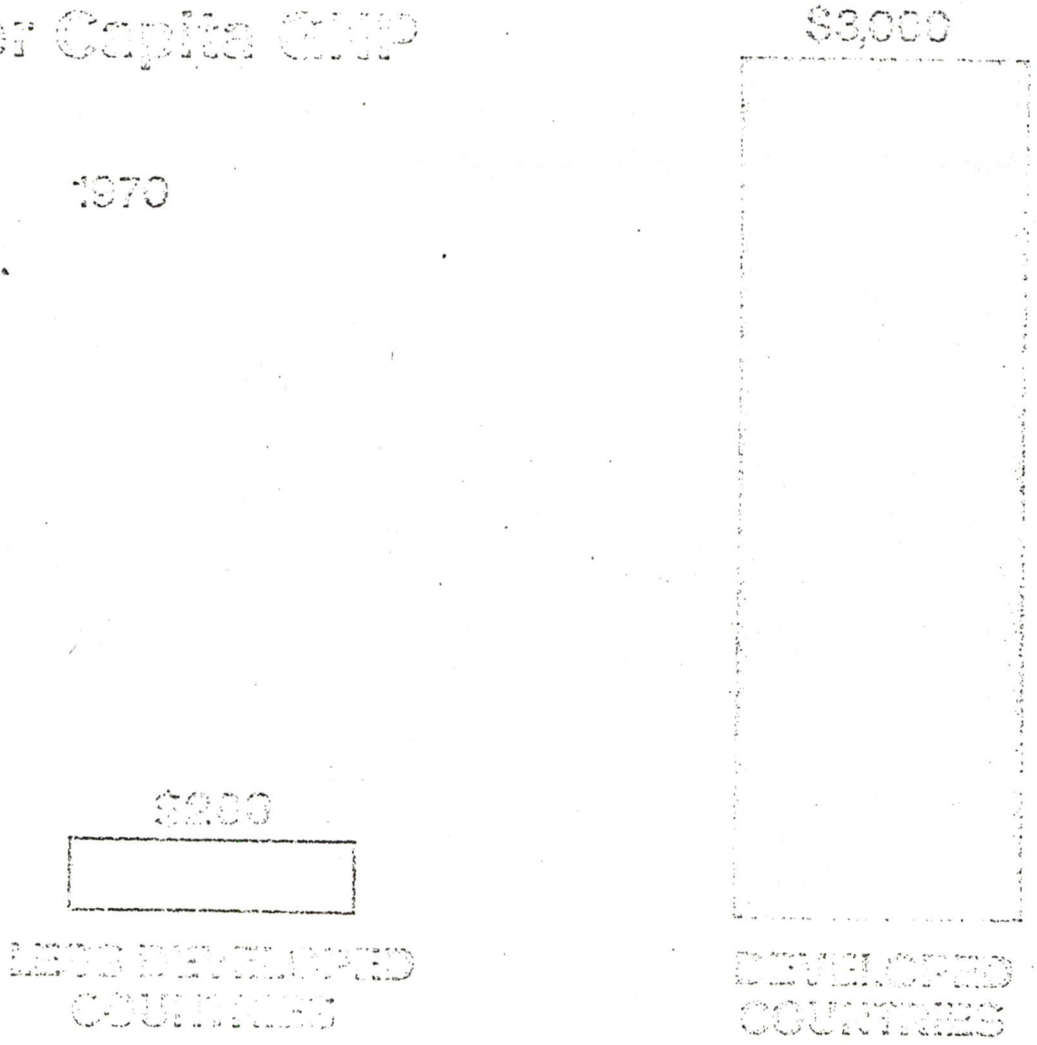


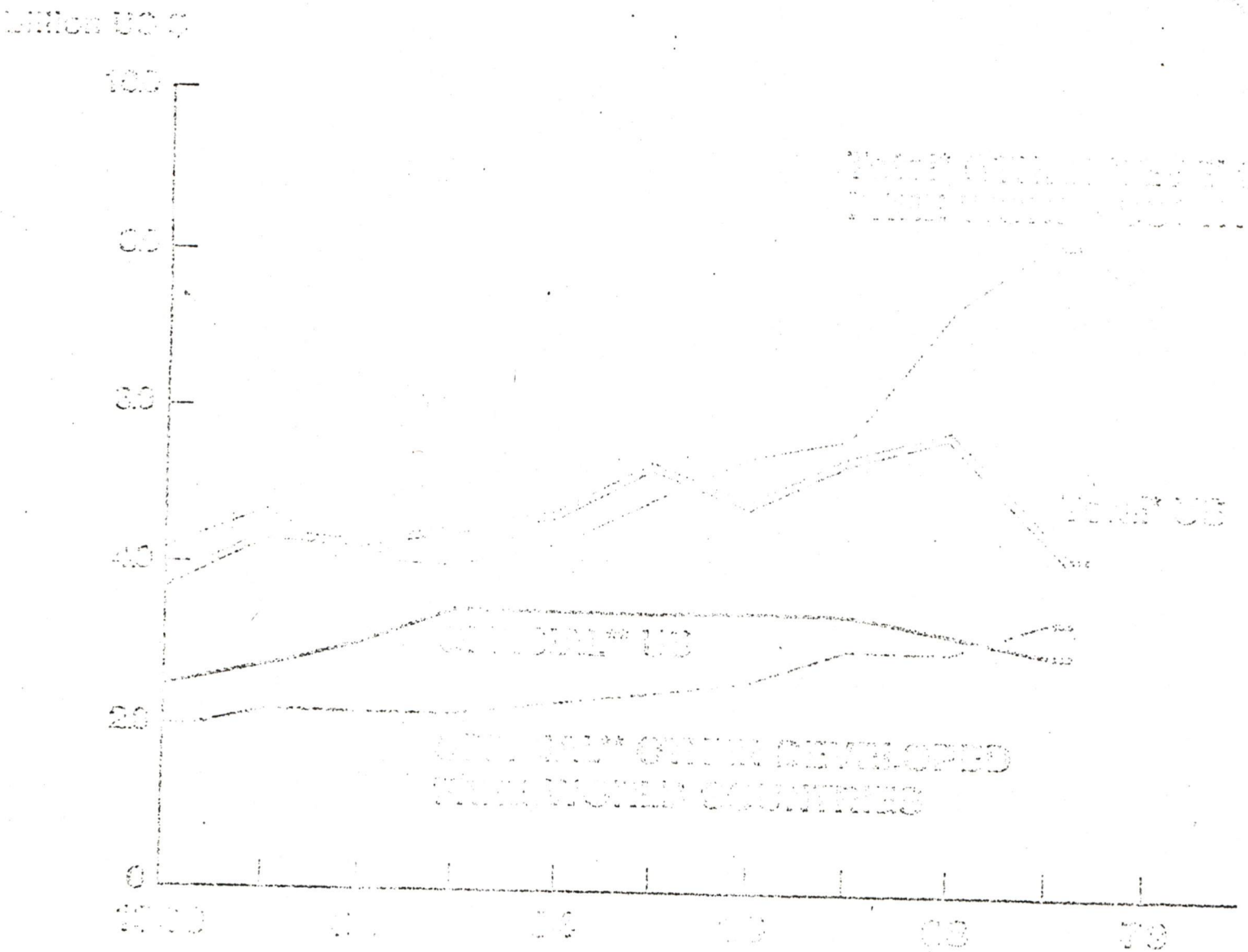
Average Annual Growth Rate 1960-69

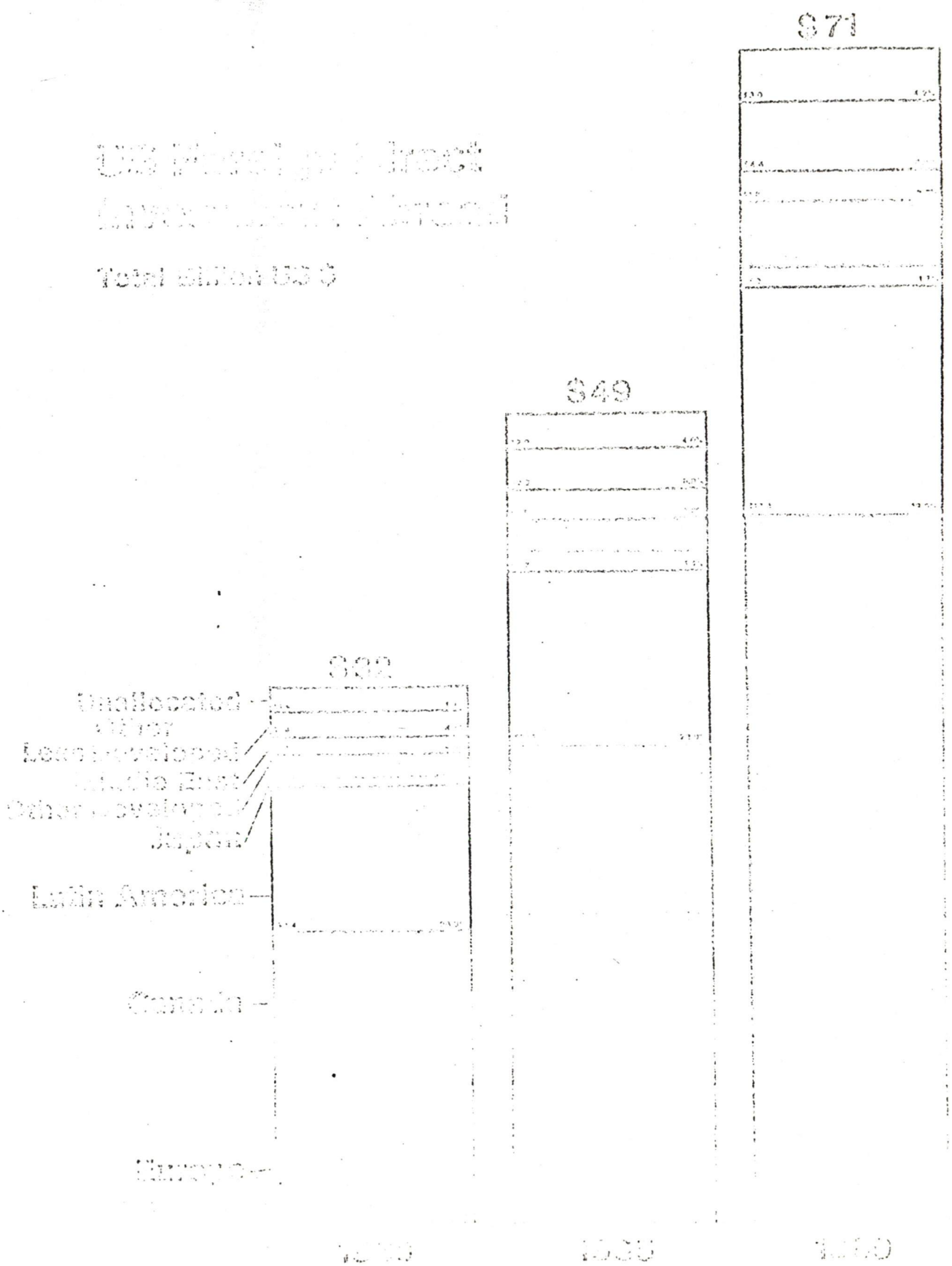


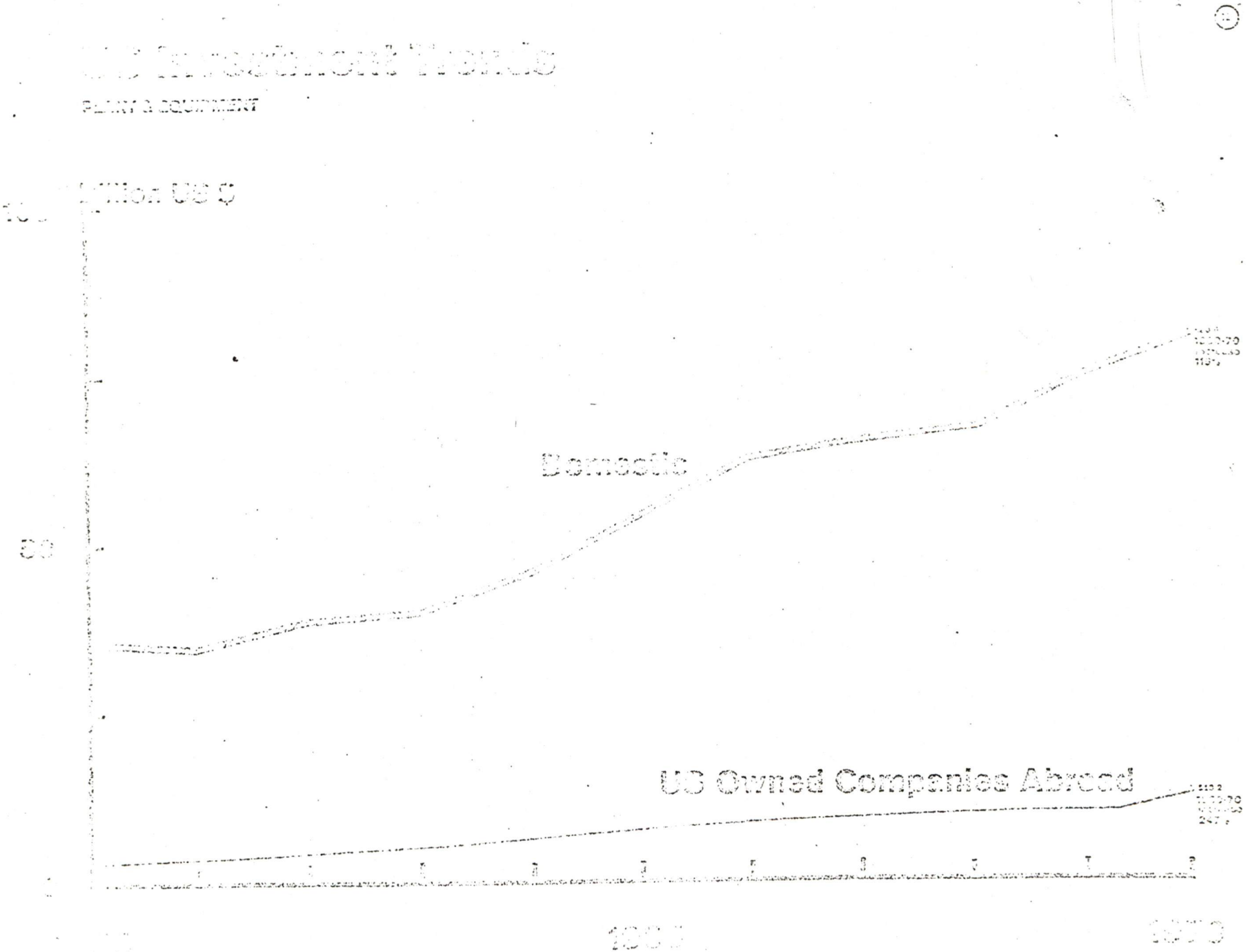
Per Capita GNP

1970

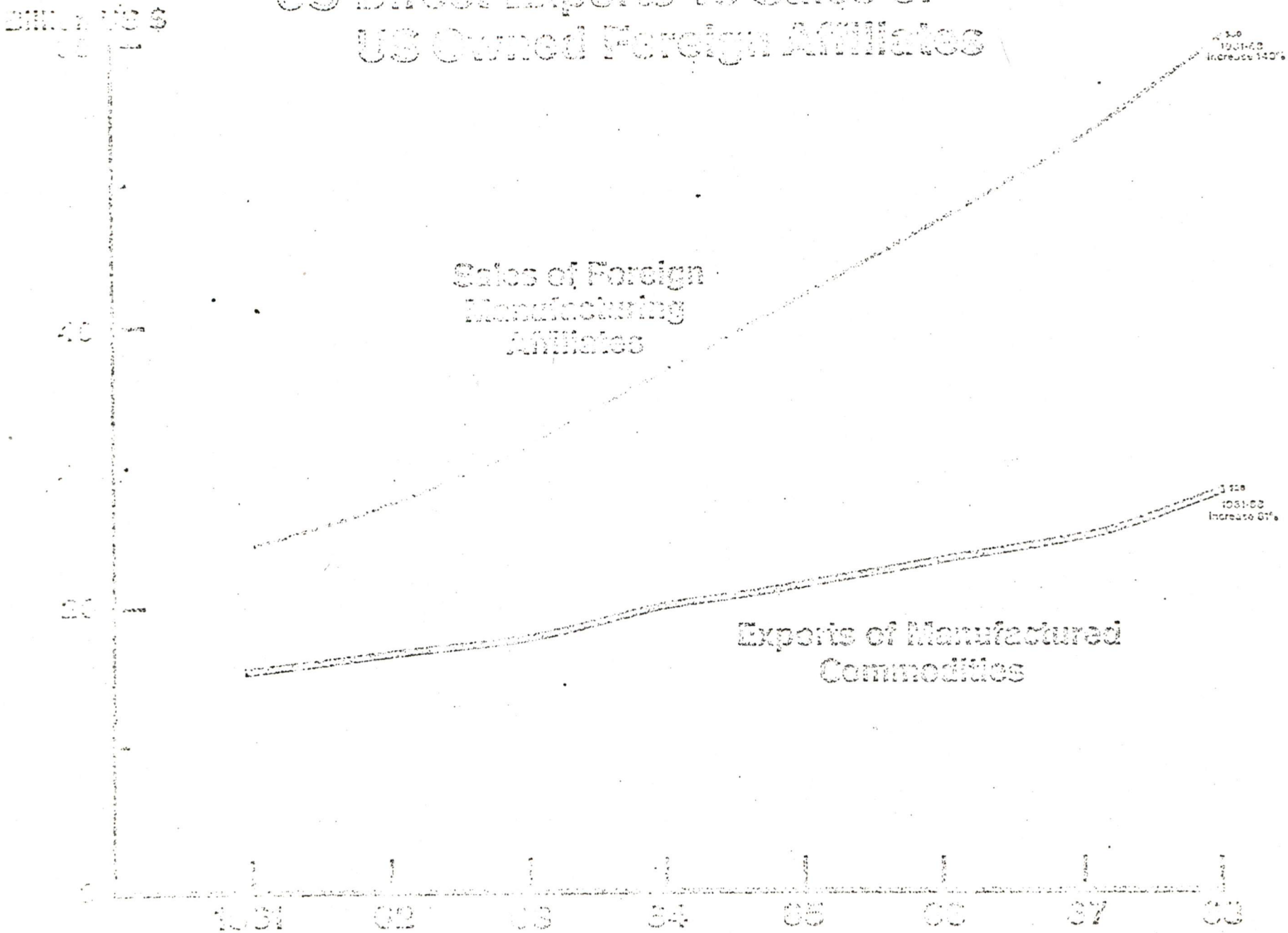



Billion US $
100
60
30
40
20
0


S71
S49
S32


PLANT & EQUIPMENT
Billion US $
50
Domestic
US Owned Companies Abroad

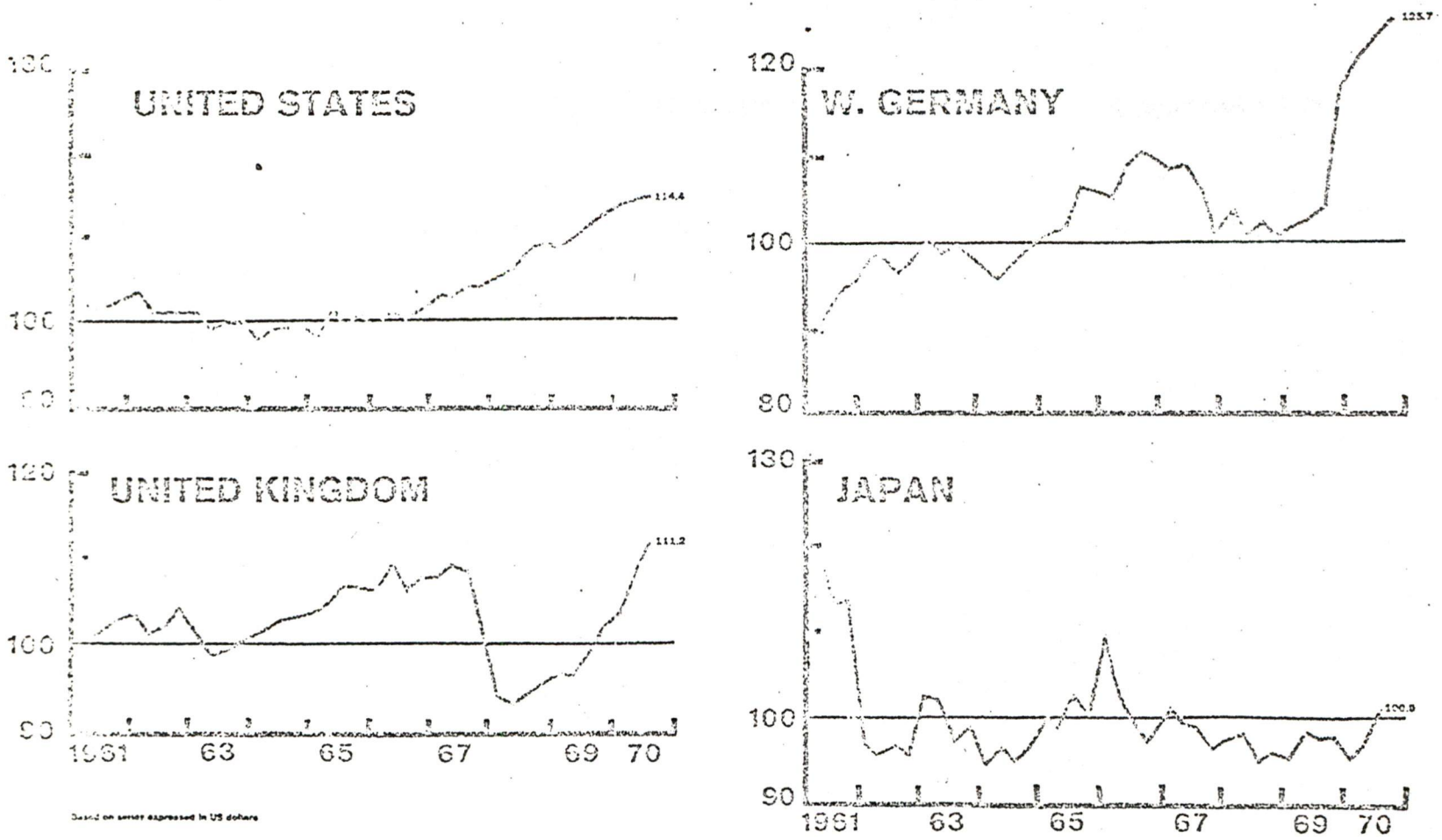
US Direct Exports vs Sales of US Owned Foreign Affiliates



"THE MULTI-NATIONAL CORPORATION"

Unit Labor Costs in Manufacturing

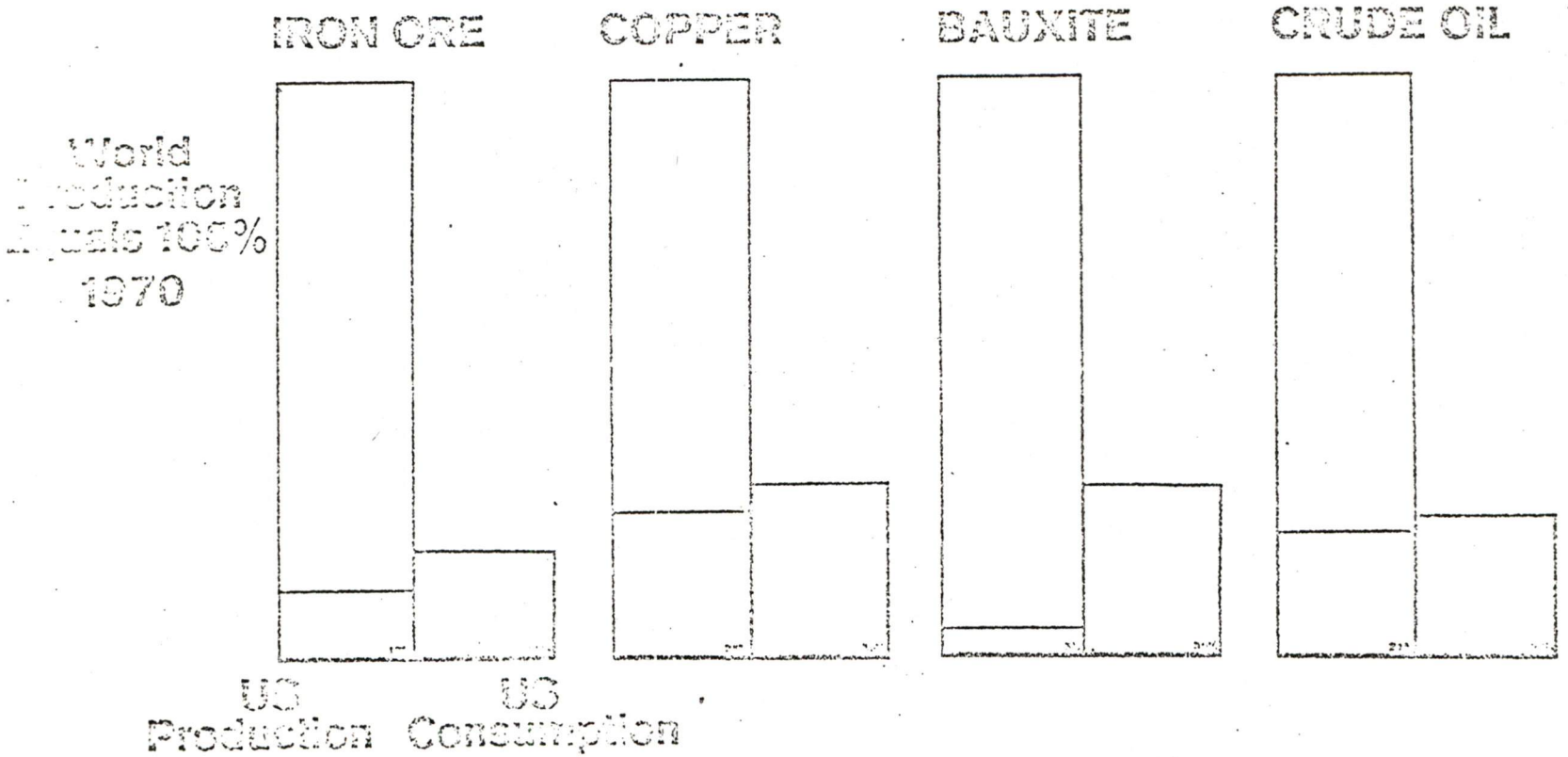
(INDEX 1963=100)



Based on series expressed in US dollars

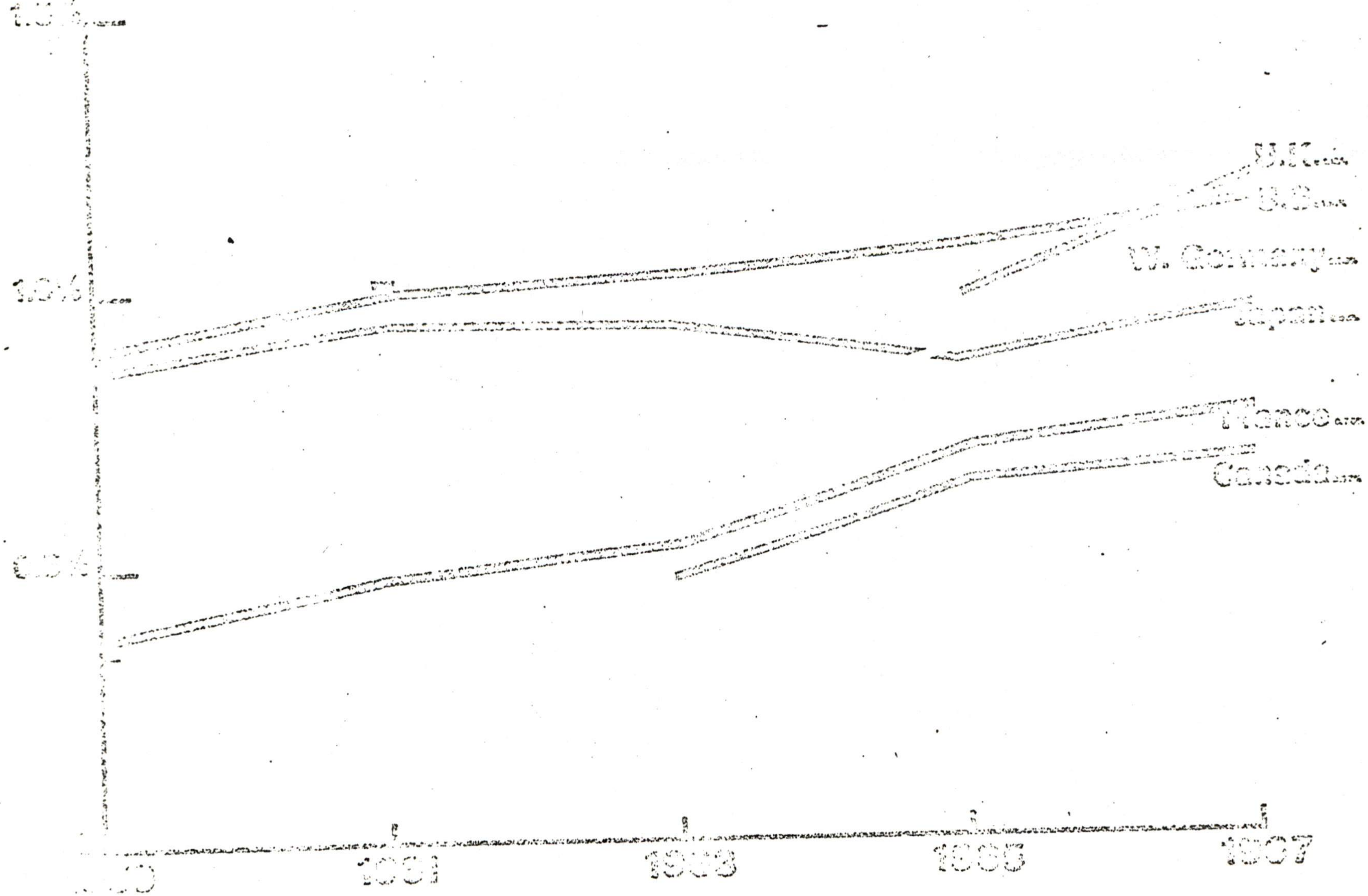
As of 1970 the US had 5% of World Population
7% of World Land Use
But used 30% of World Mineral Output
and Imported 15% of it's Requirements of Minerals

By year 2000 Imports will increase to at least 30% to 50% of requirements



Total requirement definition:
Including domestic production and imports and excluding exports and re-exports

Public Sector R&D
Percent of GNP



"JAPAN, Inc."

