

รายงานผลการวิจัย

RESEARCH REPORT SERIES

Number 31

Import Substitution and Export Expansion: An Analysis
of Industrialization Experience in Thailand.

by

Somsak Tambunlertchai



คณะเศรษฐศาสตร์
FACULTY OF ECONOMICS

มหาวิทยาลัยธรรมศาสตร์
กรุงเทพมหานคร

THAMMASAT UNIVERSITY
BANGKOK

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May 1981

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IMPORT SUBSTITUTION AND EXPORT EXPANSION:
AN ANALYSIS OF INDUSTRIALIZATION EXPERIENCE IN THAILAND *

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Somsak Tambunlertchai

* The study was undertaken as a part of a large research project on "Japan's Historical Development Experience and the Contemporary Developing Countries: Issues for Comparative Analysis" at the International Development Center of Japan (IDCJ). The paper was presented at a workshop at the IDCJ in Tokyo on June 5, 1980. The writer has benefited much from the discussion with Professor Kazushi Ohkawa and other staff member of the IDCJ. The expenses of the study were provided by the Japan Foundation through an institutional support project to the Faculty of Economics, Thammasat University. The writer gratefully acknowledge the financial support by the Japan Foundation.

Abstract

This paper investigates the pattern of trade and production in the process of import substitution and export expansion in Thailand, and the mechanism underlying the change. A Japanese-type product cycle model is used as the reference. The industrialization experience of Japan in the prewar period is also briefly sketched and compared with that of Thailand's.

The expansion of the industrial sector in Thailand has been rapid since 1960. The industrial growth accompanied by notable change in domestic production and foreign trade structure. In domestic production, a modern industrial sector has come into existence and a variety of new products have been introduced. In foreign trade, the share of consumer goods in total imports has been reduced while that of producer goods increased significantly; the structure of exports has also been diversified and manufactured exports started to increase their share in the 1970's.

To assess the extent of import substitution and export expansion in Thailand's industrial sector, import-supply and export production ratios of different manufactured products were calculated. The import-supply ratio in general show a declining trend for 1960-76. The overall export-production ratio of manufactured goods increased slightly from 1960 to 1972, but increased much from 1972 to 1976. Leading manufactured exports including a number of food

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products, textiles, and clothing contributed much to the increase in the overall export-production ratio.

The industrial development in Thailand in the past two decades has thus gone through the stage of import substitution in consumer goods and in a few producer goods, and started to export some industrial products. There are some important preconditions for the rapid industrial growth since 1960. These include a large size of domestic market for industrial products, rich endowment of agricultural raw materials, and availability of low-cost labor. The abundant factors of production have been used relatively heavily in small-scale production which comprised the majority of manufacturing establishments of the country. The official industrial investment promotional policy during the 1960's, however, emphasized more on the establishment of large scale plants producing products substituting for imports, and less on utilization of available resources. Thus, in modern industrial sector, import substitution of consumer durables was seen in the beginning but confined mostly to the assembly stage. The protection provided to import substitution industries tends to encourage the setting up of relatively luxurious consumer products and some intermediate products not well suited to the country's natural environments. The efficiency of these industries were low in general and they generated little linkage effect. Thailand has, however, been relatively successful in her drive for export

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promotion of industrial goods after the import substitution scheme experienced some difficulties. The emergence of manufactured exports in most cases are not a natural continuation of development of import substitution industries as experienced in Japan. Most of the products exported from Thailand are "new" products stemming from the processing of raw materials previously exported in raw form, or labor intensive goods previously consumed at a very small amount in the country but later on increased foreign demand stimulated the production for exporting. Only a few industries have been developed from import substitution to export industries.

The change in production and trade structure in Japan provides a successful example of structural adjustments. Export of agricultural based products, particularly raw silk, predominated in the beginning. These products were then replaced by labor-intensive light manufactures like textiles. Then heavy industries including chemicals, metal products and machinery took up as leading exports. For imports, light manufactures predominated in the beginning, the share was gradually declined which matched by the increased in capital goods and other heavy manufactures. Later on imports of raw materials become predominant. The rapid change in trade structure reflected the change in domestic production, which followed the path described by the "catching-up product cycle" from importation of industrial products to import substitution, and later on exportation of the Japanese-made products.

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A number of explanations have been made for the successful industrial development in Japan. Labor was abundant in the beginning stage of industrial development. Labor intensive light manufacturing industries therefore were among the first to be developed. The development of crude products was also proceeded that of more sophisticated items. Technological level for manufacturing was upraised while raw material resources and later on labor became scarce factors of production. But the expansion of consumer good industries have brought about linkage effects to stimulate capital and intermediate industries. Import substitution for a number of products was achieved through cost reduction made possible by scale economies and technological adaptation. The import substitution industries were then successfully transformed into export industries as competitiveness in international market was strengthened. The development of manufactured exports was thus a natural consequence of successful import substitution.