1. Deep Government Involvement in Domestic and International Business

   a. Allocation of funds to particular industries and/or foreign expansion - MITI - Bank of Japan.

   b. Export Promotion and "Cooperation"

   c. Raw Materials

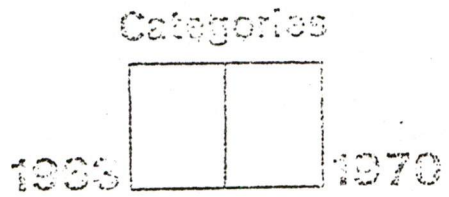
   d. Government/Business/Labor Partnership - Forward Contracts - No major strikes....Productivity agreements.

2. Zaibatsu -- money groups -- "Maxi-Conglomerates" Freedom from anti-trust suits.

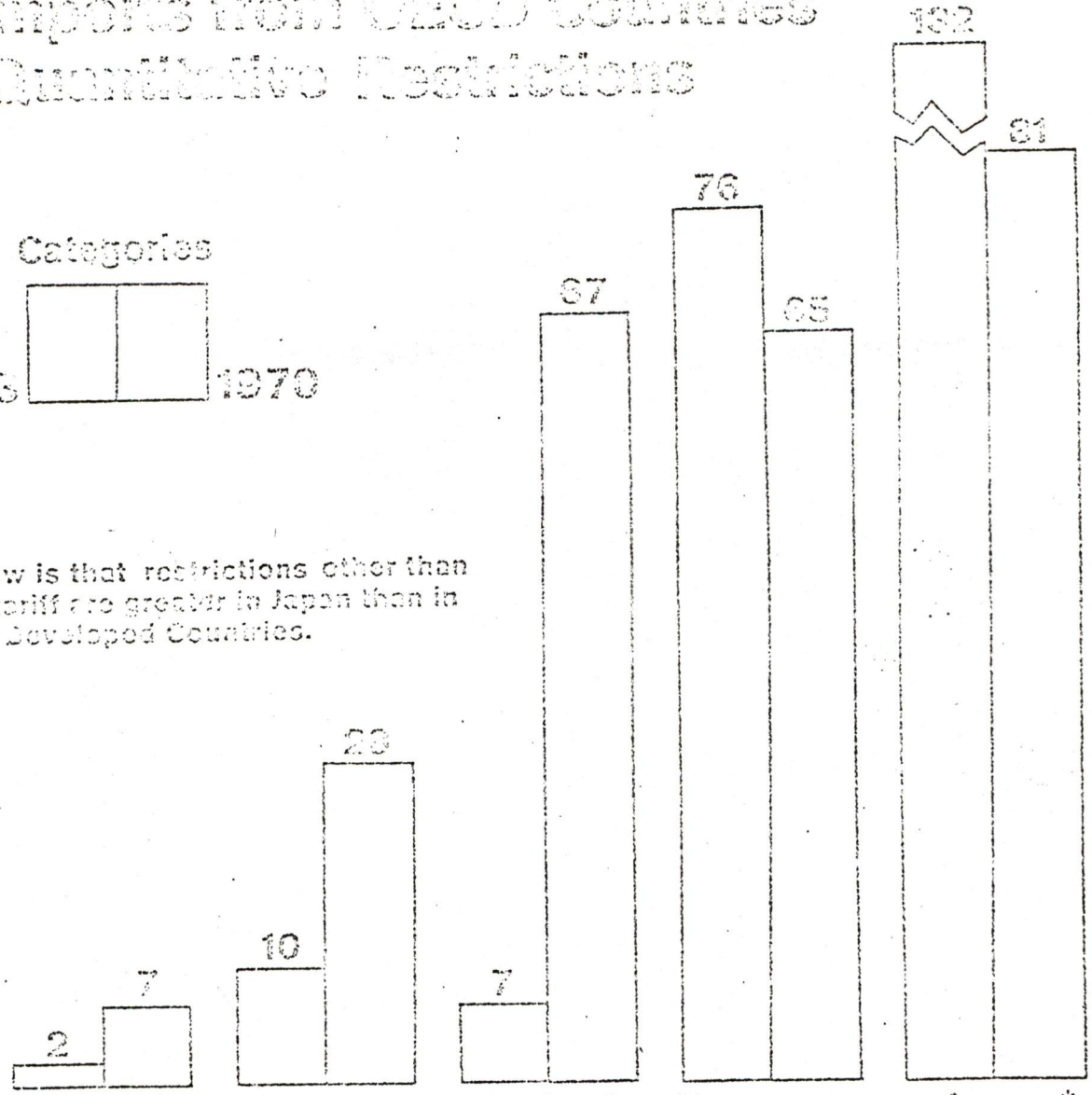
3. Limited Foreign Investment in Japan - yet quick and low cost Japanese access to world technology.

4. Educational System

Industrial Imports from OECD Countries Subject to Quantitative Restrictions



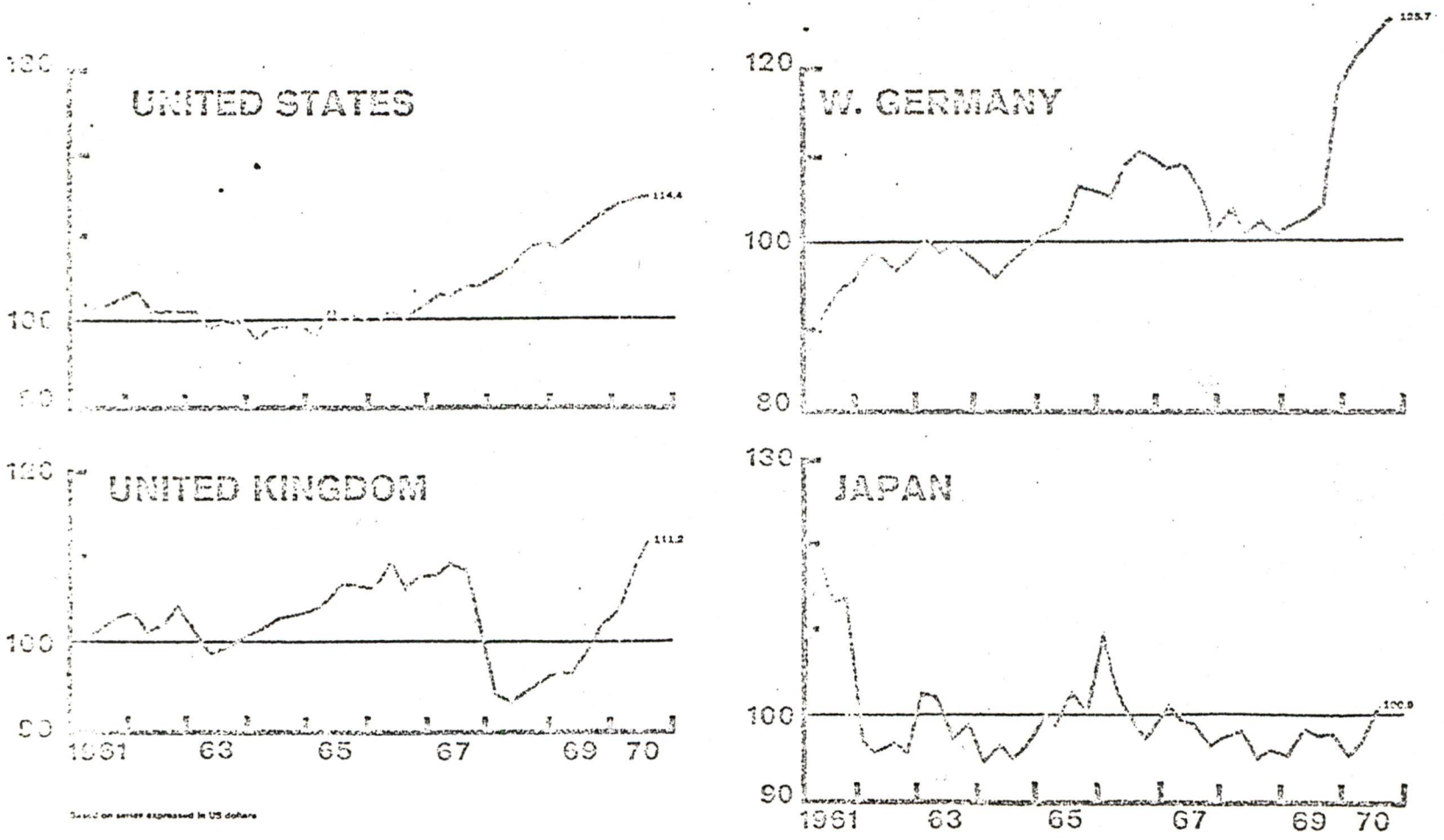
*The prevailing view is that restrictions other than quantitative and tariff are greater in Japan than in other Free World Developed Countries.



In Addition Discriminatory Against Japan	6	21	1	73	—

Unit Labor Costs in Manufacturing

(INDEX 1963=100)



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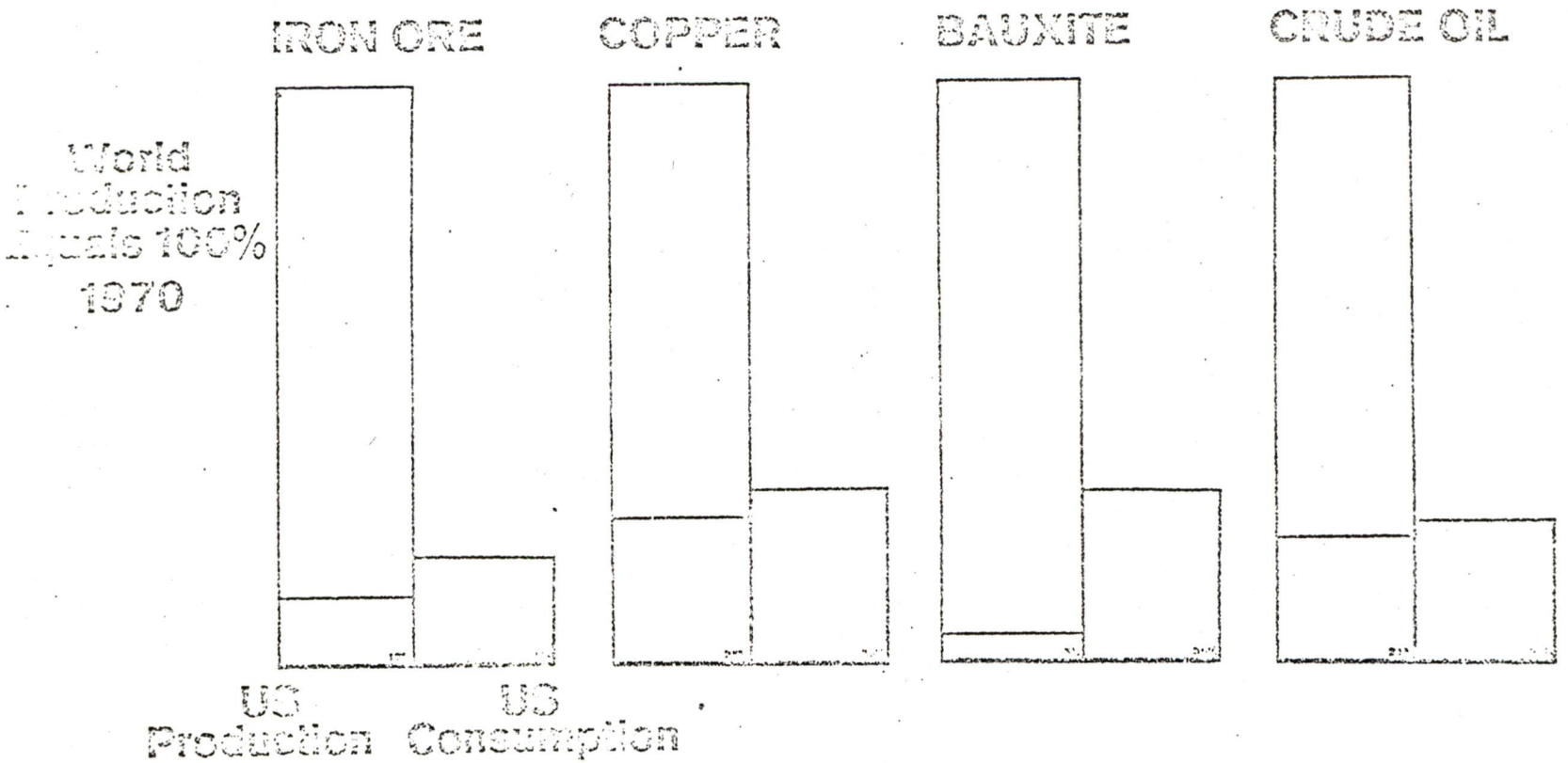

Total requirement definition:
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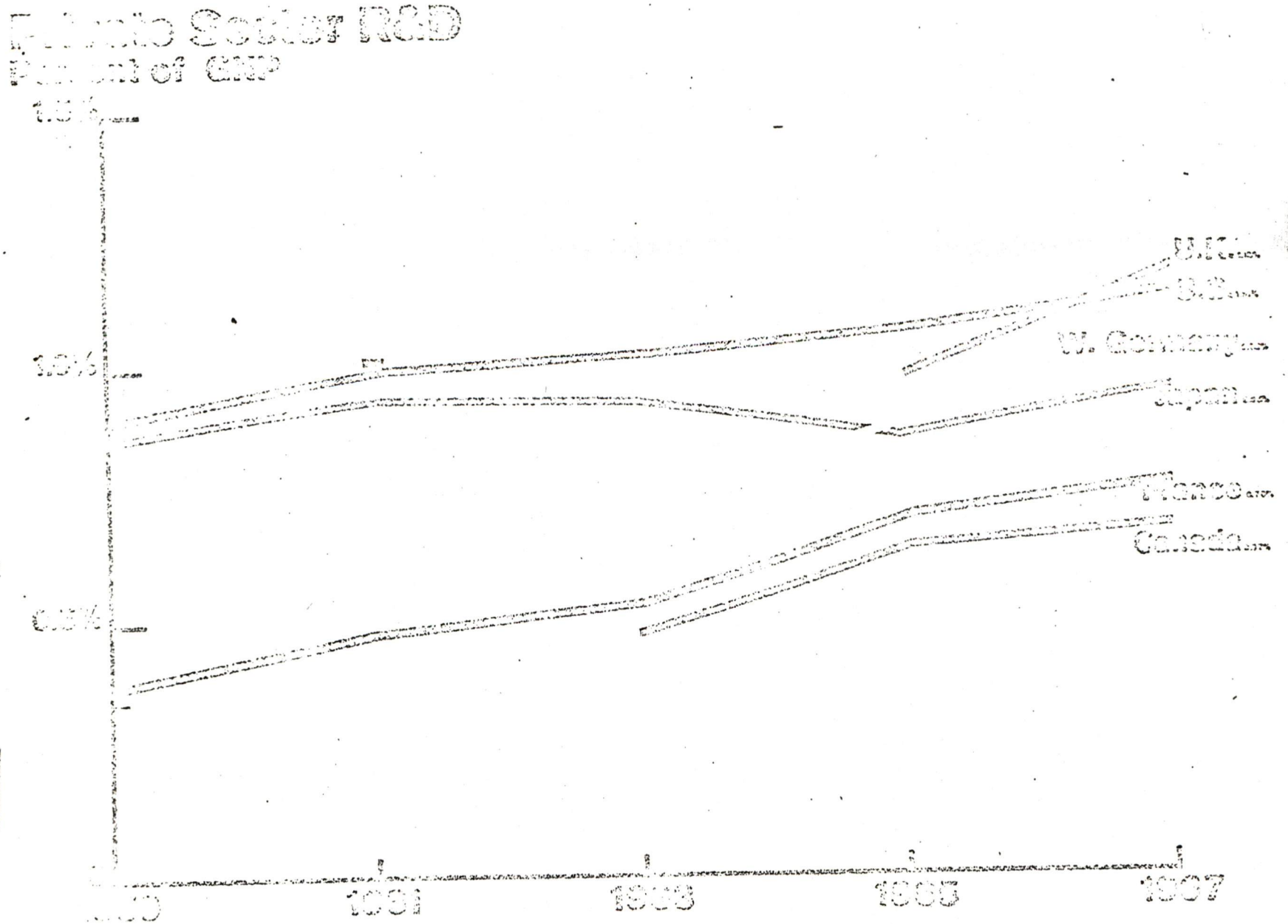
Public Sector R&D
Percent of GNP
15%
10%
5%
0%
1981
1983
1985
1987
U.S.
U.K.
W. Germany
Japan
France
Canada

"JAPAN, Inc."

1. Deep Government Involvement in Domestic and International Business

   a. Allocation of funds to particular industries and/or foreign expansion - MITI - Bank of Japan.

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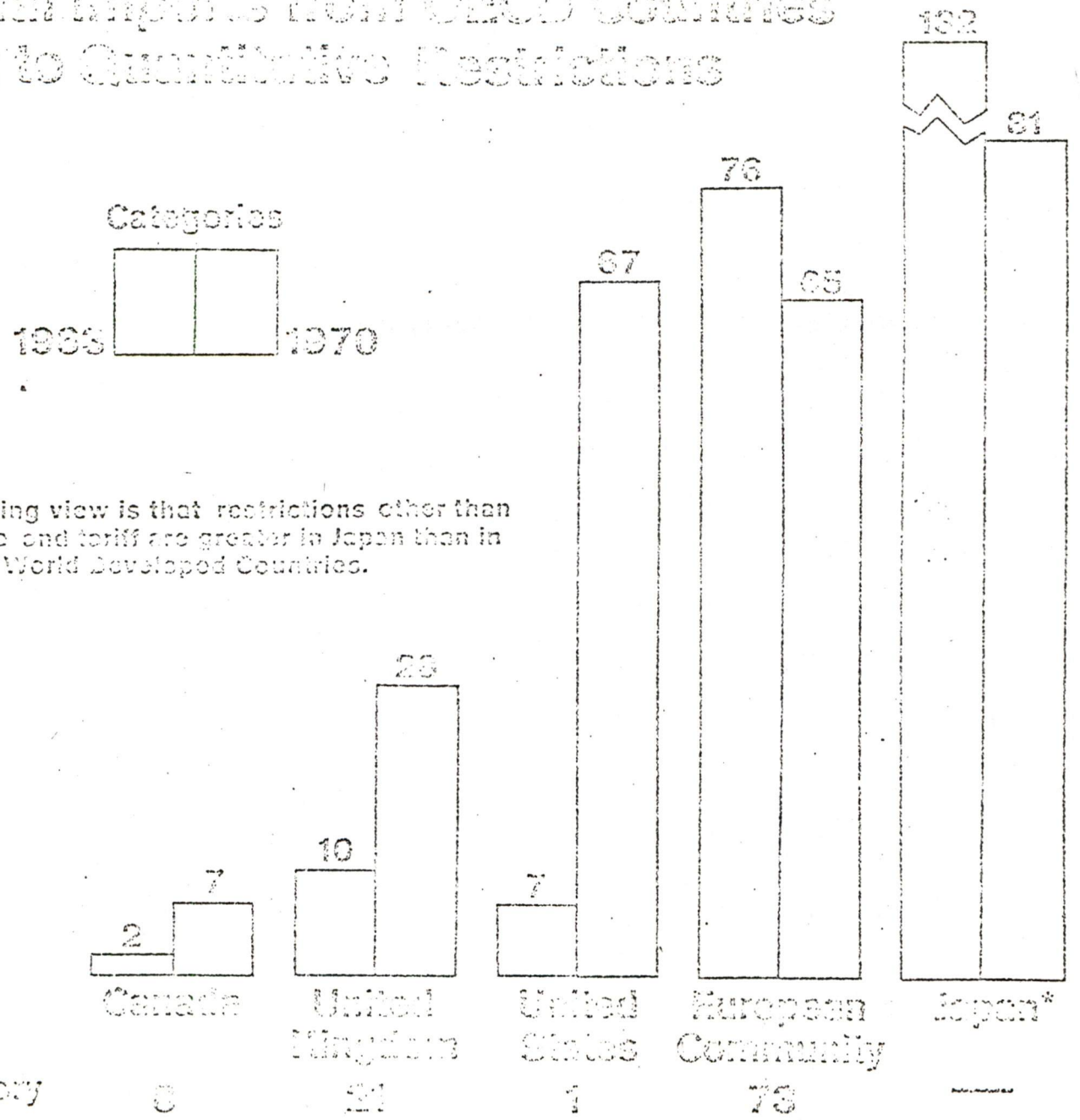


*The prevailing view is that restrictions other than quantitative and tariff are greater in Japan than in other Free World Developed Countries.

THE PRESIDENT'S SCIENCE ADVISORY COMMITTEE
EXECUTIVE OFFICE BUILDING
WASHINGTON, D.C. 20506

March 24, 1972

MAR 27 1972

MEMORANDUM FOR

T. Cairns
P. Haggerty
K. Olsen ✓

Consulting
Mergers
export to Red countries
Gov. support

At the March meeting of PSAC, Dr. David asked that you serve as a three-man PSAC ad hoc Task Group to examine available material on the international transfer of technology and be prepared to comment on the subject at the next and subsequent PSAC meetings, with a view to developing a PSAC position on Federal policies in this area. An FCST report on the international transfer of technology is being drafted by an interagency group under the leadership of the Department of the Treasury. This report is expected to be completed in the next several months.

The enclosed report by a sub-group of the FCST study under the chairmanship of Mr. Richard Miller will be presented to the April PSAC meeting. There will also be a presentation of a case study of the development of the Japanese computer industry being prepared by a subcommittee of the NAS Computer Sciences Board chaired by Donald Ling, formerly of the Bell Telephone Laboratories. Also enclosed for background are reports by the Emergency Committee for American Trade. A copy of a Commerce Department staff report entitled Policy Aspects of Foreign Investment by U.S. Multinational Corporations was mailed to you about 10 days ago.

It would be appreciated if you would examine these materials and be prepared to comment on them at the next meeting. The PSAC conclusions will await the completion and presentation of the FCST study (possibly at the June or July PSAC meeting).

David Z. Beckler
Executive Officer

EXECUTIVE OFFICE OF THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY
WASHINGTON, D.C. 20506

Ad Hoc Committee on International Transfer of Technology

December 21, 1971

MEMORANDUM FOR WILSON E. SCHMIDT
AND TASK FORCE HEADS

Attached is the final draft of the report by Task Force II-1, on the Motivations and Mechanisms for the International Transfer of Technology.

We would appreciate your comments as soon as possible. The recommendations will remain tentative until the cost/benefit analyses are completed. Such analyses were beyond the scope of this task force.

Thank you for your cooperation.

N. Richard Miller
Consultant

Attachment

TABLE OF CONTENTS

AD HOC COMMITTEE ON THE INTERNATIONAL TRANSFER OF TECHNOLOGY

(TASK FORCE II.1)

Motivations and Mechanisms for the International Transfer of Technology

SUMMARY

I. INTRODUCTION

The Task Force had the principal assignment of ascertaining the motivations of U.S. firms in their international transfer of technology and the channels used to effect this transfer.

The Task Force approached its assignment using two basic sources of information:

1) Field interviews with a selected number of U.S. firms active in the international transfer of technology and international trade.

2) The review of the literature relating to the transfer of technology and international investment with particular reference to prior surveys of motivation.

The field interviews were limited in number because of the personnel available to the Task Force interviews and the short period of time permitted for the completion of the report. The interviews took place from September 20th until November 15th, which was a period of floating currency exchange rates and uncertainty as to future international economic relationships. The field interviews must be characterized as a snapshot of current conditions but taken of a moving subject in uncertain light with unidentified filters.

The review of literature uncovered ten surveys of interest to the Task Force. These surveys were conducted over the past decade and thus add perspective to the field interviews. In most essentials, these prior surveys are supportive of the field interviews; the few differences indicate either a need for further analysis or possibly a different bias in the interview samples .

II. FINDINGS

1) The Task Force concentrated on the manufacturing industries and excluded agriculture, extractive, and service industries. The manufacturing industries alone had the effective choice among

export from the U.S.
manufacture by foreign subsidiaries
or license technology to unaffiliated foreigners

2) The primary objective of U.S. industry is profitable participation in this growth of world trade.

U. S. industry has been active in all channels of profitable growth and export sales, foreign subsidiary sales, and licensing receipts have all increased. U.S. industry showed a pragmatic suppleness in adapting to the circumstances of international trade opportunities.

3) In 1970 the U.S. manufacturing industries' activities had the following revenue ratios:

foreign subsidiary sales	100
U.S. export sales	40
technology license receipts	1

From this it is concluded that the most important international transfer of technology is from the U.S. parent firm to its foreign subsidiary. The fundamental question raised is why the apparent preference to transfer technology and production to the foreign subsidiary when the export option exists.

4) In the past decade, U.S. exports of manufactured goods increased 138% or more slowly than every major industrial country except the U.K.

5) U.S. foreign subsidiary sales have grown 225% in the same period. Thus the U.S. foreign subsidiaries have expanded and their remitted profits have grown even more rapidly. Thus the returns to the U.S. from foreign investments must be added on a comparative basis to exports to obtain a true picture of the global vitality of U.S. industry.

6) The available trade statistics, the company interviews, and the reviews of the literature all confirmed that the world markets for manufactured products were growing faster than the U.S. market.

7) The growth of world trade resulted in national markets or trade-bloc markets whose size was now large enough to justify the establishment of local manufacturing operations. This market growth encouraged foreign investment by U.S. firms who formerly exported.

8) The primary motivations for foreign investment by most major U.S. manufacturers are a constellation of mutually supportive marketing considerations embraced in a profit-making objective. The primary motivations are continued access to foreign markets, retaining market position in foreign markets, better servicing of customers, and long-range profitability.

The marketing reasons all imply increasing competition. The large U.S. firms are more concerned with foreign market penetrations than short-term profits from these markets.

9) Economic nationalism, as practiced by individual governments or trading blocs, is considered by the companies interviewed to be as important as market growth in obligating U. S. firms to choose foreign investment over exports. The industrialization policy of each of the foreign countries is expressed in tariffs or increasingly in other more subtle non-tariff barriers. These tariffs and "NTB's" protect local manufacture and make U.S. exports less competitive. Thus the U.S. firms are obliged to invest in foreign operations in order to get behind trade walls and protect their market position.

10) The other face of economic nationalism is that foreign governments frequently grant concessionary advantages to an investor, and in addition, will give various modes of protection against competition. This protection takes the form of tariffs, trade barriers, assured government procurement, or even in some developing countries, a monopoly for a limited period of time.

11) The over-valued U.S. dollar, particularly in the past six years, encouraged foreign investment. Companies could be acquired or facilities constructed at favorable exchange rates.

12) Frequently U.S. companies report increased export sales despite their investment in foreign operations. This market phenomena is little understood, yet it is at the crux of important public policy debates.

13) The larger U.S. firms regard licensing as the third best alternative, after exports and/or foreign investment. The larger U.S. firms interviewed stated that they now rarely license their major technology to unaffiliated foreigners. Earlier surveys indicated a greater willingness to license foreign firms. Those companies now licensing major technology usually insist on a substantial equity participation. Japan is the exception to the licensing limitations for its government policies strongly favor Japanese purchase of technology and discriminate against investment by foreigners.

14) The Task Force lacked the resources to examine the licensing practices of medium and smaller U.S. manufacturing firms. There is some evidence that among these smaller firms, licensing technology to foreigners is more prevalent.

15) Several industrial sectors in which U.S. technology has been transferred and which is resulting in increased foreign competition are:

nuclear reactors
jet turbine engines
satellite communications
digital computers
integrated electronic circuits

In the first three, the U.S. government was an active participant in the transfer process.

16) The U.S. government, for national security purposes, has slowed down the diffusion of certain advanced technologies controlled by it. However, it is impossible to stop completely the international diffusion of technology.

17) U. S. firms, while guarding their technology, consider this technology to be a wasting asset whose economic life has become shorter and shorter. Most U. S. firms judiciously consider their respective competitive positions to determine how to best capitalize on their technology in foreign markets. There is also a reverse flow of technology from foreigners to the U.S. firms to be considered.

18) Frequently, the inability of the U.S. government to effectively assist the U.S. firms in assuring continuing access to foreign markets leads to foreign licensing. In a world increasingly circumscribed by active economic nationalism, it will take a sustained effort by U.S. government negotiators to protect U.S. exports from erosion by foreign government policies.

19) Foreign manufacturing costs were often higher than comparable U.S. manufacturing costs. The higher foreign costs of materials and capital outweighed lower foreign labor costs. The smaller size of foreign plants often meant that the economies of scale available in the U.S. markets enabled U.S. producers to have competitive costs despite higher U.S. wages. Where economies of scale are either not significant or the volumes are equivalent, the technology is mature and diffused, and labor is a large part of total cost or can be substituted for capital, then the foreign manufacturing costs are lower. However, much of the U.S. investment overseas is in advanced technology industries which are capital intensive and labor costs are not decisive.

20) U.S. industry has, with few exceptions, not started foreign operations in low labor cost areas to supply the U.S. market. The most exceptions are the apparel industries and the electronic semi-conductor industries. Excluding the special U.S.-Canada automotive agreement, less than 5% of foreign production of U.S. subsidiaries has been imported into the U.S.

in memory

21) Lower foreign labor costs are implicit in all of the foreign investment decisions but for the few exceptions cited above, these labor costs are not a decisive factor. Surprisingly lower costs are seldom stated as a reason for foreign investment by the U.S. manufacturers interviewed. These foreign labor costs have always been lower. However, the U.S. firms make the foreign investment when the market opportunity is judged profitable.

22) There is a growing trend among the more sophisticated U.S. international firms to optimize their production costs. Imports of components and subassemblies for incorporation in U.S. production was becoming more prevalent prior to August 15th. Also, there is a new trend among smaller capital goods' firms to manufacture some part of their production overseas for importation into the U.S.

23) The key to U.S. manufactured export success is continued product innovation. The U.S. industries which have successfully innovated new products have seen their exports continue to grow.

24) Successful U.S. manufactured exports are concentrated in the chemical and pharmaceutical industries and the capital equipment industries. Three of the exporting industries - computers, aircraft, and instrumentation - have all in the past benefited by government R & D and/or marketing support. The chemical and pharmaceutical industries, construction equipment, and general industrial machinery have maintained their competitiveness and innovated with their own resources.

25) U. S. Foreign trade (exports plus imports) accounts for only 8% of GNP, by far the lowest percentage of any industrialized free-world nation. This also suggests why the U.S. government has been less active in supporting its foreign trade than have other foreign governments. However, manufactured exports are vital to the profits and growth of our most advanced and progressive industries. Export sales constitute 10% of the chemical industry, 26% of the computer industry and nearly half of the aircraft industry.

26) The obstacles to the growth of U.S. manufacturers' exports, apart from increasing foreign competition and foreign innovation, are based on foreign government policies

a) concessionary practices by exporting nations to encourage their exports; local cartels and dual pricing are especially pernicious.

b) tariffs and NTB erected by governments to protect their own industries; increasingly NTB's are becoming more important; this is a most serious trend as all governments become increasingly involved in supporting their own industries.

27) The devaluation of the dollar will encourage exports and make foreign investment more costly. Probably of more immediate concern is that the devaluation will stem imports of semi-finished materials and products and standard manufactured items. As many U.S. exports are sold on the basis of product superiority and not solely price, it is important that the non-tariff barriers be eliminated or reduced so as to sustain U.S. exports.

III. RECOMMENDATIONS

1) The complex shifting international economic forces and the U.S.'s increasing economic interdependence in a world increasingly circumscribed by economic nationalism necessitates that an affirmative and continuous international economic policy be formulated by the U.S. government.

2) This economic policy should be formulated by the establishment of a permanent International Economic Policy Board.

3) The international economic policy should be consistent with domestic objectives and should include the following domestic components:

   a) improve balance of payments.
   b) provide increased employment opportunities.

4) The vital interests of the U.S. in world trade should be defined, established and advanced by the IEP.

5) Preference should be given to U.S. exports through DISC and improved credit terms from the Export-Import bank.

6) Policy should be neutral to foreign investment; deferral of U.S. income taxes until remitted should be eliminated.

7) The U. S. government should enter into sustained negotiations to remove non-tariff barriers and provide symmetry in trade policy.

8) To assist smaller firms in international trade, export consortia should be legalized.

9) U. S. government should introduce policies which will encourage sustained product innovation. In the advanced technology, the U.S. government should consider active product development through the feasibility stage and then license the development to domestic firms only. Policies for R & D support and prototype assistance should also be implemented.

10) Export incentives should be given to smaller firms to discourage licensing technology to foreigners.

11) Territorial limitations on foreign licenses should be legally permitted.

12) Bilateral discussions between the U.S. and Japan should be held to discuss the asymmetries on exports, imports, licensing, foreign investment, hidden subsidies, and "administrative guidance".

13) Fiscal policies should be developed to put U.S. exporters on comparable fiscal treatment with that of foreign competition.

14) Transportation rates should be made equal in all directions.

15) The relationship between exports, licensing, and foreign investment should be analyzed in more detail. Much information important to public policy remains to be ascertained on a micro-and macro-economic level. Particular emphasis should be given to policies for small and medium sized manufacturing firms.

Definition of Transfer of Technology

The transfer of technology is considered in its broadest sense and for the purposes of this report is defined to include the transfer of

1) any general skill or competence, including managerial, administrative and marketing skills;
2) the scientific and technical knowledge, judgment, competence and experience;
3) and the even more narrow specific knowledge or experience, and/or skills utilized in providing process, product, or service.

This transfer of technology is deemed to have an economic value and its transfer between unrelated parties gives rise to an economic exchange.

Technology transfer takes place in a complex social environment. The actual effectiveness of technology transfer is imparted by many social factors including the degree of consensus on value standards, property relationships, local work habits, personal motivations, organizational purposes, and governmental actions.

CHAPTER ONE

TASK FORCE FINDINGS

A. Introduction

1. Purpose

The purpose of the industry survey was to elicit current information on the motivations and practices of major U. S. firms active in international trade and in the international transfer of technology. The survey was designed to determine how U. S. firms regard their respective business opportunities in the domestic and foreign markets, both present and future. The attempt was made to determine the underlying motivations in choosing a specific business alternative for their participation in world trade.

The survey also attempts to uncover any new patterns among the "trend setters" in international trade and comments on their future impact.

Also, recommendations from U. S. industry were solicited with regard to possible modifications or changes in government policies.

2. Development of Interview Schedules

On the basis of the information developed from a survey of current literature and the prior analyses, an industry interview schedule was developed to include those industries which were most actively engaged in the international transfer of technology or who were key elements in the United States balance of trade.

The emphasis was placed on the manufacturing industries, and in particular those who had realistic alternatives to export, to license, or to invest in foreign enterprises. To gain insight into the opportunities and the problems, interviews were scheduled both with the "winners" of balance of trade such as chemicals and pharmaceuticals and "losers" of balance of trade such as apparel, textile, and automobiles. Where possible specific discussion was directed toward the company experience with the Japanese.

B. Limitations Regarding the Findings of the Survey

1. Use of Industry Interviews

The industry interviews were voluntary and not for attribution. A questionaire was prepared to assist in structuring what were essentially open-ended interviews. The individual impressions gained from these interviews were essentially qualitative although considerable supporting data was either volunteered or available upon request. Furthermore, the cumulative impression did form a consistent constellation of common factors.

2. Limitations on Coverage

The lack of assigned manpower and the short time available limited the number of company interviews to thirty. Of the total 26 were large international companies and four were smaller companies in the textile and apparel industry.

This number is too small for a reliable statistical sample. However, it does include leaders of the sectors of primary interest.

3. Interpretative Nature of Interviews

A further caveat is that this type of interpretive interview carries with it its own limitations. The interviewees had differing levels of responsibilities and different backgrounds within their respective companies. Apart from their own subjective viewpoints there is always the semantic problem in trying to ascertain the motivation or reasons at the time the decision was taken. In some cases decisions were discussed that were taken 10 or 15 years ago by others when both the internal company position and the external environment were far different from the current situation. Finally, it is difficult to attempt to quantify what are essentially subjective evaluations.

4. Methodology

The questionaire is included as Appendix A. The interviews were cooperative and responsive. Several of the discussion points gave clear insight to the company motivations. During the course of the interviews it became apparent that several of the original questions did not have the expected importance and several questions were found to be either not material or difficult to answer.

5. Qualitative Responses

Although a compilation has been made of the interviews, except for several fundamental observations, it is not considered statistically sound to report these quantitatively. The real value of the interviews was essentially qualitative and judgemental. However, there was surprising consistency in the responses.

6. Interview Emphasis on Successful Export Industries

Prior to the interviews an analysis of U. S. trade balances determined that the chemical industry and the capital equipment industries (excluding automotive) were of the greatest interest because they had the largest net foreign trade surplus of manufactured goods and were also active in foreign investment. These industry groups accounted for approximately $20 billion of U. S. exports in 1970. The survey included twenty companies who would be included in the above industry groups; these twenty companies in 1970 exported approximately $5.8 billion and had an additional $8.3 billion sales by foreign subsidiaries and affiliates. The very fact the companies interviewed accounted for 29% of U. S. exports in their industries is indicative that the survey was biased to a small number of large companies.

The two automotive and one rubber company interviewed had exports of approximately $2.5 billion and foreign subsidiary sales of $7.6 billion in 1970. The automotive

and rubber companies are reviewed separately.

The survey included all but two of the first 13 industrial companies (excluding petroleum) listed in the Forbes survey of multi-national companies sales. The Forbes list, Table C-1, was published on November 15 (p. 77) after the bulk of the interviews had been completed.

C. Relationships Among Export Sales, Foreign Direct Investment and Licensing for U. S. Manufacturing Industries

1. Introduction

Prior to examining the task force findings, it would be useful to put the exports, foreign direct investment, and licensing alternatives in their proper relationships for the manufacturing industries.

Theoretically, U. S. industry has three alternative courses of action for participation in world trade.

Exports from U. S.

Foreign subsidiary sales

Licensing receipts from unaffiliated foreigners

In actual practice not all of these three alternatives are economically feasible for all U. S. manufacturers.

Products whose value is low relative to transportation costs do not lend themselves to competitive exports. Other manufactures may have lower foreign costs such as labor and materials costs. Exports may not be possible because of foreign

government duties, quotas, restrictions or other more subtle non-tariff barriers. In rare instances exports have been restricted by the U. S. for national security considerations.

2. Concurrent Growth of the Three Foreign Trade Channels.

The following section concisely portrays the relationships of the three foreign trade channels of the U. S. manufacturing industries. There is no attempt by this task force to make any analysis of these relationships, but only to present their current relative dimensions.

Table C-1A portrays the concurrent growth of categories -- export sales, foreign investment and licensing. The approximate relationship for the three modes of foreign trade in manufactured products are:

U. S. foreign subsidiary sales	100
U. S. export sales	40
U. S. license & royalty fees	1

U. S. foreign subsidiary sales are growing faster than export sales. Foreign investment and earnings are growing in less regular increments but the growth rates have been roughly consistent with the growth in sales.

License and royalty fees from unaffiliated foreigners are probably overstated for the manufacturing industries, as this includes receipts not related to manufacturing technology.

Hypothetically, if it is assumed that 75% of the license and royalty fees are for manufacturing technology and these fees

TABLE C-1A

U. S. MANUFACTURING INDUSTRIES WORLD TRADE DATA

SELECTED RELATIONSHIPS AMONG EXPORTS, FOREIGN INVESTMENT, AND LICENSING

Year	$ Billions				$ Millions
	U. S. Manufactured Exports	Foreign Subsidiary Sales	Cumulative Book Value Foreign Subs	Foreign Subsidiary Earnings	Royalties and License Fee from Unaffiliated Foreign
1961		25.1			244
1962	13.7	27.9			256
1963	14.3	31.8	14.9	1.5	213
1964	16.5	37.4	16.9	1.9	301
1965	17.5	42.3	19.3	2.0	335
1966	19.2	NA	22.1	2.1	353
1967	20.9	53.2	24.2	2.1	407
1968	23.8	59.7	26.4	2.5	461
1969	26.8	NA	29.5	3.3	523
1970	28.7	NA	32.2	3.3	600

Sources: Survey of Current Business, various issues.

are capitalized at a 3% license rate then these license receipts represent goods produced under license that is equivalent to one-half of the U. S. manufactured exports.

The aggregate data presented above is worthy of analysis by industry to determine the factors that have caused their respective growth patterns. Further economic analysis is warranted relative to respective growth rates, inflationary impacts on costs and prices, research and development expenditures, etc. but this was not within the purview of this task force.

3. Growth of U. S. and World Exports.

The prior section indicated concurrent growth by the U. S. in all three modes of world trade in manufactured products. The following table indicates the growth of U. S. and world exports.

$ Billions (Current Values)

	1938	1948	1958	1968
World Exports	$22.7	$57.5	$107.9	$238.77
World Manufactured Exports	10.2	24.1	56.1	150.4
% Manufactured	45%	42%	52%	63%
U. S. Exports	$ 3.1	$12.6	$ 17.8	$ 34.2
% of World Exports	14%	22%	17%	15%
U. S. Manufactured Exports	2.0	8.4	13.1	23.8
% of World Manufactured Exports	20%	35%	23%	15%

Source: Boston Consulting Group, U. S.-Japan Trade in the 1970's, Exhibit 1.

The above table indicates that the U. S. participation in world exports has declined from its post-war peaks to relationships which approximate the pre-war exports relationships. The proportion of U. S. manufactured exports has declined to a level which is below the 1938 share. However, these data do not take into account the vast U. S. industrial investments in foreign manufacturing since 1958. These foreign investments have generated foreign sales in 1968 of approximately $60 billion of which are estimated $12 billion were exported from the foreign base. While not equivalent to U. S. exports in their domestic impact, the foreign subsidiary sales indicate that the U. S. continues active in world trade; however, U. S. industry was obliged to seek another trade channel to supplement its export sales and seek to maintain its position in world trade.

The relative decline of the U. S. export position is indicated by the fact that in the decade 1958-1968 world manufacturing exports grew 10.8% annually compounded while U. S. manufactured exports grew only 6.1% annuall. U. S. industry has attempted to compensate for the less favorable export position by vast foreign investments where permitted. Clearly, the situation has necessitated that each company optimize its own competitive situation in the absence of any affirmative U. S. government international economic policy.

4. Special survey comparison of domestic and foreign sales.

The data provided by the interviewees did not permit a meaningful comparison of domestic versus foreign sales. However, preliminary results of another confidential survey of 66 large

U. S. corporations has shown the following sales growth in the period 1961-1970:

Domestic sales plus exports	97.2% increase
Foreign plant sales	260.0% increase

These percentages must be quoted with caution for without knowing the absolute figures these could be misleading in terms of relative importance.

CONCLUSIONS: This task force did not have the responsibility for a thorough analysis of the respective growth rates of the several channels of growth of manufactures. For the purposes of this report it will suffice to indicate that for this past decade all three channels -- exports, foreign sales, licensing receipts are growing but foreign subsidiary sales are growing faster.

Manufacturing exports continue to grow. However, such exports were roughly 40% of foreign subsidiary sales in 1968.

Foreign direct investment and its related sales and earnings are increasing at comparable rates.

Licensing receipts continue to grow 10% per year but other data indicate the numbers of new licensing agreements is not increasing.

Licensing receipts represent less than 2% of manufactured exports. However, if 75% of the license revenues pertained to the manufacturing industries and receipts were capitalized at 3%,

Multinational Profits / and still make profits from all over the globe.

Where more company presidents talk a good multinational game than actually run that kind of operation, the below includes 50 major U.S. companies that derive over $400 million or over 10% of their total revenues from overseas. The profits of these companies are truly diversified, for the effective devaluation of the dollar now taking place will increase the dollar value of foreign earnings.

Only two corporations, Standard Oil of New Jersey and IBM, earned $500 million abroad last year. Seven others listed made over $100 million.

Surprisingly, Ford Motor and General Motors did not make much more profits abroad than ITT, even though the automotive giants are $900 million to $1.2 billion larger. General Electric's overseas profits also seem modest. The reason: GE lost much of its overseas empire in places like Germany and China in past world wars and expanded slowly thereafter.

With a slowdown underway in the U.S., overseas profits really buoyed up overall 1970 earnings, giving added luster to the decisions of once-retired managers to push abroad when it was less popular than it is now. For instance, Boston-based USM got 98% of earnings from abroad, while

TABLE C-1

Company	Net Sales (millions)	Estimated Foreign Sales (millions)	% Total	Net Income (millions)	% Foreign	Where the Profits Come From
Standard Oil (N.J.)	$16,554	$8,277	50	$1,310	52	Worldwide
Ford Motor	14,980	3,900*	26	516	24*	Germany, Britain, Australia
General Motors	18,752	3,563*	19	609	19*	Worldwide
Mobil Oil	7,261	3,267	45	483	51	Canada, Middle East
International Business Machines	7,504	2,933	39	1,018	50	Worldwide
International Telephone & Telegraph	6,365	2,673*	42	353	35*	Canada, Europe, Latin America
Texaco	6,350	2,540	40	822	NA	Worldwide
Gulf Oil	5,396	2,428	45	550	21††	Middle East, South America, Canada
Standard Oil of California	4,188	1,885	45	455	46††	Middle East, Indonesia, South America
Chrysler	7,000	1,700*	24	d7.6	NA	Worldwide
General Electric	8,727	1,393	16	329	20	South America, Canada, Italy
Caterpillar Tractor	2,128	1,118	53	144	NA	Export Sales, Worldwide
Occidental Petroleum	2,402	1,105*	46	175	NA	Middle East, South America, Africa
F. W. Woolworth	2,528	1,001‡‡	35	77	61	Canada, Germany, Britain
Eastman Kodak	2,785	874	31	404	19	Worldwide
Union Carbide	3,026	870	29	157	NA	Worldwide
Procter & Gamble	3,178	795	25	238	25	Britain, Europe, Latin America
Singer	2,125	775	37	75	NA	Europe, Latin America
Dow Chemical	1,911	771	40	103	45**	Worldwide
ITT International	1,376	692	50	61	51	Worldwide
International Harvester	2,712	680	25	52	NA	Canada, Europe, Africa
Firestone Tire & Rubber	2,335	677	29	93	39	Worldwide
Colgate-Palmolive	1,210	670	55	40	NA	Worldwide
Honeywell	1,921	622	35	58	NA	Europe, British Commonwealth
National Cash Register	1,421	643	45	30	51**	Worldwide
E. I. du Pont	3,618	634	18	329	NA	Export Sales, Europe
W. R. Grace	1,938	633	33	30	39* **	Latin America
Minnesota Mining & Manufacturing	1,687	605	36	188	NA	Europe, Canada, Australia
First National City Corp.	1,704	600	35	139	40	Worldwide
Engelhard Minerals & Chemical	1,474	589	40	36	NA	Britain, Europe, Japan
Sperry Rand	1,739	589	34	72	NA	Europe, Japan
Xerox	1,719	518	30	188	38	Britain, Canada, Latin America
American Standard	1,418	511	36	13	33	Europe
Coca-Cola	1,606	498	31	147	NA	Worldwide
Swift	3,076	492	16	29	NA	Canada, Britain, Germany
General Foods	2,282	479	21	119	NA	Canada
American Smelting & Refining	718	467	65	89	55‡	Australia, Peru, Mexico
Monsanto	1,972	467	24	67	31	Canada, Latin America, Europe
Warner-Lambert	1,257	453	36	98	NA	Worldwide
General Telephone & Electronics	3,439	441	13	236	7	Canada, Europe, Latin America
H. J. Heinz	990	433	44	38	44	Worldwide
Uniroyal	1,556	420	27	24	75	Canada, Mexico
Pfizer	870	412	47	81	55	Britain, Europe, Latin America
Litton Industries	1,404	409	17	69	NA	Europe, Latin America
Schlumberger	579	341	59	49	NA	France, Canada
Otis Elevator	601‡	301	50	24	35	Worldwide
Gillette	673	289	43	66	50	Worldwide
USM	440	203	46	10	98	Br Comwlth Europe, Lat Amer
Chesebrough-Pond's	261	111	43	21	40	Europe, Canada, Latin America
Black & Decker	255	107	42	20	50	Export Sales

they would represent a production equivalent to about 50% of U. S. exports.

All of these comparisons are based on the then existing exchange rates. The new exchange rates will obviously favor exports. The new exchange rates should have no immediate effect on foreign subsidiary sales as the recently completed or in-process investments will carry the sales momentum for several years.

D. Profitable Participation in World Trade is the Primary Company Objective

1. Growth in all forms of world trade

The fundamental reasons for the concurrent expansion of U. S. exports, foreign direct investment and licensing is the desire for the U. S. enterprise to participate profitably in a growing world market for goods and services.

2. Increasing dependency on foreign trade

To an almost unanimous degree (25 of 26) the larger U. S. firms indicated that the foreign markets for their products were expanding faster than the U. S. markets.

The 26 interviews with the large multi-national firms indicated the following dependence on foreign markets in 1970:

Percentages	0-10	10-25	25-50	over 50%
Foreign sales	1	10	13	2
Profits from foreign sales	1	12	10	3

Furthermore, 24 of the 26 companies expected that the foreign market of their businesses would increase markedly in the next five years.

Among the interviewees, the present percentage of profits earned from overseas markets formed two nodes, around 20% and 30% of the total profits. These foreign profits are projected to increase to 30% and 40% respectively.

This interview data may be contrasted with the analysis of multi-national corporation income and profits portrayed on p. 77 of the November 15, 1971, issue of Forbes, Table C-1. Essentially, comparing only the manufacturing companies (except petroleum) the Forbes list indicates the following percentage of profits from foreign operations:

0-10	10-25	25-50	over 50%
1	5	11	7

The heavier skew of the Forbes data is due in part to the fact that their sample includes consumer products companies who have been long established in foreign markets.

3. Exports and foreign subsidiary sales growth

All of the companies interviewed but the one textile company reported a continued growth of both export sales and sales by foreign subsidiaries and affiliates. Most companies reported a greater absolute and relative increase in sales

by foreign subsidiaries. This is to be expected in view of their relatively recent increase in foreign direct investment and the growth rate of their respective industries.

Useable response from 24 companies indicated that 11 had larger export sales than sales of foreign subsidiaries. Nine of these 11 were primarily the capital equipment manufacturers.

It is difficult to generalize further on the growth of exports relative to foreign subsidiary sales. Each company has had its own individual experience; the common experience was the necessity to rely increasingly on foreign subsidiaries (on the basis of pre-August 15th relationships). The motivations for this common experience are of primary importance and are discussed later.

CONCLUSION: Increased participation in this growth in world trade by U. S. manufacturing companies was the major positive reason for the simultaneous expansion of U. S. exports, foreign direct investment, and licensing. Foreign subsidiary sales grew more rapidly than export sales for most companies, even the strongest exporters.

E. World Markets are Growing Faster Than U. S. Markets

1. Comparative GNP growth

Economic growth in the past decade has been faster in foreign countries, particularly the industrialized nations, than it has in the U. S. Table C-2 portrays the gross national

TABLE C-2

Volume Indices of Gross National Product at Market Prices For Selected OECD Countries, 1960-1969
(1963 = 100)

Country	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969
United States	88	90	96	100	105	112	119	123	128	132
Canada	87	89	95	100	106	114	121	125	131	137
Japan	74	85	90	100	113	118	130	147	168	189
EEC Total	86	91	96	100	106	111	116	120	127	136
Belgium	86	91	96	100	107	111	114	118	123	131
Luxembourg	93	96	98	100	107	109	111	111	117	125
France	84	89	95	100	107	112	118	123	129	140
Germany	88	93	97	100	107	113	116	116	124	134
Italy	82	89	95	100	103	107	113	121	128	134
Netherlands	90	93	96	100	109	115	118	125	133	140
United Kingdom	92	95	96	100	105	108	110	113	116	117
Austria	89	93	96	100	106	109	114	118	123	131
Norway	85	91	95	100	105	111	116	122	127	133
Sweden	87	92	95	100	108	112	116	119	123	130
Switzerland	85	91	96	100	105	110	113	115	120	126
OECD Total	87	90	96	100	106	112	118	123	130	136

Source: National Accounts of OECD Countries-1953-1969 Published by OECD

TABLE C-3

Manufacturing Industries-Industrial Production For Selected OECD Countries-1960-1970
(1963 = 100)

Country	1960	1961	1962	1963	1964	1965	1966	1967	1968	1969	1970
United States	87	88	95	100	107	116	127	128	134	139	134
Canada	81	85	94	100	110	120	128	131	139	145	144
Japan	69	83	90	100	116	121	137	164	194	227	264
EEC-Total	84	90	95	100	107	112	118	120	130	145	154
Belgium	82	87	92	100	107	110	114	116	123	137	143
Luxembourg	102	104	100	100	111	111	107	107	115	130	131
France	84	89	93	100	108	109	118	121	127	144	153
Germany	87	93	97	100	109	115	117	115	129	147	156
Italy	75	83	92	100	101	105	118	128	136	141	151
Netherlands	87	90	95	100	111	116	122	126	139	153	165
United Kingdom	96	96	96	100	109	112	114	114	121	126	127
Austria	90	94	96	100	108	112	117	118	127	142	153
Norway	86	91	95	100	108	115	121	126	129	137	144
Sweden	83	89	94	100	110	119	124	128	135	146	158
Switzerland	84	91	95	100	105	109	113	115	120	132	142
OECD Total	86	89	95	100	108	115	124	127	136	146	148

Source: OECD-Industrial Production Historical Statistics 1959-1969 and OECD Industrial Production 1971-2

product for selected OECD countries for the period 1960-1969. It will be noted that with the exception of the United Kingdom, the U. S. had the slowest growth among the major OECD countries.

2. Comparative manufacturing growth

The manufacturing indices are a more accurate measure of comparative strength in the world market. Table C-3 portrays comparative growth of the OECD countries and again illustrates the slower growth of the U. S. economy. Again among the major countries only the U. K. has a slower growth rate than the U. S.

3. Comparative growth of manufactured exports

Of greatest immediate interest is the comparative growth of exports and in particular manufactured exports. Table C-4 illustrates the comparative growth of world, OECD, and U. S. total exports and similar indices for selected manufactured exports. This table indicates that the U. S. exports are growing less rapidly than world exports and OECD exports in every export category. The only category in which the U. S. is shown as doing a creditable job is machinery.