The paper concludes that while the pattern of development from import substitution to exporting looks similar for Thailand and Japan, there are vast difference in the factors underlying the structural change. In the case of Japan, the development has been more natural and based more on improved efficiency. But in Thailand import substitution has been influenced by policy measures. Foreign direct investment also played an important role in a number

of import substitution industries. The development of manufactured exports in the past decade, however, has been in line with the nation's comparative advantage. International environments faced by Thailand today are much different, and the technological gap between Thailand and advanced industrial countries is more formidable than in the case between Japan and western countries in the 19th century. It is not likely that Thailand would be able to follow the historical path of industrial growth of Japan.

บทคัดย่อ

บทความนี้กล่าวถึงการเปลี่ยนแปลงทางโครงสร้างของอุตสาหกรรมไทย และวิวัฒนาการของอุตสาหกรรมไทยจากการพัฒนาอุตสาหกรรม เพื่อทดแทนการนำเข้า จนถึงมีการส่งออกในสินค้าอุตสาหกรรม และได้เปรียบเทียบการพัฒนาอุตสาหกรรมของญี่ปุ่นกับของไทยโดยอาศัยแบบจำลองวงจรการผลิตสำหรับประเทศที่มาทีหลังในการพัฒนาอุตสาหกรรม (Catching-up product cycle) ในการอธิบายขั้นตอนต่าง ๆ ของการพัฒนาอุตสาหกรรมของทั้งสองประเทศ

ภาคอุตสาหกรรมในเศรษฐกิจไทยมีการขยายตัวในอัตราสูงในช่วงเวลา ๒๐ ปีที่ผ่านมา การขยายตัวทางอุตสาหกรรมได้ก่อให้เกิดการเปลี่ยนแปลงทั้งในโครงสร้างการผลิตภายในประเทศ และโครงสร้างของการค้าต่างประเทศของไทย สำหรับการผลิตภายในประเทศ ได้มีประเภทอุตสาหกรรมทันสมัยเกิดขึ้นใหม่เป็นจำนวนมาก สำหรับการค้าต่างประเทศ ทางด้านการนำเข้า สัดส่วนของสินค้าบริโภคนิยมได้ลดลงและสัดส่วนของสินค้าที่ใช้สำหรับการผลิตได้เพิ่มขึ้น ทางด้านการส่งออก ก็มีสินค้าออกมาชนิดขึ้น และสินค้าอุตสาหกรรมได้เพิ่มความสำคัญมากขึ้นตั้งแต่ทศวรรษที่ผ่านมา

การทดแทนการนำเข้าและการขยายตัวในสินค้าออกในภาคอุตสาหกรรม อาจเห็นได้จากการที่อัตราส่วนของการนำเข้าต่ออุปทาน (Import-supply ratio) ได้ลดลงมาเรื่อย ๆ และอัตราส่วนการส่งออกต่อการผลิต (Export-production ratio) ได้เพิ่มขึ้น โดยเฉพาะอย่างยิ่งในระหว่าง ค.ศ. ๑๙๗๒-๑๙๗๖ เราจึงอาจกล่าวได้ว่าการพัฒนาอุตสาหกรรมของไทยได้ผ่านขั้นตอนการทดแทนการนำเข้า และเริ่มมีการขยายตัวการส่งออก การขยายตัวและการเปลี่ยนแปลงทางโครงสร้างในภาคอุตสาหกรรมนี้เกิดขึ้นเนื่องจากปัจจัยหลาย ๆ อย่าง ซึ่งรวมถึงการเพิ่มขึ้นของอุปทานในสินค้าอุตสาหกรรมเมื่อรายได้เพิ่มขึ้น การมีแรงงานราคาถูกและวัตถุดิบทางการเกษตรจำนวนมากในประเทศ นอกจากนี้ นโยบายการคุ้มครองอุตสาหกรรมของรัฐก็นับว่ามีส่วนช่วยสนับสนุนให้เกิดอุตสาหกรรม