Table C-4

Growth of World Exports

1964/5 to 1968/9
(Percentage Growth Rates)

	World Exports	OECD Exports	U. S. Exports
Total Exports	42.8	48.0	34.1
Manufactured Exports	56.5	58.5	47.9
Chemicals	56.7	58.5	39.8
Machinery	65.1	67.6	59.3
Other Manufactures	48.8	49.0	29.5

Source: Monthly Bulletin of Statistics, March 1971.

The above table does not portray the growth of foreign subsidiary sales of U. S. companies. Although the actual data on foreign subsidiary sales is meager there is good reason to believe that the U. S. subsidiaries have successfully participated in these export markets.

4. Case examples drawn from interviews

In the course of the interviews several striking examples of the relative growth of foreign markets by product groups were uncovered. These are cited for illustrative purposes.

a. Automotive Industry - The world production of total vehicles (automobiles, buses, and trucks) expressed in units more than doubled from 1955 to 1969. However, the U. S. share of the world production declined drastically during that period.

	1955	1965	1969
	(millions of units)		
World production	13.9	24.9	30.9
U. S. production	9.2	11.1	10.2
U. S. production share	66%	45%	33%

Source: Unitar Research Report #8, Table 5, p.92.

The U. S. firms would have to increase their foreign subsidiary sales to attempt to retain their relative market shares; this was not possible. Moreover, this indicates the relative maturity of the American automotive market (although it does not include the growth of imported vehicles).

b. Pharmaceutical Industry - The pharmaceutical industry is among the fastest growing industries throughout the world. It

may come as a surprise to find that this market is expanding at a much faster rate in the rest of the world. The present growth rates for selected markets are:

Market	Current Size	Annual Growth Rate
U. S.	100	8%
Europe	125	10%
Australasia	78	14%

Source: Squibb Corporation - 1970 Annual Report, p.8, 14.

These growth rates if continued would mean that the Australasian pharmaceutical market would equal the U. S. market by 1975. The U. S. pharmaceutical industry is very aggressive in expanding the world-wide markets and these growth rates have shown no slackening.

c. Cigarettes and tobacco products - Although this is regarded as a mature industry with only modest technological inputs it is a major area of foreign investment for U. S. companies. The following portrays the U. S. and rest-of-the-world markets for cigarettes in 1970.

Market	Relative Size	Annual Growth
U. S.	100	--
Foreign	300	4.2%

Source: Phillip Morris Incorporated Annual Report, p.20.

d. Electrical machinery - A major U. S. electrical machinery company has surveyed the world markets for electrical

machinery which it may reasonably expect to compete in and has projected these markets to be:

U. S.	40%
Foreign	60%

As this company presently has more than 80% of its sales in the U. S., it is facing a major shift in future market opportunities with all that that implies.

CONCLUSION:

Given the dynamic growth in world trade since World War II, the American business executive would have been remiss if he had not sought profitable participation in these markets.

F. Patterns of International Trade and Investment are Dependent on the Intrinsic Characteristics and the Competitive Structure of the Selected Industry

While seemingly elementary it is important to reassert that the patterns of international trade and investment are dependent on the initial geo-economic characteristics of the industry and its evolving competitive structure. There is no consistent trade pattern for different manufacturing industries, for each has its set of economic and other factors.

While the principle of comparative advantage remains fundamental to economic exchange it has become increasingly circumscribed by the economic nationalism and by the ologopolistic behavior of large well entrenched competitors. These two forces

working either in conjunction or in opposition have done much to distort a more "natural exchange" of goods and services. This is particularly true of manufactured products.

However, the intrinsic economic characteristics of the industries continue to determine whether they are susceptible to profitable exporting or whether they necessitate local manufacture. These intrinsic economic characteristics are then modified by the activity and influence of the host country governments.

As this series of interviews was limited to manufacturing industries it covered essentially those industries which did have the realistic possibility of directly supplying foreign markets by exports, local manufacture, or some combination of the two; or indirectly by licensing.

While seemingly so fundamental as not to be discussed, almost every company interviewed indicated that it faced serious foreign competition in developed countries. This foreign competition has become increasingly dynamic. As one example, General Motors indicated that its share of the foreign automobile and truck market had fallen from 12% in 1965 to 8% in 1970.

CONCLUSION:

The clear implication of the interviews was that notwithstanding the growth of most markets the combination of foreign competition and economic nationalism often left little choice

to the U. S. company as to its mechanism of participation in world trade. The decision of the U. S. company was too frequently based on the necessity of preserving its market position. On occasion the U. S. company decision was taken against its own short term interests. In the special case of Japan the U. S. company alternatives were even more limited by the mercantilist policies of the Japanese government.

G. Chronological Sequence of the Participation of U. S. Manufactured Goods Companies in International Trade

The following is the usual sequence of the development of a manufactured product in international trade by a U. S. firm. By coincidence the National Foreign Trade Council, Inc. in its report, "The Impact of U. S. Foreign Direct Investment in U. S. Employment and Trade" November, 1971, published on page 4 of its report a sequence, similar but less complete. The following is a sequential list of the typical steps as determined by the interviews and corroborated by the NFTC study:

(1) Develop domestic market and develop product

(2) Develop the resources, processes and equipment to manufacture and service the product profitably

(3) Develop export sales of the original product, perhaps on an opportunistic basis, and then organize sales

(4) Determine the market demands and product specifications for the foreign markets

(5) Develop a foreign marketing and service organization

(6) Modify the design for the foreign markets and test in the U. S. plant

(7) Initiate partial foreign manufacture, processing and assembly, utilizing key components or intermediates from U. S. factories.

(8) Expand gradually a full foreign manufacturing, processing and service capability

(9) Meanwhile in the United States develop new products and processes during the interval from step 4 through 8. These new products result in increasing export sales of a broader range of products by a growing marketing organization.

Step 5, market development, is often overlooked, yet it bulks large in considering the total foreign investment, particularly in the early years of a new venture.

H. Concurrent Growth of Exports with Foreign Subsidiary Sales

1. Explanation of concurrent growth

Most companies reported an increase in exports even though their foreign subsidiary sales increased. These companies attribute this increase in exports to a number of factors including:

a. A greater maturity of the marketing staff and therefore a deeper understanding of the additional market opportunities.

b. The local manufacture will supply only certain elements of the product line and exports of related products will continue.

TABLE C-5

EFFECT OF LOCAL MANUFACTURE
ON EXPORTS TO EUROPE

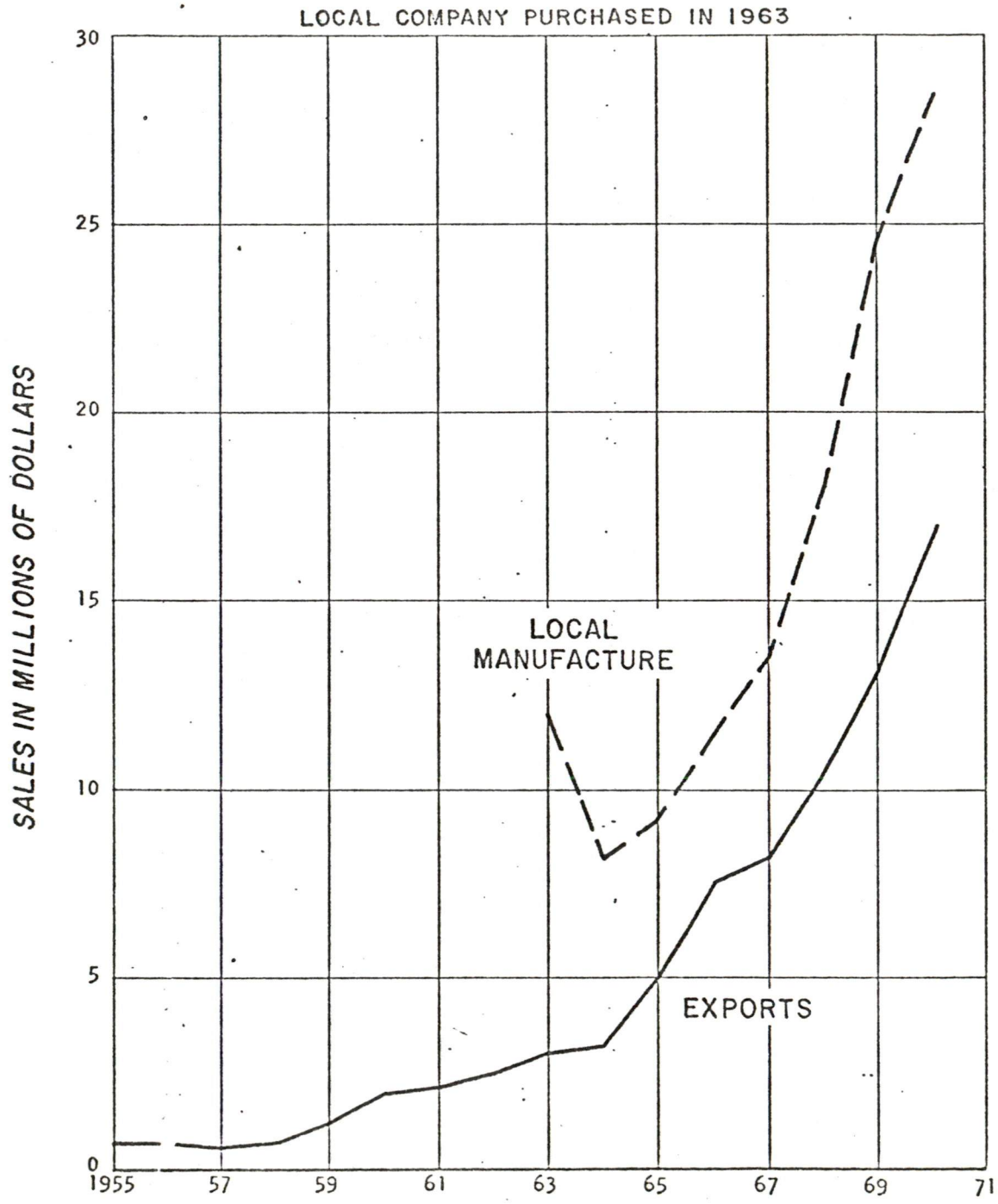
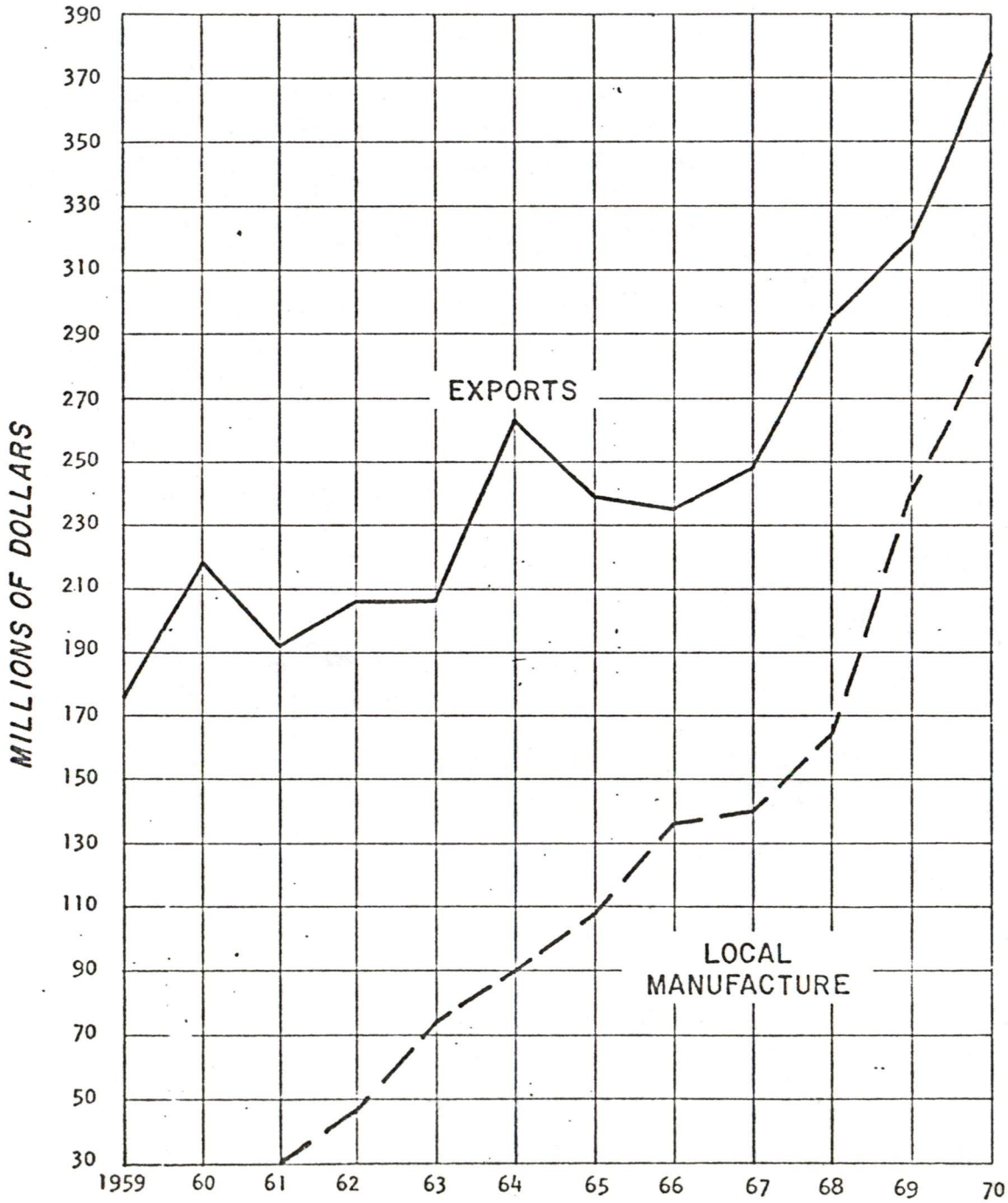


TABLE C-6

LOCAL MANUFACTURE BY CONSOLIDATED COMPANIES

AND PARENT EXPORTS



c. The foreign plant gains creditability as a local source by the customers and the local government.

d. The development of new and improved products.

2. Decreasing emphasis on export sales

Scanning the Forbes list (Table C-1) only the fiftieth and last company on the list credits its international success to export sales. Only two other companies specifically mention export sales as a major contributor to foreign business, one a capital goods equipment, the second a chemicals manufacturer, in both cases economies of scale strongly favor export sales.

3. Case examples

Several of the companies interviewed developed case studies for the growth of exports concurrent with the increase in sales by foreign subsidiaries. Two examples are included as Tables C-5 and 6. Caution should be used in utilizing these tables; causality should not be inferred;too many other factors were at work which contributed to the growth of exports.

CONCLUSION:

This phenomena of increased exports concurrent with increased foreign subsidiary sales deserves deeper treatment for it is an issue of current public policy and concern. The task force as constituted did not have the resources to delve more deeply nor to treat the subject analytically. Furthermore, there is little opportunity to test the other alternative, which would be the expansion by exports sales only.

I. Economic Trading Blocs Encourage Foreign Investment

The faster rate of market growth plus the trend toward aggregating larger economic blocs of common customs duties (European Common Market, EFTA, LAFTA, Andean, etc.) has hastened the development of larger trading areas and reduced the number of small individual national markets.

This trend toward larger economic blocs has led to business opportunities whose market size is such that investments in foreign manufacturing facilities becomes economically viable.

This tendency to foreign investment is further reinforced when the economic trading bloc increases its protection for its industry by the use of tariff or non-tariff barriers. For example, the EEC countries are trending toward a common "value-added" tax policy which subsidizes exports and penalizes imports.

CONCLUSION:

The larger common market groupings and the increased protection both encourage foreign investment by U. S. firms.

J. Transfers of Technology by Licensing

1. Introduction

The total U. S. receipts from royalties and licensing to unaffiliated foreigners have been increasing 10% annually. However, with few exceptions the large companies interviewed did not put an emphasis on licensing.

2. Licensing activity

The survey included two of the largest technology licensors accounting for 15% of the receipts from unaffiliated foreigners. One of these companies has emphasized licensing in the place of foreign direct investment while the other company is more active in exports and foreign investment. The remaining 24 large companies regarded licensing technology as a third best solution to participation in world trade. In no case did it account for 1% of total sales. The U. S. firms' first choice was export sales from the U. S. utilizing U. S. plant, materials, workers and other resources. For most U. S. companies exports are more profitable, do not require foreign investment, and are easier organizationally.

3. Conditions on licensing

With one exception none of the major companies interviewed was willing to grant patent licenses on its major technology to an unaffiliated foreigner. The large companies would grant patent licenses on their advanced technology only if (1) there was a cross-license involved and this occurred very infrequently; or (2) the U. S. company received an equity interest in the new operating company.

No major company granted "know-how" licenses and technical assistance on major technology except on a very selective basis and then not usually to a major competitor unless a swap or cross-license was negotiated.

4. Japan is an exception in licensing

The one major and vital geographic exception to this

licensing policy is Japan. When the Japanese industry and government agencies both decide that the U.S. company has an advanced technology the Japanese permit 50-50 companies to be formed with the U. S. contribution in part represented by a patent and know-how licenses. U. S. industry has agreed to this 50-50 joint enterprise as the best arrangement it can obtain given the Japanese government policies. The U. S. companies report that where the Japanese can acquire or license the technology directly they will put this in their own 100% owned companies. This has been particularly true in new technology associated with chemicals, pharmaceuticals, petrochemicals, fibers, plastics, and films. These Japanese partners are usually very large companies.

5. Change in licensing sentiment in the electrical industry

The one industry that was prone to license its patents was the electrical and electronics industry. This licensing policy has had historic roots, but even this is now subject to change because of international competition. Westinghouse has cancelled its licensing agreements for nuclear power plants with Siemens. RCA is now very selective in granting "know-how" licenses in any product line which it expects to pursue.

6. Licensing and the pharmaceutical industry

A major U. S. industry whose development is affected by foreign licensing laws is the U. S. pharmaceutical industry. Most countries require that a patent application be filed within

one year after the U. S. patent is filed. Certain of the foreign countries immediately publish all patent applications, which in the case of pharmaceuticals usually disclose chemical formulae. Furthermore, if the U. S. company has not practiced the patent within a period -- usually three or four years, the foreign country can order compulsory licensing of the patents. Also the foreign governments have been known to order compulsory licensing in a shorter period of time when it is considered in the "national interest" or for health reasons. Thus, in order to capitalize on their own R&D and to prevent others from exploiting their technology, the U. S. pharmaceutical companies are obliged to do some manufacturing overseas. The net result is to often accelerate the partial foreign manufacture of pharmaceuticals by U. S. firms.

7. Licensing augments exports

One of the direct but unmeasurable benefits of licensing is the associated export sale of the licensed products and also the export sale of capital equipment to manufacture the licensors product. However, there is no hard data available on this subject neither fromt the interviews nor from other reports. This is a subject worthy of further study.

8. Licensing practices of smaller U. S. firms.

However, there is good reason to believe that the smaller U. S. companies --$10 to $50 million sales -- are licensing their technology more freely to unaffiliated foreigners.

While the number of licensing agreements may be significant it is doubtful that these licenses represent large dollar amounts. (The two most active licensors of technology account for about 15% of the U. S. total receipts.)

Furthermore, licenses by smaller companies usually are restrictive regarding the export to the United States market. They do not appear to represent an import problem. However, they do represent additional competition in third markets and could limit U. S. export sales of the companies if they were export-oriented. Presumably this factor has been weighed in the licensing decision by the U. S. firms. However, in discussion with a limited number of smaller manufacturers they regarded licensing primarily as a short-run source of additional funds.

9. Reverse flow of technology

Among the firms interviewed there was a reverse flow of technology, primarily from Europe. This was true to a minor extent in the chemical industry and to a surprising degree in the automobile industry. The U. S. automobile companies are believed to be net licensors of European technology.

10. Licenses with future impact on the U. S. exports

In discussions with the various firms there were several transfers of American technology under license which may have a significant impact on future U. S. international trade. The first was the licensing of computer "know-how" to two Japanese firms in the early 1960's; these two firms, Hitachi and Nippon

Electric, are now no longer dependent on technology from U. S. firms. They are expected to be significant exporters in five years. The second example was the licensing of nuclear reactor technology to two German firms. Although one of these licenses was cancelled by one U. S. firm, the two German firms have combined their technology and are offering competition in third markets and are now even seeking representation in the U. S. A third area of future concern is the U. S. aircraft companies' current agreement with the Italians on STOL aircraft; and other discussions with Japanese, French, British, and German companies on joint efforts for future airframe and engine development. One has the impression that the U. S. private firms are in essence negotiating with the chosen representatives of those foreign countries.

11. Observations on Japanese

The previously cited example of Japan and the deep involvement of MITI (Ministry of International Trade and Investment) is worthy of further study and action. Often American companies in competion with one another are whipsawed by MITI to obtain the best possible terms for Japan. This unequal bargaining position often results in the export sale of a single example of equipment with the granting of a patent and know-how license and the subsequent creation of a competitor.

CONCLUSIONS:

The interviews with the larger U. S. companies have indicated a strong preference for export sales or foreign investment in preference to licensing technology. The large companies are now extremely selective about licensing technology to foreigners. Where it is essential to obtaining access to the market, such as Japan, licenses are granted in turn for equity in the joint company. The large U. S. companies properly regard their technology as a precious, if wasting asset, and do not transfer it lightly.

The jointly owned Japanese-American 50-50 companies utilizing American technology in Japan represents the best arrangement that the U. S. companies can presently obtain on their own efforts. Consideration should be given to a policy of U. S. government support of American companies' negotiations in Japan leading to a stronger position for the U. S. companies than the present 50-50 arrangements.

The review of the medium and small U. S. companies' licensing practices is unlikely to uncover examples of indiscriminate licensing of major technology.

A follow-up survey should be made of the licensing practices of the smaller and medium size U. S. firms to ascertain their activity, relationship, and receipts from the transfer of technology. While of lesser importance a survey should be made to determine the importance of U. S. export sales to licensees.

K. Primary Company Motivations for Foreign Direct Investment

1. Continued Market Access

The U. S. manufacturer viewing the growth of the world markets considers the continued access to these foreign markets to be a primary objective. Everywhere he notes constraints on market entry, favoritism to local suppliers, monopolistic arrangements with preferred suppliers, increasing growth of preferential trading blocs, and an increase in non-tariff trade barriers. In general most foreign governments are much more active in protecting local markets and in subsidizing exports of their local manufacturers than is the U. S. government.

Given these conditions of increasing economic nationalism (Japan is the extreme case) the U. S. manufacturer is most desirous of making certain that he has continued access to the major growth markets. Very often he comes to the conclusion that he must manufacture locally, at least partially, in order to assure continued access to these markets.

2. Retaining Market Position in Foreign Markets

U. S. executives report that a strong motivation for foreign investment is to retain and protect a market position. Very often this market position has been attained by exports and is now of sufficient size to justify a small plant or partial manufacture. While ideally the U. S. company would prefer to continue to export from the U. S., the threat or possible threat of a competitor starting local production encourages the U. S. manufacturer to accelerate his investment in local manufacturing.

For most U. S. export industries starting local manufacture involves a temporary decrease in profits as local production is initially more expensive than U. S. exporting.

The other forcing function is less market oriented and refers to the host government pressures, more or less subtle, to increase local content and decrease imports into the local government as a condition for future freedom of action. The host governments use various combinations of incentives and disincentives to cajole the U. S. firms into investing in plants abroad.

3. Long Range Profitability

U. S. firms consider foreign investment as a means to increase long range profits. The emphasis here is on long range profit contribution. In most manufacturing businesses it is generally recognized that during a start-up period initial operating losses will occur. However, for many U. S. firms the small size of the foreign plants, the higher cost of materials and money, and the lower efficiency of labor all result in increased unit costs.

4. Servicing Customers

Another prime market reason for foreign investment is to better service customers, particularly in an increasingly competitive environment. The company relying on exports from the U. S. will be at a disadvantage with customers who are offered local supplies, support, and services. At a certain point the U. S. company must weigh the risks of losing its

profitable export sales against the lower risk of supplying the market with local products (usually with a higher unit cost). The potential growth of the market, the strength of present and expected competition, and the cost of continued access to the market are the prime consideration in making the decision. In actual practice very often the marketing personnel encourage the local manufacturing sooner than pure economic considerations would dictate.

L. Foreign Manufacturing Costs Reflect Differing Factor Proportions

1. Introduction

It is very risky to cite as generalization the cost experience of 26 large U. S. firms in foreign operations. This sample is weighted toward the chemical industry and the capital goods industries, both of which have a heavy cost dependency on economies of scale. This bias was intentional as it was deemed essential to obtain an insight into the successful exporting industries. With these caveats understood, the following findings are of interest.

2. High capital and material costs often offset lower labor costs.

Among the industries interviewed the two most consistent findings were the foreign operations had high capital and high materials costs. The facilities of the companies interviewed had important economies of scale; they were capital intensive; where the characteristics of the process permitted the

European facilities were smaller; the smaller throughput often resulted in higher unit capital and overhead costs.

Material costs, unless standard materials were available, were higher than U. S. materials. Thus, carbon steel plates, 77 denier nylon, carbon black, or titanium dioxide would be available at a lower cost in West Europe or Japan. However specialized, advanced or exotic materials would be more costly at foreign operations. All materials costs in the small protected markets (Latin America, Australia, India) would be more costly.

The net result was that for many firms the higher capital and materials costs and diseconomies of scale offset the lower labor costs; the total foreign manufacturing costs were higher than U. S. manufacturing costs.

3. Economies of scale less operative in foreign markets (chemical).

The firms interviewed included a good proportion of chemical companies and of capital equipment manufacturers. Each of these industries has its own characteristics in terms of optimum size, but economies of scale are important to both.

The chemical industries are characterized by fluid-flow continuous processes which do not lend themselves to separation in mid-stream. The capital costs are extremely heavy; for example, an economic artifical fiber plant in the

U. S. would now require an investment of $100 million. Material costs are the primary costs; labor costs are small; plant and overhead costs are fixed. Unit costs are reduced by increasing throughput in a given plant. If foreign plants do not lend themselves to reduction in scale or if more costly intermediate materials are utilized the total unit costs in a smaller plant will be higher. This is often the case in Western Europe and most often in Latin America and Australia.

One major U. S. chemical company reports that it requires 8 years to recoup its investments in its European plants.

4. Economies of scale in capital equipment industry.

In the capital equipment industries which are building products with innovative characteristics requiring exotic materials and/or precision fabrication and assembly, the U. S. manufacturing costs are competitive with European or Japanese costs. In practice the U. S. company will perform the capital intensive operations in the U. S. and may export the highly machined components to the European plants for further fabrication and assembly. The very size of the U. S. market for capital equipment often results in manufacturing plants whose advanced tooling, materials costs, and efficiency overcome the labor cost disadvantages and result in competitive costs.

Both General Electric and Westinghouse maintain that on the basis of intrinsic manufacturing costs their U. S. operations are within 10% or less of their European competitors for heavy electrical equipment. As these two companies can command a premium for many of their innovative products they are competitive on a world-wide basis. They report that their difficulties in world markets are not manufacturing costs but the export incentives given their competitors: the tariff and non-tariff barriers erected against U. S. competition; the marginal pricing often practised by competitors in third country markets; and the fact that many of their export customers are government or quasi-government agencies who exert distinct leverage on suppliers.

5. Mature products may be produced at lower costs in Europe.

Certain industries did report ultimately lower manufacturing costs for foreign production. Standardized components with mature technology that is widely practised and produced in large production runs frequently have lower manufacturing costs. These industrial parts and components have European manufacturing costs that range between 70% and 85% of comparable U. S. costs. The key factors here are mature, widely practised technology, comparable size production runs, and European wages that are 40% to 50% of U. S. wages.

6. Case example of mature product: automotive components.

An example is the highly machined automotive components produced in the U. S., U. K. and Germany in comparable quantities. The following relationships existed prior to August 15th:

Country	Hourly Wages & Benefits	Manufacturing Costs	Transportation & Duties	Landed U.S. Co
U. S.	$ 6.00	100%	-	100%
Germany	$ 3.30	85%	12	97%
U. K.	$ 2.20	80%	11	91%

The Japanese wages and benefits were projected to be $1.90 per hour or slightly less than U. K. costs. However, the Japanese have more efficient transportation means and transport and other rebates that would result in lower Japanese costs.

If the above data are adjusted for an 8% revaluation by the British and 12% by the Germans, the landed costs (without surcharge) would be:

Germany	108%
U. K.	98%

This would indicate that most automotive components should not be imported unless the opportunity costs are uniquely favorable in the European plants.

7. Few U. S. manufacturers import to the U. S. from foreign subsidiaries.

U. S. manufacturers import very modest quantities of product for sale in the U. S. The Conference Board Special Study on U. S. Production Abroad and the U. S. Balance of Payment, 1966, indicated that only 1.2% of U. S. foreign affiliates product was imported into the U. S. The ECAT survey on the same question indicates a remarkable consistency among its sample of very large companies of between 4% and 5% imported into the U. S. for each of the years 1960, 1965, and 1970. These imports have been concentrated in a very few industries.

For most of the large companies which were interviewed these imports were limited to temporary shortages, and were usually less than 1% of foreign subsidiary manufactures. However, a new trend for importing components is discussed under 8., below.

The exceptions to these findings were in the apparel industry, the semiconductor, and consumer electronics industries. In the apparel and consumer electronics industries, the U. S. manufacturers went abroad to seek lower labor costs so as to remain competitive with foreign products in the U. S. market. These industries are characterized by having a high percentage of labor costs; the U. S. manufactured products cannot compete with the Asian imports.

The U. S. semiconductor industry originally went abroad to obtain cost advantages in the domestic market. Imports of semiconductor devices, excluding transistors, grew from $17 million in 1967 to $97 million in 1970.

8. Off-shore assembly.

The Tariff Commission reports that off-shore assembly under the sections of the U. S. tariff code have increased from $953 million in 1966 to about $1.8 billion in 1969. Annual imports in that same period have increased by $13 billion of which $8 billion of the increase are manufactured goods. Thus, off-shore assembly increase accounted for approximately 10% of the increase in manufactured imports.

Off-shore assembly utilizing low cost labor will continue to grow based on the interviews with the limited number of companies.

9. U. S. companies reporting higher foreign profit margins.

The relatively few U. S. manufacturing companies who report higher profit margins for foreign operations fall into several groups. First, there are those companies whose competitive strength permits nearly uniform world-wide pricing. These companies have standardized products with foreign prices equal to or higher than U. S. prices. These companies benefit by lower manufacturing, marketing, and servicing wages in

these foreign countries. IBM and Xerox are prime examples of these companies.

The second group is those companies who can ship used manufacturing plant and used products, receive full capital value for them, and then refurbish the product and resell them in developing countries. The investment laws of certain Latin American countries permit this and U. S. companies are taking advantage of these benefits.

The third group is that small number of capital goods manufacturers who have standardized their product line for all markets. Where the technology is mature, materials competitively available, and the production quantities are similar, then the lower wages in the foreign countries may result in lower unit costs.

In fact, an increasing trend toward sourcing components and parts overseas by several of the major companies interviewed was noted. This could have a serious impact as it is now being practised by the most successful U. S. companies. The currency revaluations may stem this growing trend in its incipiency.

10. Foreign labor costs.

With few obvious exceptions the subject of foreign labor costs did not arise and was almost never volunteered as a subject of discussion. Even though many of the companies

interviewed were capital-intensive and did not require much manpower, the subject of labor costs seemed to be a matter which was to be avoided.

Clearly the U. S. companies knew that foreign labor wages were lower. These lower wages were implicit in their foreign investment decisions.

However, but for the exceptions cited previously, most of the companies interviewed were strongly market-opportunity oriented in their foreign investment. Lower labor wages were a factor in their decisions but wages not seem to be the primary consideration. Foreign investment continues to be made in the most promising markets.

CONCLUSIONS: Comparing manufacturing costs among a small group of companies is risky. The most general statement is that high capital and material costs often affect lower labor costs and the net result is higher total costs in foreign operations. Foreign costs are often higher where economies of scale are important (chemicals, capital equipment).

U. S. manufacturing is competitive in innovative products or products utilizing advanced technologies. Foreign costs are lower where technology is mature and widely practiced and production units are of comparable size.

U. S. industry with few exceptions has not utilized off-shore assembly to obtain lower costs. However, global product standardization is leading to increasing sourcing

from low-cost overseas operations. This trend will increase although new exchange rates will stem the trend.

Lower foreign labor wages are an implicit factor in all foreign investment decisions but among the companies interviewed it was rarely the dominant consideration.

M. U. S. Manufactured Exports Characterized by Product Innovation.

1. Product innovation is key to competitive success.

An analysis of U. S. manufactured exports and confirming interviews indicate that the U. S. is most successful in exporting new products with innovative characteristics that provide superior specifications and performance.

Most of the successful manufactured exports are in the so called "technology-intensive" industries. Very few of the successful U. S. manufactured exports are in the not technology-intensive industries. However, several of the severest import problems are with industries which are defined as technology-intensive, i.e. automobiles or consumer electronics.

For policy formulation purposes it is more useful to distinguish those industries in which the industry continues to innovate from those industries where the technology, no matter how intensive, is mature and dispersed and the innovative process has seemingly slowed down.

What did distinguish the U. S. manufacturer from his European counterpart was his willingness to innovate, to modify and improve his product at frequent intervals. This frequent innovation on the part of the U. S. manufacturer, often as a result of the keen competition, gave him product and market leadership. However, in the past ten years the European manufacturer has become increasingly innovative and the Japanese industrialists have continued to confound competition with a sophisticated understanding of markets and product planning which leads to innovative products.

2. An example: automotive industry.

An important example of a technology-intensive industry with import problems is the automobile industry. Despite entrenched domestic competition, the foreign manufacturers have gained market position. The market planning of the leading foreign manufacturers has been intelligently developed; they have learned from their early mistakes. Moreover, much of the technology of the sixties was provided by European innovation. Disc brakes which date back more than twenty years in Europe, are only recently being introduced on U. S. autos. Alternators, independent suspension, fuel injection, electronic ignition, float glass, even the transfer equipment used to manufacture the new Vega, and now the Wankl (rotary) engine are European developments. The U. S. automobile industry is presently believed to be net licensors of European technology.

In effect, the technology of the automobile industry is diffused and practiced widely. The production quantities of the Volkswagen and the Toyota are larger than any U. S. automobile model. The managing director of a leading European automobile manufacturer has pointed out productivity per man in Europe and the U. S. is comparable. The U. S. wages and benefits are double to triple European wages. This combination of competitive factors in the U. S. plus the continued growth of the automobile markets elsewhere has given the foreign manufacturers further inducement to innovate.

3. Characteristics of successful manufactured exports.

The successful manufactured export provides either: an innovative specification or capability (which need not be technically intensive) which provides improved performance; an established product with a proven record for reliability and performance; a domestic market base which permits economies of scale and competitive export pricing; or, increasingly important, additional orders or replacement parts for previously purchased equipment. The last category, replacement parts, is the least vulnerable. However the solid basis for continued manufactured export growth must be new and better products.

4. Manufactured Exports are Concentrated in Capital Goods and Chemicals.

For the purposes of this analysis the industry areas of greatest interest are those manufactured products where U. S. industry does have effective alternatives of either export, foreign direct investment, or licensing technology.

The manufacturing industries with successful export records which meet the above criteria are the capital goods equipment industries and the chemical and allied products industry. As a matter of interest in 1970 the U. S. had a negative balance of trade in all major consumer products.

The industries in which the U. S. had the largest positive trade balances were the capital equipment and components industries and the chemical, pharmaceutical and allied industries.

The major manufactured product contributors to the U. S. trade balance in 1970 were:

	$ Billions
Aerospace	3.1
Chemicals and Allied Products	2.6
Construction Equipment	1.5
Electronic Computers	1.0
General Industrial Machinery	.7
Instrumentation	.6
	$ 9.5

In addition all of the other machinery and components industries contributed approximately $1 billion more to the U. S.

trade balance.

All of the above industries could be considered "technology-intensive." However, the true measure is the intensity of the stream of product innovations. These companies have either designed superior products, developed lower cost processes, or have established reputations and servicing capabilities that enable them to compete in world markets. Innovation is the common characteristic.

5. Observations on the role of Government in the Exporting Industries.

The industries listed above as providing the U. S. with its manufactured exports can be divided into two categories which are of great interest for policy formulation.

The aerospace, electronic computer, and instrumentation industries are often considered the growth industries. Each of these three industries has been dependent on federal government support and contracts. Federal government contracts and purchases, particularly for advanced technology, have played a major role in their continued innovative leadership. A growth industry, nuclear reactors, could be added to this group but its exports took a non-recurring drop in 1970.

However, chemicals and allied products; construction equipment, and the general industrial machinery group have developed their competitive leadership and export capability essentially with their own resources. The pace of product innovation increases in the chemical and allied industries and also in the general industrial machinery group. The construction industry sells much of its

exports to foreign governments and thus the trends are less predictable.

6. The Trend Toward Increased Manufacture Abroad

Both the chemicals and capital equipment industries have promising growth prospects but their trends toward increased exports are made uncertain by increased overseas production by their affiliates.

The Commerce Department reports in the U. S. Industrial Outlook 1971 that the U. S. chemical industry foreign affiliates have rapidly increased their sales to $13 billion in 1970. This compares with U. S. exports of almost $4 billion and total industry sales of (including exports) $49 billion in 1970.

The construction equipment industry has also mushroomed abroad and U. S. companies now have 175 subsidiary plants in foreign countries. The U. S. companies are introducing global product standardization. They are now beginning to fabricate parts and subassemblies in countries with lowest costs for later final assembly in the customer market. Increasingly the U. S. companies have been exporting parts and components rather than complete equipment.

In the General Industrial Machinery two of the product groups making the major export contribution are Materials Handling Equipment and Industrial Pumps and Compressors. Although their competitive positions are strong, these two industries have a similar propensity for increased product standardization and

foreign manufacture as the Construction Equipment Industry. In 1970 some 57% of the Materials Handling Industry exports were component parts. Also the reverse trend, the shipment of parts to the U. S. for inclusion in equipment for the domestic market was increasing prior to August 15th.

7. The U. S. Manufactured Exports will be Dependent on Innovation.

An analysis of other manufacturing industries indicates that the U. S. is less successful in exporting standard equipment with a mature or static technology. For example exports of large capacity, sophisticated pumps and compressors are expanding but the U. S. is not competitive in similar standard or smaller equipment. In valves, pipefittings, anti-friction bearings, and industrial fasteners the U. S. is exporting sophisticated items, unique sizes and replacement parts; the standard shelf items are increasingly imported.

The future success of U. S. industrial exports will be largely dependent on development of innovative product capabilities and specifications. While control of costs is important the successful U. S. exports are increasingly sold on their unique capabilities as much as on their price. As an example, the mining industry has been increasingly successful in developing new products and had an export surplus of $210 million in 1970. The companies comprising this industry are utilizing their R&D expenditures for innovative new mining techniques.

Their exploitation of new technologies in "rock mechanics" is expected to lead to a new set of equipment that will modify the economics of mining. This will provide increased exports.

8. Importance of Export Sales to Innovative Industries

Export sales, along with foreign operations, were vital to the profitability, even existence of many of the large firms interviewed. The importance of exports to the innovative industries is not generally understood. The median of foreign business -- exports + foreign subsidiaries -- was in excess of 30% of sales for the large companies interviewed and greater than 50% for several industry leaders.

The following is the percent of exports to total sales for the year 1970 for the successful exporting industries:

Aircraft - Civilian Transport	48%
Chemicals and Allied Products	10%
Construction Equipment	36%
Electronic Components	26%
General Industrial Machinery	11%
Instrumentation	15%

The percentages of exports indicate that these sales were vital to the profitability and growth of these innovative firms. All but the aircraft industry report growing world markets. The growth of exports is encouraged by these increasing markets but the increasing trend to shipment of components and parts will probably mean exports will not grow as rapidly as would sales. However, the new exchange rates may encourage the shipment of

complete equipments.

CONCLUSIONS:

U. S. manufactured exports are increasingly dependent on innovation to provide product leadership. Manufactured exports are dependent on the intensity of the stream of innovations. The Europeans and Japanese have become increasingly innovative.

If the industry is "technology intensive" but this technology is mature and widely produced then the U. S. is less competitive. Higher U. S. wages cannot be offset by other cost factors.

The most important U. S. manufactured exports are in industries which are innovative leaders -- chemicals and capital equipment. The increasing dependence on innovative products to sustain the U. S. balance of trade makes it in the national interest to insure that this competitive product leadership be sustained. Incentives should be considered for increased R&D that lead to effective innovation and to increased export sales.

Among the successful "glamour" industries, aerospace, computers and instrumentation have all received government support. The equally effective but less noted chemical, construction equipment, and general industrial equipment industries have successfully innovated with their own resources; they have contributed as much to the 1970 trade balance as the three "glamour" industries.

There are increasing trends to export components rather than complete equipment; and also to import components. The new exchange rates may stem both of these trends, particularly imports.

N. Obstacles to the Increase of U. S. Manufactured Exports

1. Foreign Competition is Increasing

Foreign competition is the major limitation on U. S. exports. The U. S. share of world exports has been declining for the past decade. Manufactured imports have grown faster than U. S. manufactured exports. The U. S. is the largest single market for most manufactured goods. However, the U. S. does not export its mass-produced consumer durables, as they do not meet foreign market requirements. The U. S. does export capital equipment; here the larger domestic market often provides the economies to overcome the higher U. S. wage rates and enable the U. S. to be competitive on the world markets. However, the technology for capital goods can be copied by knowledgeable competitors in two-three years if simple and three-five years if advanced and complex.

The U. S. firms that continue to innovate and develop improved products continue to increase their exports. Those firms who do not innovate face foreign competition for their older products. In addition there are those foreign firms who innovate in their own right and who are competitive. Recent developments in the European and Japanese automobile and steel industries illustrate a high capability for technical innovation, product and process improvement.

2. Manufactured Exports Increasingly Sold on Basis of Quality

Many U. S. manufactured exports are sold on the basis of superior characteristics or quality. Most U. S. exporters of

manufactured equipment avoid where possible direct price competition. Many U. S. exports command a premium price because of their reputation for advanced capabilities or qualities.

The New Economic Policy will assist the U. S. exporter in that U. S. products will cost less in most important foreign markets. However, exchange rate modifications will have only a limited beneficial effect on U. S. manufactured exports when price is not the essential limit on these exports. (Exchange rates will have a greater impact on materials and semifinished or intermediate products, i.e. plywood than on finished manufactures).

3. Non-tariff Barriers

The U. S. manufacturers are most sensitive to the need for continued access to markets and the elimination of non-tariff barriers. Tariffs are considered to be less an obstacle than the more subtle and not well understood other trade and administrative non-tariff restraints. These non-tariff barriers are so important that they are considered separately in a later section.

4. Host Government Procurement

The host government policies in its own market serve as a restraint on U. S. export sales. A primary restraint are government procurement policies, for many U. S. export sales are capital equipment to foreign government or quasi-government agencies. The most severe is the refusal to purchase competitive

American equipment, such as in the U. K. or French electricity boards. A less severe restraint is the requirement by the local government to increase the local content of the export sale and reduce the U. S. furnished percentage of the equipment. With a government operating as a monopolistic customer the U. S. supplier must usually acquiesce to some demands in order to obtain this and future orders.

5. Dual Pricing

Another competitive restraint on exports is the marginal cost pricing of foreign competitors in third markets. Often these foreign competitors operate under protective tariffs and other quotas and procurement patterns in their home market; their home prices cover fixed costs and some development expenses. These same firms then price on a marginal cost basis in the third country markets, often with export benefits and rebates, financing, etc. This is difficult competition for U. S. companies constrained to operate on an average cost basis. The U. S. firms cannot freely practice marginal cost export pricing because of the adverse reaction from their domestic customers and the absence of a protected home market.

6. Vulnerability of U. S. Capital Goods Exports

A major portion of U. S. manufactured exports is represented by capital equipment sales. These sales are dependent on the expansion of the economies of other countries and on the relative freedom of world trade.

The fact that these U. S. export sales are capital

goods often means that these sales are made to government or quasi-government agencies. This is true in most European countries, all of the Communist countries, and almost all of the developing countries. These government agencies are monopolistic buyers and in the position to exert pressures on prospective vendors. Very often these sales are made only after difficult negotiations with all sorts of proposals for ingenious "tie-ins" and economic concessions. Increasingly international political considerations may be decisive.

7. Increased Foreign Direct Investment

The capital goods industry will increasingly utilize its expanded foreign plants as a source for the U. S. market. Product standardization has been accomplished or is underway. As the foreign markets expand the production economics increasingly favor the foreign sources. Already major firms such as Caterpillar, International Harvestor, Ford are beginning to import industrial parts and components into the United States. Although the New Economic Policy and the exchange revaluations should defer this import trend, the multinational corporation can be expected to optimize its production costs on a global scale and this probably will lead to increased industrial imports.

Major foreign capital investments are being made in the same industries and by the same companies who are major exporters. Although these companies claim that the foreign investment frequently spurs exports, it is clear that some of

these facilities will displace existing exports while others may become sources for imports. This is particularly true for the chemical and allied products industries, the most important exporting industry in the 1970's. The construction equipment, materials handling companies are expanding foreign manufacture as well as exports.

CONCLUSIONS:

Foreign competition is increasing both for exports and imports of manufactured goods.

U. S. manufacturers where possible sell exports on basis of their performance; price competition is usually practiced by foreign competition.

Non-tariff barriers are considered the most important obstacle to export growth and one treated in detail in a later section.

Host government procurement practices discriminate against U. S. exports.

Dual pricing by foreign competitors, often with cartel support by their home government, provide most difficult competition for U. S. manufacturers.

To achieve a sustained success in export markets will require sustained innovation plus direct and indirect government support to the U. S. manufacturers in assuring competitive market access.

Government policies should be developed to encourage exports

(exchange rates, DISC, etc.) and at least be neutral to foreign investment (rather than favor it by tax deferrals).

O. Non-Tariff Barriers

1. Introduction

The U. S. manufacturers interviewed considered the non-tariff barriers (NTB's) to be the greatest restraint on their export sales. In the belief that this most important subject is little understood and its impact on foreign trade is not fully recognized there follows a comprehensive list of the types of non-tariff barriers. This list, and in particular the examples, have been developed by one large electrical manufacturer active in international trade.

2. Concessionary Financing to Export Customers

Despite stringent credit rationing in their money markets at home and high interest rates charged for domestic borrowing, the governments of Japan and Western Europe's industrial powers maintain generous mechanisms to provide export customers of their manufactures with low-cost funds for the purchase of capital goods.

These mechanisms depend primarily on at least two of three particular institutional arrangements: (1) availability of lendable funds not subject to national policies of credit rationing and normal interest rates; (2) rediscounting without penalty by the country's central bank or similar agency; (3) nationally owned and operated funding agencies with ready capital to be lent at less-than-normal interest rates. For example:

* U. K. Funds for export customer financing are excluded from credit curbs normally imposed on clearing and

merchant banks, and loans then negotiated are immediately rediscounted by the Bank of England at current rate.

* West Germany. The country's largest export finance institution - the nationally owned KfW - secures over one-third of its loan capital at 3 to 4 percent from state funds that originated in Marshall Plan aid from the U. S.

* France. The Credit National of France, a government-administered institution, secures its funds through bond issues from the money market at normal interest but relends these for export purchases at rates which have recently been as low as 3 1/2 or 4 percent; the interest differential is subsidized by the French Treasury.

Offering comparable products to the same customer, American manufacturers have long faced the competition of this concessionary financing in third-country export markets. Competitive recourse has been such financing as could be supplied through the Ex-Im Bank, normal banking channels, or corporate credit resources.

Recently, however, concessionary financing has been offered to customers in the United States as inducements to buy imported equipment. Two illustrations exemplify the magnitude of these offerings:

* Turbine-generators from the U.K. In April 1971, the Southern California Edison Company concluded a loan agreement with the English Electric Company for $35 million at an overall rate of 6.72 percent. These funds, secured at about 2 points less that the least expensive borrowing which Southern California Edison could obtain on the U. S. money market, were made available by a consortium of British banks through a 5 1/2 percent rediscount by the Bank of England. They will apply toward paying for two 1100 MW turbine-generators which Southern California

Edison simultaneously ordered from the British manufacturer. By virtue of this concessionary interest rate, during the scheduled 6-year repayment period, the utility will reduce its ownership costs by 5 1/4 percent below the financing charges on a U. S.-made turbine-generator.

* Turbine-generators from Brown Boveri. Even more striking is a $45 million, interest-free loan to General Public Utilities of New Jersey by the Brown Boveri Company, a large multinational electrical manufacturer with major facilities in France, Germany and Switzerland. These moneys will go toward the $60 million purchase of two 1200 MW turbine-generators; the first of ten semiannual repayment installments will start two years after delivery. We do not know how this extraordinary offshore financing was secured. But when it was arranged, the U. S. money costs of GPU were 9 percent. Accordingly, the cumulative effect of this non-interest-bearing loan to GPU has been to reduce its ownership costs by 19 percent below normal payment terms to U. S. manufacturers.

Obviously, confronted by such tie-ins of cheap or no-cost financing, U. S. manufacturers are placed at a severe disadvantage in home markets. They cannot secure such terms for their customers, and they cannot feasibly extend them such credits through their own borrowings.

3. Concessionary Financing Through Production Loans

Though not available to U. S. manufacturers, low-interest medium term loans for export production are frequently made available in other industrial countries through normal banking channels or specialized non-competitive financial institutions funded and administered by national governments.

The significance of such credit availability is easily illustrated in the financing of work-in-progress during the 4-year

production cycle of a large turbine-generator used in a nuclear power station. An offshore manufacturer and his suppliers can borrow as much as 85 percent of their contract sale price at 5 points below prevailing interest rates on domestic loans. Through the characteristic European and Japanese practice of profitably reloaning these borrowed funds until needed in production, they can recover as much as 18 percent of their normal costs for manufacturing a turbine and its parts. This cost recovery is usually passed on to the export customer in slashed pricing.

* France. Such funds are made available through the Credit National at interest rates which in 1970 were 3.75 percent to the borrowing manufacturer. At the same time, bank overdrafts - the usual method of financing production destined for the home market - were being charged about 11 percent.

* Japan. Through the "administrative guidance" of Japan's Ministry of International Trade and Industry, the Treasury and the Bank of Japan channel low-interest funds into exporting industries. Thus, the export-oriented Hitachi, Ltd. - one of the world's largest manufacturers of electrical equipment and heavy machinery - last year increased its borrowed funds by $350 million but reduced its overall interest rate. In a country where first quality secured borrowings demand interest rates of 8.9 to 9.5 percent, Hitachi managed to secure considerable financing at rates below 6 percent.

* West Germany. The country's two principal institutions for export finance - the state-controlled AKA and KfW - regularly make available low-cost funds to the country's manufacturing exporters. Cash obtained from these loans enables manufacturers to sell on credit to their foreign customers. Some 80 percent of German export credit commitments to developing countries are backed up by this form of loan. Although rates have risen steeply during this year, as recently at 1969 interest charges on such loans were as low as 4.5 percent.

* Sweden. In this country, which exports almost half its manufactures, clear-cut differentiation between such funds applied to export against domestic production is all but impossible. But a significant borrowing resource available to and used by large exporters such as ASEA and L. M. Ericsson is the National Pension Fund, the country's largest financial institution, which relends social security payments of employers back into the economy at concessionary rates of 5 to 6 percent. In practice, up to half a company's payments may be reborrowed; and, by 1969, about one-fourth of the Fund's resources had been reloaned to private business.

4. Concessionary Financing for Business Expansion and Start-up Costs

By a variety of devices, foreign governments directly or indirectly subsidize the investment costs and start-up expenses of their manufacturers' operations at home and abroad. In some countries such as the U. K., Germany and Sweden - which export significant proportions of their national production - the division of subsidy between home market and offshore trade is not always clear-cut. What is clear is the following:

a. What would normally represent high-risk commercial investment to competitive enterprise in the U.S. is elsewhere cushioned against danger of loss by outright grants of funds, low-interest loans on deferred repayment schedules, shelter from corporate tax liability of earnings that will subsequently at some indefinite future time be directed toward business expansion.

b. The devices frequently encourage expansion not only within but especially outside national frontiers - especially if export growth is in prospect.

c. The assistance thus rendered is particularly favored if the business is considered to serve a national purpose.

* U. K. Until very recently when the Government announced its discontinuance, the above listed

criteria served as the basis for British Board of Trade, Exchequer and Ministry of Technology programs which could provide outright grants of as much as 60 percent for the start-up of new manufacturing facilities by experienced manufactures. It is a measure of this practice that, despite massive over-capacity for serving the home market, Reyrolle-Parsons is presently expanding its turbine-generator manufacturing facilities at Newcastle-on-Tyne by just such a grant in hopes of attracting added exports. Of different method but the same purpose have been the huge infusions of capital loans at 3 percent interest which the British government has supplied Rolls-Royce, Ltd. for development and production of the RB 211 jet aircraft engine - a product of strictly commercial application with no potential in military markets.

* Japan. In low-cost borrowing and extraordinary depreciation allowances are to be found the genesis of Japan's booming ship-building industry and the continuing rapid growth of its steel-making capacity, as well as the earlier origin of the nation's redoubtable capability in electronics and optics.

* France & Japan. Both countries maintain low-cost lending programs for exporting manufactures who desire to set up foreign sales offices. As much as three-fifths of all operating costs for a three-year period may be thus borrowed. Repayment occurs - if ever - only with commercial success.

* West Germany. The government not only guarantees offshore investments against political risk but supplies low-cost financing for its manufactures to establish manufacturing subsidiaries in developing countries. A major source for this financing has been the national ERP funds - a revolving and growing $2 billion stock of capital which represents counterpart payments by German borrowers of Marshall Plan Aid given to Germany after World War II. Now controlled by the central government, these ERP funds may be channeled to developing nations, used in export financing, and re-utilized inside West Germany. When used domestically for industrial investment, it is possible to develop a platformed combination of 4 percent ERP funds, 6.5 percent Special Funds, and interest-free depreciation against pre-tax earnings which allows for write-off of 75 percent of investment during the first year and 75 percent during its

scheduled life. The result affords manufacturers an effective 3 percent annual interest cost for setting up and expanding facilities in all but the most heavily industrialized sections within the country.

* Sweden. The central government provides outright cash grants to industrial expansion for municipalities in its so-called less developed areas and permits the year-after-year corporate accumulation of untaxed (i.e., interest-free) profit reserves for such investment. In practice, however, the rules are apparently bent. For example, ASEA was recently given permission to tap such reserves for a $135 million, 5-year capital expenditure program, but in fact has committed 76 percent of the total to already heavily industrialized areas such as Stockholm and Vasteras.

5. Corporate Income Tax Relief

A number of foreign countries provide income tax relief which is geared to export performance and foreign investment. There is no general agreement on whether such practices violate the GATT provision against export subsidies. It has been generally assumed that a mere deferral of the time of paying tax should not be regarded as subsidization, but an exception or reduction below domestic tax levels would be a subsidy. Several more significant tax relief practices are the following:

* Exemption for Export Income. Australia, Ireland, Japan, New Zealand, South Africa and Venezuela reduce the domestic income tax liabilities of exporting taxpayers. The reduction pertains to income earned within the taxing country by manufacture or extraction of goods for export. For example, Australian law provides a tax credit of 42.5 percent of an expenditure incurred for export market development. The same expenditure is deductible, and the combined effect is a tax saving of 87.5 cents for each dollar so expended.

The U. S. has no similar practice. The Western Hemisphere Trade Corporation (WHTC) device is our closest approximation; but the 95 percent foreign source requirement of the WHTC statute prevents its use with respect to income earned by manufacturing within the U. S.

* Shifting Income to Non-Taxable Companies. Most foreign countries allow domestic manufacturers to sell export goods to or through a subsidiary sales company which is permitted to earn (and, therefore, to shelter from domestic tax) 50 percent of the pre-tax net income from the manufacture and sale of the goods exported. In Canada, France, Italy, Netherlands, South Africa, Switzerland and Venezuela, tax-sheltered subsidiary profit is permanently exempt from domestic taxes. In other countries, the tax is ultimately payable - usually when the sales subsidiary distributes its profit to the domestic parent.

  In the U. S. prior to 1962, the deferral device was available; but the 1962 Revenue Act ("Subpart F") put an end to this practice by imposing the corporate income tax on the Subpart F income of foreign sales subsidiaries used in this way. The present Administration has proposed that the device be reinstated on a controlled basis, utilizing a tax-deferred domestic international sales company (DISC) rather than a foreign or off-shore subsidiary. The proposal's immediate fate lies in Congressional hands.