ใหม่ ๆ หลายประเภท อย่างไรก็ตามก็ดี อุตสาหกรรมทดแทนการนำเข้าจำนวนมากไม่ยอมมี ประสิทธิภาพต่ำ และต้องพึ่งสินค้าเข้าจากต่างประเทศโดยมิได้ก่อให้เกิดผลเชื่อมโยงทาง เศรษฐกิจมากนัก ในทศวรรษที่ผ่านมาจนถึงปัจจุบัน นโยบายการพัฒนาอุตสาหกรรมของไทย เริ่มหันมาสนใจ เรื่องการส่งเสริมการส่งออก และสินค้าออกทางด้านอุตสาหกรรมก็ได้ ขยายตัวอย่างรวดเร็ว อย่างไรก็ตามก็ดี การพัฒนาอุตสาหกรรมส่งออกของไทยมิได้เป็นไปอย่าง ต่อเนื่อง คือ จากอุตสาหกรรมทดแทนการนำเข้ากลายเป็นอุตสาหกรรมส่งออกอย่างเช่น ในกรณีของญี่ปุ่น สินค้าออกทางอุตสาหกรรมของไทยส่วนมากเป็นสินค้าประเภทอาหาร ซึ่ง แปรรูปมาจากผลิตภัณฑ์การเกษตร และสินค้าที่ต้องใช้แรงงานมาก สินค้าเหล่านี้แต่เดิมมีอุปสงค์ ในประเทศไม่มากนัก แต่การปรับปรุงทางเทคนิคการผลิต การเพิ่มขึ้นของอุปสงค์ในต่างประเทศ และความพยายามของผู้ผลิตในการระบายสินค้าออกสู่ตลาดต่างประเทศ ทำให้สินค้าเหล่านี้ สามารถส่งออกได้เพิ่มขึ้น

การเปลี่ยนแปลงของโครงสร้างอุตสาหกรรมของญี่ปุ่นตั้งแต่ศตวรรษที่ ๑๙

เป็นไปตามวงจรการผลิต คือ เริ่มจากการนำเข้าสินค้าอุตสาหกรรม และต่อมามีการทดแทน การนำเข้า และในที่สุดญี่ปุ่นก็สามารถส่งสินค้าอุตสาหกรรมไปจำหน่ายในตลาดต่างประเทศได้ การพัฒนาอุตสาหกรรมของญี่ปุ่นนับว่าเป็นแบบอย่างการปรับตัวทางโครงสร้างที่ดี คือในระยะ เริ่มแรก ได้มีการส่งออกในสินค้าเกษตร ต่อมาก็มีการพัฒนาอุตสาหกรรมเบาที่ต้องใช้แรงงาน มาก และเมื่อแรงงานเกิดการขาดแคลนก็ได้มีการพัฒนาอุตสาหกรรมหนัก เช่น เคมี ผลิตภัณฑ์ โลหะและเครื่องจักรกล และโครงสร้างของการผลิต สินค้าเข้าและสินค้าออก ก็ได้มีการ เปลี่ยนแปลงไปตามวงจรการผลิต

สิ่งที่อธิบายความสำเร็จของการพัฒนาอุตสาหกรรมของญี่ปุ่นที่สำคัญประการหนึ่ง คือ ความสามารถในการปรับตัวของอุตสาหกรรม เมื่อมีการเปลี่ยนแปลงในสภาวะปัจจัยการผลิต และเมื่อการผลิตขยายตัว ก็ก่อให้เกิดการประหยัดต้นทุน และมีการปรับปรุงเทคนิคการผลิต นอกจากนี้ การขยายตัวของอุตสาหกรรมสินค้าสำเร็จรูปก็ก่อให้เกิดผลเชื่อมโยง กระตุ้น

VIII

ให้มีการผลิตในสินค้าทุนและสินค้าขั้นกลางอื่น ๆ การทดแทนการนำเข้าของอุตสาหกรรมในญี่ปุ่น จึงเกิดขึ้นจากการลดต้นทุนการผลิต เมื่อเทียบกับสินค้าเข้า และการขยายตัวของการส่งออกก็เป็นผลของการปรับปรุง เทคนิคและการลดต้นทุนของอุตสาหกรรม ซึ่งทำให้สินค้าญี่ปุ่นมีราคาถูกกว่าและมีคุณภาพดีกว่าหรือทัดเทียมกับสินค้าประเภทเดียวกันในตลาดโลก