* Intercompany Pricing Rules. Favorable tax treatment of export sales corporations, discussed above, sometimes depends upon the willingness of a foreign country to allow flexible intercompany pricing in order that tax-sheltered earnings by an export sales company may be sufficiently large. Most foreign countries follow such flexible practice.

  By contrast, since 1962 the U. S. has been embarked on a campaign of so tightening the rules on intercompany pricing (the Sec. 482 regulations) that readjustment of intercompany pricing to the disadvantage of the U. S. taxpayer can be expected as a routine matter on every U. S. tax audit.

* Special Export Credits or Deductions. Tax deductions or credits against taxable income of the domestic company are permitted in some countries as a recognition of particular export activities. Thus, in Japan, besides expensing the cost of an export transaction on its normal accounts, a corporation may take an income deduction - sometimes as low as 3 percent on export shipping and repairs, sometimes as high as 70 percent for the transfer of technology - depending on the consideration earned in foreign currency. In South Africe, an extra deduction from income ranging between 50 and 75 percent is permitted for such export market development expenses as advertising, market research, order solicitation, quotation preparation and sales commissions.

* Depreciation of Export Production Assets. France, Japan, Norway, Spain, Sweden and the U. K. provide extraordinary depreciation for assets which increase exports, extraordinary deductions for additions to reserves established for overseas market development and special bad debt reserves for export credits.

* Offsetting Tax Relief for Foreign Investment. Germany and France encourage foreign investment by easing the income tax load on a domestic company during the initial stages of a new foreign enterprise. France allows deductions for the expenses of establishing and operating foreign sales offices during the first three years of operation, even though future profits may be exempt because of their foreign source. Germany allows actual and anticipated losses of foreign manufacturing subsidiaries to be deducted against the parent's domestic income by the creation of a reserve; such deductions must be restored to the parent's income within a five-year period.

6. Border Taxes

Various European countries, particularly those in the Common Market, have adopted indirect taxes of the TVA type with rates in the 10% to 20% range. These very heavy sales taxes are compensated at the border by the levy of an import tax adjustment on imported goods and by the rebate of taxes previously collected

on goods exported. The border tax on imports is levied on the CIF duty-paid value of the imported goods.

The justification given for imposing these taxes on imports and rebating them on exports is that the existence of a corresponding domestic tax burden on internal sales raises the domestic price by the amount of the tax; therefore, a compensating border adjustment is necessary to prevent injury to domestic merchants. This argument was accepted when GATT was negotiated and its principle was written into the treaty.

Lately, economists have come to general agreement that, to the extent that the domestic tax burden is not fully shifted to customers, the effect of these border adjustments is to discourage imports and subsidize exports. Because it is difficult or impossible to determine the degree to which the nonshifting occurs, a facile solution to the problem is difficult to suggest.

Inclusion of the duty in the tax base with respect to imports appears to be a discrimination against imported goods, since the amount of the duty is not a part of the tax base for domestic sales.

7. Exceptional Reserve Accounts

Tax regulations, accounting practices and auditing procedures in Europe and Japan condone the setting aside and building of extraordinarily large pre-tax reserves against profits which are subsequently carried for years on corporate balance sheets. While carried on the corporate books, such reserves

become a significant source of interest-free working capital which is also shielded from the company's equity account and, therefore, the obligation of dividend payments to shareowners. When tapped in future years for purposes of facilities expenditure or operating expense, the funds thus used are almost invariably written off as depreciation in a single year or serve to offset losses sustained in operations.

Among manufactures heavily engaged in international trade, these untaxed reserves provide a continuing cash-flow without a need for profit. When they reach embarrassing heights in particular years, they enable exporters to offer deep price concessions - but, in effect, the resultant losses are merely paper transactions.

* France. Typically, after making due allowances for such normal reserves an inventory obsolescence and bad debts, French capital goods manufacturers annually set aside onmibus and broadly-defined "provisions" accounts against current operating revenues. As an example, Delle-Alsthom - France's largest producer of switchgear which exports about three-fourths of its circuit breaker output - takes provisions of about 2.5 percent on current sales. According to Delle-Alsthom's 1969 annual report, its provisions account amounted to 11 percent of the capital employed in the company.

* Sweden. Two pre-tax reserves in particular serve to reduce or defer corporate tax liability into the indefinite future - and thereby retain cash. One such is the general stock reserve which permits a manufacturer to charge against profits up to 60 percent of his inventory increases after providing for obsolescence - a practice which simultaneously

understates retained profit while affording a hedge against inflation. A second is the special investment reserve under which a manufacturer is permitted to set aside up to 40 percent of his pre-tax profits for future investment (and immediate write-off) in Swedish plant and equipment and, in some circumstances, inventory expansion. Over one-fourth of the capital employed in the ASEA Group stems from these untaxed reserves. To a major company which annually sells $260 million (or 40 percent of its total volume) outside Sweden, the flexibility afforded by these funds for price competition, customer credits and investment in subsidiaries needs little detailing.

8. National Procurement Restrictions

Japan and many European governments exercise stringent "buy-national" rules and practices against the importation of U. S.-produced equipment which could compete on favorable terms against their home-market offerings. In some instances, prohibitions against imports are virtually absolute - especially in regard to nationalized industries. In other cases, quota and import licensing regulations impose severe limitations on products directed to private purchasers. Conversely, however, these same countries encourage the export into the U. S. of similar or identical equipment and products by their own manufacturers - often at prices significantly below home-market levels. (See the section on Dual Pricing.)

* Closed Markets for Power Equipment.

The Congress and many agencies of the Executive Branch have been provided with ample evidence of these foreign restrictions against U. S. exports. In recent years, the U. S. companies have been systematically rebuffed in their efforts to sell - at fair and competitive prices - to England's Central Electricity Generating Board the following products in which it has acknowledged technological

skill: a nuclear reactor; large steam turbine-generators; and power transformers. Similarly, in 1967, an effort to interest the nationalized Electricite de France in the Company's power circuit breakers was turned aside on candid "buy-national" grounds - despite that utility's acknowledgment of technical excellence and price competitiveness in the product itself.

Particularly in heavy electrical equipment, no producer country excepting Canada has so open a market to domestic and foreign competitors alike. U. S. Government owned and operated utilities have proved especially responsive to foreign bidders - so much so that virtually all power transformers and power circuit breakers purchased by TVA and BPA come from offshore.

* Closed Markets in Transportation Equipment.

The nationally owned British European Airways has been flatly refused permission to purchase U. S.-produced short haul commercial jet aircraft, and BOAC has been required to use the less-efficient VC-10 in the fierce competition of the transatlantic run. By contrast, U. S. carriers have frequently placed sizable orders with U. K. aircraft manufacturers. In the heavily subsidized shipbuilding industry - the U. S. included - maximum local content is a general requirement.

* Denial of Import License.

Japan and France are notoriously rapid in denying licenses for imported goods if the product can be furnished domestically.

9,. Cartels & Restrictive Agreements

Outside the U. S., most national governments permit and even encourage pricing agreements among manufacturers which will have the effect of expanding their export trade.

* U. K. The Central Electricity Generating Board (CEGB), Britain's principal (90%) generaging and transmitting electric power utility, is a party to pricing and market agreements with two groups of domestic producers - the Grid Switchgear Manufacturers Association and the Associated Transformer Manufacturers.

  Under the Grid Switchgear agreement, the CEGB is bound to purchase not less than 85 percent of its requirements in power circuit breakers and other high boltage switchgear from the signatory manufacturers on pricing terms that will provide a 16 2/3 percent return on investment and sales to the average producers. All manufacturers' expenses for research and development in switchgear are contractually absorbed in prices paid by the CEGB. In practice, this nationalized agency has purchased its total annual requirement from signatories to the agreement.

  Under the recently approved Transformer agreement, the CEGB binds itself to purchase its total requirements in power transformers from the four - and only - associated manufacturers on the basis of a contractually fixed specified market share being allocated to each company. Prices are not specified other than that the CEGB will not pay higher prices for comparable units than those paid by other purchasers in the United Kingdom. Because the CEGB buys over 90 percent of all such equipment, it appears inevitable that the industry's prices to the CEGB will become the price level for the country.

  In the case of both agreements, it is expected that prices paid by the CEGB will substantially cover total fixed costs so that the manufacturers can profitably quote on export orders at incremental prices.

* West Germany. Under Art. 6, Sec. 1 of the Anti-Trust Law of July 27, 1957, it is permissible for German companies to organize and enter cartels for the purpose of promoting or facilitating German export trade so long as competition in the domestic market is not restricted. Most of these trusts attempt to impose quotas, limit markets and stabilize prices

in third-country markets. Some effort is made by the (German) Federal Anti-Trust Administration to set criteria for these cartels so that Germany's trade is not restricted by quotas or markets and that export prices be prevented from going to excessive heights.

On December 31, 1968, there were 77 such trusts registered in with the Administration, of which ten were concerned with electrical goods. The Administration does not disclose information concerning the coverage or specific details in the agreements covering individual trusts. It does, however, require annual reports from trust members on export yields, carries out spot checks on correspondence, reviews internal accounts, and seeks information from third parties on the trust's effectiveness.

* Japan. Japanese agreements take several forms. Especially in the electronics field, companies are encouraged to pool their research efforts in order to develop those products most acceptable to export markets. For instance, it is reported that 16 Japanese electronics firms, including some of the giants in the consumer electronics field, have continued to pool research in the utilization of integrated circuitry in TV sets. If it succeeds, such an effort could vault the Japanese industries above all U. S. counterparts in the television field.

Larger export targets in already developed products are given volume objectives and assigned particular national markets by the Supreme Trade Council, a body headed by the country's Premier. Individual companies are asked to penetrate and serve specific export markets - and their Japanese competitors are urged not to compete but rather to do the same elsewhere. By such market sharing, it is expected that the members of each industry will maximize their exports through effective price competition against domestic and third-country manufacturers - but not against each other.

10. Dual Pricing.

By reason of the finding in the Canadian case dealing with dumped power transformers, it is now demonstrable that manufacturers in seven countries - Belgium,** France, West Germany, Sweden, Switzerland, the United Kingdom and Japan - engage in dual pricing. That is, they export at low prices while selling like goods at significantly higher prices in their protected home markets.

Specific transactions covering hundreds of home market sales can be compared with the prices of transformers imported into the U. S. Excepting only some very recent Swedish quotations in the U. S., these offerings clearly evidence persistent dual pricing. In virtually every instance, one significant element in these low import prices can be found to be an insufficient home demand. In the long term, such demand cannot possibly begin to fill the overcapacity which foreign manufacturers have built into their facilities.

Comparable dual-pricing situations exist in respect to other imports of heavy apparatus - notably, steam turbine-generators, power circuit breakers, switch-gear, and ships' propulsion and electric power systems. As in the instance of power transformers, manufacturing capacity far in excess of home-market requirements marks a concomitant condition of dual pricing. Another element is the existence of export aid

** Belgium has sold such equipment in Canada, but not the U. S.

and incentive programs: These have the effect of reducing costs and/or prices on export goods in a way which cannot be applied to identical goods produced for domestic consumption in the exporting country. U. S. manufacturers, who must compete against these imports in the U. S. market, are put at a cost disadvantage by foreign export aids and incentives.

The matrix below illustrates products and countries involved in dual pricing of products sold to U. S. customers:

	Transformers	Turbine Generators	PCGs	Switchgear	Ships' Equipment
France	X	X	X		
Germany		X			X
Italy**	X		X		
Sweden	X	X			X
Switzerland	X	X			
U. K.	X	X		X	
Japan	X-		X		

11. Outright Subsidies.

Although direct subsidies to exporters based upon their shipments have disappeared from the incentives provided by most nations, a few countries continue to maintain bounty payments in probable contravention of the GATT rules.

* Italy. For years, the Italian Government has paid out such subsidies on virtually every export of the country at varying rates - ostensibly as a refund for indirect taxation other than turnover taxes. For electrical goods, the bounty amounts to 45 lire per kilogram - which, on power transformers shipped to the United States, represents about 6 percent of manufacturing cost. Regrigerators - a major Italian export - are similarly compensated so that most units sold abroad can carry discounts ranging between $5 and $8 - figures significantly greater than the manufacturer's usual after-tax profit on such products.

** Italy has not offered such equipment in Canada.

12. Subsidized and exceptional risk-bearing.

Considerations of national interest, export expansion and technological advancement have led certain governments to share the risk of particular industries and export transactions in order to assure their continued existence at home and presence in world markets.

* Government Ownership in Risky Industries. Some national governments have assumed substantial ownership positions in advanced technology industries. In the nuclear reactor field, for example, national funding and nationalized ownership participation have played key roles in British, French and Swedish efforts which are expected to supply not only home requirements but export opportunities as well. Both France and the U. K. have invested heavily in home-growth computer developments - the first by its continued efforts to mount the Plan Calcul, the second by periodically increasing its stock ownership in International Computers, Ltd. Britain, too, has built significant nationalized equity in BAC and Rolls-Royce. To the same end and an almost equal degree, the Italian agencies of IRI and ENI assumed dominance in the country's chemical business through acquisition of Montecatini-Edison.

* Engineering Risks. Recognizing that engineering service frequently provides a later national advantage in equipment procurement, Italy and the U. K. give tax advantages to firms engaged in international engineering design work. Japan goes well beyond such encouragement to its engineering and construction firms: the Government will compensate Japanese contractors for losses on failures to meet performance guarantees on foreign projects and for mistakes in engineering design.

* Inflation Risks. French exporters who sell capital goods or other products on long-term supply contracts at a fixed price are able to insure themselves against rising costs between order and delivery dates through the quasi-public Compagnie Francaise d'Assurance pour le Commerce Exerieur (COFACE). The exporter himself co-insures the first two percentage points of cost increases and COFACE charges a premium of one percent annually for full coverage of additional rises in cost. In an economy where labor rates and

salaries have risen yearly at rates near ten percent, the value of such insurance to an exporting manufacturer is a valuable subsidy.

13. Subsidization of Research and Development.

In contrast to the U. S. Government's admittedly substantial underwriting of R&D effort for military and medical applications, other national governments concentrate heavy sums in support of product developments whose only foreseeable usage lies in commercial sales - often to preponderantly export customers.

* France. One such instance in the early 1960's was the advancing of funds by the state-controlled Recherche Scientifique et Technique to Merlin & Gerin, a French switchgear producer, for the development of a 700-KV class power circuit breaker. The only countries with electric power systems suitable to such equipment are the U. S., Canada, and Russia. France's highest voltage grid - at 400 KV - was as yet barely planned and not started. But this subsidization enabled the French to secure an early market dominance at very low prices - an international trading move which has ever since severely inhibited the development of comparable equipment by American manufacturers.

* U. K. At present, England's CEGB proposes to purchase two 1300 MW generators - units that are twice the size of those currently on order or in operation by the utility. Their purchase is being justified for test runs that will provide design data. These generators will serve two other functions: (i) to provide added experience for U. K. manufacturers who have taken orders in the U. S. for several units of comparable size, and (ii) help tide that country's producers over a long drought of domestic orders.

* Sweden. This year, the nationalized State Tele Board and L. M. Ericsson jointly organized an R&D company for advanced work in the communications field. Initally, the products thus developed will be manufactured in the plants of both partners. At present, the Board buys from Ericsson. But by 1975, having benefited from the Board's investment and operating experience, Ericsson will buy from the Board's plants for the purpose of serving the export market. Since two-thirds of Ericsson's sales are outside Sweden, this R&D subsidy is clearly directed toward expansion of export business in communications equipment.

* Japan. Of the many government supports given Japanese manufacturers for R&D, few have had more dramatic results than the joint determination of MITI and the Ministry of Finance to development of a modern and efficient shipbuilding industry. Impelled by a need for outlets for her growing steel industry and a need for bottoms to carry her burgeoning two-way trade, the government saw further opportunity as an exporter of ships. Consequently, by direct grants and financing privileges it encouraged such shipbuilders as Mitsubishi and IHI in the development of designs for jumbo carriers and supertankers together with systematic study of advanced construction methods.

14. Unequal shipping rates.

Ocean freight rates for products shipped from the U. S. are often much higher than rates from competitor countries to the same locations, even though the latter may require longer hauls. These differentials result from rates structures established for the U. S. foreign trade by Shipping Conferences - that is, rate-making bodies of carriers which are permitted under the Shipping Act of 1916. Further inequities in effective freight charges arise from cartage rebates paid to offshore shippers but considered illegal in the U. S.

* U. S.-Brazil vs. Germany-Brazil. The U. S. Conference shipping rate lexan polycarbonate resin from East Coast ports to Santos, Brazil, is 8 cents per pound. The westward Atlantic Conference rate from German ports to Santos enables Bayer to ship the same product at 1.9 cents per pound over a comparable distance. Because freight costs for these goods add significantly to the effective selling price, the U. S. is at a serious competitive disadvantage in its exports to Brazil. This disadvantage is further compounded because Brazilian authorities impose a 35 percent import duty on the basis of the product's CIF value (i.e., landed value including higher freight costs from the U. S.).

* U. S.-Puerto Rico vs. U. K.-Puerto Rico. Because Puerto Rican ports are considered to be part of the U. S., materials of American origin which are destined for the island must by law be shipped by U. S. flag carriers. In a recent competition on a bid concerning power generation equipment, a British manufacturer was able to ship his equipment from the U. K. at a freight rate 12 percent below the shorter haul from East Coast ports to Puerto Rico.

* U. S.-Europe vs. Europe-U. S. Eastbound Atlantic shipping rates are consistently and significantly higher than westbound rates for identical classifications of goods - despite identical distances. This places a relative disadvantage on exporting American firms attempting to sell in Europe in comparison to foreign companies exporting the same product into U. S. markets.

CONCLUSIONS:

The NTB's are a most important factor in limiting the growth of U. S. manufactured exports. The foreign governments are deeply involved in these NTB's as an aid to their domestic economy, to assist exports, and to restrain imports. The fact that the European countries are so deeply involved in their

international trade makes the likelihood of changes in these policies dependent on the use of sustained countervailing power. The negotiations will be arduous and the long term results uncertain. It may again require decisive unilateral action by the U. S. Government to obtain real progress in making these markets symmetrically free.

The U. S. has the financial resources to offer competing fiscal subsidies but this is a process that feeds on itself; the lines are difficult to draw on the basis of national principle and such decisions cannot be taken on a bi-lateral basis.

CHAPTER TWO

PRIOR SURVEYS OF MOTIVATIONS FOR INTERNATIONAL INVESTMENT

A. Introduction

The prior surveys of the reasons for United States firms' investments in foreign operations was examined for insights that could put the present task force survey in perspective. These surveys were conducted over the past ten years. Ours took place in the unsettled period between August 15 and December 15, 1971.

The prior surveys that were available were each unique in terms of time, place, purpose, and the backgrounds of the interviewer and interviewees or questionaire. Furthermore, we are dealing with motivations which in themselves are difficult to categorize precisely. In seeking motivations it is sometimes difficult to separate the personal reasons from organization objectives. The survey could illustratively start with the Pilgrims who as a group landed in Massachusetts for religious personal reasons but also included individuals who had to work to gain their freedom or a new start in life. For the purposes of this report only surveys of the post World War II era will be of interest.

Table VIII

PURPOSES OF THE FOREIGN INVESTMENTS MADE BY
THE 205 REPORTING COMPANIES
DURING THE 1956-61 PERIOD

Purpose of Investment	Number of Investments per Area				
	Africa	Europe	Latin America	Middle East, Asia, & Oceania	Total
To undertake a new business venture	18	45	81	34	178
To expand an existing facility or business	4	18	41	8	71
To purchase an existing facility or business	3	36	20	8	67
To increase ownership position in an existing facility	--	6	3	3	12
Other	3	12	12	6	33
No answer	--	3	1	--	4
Total	28	120	158	59	365

Among the 33 "other" reasons referred to in Table VIII, 20 investment cases reported that their purpose was to expand a business previously carried out on an export basis or through independent distributors. In five cases, the purchase of an existing facility or business was in connection with a new business venture. Three cases reported that they leased facilities in which to operate the company, and in two cases expansion was through the purchase of an existing facility. Three companies purchased part ownership in an existing facility or business; two of these were majority ownership and one was minority ownership.

Among the motivating factors cited were: to enter the Common Market, to meet requests of existing customers, and to follow up connections established through an association with a foreign enterprise.

Table IX

FACTORS OTHER THAN GOVERNMENT POLICIES WHICH INFLUENCED THE SELECTION OF A FOREIGN COUNTRY FOR INVESTMENT
(Number of Mentions)

	Africa	Europe	Latin America	Middle East, Asia, & Oceania	Total
Anticipation of relatively higher profits	10	57	83	32	182
Penetration into a new foreign market	11	68	63	26	168
Maintain sales in the face of tariff barriers or exchange restrictions	4	44	55	27	130
To match or forestall a competitor's move	11	30	60	29	130
Export base for neighboring markets	5	62	25	12	104
To develop a new industry in the country	7	19	44	24	94
Availability of skilled labor	4	55	21	14	94
Lower labor costs	4	40	25	10	79
Banking facilities	5	35	14	12	66
Availability of managerial personnel	1	37	13	9	60
Availability of unskilled labor	4	17	21	13	55
Road, rail, and harbor facilities	5	18	22	8	53
Ancillary or supporting industries	2	20	12	5	39
Power facilities	2	16	9	6	33
Offshore manufacture for export to parent company	3	7	1	4	15
Housing, recreation, and shopping facilities	—	6	3	6	15
Health and sanitation facilities	1	7	2	4	14
Storage facilities	1	6	2	2	11
Not a consideration	2	2	—	2	6
No answer	1	3	11	2	17

B. Stanford Research Institute Study

1. Introduction

The SRI undertook a study in 1962 to determine the purposes of foreign investments made by U.S. firms in the period 1955-1961. The portion of the study pertinent to our analysis is shown on SRI Table VIII, page 23 and Table IX, page 25.

2. Purposes of the Foreign Investments

Table VIII purports to illustrate the "reasons" U.S. firms made their foreign investments. It is of interest to note that among the 205 respondents the largest number of investments took place in Latin America. However, if expansion of existing facilities is excluded, the European total investments approaches the Latin American total.

In the notes below Table VIII the writer indicates that in 20 cases the respondent specifically reported their "purpose" was to "expand a business previously carried out on an export basis or through independent distributors."

In the following paragraph the author cites the "other motivating factors" as:

a. To enter the Common Market;

b. To meet requests of existing customers

c. To follow-up connections associated with a foreign enterprise

The three "motivating factors" are not quantified but are the only ones cited by the author. All three of these "motivating factors" are market oriented; they seek to capitalize on real or prospective business opportunities.

The Treaty of Rome forming the EEC had only recently taken effect. It had a singular effect on U.S. foreign investment, for the U.S. manufacturer (and others as well), the EEC promised a common market large enough to justify erecting an economic production facility in Europe. Prior to that time any single country had less than one-fourth the population or one-sixth the GNP of the U.S. The SRI study appears to catch the first wave of U.S. recognition of this new European business opportunity.

3. Factors Which Influenced the Selection of a Country for Foreign Investment

Table IX of the SRI study lists the number of mentions for influencing the selections of a particular country for foreign investment. These number of mentions are instructive because they set a pattern of reasons and

motivations which are consistent in subsequent surveys.

The totals in Table IX clearly indicate that high profits were the most significant motivating factor. The next five most frequently mentioned factors were all marketing factors:

#2 - penetration into a new market

#3 - maintain sales in the face of tariff barriers and exchange restrictions

#4 - to match or forestall a competitor's move

#5 - export base for neighboring markets

#6 - to develop a new industry in the country.

Factor #2 was consistently mentioned in all areas. Factor #3 was consistently mentioned, but was particularly frequent among the Middle East, Asia, and Ocenia areas. Factor #4 was consistently mentioned but with higher frequency among Latin American, Middle East, Asia, and Oceania markets. This would indicate a defensive corporate "me-tooism" in small highly-protected markets. Factor #5 clearly indicates the importance of the EEC as a base for export to the remainder of the Common Market. The 52% of mentions for Europe compares with a 19% of mentions for the rest of the

world.

Only in Europe is the availibility of skilled labor, factor #6, important. Factor #7, lower labor costs is mentioned in 22% of the foreign investments. Europe leads with 33% of the mentions, but the sample may be biased because a number of the companies in the other areas were extractive industries where labor costs were not a primary factor.

Offshore manufacture for export to the parent (U.S.) company is factor #15 with 4% of the respondents mentioning this factor.

CONCLUSIONS

The definite impression arrived at from the SRI data is that profit motivated business expansion and marketing opportunities were the fundamental reasons for foreign investment by U.S. firms. Lower labor costs, although implicit in the decisions, were not mentioned frequently. Sourcing for the U.S. market was not an important consideration.

C. Costs and Competition: American Experience Abroad national Industrial Conference Board

1. Introduction

The National Industrial Conference Board sponsored a Study #73, "Costs and Competition: American Experience Abroad" in 1961. The report was based on information gathered via questionnaire from 147 industrial respondees. The questionnaire was designed to assemble new information on comparative costs and cost structures and on the reasons for their differences between countries. The questionnaire was based on 1960 operations and in some instances compared with a similar study prepared in 1956. The study was confined to the manufacturing industries. Although the information is dated it is of interest because no more recent cost studies have been made available.

2. Motivations for Foreign Direct Investment

Quoting from the report, page 174, "Two broad categories of managerial concern emerged as the major motivations for direct investment in foreign manufacturing: the limitations imposed by other nations upon the free flow of trade, and the attractive growth potential of foreign markets."

Only 13 of these responders explicitly stated that lower foreign costs had been a major inducement in starting overseas production, and in all but one of these 13 respondses the cost aspect was limited to other reasons--the great emphasis being placed upon non-cost factors.

3. Caveats on the Use of Data

The NICB questionnaire was based on a 1960 universe which was biased toward Latin America at the expense of the rest of the world. A similar survey today would include a relatively larger sample of European subsidiary experience.

Also the NICB distribution by industry is not comparable with those interviewed by other task forces.

Because of those two caveats plus the eleven year lag in reporting it is deemed advisable to report only summary data.

4. Unit Manufacturing Cost Comparisons

Despite the absence of lower costs as a primary motivation to foreign manufacture the following frequency of comparative costs by geographical areas was developed.

Frequency of Distribution of Products Reported

	Unit Manufacturing Costs						
	Canada	U.K.	EEC	L.A.	Australia	Other	Total
Lower than U.S.	8	18	30	17	4	5	82
Same as U.S.	7	6	4	5	1	-	23
Higher than U.S.	31	9	18	44	13	8	123
Number of Products	46	33	52	66	18	13	228

Source: Table 2A, page 11.

NOTE: Same as U.S. was defined to be 95 to 105% of U.S. costs.

Australia, Latin America and Canada were high cost areas. Europe was a lower cost area. The common characteristic of the high cost areas was their small markets.

5. Unit Labor Costs

A further disaggregation of the above costs illustrates the importance of comparable unit labor costs by regions.

Distribution of Ratios of Foreign to Domestic Labor Costs

In Percent

	Canada	U.K.	EEC	L.A.	Australia	Total
Costs Lower than U.S.	50	87	84	68	39	69
Costs Same as U.S.	18	3	5	5	11	8
Costs Higher than U.S.	32	10	11	27	50	23
Total	100	100	100	100	100	100

Source: Table 2C, page 14.

A further reason for Canada and Australia having higher manufacturing costs is suggested by the fact that their labor costs approached the comparable U.S. cost while their markets are smaller. The reason for high total Latin America costs is found in higher material costs and in the diseconomies associated with small volumes of production.

6. Costs by Industry

A further analysis of total unit costs by industry illuminates the structures of these industries in 1960.

Percentage Distribution of Ratios of Foreign to Domestic Total Unit and Labor Costs by Industry and Cost Category

In Percent

	Total Unit Cost			Labor Cost		
	Lower	Same	Higher	Lower	Same	Higher
Food and Kindred	33	17	50	56	6	39
Paper	36	18	45	64	9	27
Chemicals	50	14	36	58	10	32
Rubber	12	24	65	76	-	24
Stone, Glass, Clay	73	9	18	100	-	-
Fabricated Metal	56	17	28	71	18	12
Machinery Exclud. El.	47	8	44	70	3	27
Electrical Machinery	14	24	62	87	4	9
Instruments	62	-	38	25	25	50
Transportation Equip.	30	-	70	20	10	-

Source: Table 8A, pages 102-103.
NICB Study #73, 1961.

This table indictates that capital intensive industries such as rubber products, electrical machinery and transportation equipment are usually more costly abroad. Stone, clay, and glass products are much lower cost. Fabricated metal products, chemicals, paper and paper products, and machinery except electrical had mixed cost comparisons

with no clear cost advantage as aggregated by the NICB. However, only in one grouping, instruments, does the foreign labor cost approach the U.S. labor cost.

7. Costs as a Function of Relative Volume

A further analysis was attempted to show the relative costs as a function of the comparable production volumes. As might be expected the smaller the foreign volume as related to the U.S. volume, the higher the unit cost. However, the aggregated mean curve of 194 different products yields a relatively flat curve, except at its extremes. The mean total unit cost ratios are an average of "oranges and apples" and the "fruit salad" is not very revealing. However, the frequency distribution of these unit cost comparisons as a function of relative volume are of great interest

In Percent

	Foreign-to-Domestic Volume Ratios				
	5%	5-10	10-25	25-50	50
Cost Lower than U.S.	13	40	46	45	75
Cost Same as U.S.	12	7	22	10	7
Cost Higher than U.S.	75	52	32	45	18
Total	100	100	100	100	100

Source: Table 10a, page 129.

This frequency distributions does correspond to the expected values as the relative volumes increase. However, several of the products are relatively insensitive to volume changes and they do introduce minor anomalies.

8. Median Costs by Region by Cost Category

A final summary chart depicts medians of ratios of foreign to domestic unit costs by region and by cost category. This table does portray the relative costs and the structure of these costs. Except for Europe the median total unit costs were higher. In all countries but Australia labor costs were much lower. In all countries material costs were higher.

Appendix Table 4: Medians of Ratios of Foreign to Domestic Unit Costs by Area and Country and by Cost Category

In per cent

	Total Unit Cost	Plant			Sub-Total	Sales	Other
		Material	Labor	Overhead			
Canada	106	118	94	102	111	95	106
United Kingdom	82	110	64	70	92	65	61
Common Market	85	124	54	79	89	71	77
France	*109*	*144*	*61*	*74*	*119*	*83*	*79*
Germany	*82*	*115*	*55*	*61*	*81*	*70*	*81*
Belgium	*104*	*109*	*42*	*101*	*107*	*69*	*97*
All other	*68*	*138*	*43*	*72*	*71*	*80*	*59*
Latin America	120	142	53	113	121	75	176
Brazil	*110*	*143*	*45*	*109*	*117*	*64*	*198*
Mexico	*98*	*124*	*50*	*93*	*109*	*75*	*92*
Argentina	*136*	*169*	*72*	*150*	*129*	*67*	*209*
All other	*137*	*163*	*73*	*233*	*149*	*105*	*193*
Australia	125	130	106	86	123	83	139
All other	105	143	67	98	109	66	158
Total	*102*	*125*	*67*	*92*	*108*	*80*	*102*

Source: The Conference Board

9. Summary

The NICB study raises more questions than it answers. It conclusively illustrates the complexity and the danger of cost comparisons. It is useful for illustrating cost characteristics of certain regional groupings. Because of the sample of widely different manufactured products with different manufacturing processes, different dependencies on materials and on labor, varying volumes of production the aggregated data must be used carefully. However, the NICB analysis dispels the then commonly held notion that lower labor costs usually means lower total costs for manufactured products.

D. Data on Experiences and Practices of U.S. Corporations in Western Europe
Technology Gaps Unpublished Analysis (Commerce Department)

1. Introduction

As part of the Technology Gap study for OECD in 1967, the Department of Commerce prepared an unpublished survey of the "Data on Experiences and Practices of U.S. Corporations in Western Europe." This survey was part of a larger program conducted under the leadership of Dr. Michael Boretsky of the Department of Commerce. The objective of the survey was to obtain a first-hand and hitherto entirely unavailable information on the transfer of advanced technology--by type--from the United States to Western Europe via the subsidiaries of U.S. companies and the organizational means the companies use in making this transfer; the "price" the companies charge the host countries for this technology; the impact of both U.S. and European governmental regulations on the transfer of advanced technology from the U.S. to Western Europe; the reasons why the companies established subsidiaries in Western Europe rather than exporting from the United States; the extent and reasons for their R&D activity in Western Europe; the extent and type of training programs conducted by U.S. companies for

Europeans; the use of American personnel in European subsidiaries; their views on the quality of technology used in their European subsidiaries compared with that used by their European competitors; and the companies' views on the West European management's attitudes, workers' habits and the keenness of competition in the market place.

The 200 useable responses did account for 80% of the total value of U.S. investment in Western Europe.

2. Key Reasons for Foreign Investment Rather Than Exports

The Boretsky analysis opens with the key question: What single factor did the U.S. companies consider most important in their decision to establish manufacturing in Western Europe rather than export. The most frequent responses to the single most factor were:

a. To service customers better 23%

b. To eliminate costs of tariffs and tariffs 20%

c. To meet local or other foreign competition of substitute products 20%

Labor cost savings were mentioned by 7% of the respondents as the single most important factor. Freight cost savings were mentioned by 8%. All the remaining 22% of the responses were market oriented. It is of interest to note that the actual reasons given for foreign investment rather than exporting are functionally equivalent to the reasons given in the prior SRI study. (C-2)

3. Forms of Technology Transfer

The Commerce Department survey then attempted to measure the form of transfer of "advanced" technology by the parent U.S. company to its European subsidiary. In summary 84% of the respondents transferred designs of technical information on products produced in the U.S. superior to those produced in Europe and 35% considered this to be the most significant transfer. The designs of new or better production processes were transferred by 86% of the respondents and 25% considered this to be the most significant transfer. A total of 70% of the respondents transferred technology or products produced in the U.S. but not yet produced in Europe and 19% considered this most significant. A total of 80% of the respondents trained their European associates in both the U.S. and Europe and 18% considered this training to be most significant. From

the above responses it may be concluded that a large majority of the 200 responding American firms transferred their technology by all of the above linked categories. (C-3)

4. Characteristics of Technology Transfer

The preferred form of transfer of technology is to fully owned subsidiaries or effective control of West European companies (86%), the parent U.S. companies would appear to engage in all forms of technology transfer, including licenses to unaffiliated foreigners. In fact 65% of the firms sometimes licensed unaffiliated foreigners. The information available does not indicate whether major technology was transferred nor does it differentiate between a patent-license and know-how (technical assistance) licensing. However, it is significant that the companies who did specify licensing unaffiliated foreigners as the most important means of technology transfer had a much smaller mean investment in West Europe than those who used other technology transfer channels. While this smaller mean investment would be expected (by definition) it does follow the intuitive expectation that smaller companies would have a greater propensity to license their technology. This propensity arises from a lack of resources, skills, and inclinations to invest in

foreign operations. (C-4)

Running royalties are the most significant form of payments for technology. However, 44% of the respondents indicated that they took an equity participation in their licensees and 24% considered this the most significant form of payment for technology transfer. (C-5)

5. Government Controls of Technology Transfer

With the exception of national security reasons the impact of both U.S. and European government regulations on technology transfer was negligible. (C-7)

6. Fifty-eight percent of the U.S. companies reported R&D activity (as defined) in Western Europe. The chemical and machinery industries most frequently utilized European R&D. These European R&D expenses grew 10% from 1965 to 19.6 (C-14). The reasons given for R&D activity in West Europe were (C-15):

a. Cost advantage 20%

b. Availability of qualified personnel 33%

c. Other (need to support existing or planned operations in West Europe) 46%

7. Comparative Automation

Table C-17 indicated that in 1966 the U.S. companies had significantly greater utilization in

their U.S. plants of the following technology factors:

a. Automation of data processing 74%

b. Mechanization of material handling 44%

c. Automation of production processes 45%

This greater automation reflects not only an earlier start and continuous improvement of production in the U.S., but that the economies of scale and higher wage rates would dictate greater automation to reduce U.S. manufacturing costs. (C-17)

8. Summary

The responses to the Boretsky questionnaire again demonstrates the market orientation of the U.S. firms and their efforts to maintain their competitive position in world markets. The U.S. firms continue to prefer control of foreign subsidiaries, and technology transfer takes place primarily between the U.S. parent and its European subsidiary. The information that 65% of the larger firms did license technology to unaffiliated foreigners is the most surprising finding.

E. U.S. Production Abroad and the Balance of Payments NICB, 1966

1. Introduction

The Conference Board undertook this study at the request of its membership. The questionnaire and interview techniques were utilized to gather qualitative data. More than one hundred companies participated and these represented 16% of the total U.S. direct investment abroad. The principal findings, as they pertain to this study, follow.

2. Investment Versus Trade (p. 105)

The returns from international trade are now achieved primarily by deployment of production facilities not by trade in products. Today, international economies must, be concerned with the movement of factors, rather than with trade in products as the primary means for achieving global efficiency of production.

3. Dominance of Market Strategy (p. 59)

Marketing strategy was clearly the dominant element in investment decisions. Firms that invest abroad view their foreign production facilities as an essential element in maintaining, building, or fortifying the company's position in the foreign market.

4. Production Costs Rarely Mentioned (p. 49)

In this study, the basic costs of production alone were rarely mentioned, in questionnaire responses or in interviews, as the determining consideration in investment decisions.

5. Preference for Exports (p. 43)

Virtually all U.S. manufacturing companies start with an initial bias in favor of manufacturing within the U.S. Most decisions to invest abroad are precipitated by factors beyond company control but which made it impractical for the company to serve foreign markets only through exports from the U.S.

6. Tariffs Induce Foreign Investments (p. 45)

Tariff rates were often mentioned as reasons underlying a number of new investments in Europe and other developed areas.

7. Minimal Imports of Products Produced By U.S. Facilities Abroad (p. 119)

The 155 company study found that imports from U.S. owned European manufacturing facilities were negligible, and that most of the goods traded were not competitive with domestic U.S. products.

8. Licensing Practices of Smaller Firms (p. 54)

Among smaller firms, financial limitations are a greater constraint on foreign investment, and are one of the major reasons why many of these firms rely on licensing.

F. United Nations (UNITAR) Studies

1. Introduction

The United Nations and in particular the United Nations Institute for Training and Research (UNITAR) has been in the forefront of promoting the transfer of technology to the developing countries. To develop the information regarding the motivations, the channels, the effectiveness, and the future prospects for technology transfer, UNITAR commissioned a series of several papers in 1969 and 1970. Each of the individual papers covered either a specific industry problem or an individual country approach. The papers pertinent to the task force assignment are summarized on the following pages.

2) The International Transfer of Commercial Technology to Developing Countries

Walter A. Chudson, UNITAR Research Report Number 13

The main channel for acquiring industrial technology is private foreign investment, nowadays is predominantly in the form of the multinational corporation. Some claim that this channel is the cheapest in terms of a social benefit cost while others stress possible advantages to the host country of a disaggregation of the elements of the "package." Chudson distinguishes among three categories of technological transfer: 1) Franchising (e.g., Coca Cola or Hilton Intercontinental Hotels) which usually involves complex managerial procedures and standardization of product or service; 2) Conventional technology, as required by many standard consumers and some intermediate goods (such as cement), where managerial guidance may be as or more important than proprietary information. The international supply of know-how for this category of production is relatively competitive with some firms specializing in the selling or licensing of equipment and processes rather than engaging in multinational production. 3) High technology, characterized by large research and development expenditure, rapid and continuing technological

change, high capital requirement, a stake in maximizing the profits, and product differentiation appears in developing countries in automotive, electronic, heavy electrical equipment, computers, pharmaceuticals and part of chemical industries. The essence of direct foreign investment in this category (and largely in other categories) is not so much the transfer of capital as the transfer of technology. High technology products are the type for which producers are least likely to license technology.

It has been argued that large international firms tend to use the same technology in LDC's as at home. It seems that in many if not most large-scale manufacturing operations, the opportunity for choosing among the available technologies a more economically efficient and at the same time labour-intensive techniques is extremely limited. A substantial number of respondents to the UNITAR questionnaire emphasized the point that labour costs are of minor importance to them (especially for firms engaged in continuous assembly-line operations). In fact, they sometimes seek to mechanize labour-intensive

operations in order to avoid "labour troubles", even though the large international firm has more technical capacity to explore the alternatives and innovate, provided it wishes to do so. Modifications in the economic and social framework (e.g., working of a second or third shift) may be important to more labor-intensive processes than modifications of existing technology although this may require more supervisory labor (human capital). Technological adaptation to local intentions may lead to more capital-intensive processes, especially where industry caters to world market and requiring the maintenance of high and uniform quality standards. Conclusion: The choice and adaptation of technology in the modern manufacturing sector is not influenced to a great extent in a socially negative direction by the particular contractual arrangement through which the technology is supplied.

From the point of view of the important objectives of conservation of scarce factors of production, the factor mix is of less importance than the product mix.

The transfer of "show how" rather than "know how" might more accurately describe the activities of many companies in "low technology" industries which have

reached the later stages of the "product cycle".

The evidence suggests that the foreign investor's local R&D expenditures have been responsive or perceived market opportunities more so than to government pressures for some local R&D activity.

3) International Transfer of Automotive Technology to Developing Countries

Jack Baranson, UNITAR Research Report Number 8

Prior to 1950, international firms were able to manufacture automotive products in the home country and export them to overseas markets; during the 1950's auto manufacturers were forced by progressive restrictions to establish first assembly and then manufacturing operations overseas, or alternatively lose the market; and in the third phase certain developing countries have been bargaining for export capabilities built into the manufacturing operations to help pay for continuing import requirements. Although for most international firms, earnings from subsidiaries in LDC's constitute a minor protion of total earnings, they represent a sizable customer for components and parts. However, their investments in overseas manufacturing facilities are in a sense an investment in future demand for exports. Some of these firms also earn substantial amounts from technical services and on the sale of specialized equipment for part manufacture.

Baranson notes that firms are more willing to disclose

technical know-how to less sophisticated partners in developing countries that they are to industrially-advanced firms, which may eventually become serious commercial rivals in third markets. However, this consideration may be of less importance where the firm has a strong technological lead and a dynamic R&D program to maintain that lead.

Atomization of production facilities has meant high cost production and the redesigning of products and techniques to fill specialized demands in low-volume markets. It has also meant the latest product designs and productions techniques could not be adopted due to the absence of scale economies, a development which inhibits technological transfer. Obsolete products in turn cannot compete in world markets. The alternatives faced by LDC's are to develop automotive designs and production systems geared to their indigenous demand and supply structure, or tie into international product systems which may be a poor fit to their needs. The LDC's are confronted with the dilemma that they lack the engineering and marketing capabilities to develop independent designs and industrial systems. Some countries

are strongly opting for the second policy. Mexico, for example imposes export requirements on producers in alloting market shares and production quota allocations. Over the next ten years, vehicle manufacturers in Mexico will be required to offset import requirements (about 50% of vehicle value) with equivalent value of vehicle or part exports. The consequence has been that U.S. producers in Mexico have transferred some operations to Mexico such as the production of wire harnesses, steering gears, and metal castings, specialized items normally produced at low volumes by Detroit standards.

4) The Transfer of Technology Economics of Offshore Assembly: The Case of Semiconductor Industry

Y.S. Chang, UNITAR Research Report Number 11

This is of particular interest because it is the most publicized example of United States industry transferring operations abroad in order to reduce labor costs.

Because of lower Japanese and European labor costs with a rapidly growing home market and because of the short product life cycle with relatively undifferentiated products, U.S. firms may have to rely more and more on offshore assembly to remain competitive. On the other hand, if large-scale offshore activities were to be developed by foreign competitors, especially Japan, the impact on U.S. firms would be immediate and profound.

Among the findings of this study were: 1) Every established U.S. semi-conductor firm appears to be engaged in some offshore assembly without exception; 2) Overseas ownership is characterized by wholly owned subsidiaries; 3) Few firms are inclined to move most critical-technical operations abroad although there are some signs of weakening on this point; 4) Although the threat of foreign competitors is most often the publicly stated reason for

offshore activities, the desire to be the leader in cost reduction seems to be more important and the more immediate reason; 5) Low labor cost is the most obvious and important reason for selecting a particular country (but lower wage countries are not enticing manufacturers, perhaps because of apprehension about the political climate, cost of doing business, unreliability of the labor force, etc.); 6) Financial incentives seem to play little part in company decisions; 7) Geographical proximity is of some importance; 8) The true ratio of unit labor costs (savings) is likely to be on the order of about three to one against the U.S.; 9) There is a greater risk of production disruption from transportation and communication short comings when part of operations abroad, thus back up operations are needed in the U.S.; 10) European firms are now setting up in Singapore and Taiwan, and Japanese firms are expected to follow trend toward offshore operations.

5) The International Transfer of Technology in the Establishment of the Petrochemical Industry in Developing Countries

Robert B. Stobaugh, UNITAR Research Report Number 12

This report is of special interest for two reasons. The task force purposely excluded the petroleum and petrochemicals from interviews and analysis because of the particular economic and political position of this international industry. Although it was recognized that the international petroleum firms rank among the largest multi-national corporations, the sensitivity of their geo-economics and their politics and regulations would require a detailed analysis by experts. However, this report does give a quantitative analysis of the international transfer of technology and insight into this unique industry.

Furthermore, it points up the widespread utilization of licensing the rapid diffusion of technology, and the utilization of specialized engineering firms to transfer this technology.

In less developed countries the majority of plants for manufacturing petrochemicals are controlled--by being either wholly owned or majority owned--by indigenous companies. This is sometimes achieved through joint

venture, straight license (with payment by a lump sum, a percentage of sales, or both), or combination arrangements. Private consultants can provide technology, but typically the technological know-how rests with an organization of people rather than with individuals. Local governments prefer local ownership or control because of difficulty of achieving the close congruence of goals and continuous communication with a local subsidiary of a foreign firm, the agent of a much larger firm in another country.

Stobaugh's survey of 360 plants (44 in LDC's, 204 in DC's not including the U.S., and 112 in the U.S.) manufacturing nine petrochemicals products showed that the share of plants built using purchased technology increased from 27% during Stage I of the product life cycle to 73% in Stage II of the product life cycle. Licensing accounted for an even greater share of technology transferred across national boundaries--some 85% instead of 73% for the late stage of the product life cycle. Clearly for mature products most plants were built using purchased technology rather than technology developed by the owner of the plant, especially

in cases in which technology was transferred internationally. The transitoriness of leadership in the industry is reflected by the fact producers of new product are far outstripped by imitators and engineering firms as licensors of technology, from Stage I of the product life cycle. Oligopoly power appears to be ephermeral in this industry.

Stobaugh concluded that there are a sufficient number of competitive sources of technology that LDC's do not have to accept foreign control of their petrochemical industry.

6) Technology Transfer in the Pharmaceutical Industry
Lawrence H. Wortzel, UNITAR Research Report Number 14

U.S. firms' research expenditures, as compared with pharmaceutical firms in other countries, are greater by a ratio larger than the ratio of new products developed. This finding suggests decreasing returns to scale, since U.S. firms generally have larger R&D budgets. Almost all R&D by U.S. firms is done in the U.S. and West Europe with little more than token undertakings elsewhere. Management has resisted attempts to have them establish R&D facilities in LDC's on grounds that: 1) It is essential that management have research staff firmly under wing to keep research directed so as to benefit the firm; 2) A minimum internal scale of research team is necessary to successful innovation; 3) Physical facilities and intellectual environment are too expensive to create ab novo.

The difficulties involved in the manufacture of active ingredients and in assuring quality control argue for the export of finished products when multi-national firms have complete freedom in decision making. LDC's use of various import barriers to force local processing and

one developed country (France) has instituted a visa system to enforce local production on any firm selling in France. Faced with a small market, a frequently employed strategy has been that of licensing or contract manufacture. Local producers are usually enjoined to use trademark of licensor and restrictions are generally emplaced against competing with the licensor.

However, much of the pharmaceutical manufacturing technology now exists in the LDC's, and further development of local industry is simply a matter of getting the fruits of that technology out of the proprietary hands of the multi-national firms and into the hands of local firms. They are aided in this by the Italian pharmaceutical industry (Italy does not recognize pharmaceutical patents) which supplies the raw materials (raw materials production requires a more sophisticated technology) to LDC's which do the dosage fabrication.

7) Transfer of Technology From Japan to Developing Countries

Terutomo Ozawa, UNITAR Research Report Number 7

Based on a comparison of Japanese and U.S. investments in Taiwan, the author comes to the conclusion that Japan's technology transfer is less capital-intensive with a great deal of manpower being involved on the part of both the transferors and the transferees. Other studies suggest same is true in other Southeast Asian countries. Socio-cultural similiarities may give Japan a comparative advantage in human-centered activity of transferring industrial knowledge to these countries.

Tariff and quota restrictions are apparently the cheif motivation for Japanese investment. Moreover, about 20 percent of Japan's foreign direct investment have been made by enterprise with assets of less than 100 million yen ($300,000), a fact which reflects the acute labor shortage. The Japanese minimize risks by economizing on capital investment.

An interesting aspect of Japanese investment is the fact that trading firms account for about 80 percent of Japan's contracts for technology export. This gives a

solid base from which to expand as multi-national corporations.

The technology transferred by Japanese firms to developing countries is largely the know-how or modernization experience and skill associated with standardized production techniques. This type of technology cannot be easily embodied in capital equipment, blueprints, or instruction sheets but is mostly embodied in labor at all levels of operation. Under those circumstances, technical assistance must be provided on the site of actual operations until transferees acquire the necessary skills through experience. On this account, joint ventures appear to be the most effective form of organization, since both parties to the contract will be involved in the common pursuit of profits and will be sharing responsibilities and solving technical and managerial problems as they arise. Since most technology so transferred is directed to labor-intensive industries, the training of labor is no doubt the most crucial aspect of the transfer process.

8) The Transfer of Technology and the Factor Proportions Problem: The Philippines and Mexico

R. Hal Mason, UNITAR Research Report Number 10

The capital intensive bias of industry in under-developed countries can be attributed to host country incentive systems and other government policies which influence the foreign country in much the same way as the domestic firm. To induce investment, developing countries have left interest rates too low in relation to the marginal product of capital and the rate of price inflation, grant capital subisdies in the form of accelerated depreciation, forgive taxes on income and property, or issue special permits on capital equipment and subsidized land purchases. Other distortions influence factor disparities, an over-valued currency undervalues real costs of capital equipment; tariffs discriminate against importation of used and reconditioned equipment reducing the employment multiplier of new investment; minimum wage laws cause firms to buy new equipment rather than train new labor; firms are not compensated for externalities resulting from training of labor, under-utilization of capital resulting from local content requirements and hidden bottlenecks.

If technological fixity were pervasive, then we would see less developed countries concentrating on those activities or manufacturing subsectors which call for much labor and little capital. One study has found that firms tended to transfer technologies from advanced to less-developed countries in virtually unaltered form, i.e., relative factor prices were not given much weight in the decision making process.

In a survey of nine different manufacturing subsectors in the Philippines and five of the same subsectors in Mexico involving a total of 28 firms (14 U.S. owned and 14 locally owned), U.S. firms had higher capital to labor ratios, higher wage rates, higher total factor productivity, a higher rate of return to capital (although not significantly so in a statistical sense for the latter two); and some 70% of the equipment of U.S. firms in U.S. made whereas only 35% of the equipment of local firms is of U.S. origin.

Only five of the 28 firms indicated that skill shortages had forced them to opt for non-optimal plant design although one other was producing below demand. While U.S. firms are no more likely to have formal training budgets than are local firms, when they do, the

budgets are much larger. Both U.S. firms and local firms use expatriates to make up for skill deficiencies, the former a bit more heavily. U.S. firms tend to use more unskilled labor in combination with somewhat closer supervision. Although many firms would not use the same techniques in a new plant, little inclination was found to use more labor-intensive processes. Locan content restrictions force adoption of more highly integrated plant than optimal, hence capital wastage. Mason found a reasonably widespread effort on the part of both local and U.S. investors to adapt U.S. technologies to local needs even though little was spent on local R&D. Major thrust of firm's efforts to overcome local labor deficiencies has been toward training. High rate of turn-over, however, works against large scale training needed to qualify relatively unskilled workers for production line work.

Heavier U.S. investment in inventories is probably due to somewhat broader and more complex product line and to a higher import content in total output. Higher investment in buildings may be to give an air of permanency. Because of the larger capital base per worker are greater for U.S. firms. This is offset

by the higher average wage rate paid so that the ratio of factor service flows (K/L) does not differ significantly between the two samples. It has been suggested that the greater the use of U.S. made equipment by U.S. subsidiaries may be rational given the high costs of searching for information regarding new source of supply. It may also be tied in with maintenance and training programs, the costs of which can be reduced if equipment is relatively standardized.

There is little evidence that the demonstration effect is of major importance. It is tentatively concluded that a strong case cannot be made of multi-national firms being a major source of the factor proportions problem.

G. International Transfer of Technology Among Developed Countries - Department of Commerce

1. Introduction

The Department of Commerce organized its Commerce Technical Advisory Board to prepare a report on the "International Transfer of Technology." This report was completed and published in February, 1970. This report was written after the OECD Technology Gap study and should be considered a response to that study. The following is the Summary and the Recommendations of the Advisory Board Panel.

2. Summary

The United States has been, and remains, open and progressive regarding the transfer of technology.

In general terms, the Panel found that there are some policies, laws, and regulations, both in the United States and in other developed countries, which interfere to a degree with the transfer of technology. However, in the U. S. with a few exceptions, which involve international commitments of the national security interest of the U. S., they are not of major importance. For example, export licensing, which is a visible, direct control on technology transfer, only applies to a small minority of items. The absolute flow is enormous.

In the field of government procurement, the Panel found that all governments, including the United States, discriminate in favor of items of domestic manufacture. The

Panel also found that in some nations there are laws, ostensibly passed for other purposes, which either block or stultify the flow and utilization of technology. As an example, at least one nation, France, requires that any manufacturer, before he is granted the foreign exchange to purchase new technology from abroad, must exhaust all efforts to obtain the technology from within his own country. This restriction obviously slows down the flow of technology. Other laws, purportedly to protect health and welfare, are designed to foster indigenous industries and discriminate, in one way or another, against the importation of technology.

With regard to tax policies, it appears that most nations do not intentionally use such policies to influence the flow of technology to other nations, although in some cases there are inadvertent effects. In some countries there are instances of tax incentives being used to stimulate the development of new technology. In Canada, for example, the government allows a tax credit of 150% of actual expenditures for R&D. However, virtually all nations do make use of capital controls, especially with regard to direct investment abroad, and such controls can be an inhibition to the transfer of technology.

The Panel found that tariffs are virtually insignificant as a factor affecting technology transfer. However, non-tariff barriers have become relatively more important restrictions on the movement of goods and hence to the transfer of technology.

Business generally favors the transfer of technology and prefers not to have any restrictions whatsoever on the technology flow. The so-called "international corporation" has proved to be an important vehicle for the transfer of technology. However, such corporations must continue to be sensitive and creative in handling conflicts with the national interests of the host nation.

The Panel found that in the past social and labor policies in Europe and Japan have tended to impede the transfer of technology. However, the situation is changing throughout most of Europe and Japan but the continued reliance in Europe on small, national markets still impedes technology transfer.

3. Recommendations

a. Foreign Direct Investment

i. Financial Investment Controls - The Department of Commerce should abolish its Office of Foreign Direct Investment as soon as the U. S. balance of payments permits.

ii. Reciprocity of Treatment - The Department of Commerce should take the lead in assuring that U. S. firms operating overseas receive the same treatment in other countries that foreign firms receive in the United States.

b. Export Controls

The Department of Commerce should continue its current efforts to (1) relax or remove export licensing controls when no longer necessary for policy purposes; and (2) improve,

simplify, and clarify the U. S. export control program and its administration.

c. Government Procurement

The Bureau of the Budget should take the lead among agencies of the United States Government in examining U. S. procurement policies to see what, if any, concessions might be offered as an inducement to other countries to improve their procurement policies. All governments discriminate through their procurement policies and such policies restrict the transfer of technology.

d. Patents

The Department of Commerce should press for a multilateral arrangement to simplify the filing and processing of patent applications where protection is desired in a number of countries, such as the proposed international filing system of the Patent Cooperation Treaty (PCT); the strengthening of the quality of patent grants and the procedures for determining the quality, such as the international search feature of the proposed PCT; and eventually the harmonization of those points of substantive patent law which are significant in improving the predictability of patent protection available in foreign markets.

e. Nontariff Barriers

The Office of the Special Representative for Trade Negotiations should exert every effort toward the elimination

or reduction of nontariff barriers to trade. As tariffs are reduced internationally, nontariff barriers have become a more important impediment to trade and the transfer of technology. The United States and other developed countries, consistent with their national interests, should endeavor to eliminate such barriers

f. Standards and Standardization

The Department of Commerce should promote efforts to strengthen standardization activity domestically, both inside and outside Government. It should also encourage all nations to take all feasible steps to accelerate the harmonization of standards internationally.

g. General

The Department of Commerce, Department of Justice, Department of State, and, in fact, practically all government departments, should on a continuing basis, identify those laws, regulations, or policies, domestic and foreign, which may hamper the flow of technology across international boundaries. (Many of those restrictive policies have been identified herein.) Such barriers should be eliminated or moderated when their effects are significant and their existence is not essential to the national interest.

h. The Developing Nations

It is recommended that the Commerce Technical Advisory Board determine in what way CTAB might bring to bear expertise in assisting the developing countries in the solution of some of their development problems.

H. National Foreign Trade Council, Inc. Survey

1. Introduction

The National Foreign Trade Council has prepared in Invember, 1971 a report "The Impace of U.S. Foreign Direct Investment on U.S. Employment and Trade." Although the primary purpose of this report was to rebut certain critical claims, the NFTC report incluses several points pertinent to this analysis. These are taken directly from the report.

2. Rationale for Foreign Direct Investment

The term "rationale," as used herein, means the reasons or motivations which result in a decision to invest or reinvest abroad and the beneficial or negative effects that such investments can have on an enterprise.

The reasons for investing abroad most frequently mentioned in the responses to the survey (without attempting to rank such reasons) are as follows:

a. To jump tariff and import barriers and regulations, including local-content regulations or a requirement that local exports be made in order to receive an import license;

b. To reduce or eliminate high transportation costs;

c. To obtain or use local raw materials;

d. To obtain incentives offered by host governments;

e. To maintain existing market positions;

f. To participate in the rapid expansion of a market abroad;

g. To control quality in the manufacture of specialized products;

h. To follow customers abroad;

i. To follow a competitor abroad;

j. To obtain foreign technical, design, and marketing skills;

k. To bid on foreign infrastructure projects.

3. Labor Costs Implicit Rather Than Explicit

Low labor costs were not mentioned as a factor in the decisions save in a very few instances. Low labor costs have existed for some time, as between countries without inducing a significant movement of U. S. capital, technology, and management. It has only been since the rise of internal markets to levels making local production possible on sufficient scale or the reduction of trade barriers which opened the world market that factor movements have occurred in significant amounts.

I. Foreign Investment Objectives of Japanese Companies

1. Introduction

A survey was made in Japan in 1969 to ascertain the objectives of Japanese companies in their foreign investments. Although no descriptive or interpretative analysis was available, the summary chart of observations is of interest for

what it tells us of the Japanese industry at that time. Because of the lack of knowledge regarding the types of industries included, the survey is included for illustrative purposes only.

2. Foreign Investment Objectives of Japanese Companies

The following table indicates that in Asia the most frequent Japanese foreign investment objectives were:

a.	Protection of existing export markets	73
b.	Development of new export markets	61
c.	Promotion of export of raw materials & semi-finished goods	52

The Japanese objectives for Asia would seem to correspond to the reasons stated by U. S. companies in the surveys previously analyzed in this sector (SRI, Commerce, NFTC). However, the Japanese are more explicit that their foreign investments will assist in the exportation of raw materials and intermediate products. The interpretation of this emphasis is open to several plausible explanations. However, the striking difference in the Japanese survey is that every objective in some way is directed toward the increase in exports per se.

FOREIGN INVESTMENT OBJECTIVES OF JAPANESE COMPANIES

	Asia	Rest of the world	Total
Promotion of export of raw materials and semi-finished goods	52	34	86
Promotion of export of machinery and equipment	24	6	30
Protection of existing export markets	73	19	92
Development of new export markets	61	47	108
Export to 3rd countries	32	6	38
Export to Japan	21	7	28
Dividends, royalties	10	3	13
Other	12	3	15
Total	285	125	410

Source: "Objectives of Japanese Investing Companies," Yugin Joho, Japan Export-Import Bank, March, 1969.

The Japanese's "rest of the world" objectives illustrates a different competitive structure from the Asian experience. The rest of the world markets appear to be newer and less the protection of existing export markets than the development of new export markets.

J. The Transfer of Technology to Latin America (OAS)

1. Introduction

The Department of Scientific Affairs of the Organization of American States commissioned the Science Policy Research Unit of the University of Sussex (U.K.) to examine the transfer of technology in Latin America from the point of view of the developing countries. The purpose was to assist in developing policies that would lead to greater industrialization of the Latin American countries.

The University of Sussex report was prepared in June, 1971. The bulk of the report is based on a series of interviews with Latin American and U. S. businessmen in selected industries. Particular attention is given to the motivations and mechanisms for tedhnology transfer. This report is timely in that it broadens the coverage of the task force and illuminates an area that was not previously covered in depth elsewhere.

Without violating the spirit of the report, observations pertinent to the task force assignment have been extracted.

2. Pharmaceutical Industry

a. Ten out of twelve pharmaceutical companies said that tariff barriers were the main reason for the decision to produce abroad; one company said that cost reduction was the dominant reason (p. 27).

b. Transfers of production and technology to Latin America have been mainly a response to market protection (p. 28).

c. In Latin America 19 of 20 pharmaceutical companies utilize wholly-owned subsidiaries.

d. Profits to the parent company on the sales of intermediate products to Latin American subsidiaries are important. The subsidiaries encapsulate and package these materials (p. 40).

e. Promotional costs (10 to 20% of total sales value) are much lower in Latin America than in the United States (p. 29).

3. Chemical Industry

a. All nine of the responding companies gave tariff protection or other trade restrictions as reasons for producing in Latin America (p. 49).

b. The structure of the Latin American chemical industry reflects the size of the parent company and the size of the investment. The giant companies (4) utilize wholly owned subsidiaries; the large companies (5) joint ventures with licensing; and one medium sized company, pure licensing (p. 50-53). All would have preferred to export (p. 51).

c. Because of the small production volumes 8 out of 10 companies indicated higher costs in Latin America than at the parent company (p. 52).

d. The choice of the transfer mechanism in the chemical industry is influenced by the size of the initial plant investment. As the characteristic fluid flow process cannot be easily separated in midstream, the investment often exceeds $5 million (p. 54).

e. None of the Latin American companies report significant exports; they are not competitive on the world markets (p. 59).

4. Electrical Machinery Equipment

NOTE: Although not clearly stated in the report is is apparent that the main focus is on television receiver assembly in Latin America.

a. Eleven of twelve companies mentioned tariff barriers as major reasons for entering Latin American countries (p. 66).

b. No mention was made of lower costs (p. 67).

c. Licensing local Latin Americans was also favored (p. 66).

d. Nine of ten mentioned higher Latin American production costs primarily because of favoring "local content" materials.

SUMMARY OF PRIOR SURVEYS ON MOTIVATIONS FOR INTERNATIONAL INVESTMENT

1. Market Considerations Dominant

a. The most forceful and important finding from the previous surveys was the dominance of market strategy motives for foreign investment.

b. These marketing motivations were expressed positively in a desire to participate in growing world markets to maintain or improve the competitive strength of the firm, and to better service the customer.

c. These marketing motivations were expressed negatively in seeking assurance of continuing market entry in view of increasing economic nationalism, enlarging tariff blocs, proliferation of non-tariff barriers, etc.

d. The investment emphasis in Europeans on participating in markets and avoiding tariffs and NTB's. The investment emphasis in Latin America and developing countries was to obtain market protection behind tariffs and NTB's.

e. Often foreign investment were made somewhat reluctantly; the U. S. manufacturers would have preferred to continue to export.

2. Economic Factors Increasingly Mobile

The fact that U. S. foreign investments and the sales of products by U. S. subsidiaries resulting from these

investments are increasing more rapidly than U. S. exports illustrates that capital and technology are mobile. These factor deployments suggest fundamental changes in economic theory and these deployments must be recognized as alternatives to trade in commodities.

3. Increased Long Term Profits are the Objective

The recoupment of foreign investments often requires a prolonged payback period. Foreign production costs are often initially higher and short term profits are non-existent.

4. International Transfers of Technology

a. The multinational firm is the most important channel for the international transfers of technology. Most of the technology is transferred from parent to foreign subsidiary.

b. Licensing unaffiliated foreigners has been widely practiced. However licensing is not a favored method of technology transfer unless equity participation is involved.

c. Giant firms prefer wholly owned subsidiaries; larger firms, dependent on the capital requirements, will form joint companies; smaller companies will often license directly.

d. The most advanced technoology is usually retained and not immediately licensed to foreigners.

5. Cost Considerations

a. Costs of manufacturing industries are deemphasized

as a primary investment motivation, while market strategy is emphasized.

b. Although implicit in all foreign cost calculations, lower labor costs are not considered a determining factor except in a few manufacturing industries.

c. Foreign materials costs are usually higher for the manufacturing industries.

d. Although foreign labor costs are usually lower, a surprising number of manufactured products have higher total costs because of higher materials costs and the diseconomies of small scale production.

6. Imports of Foreign Subsidiary Manufactures

U.S. industry has not invested overseas even as a source of production for the U.S. market. Manufactured imports from foreign subsidiaries are minimal with the consumer electronics and apparel as the exceptions.

RECOMMENDATIONS

1. Comments on the Recommendations.

The recommendations, which follow, fall into three categories:

a. Those based on the findings of the task force and corroborated by the prior surveys.

b. Those of a general policy nature which arose out of discussions with industry executives and task force meetings.

c. Those of a detailed operative nature, usually developed in discussions with members of industry and the task force.

In view of the paucity of information and lacking a body of consistent data regarding international transfer of technology and the motivations for alternative selection of international trade channels it seems more appropriate to offer suggestions than recommendations. However, policy makers must act on imperfect information. Therefore, recognizing the limitations of our task force, these recommendations are presented with temerity.

The recommendations are made with the expectation that they will be reviewed by the appropriate agencies for a detailed cost/benefit analyses. Such analyses were beyond the scope of the task force.

2. Preface. The recommendations are prefaced by the widespread agreement that the present Administration has acted correctly and forcefully in devaluing the dollar and revaluing other major trading currencies. Price and wage controls are considered necessary evils. Industry is cooperative in the fight against inflation but watchful of the international trends. The other striking point, which was also clearly articulated in the "Williams Commission" report was the need for a domestic consensus or economic priorities. The recommendations will focus on the international economic aspects of this domestic consensus.

3. Creation of an International Economic Policy Board.

The following are the major trends in international trade:

a. World trade and exports, especially manufactured exports, are growing rapidly.

b. There is increasing economic interdependence among nations as their self-sufficiency declines.

c. From the U. S. viewpoint, there is increasing management sophistication, technological competence, and competitiveness in foreign trade.

d. There are more widespread and sophisticated attempts at economic nationalism by foreign governments.

e. There is the autonomous behavior of multi-national firms.

All of these trends, acting in concert, represent complex and shifting international economic forces. Mastery of these trends necessitates an affirmative and continuous international economic policy formulated by the U. S. Government and designed to advance its national interests. We submit that effective policy formulation calls for the establishment of a permanent International Economic Policy Board.

The formulation of international economic policy is of vital interest to the government, industry, labor, and the public. This concern is true even if international trade represents a smaller fraction of GNP (8%) than in any other industrialized nation.

The international economic policy must be consistent with domestic objectives and it should include the following domestic components:

a. Improve the balance of payments by increasing exports and developing import substitutes.

b. Provide increased employment opportunities for engineers, scientists and workers.

A high-level International Economic Policy Board with supporting staff should be established in the Federal Government to carry out the above coordinating functions.

4. Define and Advance Vital U. S. Interests.

A primary responsibility of the International Economic Policy Board is to define, establish, and advance the vital

U. S. interests in the world trade arena. This policy formulation would be developed in consultation with other government agencies and policy committees.

Unless the vital interests are defined, the U. S. could continue to expend its precious political leverage protecting industries which face a declining future. The Japanese government has advanced the industries with advancing technologies and promising futures; the U. S. can profit from this example and develop continuous rather than its present ad hoc policies.

This government policy board would integrate the recommendations from the existing agencies and private and public representatives. The size and complexity of the U. S. economy will not lend itself to an easy determination of vital interests but this is worthy of considerable effort and continued refinement to establish the parameters, some of which may be qualitative rather than quantitative.

Among the major issues of vital interests to be considered are the national security and its effect on industry, technology, and society; increased exports, particularly of innovative manufactured products; and import substitutes where the U. S. government policies can have future impact.

An example of the latter is the development of a national energy policy which may require government participation in

R&D to assure that the new technologies for efficient processing of domestic energy sources is developed at the appropriate time.

The International Economic Policy Board should be a force in the determination of the vital U. S. interests and the implementation of programs to protect these vital interests.

5. Foreign Trade and Investment Policies.

a. Export preferences.

A policy to give preference to exports should be established. This policy should be flexible and should be competitive with policies that are supported by the competing trading countries. This policy should include:

(1) The Domestic International Sales Corporation (DISC) proposal to defer taxes on increased exports is a positive step and generally approved.

(2) Make financial terms offered to export customers competitive; the Export-Import Bank terms and conditions have been and should continue to be liberalized to meet competitive credit offerings.

b. Neutrality on Foreign Direct Investment.

The U. S. government should not discourage foreign direct investment; however, the deferral of U. S. income taxes on earnings until they are remitted encourages foreign

investment at the expense of exports; consideration should be given to eliminating this tax deferral. This is a task force recommendation and is not favored by industry.

c. Relationships among exports, foreign direct investment and licensing should be studied further.

One finding of this study is that little is actually known about the actual effect of foreign licensing and the growth of the licensors' U. S. exports; or the foreign direct investment and the growth investors' U. S. exports. In numerous cases exports increased when the opposite might have been expected. As the choice of exports versus foreign investment or licensing are issues of public policy these phenomena should be analyzed to give a clear understanding as a basis for future policy formulation.

d. Negotiations on non-tariff barriers.

U. S. manufacturers consider that foreign non-tariff barriers are a major obstacle to the increase in exports. Increasing economic nationalism and discrimination is affecting continued market access of U. S. exports. GATT has prepared an exhaustive list of 800 NTBs. These non-tariff barriers are deeply ingrained in the government-industrial relationships. They can only be modified by sustained pressure on the foreign governments and the threat of the erection of symmetrical barriers by the U. S. The negotiations may be multi-lateral or bilateral (with Japan).

e. Creation of export consortia

To assist U. S. firms who are not presently active in exporting their products an enabling act should be passed to permit joint export marketing efforts by firms that might normally be competitors. This would in effect be an up-dating of the Webb-Pomerene Act.

To particularly encourage small and medium size firms and to inhibit monopolistic practices the export consortia concept should be limited to companies of a certain size or those having a defined share of its industry. These limits should vary dependent on the characteristics of the industry.

6. Support for Industrial Innovation.

a. Role of product innovation

The successful U. S. manufacturing exporters have usually achieved product leadership through innovation. Other U. S. products are competitive because they utilize products or processes which are dependent on innovative equipment. For example, innovative mining equipment permits the competitive export of U. S. coking coal to Europe and Japan.

The U. S. economy has thrived on innovation. The Europeans and Japanese are becoming more innovative. In industries where the technology is mature and widely diffused U. S. firms find it difficult, with their higher labor costs, to compete internationally. Thus successful innovation is fundamental to the U. S. international economic competitiveness.

A study of the relationships between product innovation, export sales, and foreign investment should be undertaken. This

study should encompass several industries with different cost structures and varying competitive characteristics. The purpose of this study would be to determine the conditions for the translation of creative innovation to success in international business.

b. Government role in the very advanced technologies.

The development of very advanced technologies has become so very expensive and so risky that not even the largest U. S. firms are in the position to carry forward some of these technologies by themselves. Examples are nuclear reactors, supersonic transport aircraft, oil shale recovery, turbine engines for aircraft.

In the past the government through its in-house agencies or its contractors has often performed basic research and advanced development. Private firms would then adapt these developments to commercial markets. Often these developments would be licensed by the U. S. manufacturers to foreign companies thus establishing competition. On other occasions U. S. firms would join with foreign companies to exploit these technologies.

Consideration should be given to a policy whereby the U. S. government would carry the technology through to the development stage. It would then freely license U. S. companies to manufacture the products in the U. S. No rights would be given for licensing foreign firms. In this way the U. S. government could control the diffusion of advanced technologies

and also obtain reimbursement for its R&D expenditures.

c. Collective research and development

Firms who are neither industrial giants nor dominant in their industry should be permitted to join in efforts to resolve common industry problems. As an example the Belgian and Japanese governments have encouraged companies to do collective R&D. In fact the Belgian government has gone one step further and shares the expenses in such collective R&D efforts. The proposed collective R&D efforts would supplement the technical efforts of existing industry associations.

d. Prototype assistance

Heavy prototype costs are very often the bar to successful innovation by small and medium-sized firms. These small or new firms are often long on innovation and short on financial resources. Consideration should be given to fiscal incentives or subsidies for feasibility models and production prototypes.

For small companies and new ventures the only meaningful participation would be cash infusions. Fiscal incentives could be granted to cash donors. In a select number of technologies which the appropriate government agencies deem in the national interest, direct subsidies could be given for prototype development which promises to make a fundamental improvement.

Again here the Belgian experience should be reviewed for they will underwrite up to 80% of the cost of manufacturing prototypes.

e. Tax credits for research and development

Supposedly more R&D should lead to greater technological innovation by industry. With this objective in mind, other task forces have considered proposals to give increased tax credits for R&D expenditures. Canada allows 150% credit for R&D expenses. The Industrial Research Institute polled the research directors of the larger firms and they indicated that unless the fiscal incentive was 25 to 33% it was unlikely that their existing programs would be enlarged.

Consideration should be given to fiscal incentives for increased R&D expenditures or for increased technological and scientific employment. In both cases the incentives would only apply to increases beyond an established threshold level.

7. International Transfer of Technology

a. The transfer motivations and mechanisms require further analysis.

The international transfer of technology, despite a great deal of discussion, is not well understood. The relationships of R&D, the international transfer of technology, and the corporate decision mechanisms for determining which transfer channel will be used remain to be explored. It is difficult to propose policies on this subject when the costs and benefits are not known either from a micro- or macro-viewpoint. More meaningful data must be collected. Detailed case studies are essential to understanding the operative conditions for the

present industrial bias to transfer technology to foreign subsidiaries.

b. Control over transfers are for the most part ineffective.

Monopolies on technology are few and even then transitory. With very few exceptions it is difficult to restrain the transfer of technology. Competitive pressures are such that technology can be obtained from several sources and the license has considerable bargaining power. Therefore, except for technologies related to national security or to other government controlled R&D projects it is not feasible to attempt to control the transfer of industrial technology.

c. Export incentives should be granted to discourage licensing.

The interviews and prior surveys established that the giant firms prefer to transfer technology to wholly owned subsidiaries; the medium and large firms transfer technology to wholly-owned or joint ventures with foreign companies; the small and medium companies are obliged to license unaffiliated foreigners

Export incentives should be developed which would provide profitable alternatives and discourage small and medium firms from transferring their technology by licensing. These incentives should relate to market research, market development, and export sales.

d. Permit territorial restrictions on licenses.

The Department of Justice has determined that the U.S. licensor of technology who limits the license to certain

geographical markets may be guilty of "dividing up the markets" and subject to anti-trust prosecution. The U.S. licensor should be permitted to restrict his licensee to certain markets without becoming guilty of anti-trust infringement.

e. Strengthen licensing negotiations with Japan.

Japan is still dependent on U. S. technology although its own technical competence is increasing. Japan remains the largest purchaser of U. S. technology. Licensing Japanese firms is a two stage negotiation, with the two companies arriving at an "agreement" and then the Ministry of International Trade and Industry (MITI) abusively renegotiating an agreement more favorable to the Japanese interests. This procedure pits the individual U. S. company against the Japanese government. The results have often been unfavorable to the U. S. interests. A common feature is the Japanese insistence on a manufacturing license coupled with the purchase of one example of the product. Strong consideration should be given to an overall U. S.-Japanese negotiation where the U. S. gains increased market access for manufactured exports in return for Japanese licenses of technology. This bilateral negotiation should be undertaken with a full understanding of what each country considers to be its vital interests.

8. Government Fiscal Policies

a. Phaseout OFDI

U. S. industry strongly suggests that the Office of Foreign Direct Investment, Department of Commerce, be phased

out. The net effect of the foreign investment controls has been to force the U. S. firms expanding overseas to borrow the additional funds required in the Eurobond market at higher interest rates. Through OFDI the outflow of the capital from the U. S. has been reduced. However, sophisticated European capital market syndicates have been developed to service U. S. industry.

b. Increased depreciation allowances.

Foreign governments permit larger depreciation allowances than are allowed under U. S. regulations. Consideration should be given to selective increases in depreciation allowances to U. S. industries who increase their exports.

c. IRS Section 482.

Industry requests that the rules relating to intercompany pricing and the allocation of profits be interpreted with common financial sense and not subjected to capricious rulings based on theoretical economics.

d. IRS Section 367.

Industry suggests that this section which relates to controlled foreign subsidiaries who are given rights under U.S. owned intangibles be interpreted so as not to result in disputes over the payments of large sums for taxes.

e. Provide export product loans.

A substantial segment of U. S. manufactured exports is capital equipment with a lengthy production cycle. As an assist to exports consideration should be given to low interest rate production loans for export sales.

f. Investment tax credit retention.

The investment tax credit (or job development credit) should be retained as a permanent feature so that industry can rationally plan its development. Stability is more important than the actual percentage.

9. Rectification of Unequal Transportation Rates

The several Shipping Conferences should be instructed by the U. S. government that it will not respect the shipping rates beyond a certain date until they have been made symmetrical for all directions and destinations. These inequities must be eliminated so as to make U. S. exports increasingly competitive. This is a short term objective.

APPENDIX A

C.I.T.T.

Task Force II.I

Check List For Company Interviews

Company Name:

Company Address:

Persons Interviewed: Title: Telephone:

Primary Products:

1) What is the relative importance of foreign markets to the company's total business?

	1965	1970	1975 Est.
a) Foreign market revenues			
export sales			
foreign licensing			
foreign subsidiary sales			
total foreign sales			
% of total rates			
b) Foreign profits			
% of total			

2) What are the intracompany decision-making procedures for determining foreign business policies?

a) Foreign business conducted

1) As a part of domestic divisional activities
2) As a separate international division
3) Other

b) What are the decision-making responsibilities for establishing priorities among domestic and foreign business ventures?

	Investment		
	<1/2	<2	>2
1) Board of directors			
2) Chief executive officer			
3) Group-operating executives			
4) Other			

3) What are the sources of funds for international businesses?

	1965	1970	1975 Est.
a) From a company-wide pool of retained earnings			
b) From divisional retained earnings - domestic			
- foreign			
c) From U.S. investment sources			
d) From foreign investment sources			

4) Apart from your basic profit objectives, what are the four primary motivations for establishing foreign business activities?

	Ranking		
	Product A Country	Product B Country	Product C Country
a) Concern for foreign market position			
b) Concern for market position			
c) Lower labor costs			
d) Concern for tariff and other trade barriers			
e) Inherent product characteristics (perishibility, natural resources)			
f) Lower manufacturing costs (other than labor costs)			
g) Host country incentives			
h) Improved servicing of market			
i) Early entry to preempt market			
j) R&D competence			
k) Stable labor and trade union relationship			
l) Other			

5) How is business leadership gained in your industry? Rank these factors in their importance:

a) Research
b) Applied technology (engineering)
c) Superior manufacturing processes
d) Skilled labor force
e) Product planning
f) Marketing
g) Servicing
h) Control of basic materials
i) Other

6) Role of product innovation to success in your industry:

a) Is your industry characterized by:

Stability of product designs
Frequent product redesigns
New materials
New competitors

b) What is the selling life of your products?

1 year 1-2 years 3-5 years 5-10 years 10 years

c) Role of patents to business success:

Fundamental importance
Marginal importance
No importance

7) Role of standardization in your world-wide product line:

a) What applicability do your U.S. products have to foreign markets?

	Present Products	Future Products
Exactly the same		
Minor modifications		
Major modifications		
Dissimiliar products		
Impact of European standards		

b) What is the importance of product standardization in your decision to:

Export
License
Produce in foreign countries

8) R&D Considerations:

a) How would you characterize the corporate R&D philosophy?

Pioneering Research and Development
Development only
Follower
Acquirer of technology - foreign
- domestic

b) What is the % of R&D to sales by product line?

0-1% 2-3% 3-5% 5%

c) What is the importance of R&D to business success?

Fundamental
Marginal
Minimal

d) How would you characterize corporate patent policy?

Aggressive activity, directed toward competitive leadership
Active, emphasis on selling licenses
Active, emphasis on cross licensing
Inactive
Foreign patent protection

e) Where is R&D conducted?

	U.S.	Europe	L.A.	Other
Basic research				
Advanced development				
Product development				

f) Is your foreign patent filing:

Comprehensive
Occasional
Inactive

9) Describe company policy toward the transfer of technology by licenses and technical assistance to unaffiliated foreign companies.

a) Licensing a profit center, aggressively marketed
b) Selective licensing, dependent on product and market
c) Opportunistic licensing
d) No licensing activity
e) No licensing policy

10) In determining your foreign activities rank the four most important factors in your decision to either:

(1) Manufacture (2) License Non-Affiliates

a) Market size
b) Existing competition
c) Demands on management
d) Manufacturing costs
e) Profitability
f) Return on investment
g) Resource limitations
   Capital
   Management
h) Cross-licensing
i) Market entry
j) Product life cycle
k) Other

11) Foreign business activities:

a) Rank the first four factors in order of their importance when you initially made your foreign investment decision.

	Europe	L.A.	Other
Countries			
Year			
1) Product perishibility or natural resource			
2) Lower manufacturing or processing costs			
3) Concern for tariff and other trade barriers			
4) Determination to retain competitive share			
5) Assurance of market entry			
6) Profit contribution in first three years			
7) Host country incentives			
8) Product source for U.S. market			
9) Long term profit repatriation			
10) Market size			
11) Political and fiscal stability			
12) Availability of indigenous management and professional cadre			
13) Juridical and language considerations			
14) Acquisition opportunity			
15) Servicing customers			
16) Other			

b) How would you rank the above factors for current or future foreign investment?

	Europe	L.A.	Other
Ranking			

12) What are the actual time horizons for foreign investment projects to achieve?

	Initial Profit	Recoupment o Investment
Marketing operations only		
Manufacturing assembly		
Manufacturing fabrication		
Integrated manufacturing		

13) In establishing new or expanding existing foreign operations, what will be the sequence of transfer of functions?

	Countries
Product lines	
Product characteristic	
Capital goods	
Consumer durable	
Consumable product	
Service	

	Sequence
Functional operation	
Raw material extraction or sourcing	
Fabrication (or refining)	
Sub-assembly (or blending)	
Final assembly	
Systems integration	
Marketing	
Post sales support and service	

14) What is the weighing of cost factors which lead you to establish foreign manufacturing activities?

a) Inherent lower product costs
   - Labor costs
   - Material costs
   - Transportation costs

b) Tariff and other trade barrier costs
c) Foreign government fiscal incentives
d) Economies of scale (market size)
e) Servicing costs

15) Manufacturing cost comparisons for comparable products: What are the cost differentials between the U.S. and selected foreign countries for:

a) Inherent manufacturing costs

Product line

		Europe	L.A.	Other
Country	U.S.			
Cost	100			
Volume	100			

b) To what degree are costs lowered in foreign operations attributable to rebates and in other incentives from host countries?

Product line
Country
Cost saving %

c) Product line landed costs in selected countries for U.S. exports:

		Europe	L.A.	Other
	U.S.			
Costs	100			
Volume	100			

d) To what degree are prices reduced in foreign operations attributable to rebates, favorable tax treatment or other incentives from host countries?

Product line
Country
Lower prices %

16) What is the largest permissible cost differential between landed exports and foreign production which would encourage you to maximize domestic manufacture and discourage foreign production?

Foreign investment
Product line
Product class
Capital good
Consumer durable
Consumable
Maximum %

17) What are the constructive actions a U.S. government committed to free trade can take to:

a) Encourage exports

Exchange rate policies
Export incentives
Removal of foreign and other barriers
Support of R&D
Investment tax credits
Other policies

b) Discourage imports

Exchange rates
Reciprocal policies to offset foreign incentives
Procurement policies
Suppcrt R&D for import substitutes
Investment tax credits
Other