ฉะนั้น แม้ว่ารูปแบบการพัฒนาอุตสาหกรรมจากการนำสินค้าเข้าจนถึงกับการทดแทนการนำเข้า และมีการส่งออกในสินค้าอุตสาหกรรมในระยะต่อมา ดูจะคล้ายคลึงกันระหว่างไทยกับญี่ปุ่น แต่ปัจจัยที่ก่อให้เกิดการเปลี่ยนแปลงนั้นแตกต่างกัน ในกรณีของญี่ปุ่น การเปลี่ยนแปลงเป็นไปโดยการปรับปรุงประสิทธิภาพ แต่ในกรณีของไทย นโยบายการคุ้มครอง และการลงทุนจากต่างประเทศนับว่ามีส่วนในการก่อให้เกิดการทดแทนการนำเข้าเป็นอย่างมาก และประสิทธิภาพของอุตสาหกรรมทดแทนการนำเข้าส่วนใหญ่ก็ไม่ค่อยมีการปรับปรุง และไม่อาจแปรสภาพเป็นอุตสาหกรรมส่งออกได้ อย่างไรก็ตาม ในทศวรรษที่ผ่านมา ไทยได้มีการขยายตัวการส่งออกในสินค้าอุตสาหกรรมได้ ซึ่งส่วนมากเป็นสินค้าที่สอดคล้องกับความได้เปรียบเปรียบเทียบของไทย คือเป็นสินค้าที่มีการใช้แรงงานและทรัพยากรอย่างเข้มข้น

สภาพแวดล้อมของเศรษฐกิจระหว่างประเทศ สำหรับการพัฒนาอุตสาหกรรมในปัจจุบันแตกต่างกับในสมัยศตวรรษที่ ๑๙ เป็นอย่างมาก และช่วงห่างของเทคโนโลยีระหว่างประเทศที่พัฒนาแล้ว กับประเทศด้อยพัฒนาในปัจจุบันมีอยู่มากกว่าเมื่อเปรียบเทียบกับสมัยญี่ปุ่นเริ่มพัฒนาอุตสาหกรรม ฉะนั้น รูปแบบและวิธีการการพัฒนาอุตสาหกรรมของญี่ปุ่นจึงไม่น่าจะนำมาใช้กับกรณีของประเทศไทย ได้มากนัก

IX

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I. Introduction

The Thai economy has grown rapidly during the past two decades. The structure of domestic production and foreign trade of the country has also gone through rapid change. The 1960's was seen to be a decade of import substitution industrialization, and export of industrial goods expanded rapidly during the 1970's. The process of industrialization in Thailand has been accompanied by expanding foreign trade, and the country has become more and more dependent on the external sector.

This paper intends to investigate the growth and structural in Thailand's industrial sector, and to analyze the interaction between the external sector and domestic economic activities. The main focus of the paper will be on the pattern of trade and production in the process of import substitution and export expansion, and the mechanism underlying the change. A Japanese-type product-cycle model will be used as the reference to Thailand's industrial development. The industrialization experience of Japan in the prewar period will also be briefly investigated and compared with Thailand's experience in the final section of the paper.

The present paper will be organized as follows. In section II, a brief discussion will be made on certain preconditions for industrial growth in Thailand. Section III describes the change in trade and production structure of the country during the past two decades. In section IV, some analyses will be made on the process of import substitution and export expansion, and the transition from one sub-phase to another. Section V is devoted to the discussion of external finance and the role of direct foreign investment in the process of Thailand's industrial development. Finally in Section VI, comparisons will be made on the Japanese and Thai industrialization experience. The difference between the two types of development will be analyzed.

II. Initial Conditions of Industrial Growth

Industrialization has been a relatively recent phenomenon in Thailand. Before WW II, Thailand had developed a small manufacturing capacity. The dominant manufacturing industries were rice-milling, saw-milling, and other simple processing industries, plus cement, textiles, beverages, and a number of small scale activities.¹ Immediately after the war, there was acute shortage of manufactured goods of all kinds, both capital goods and consumer goods. The government showed some intention to promote industrialization

after the war. But the industrial development policy in the decade following the end of World War II was characterized by heavy involvement of government in manufacturing. A number of state enterprises were established. The products of these government enterprises included cement, paper, sugar, tobacco, gunny bag, forestry products and a variety of consumer goods. The government enterprises were relatively large in scale. Private manufacturing activities, on the other hand, were mostly small scale, and largely confined to rice-milling, saw-milling, wearing apparels, and house-hold handicrafts.

Because of poor management and wide-spread corruption in the state enterprises, the operations were generally inefficient. A World Bank mission whose main duty was to study and make recommendations to the Thai government on the public investment program in 1957 made a strong recommendation that the government should reduce its scope of industrial participation and alter its role to the provision of infrastructures to encourage private investment. Following a change in the power structure of the government in the late 1950's, there appeared a sharp change in the emphasis of policy toward

industrialization. The government began actively to promote private investment, reduce its involvement in manufacturing, and concentrate its effort on providing social overhead facilities. Particular emphasis has been placed on the development of power and transport. The production of electric power, construction of several multipurpose dams during the early 1960's. The massive building of roads and highways started in the late 1950's, and continued in the 1960's. Transport and communication were among the largest components in development expenditures in the early 1960's.

To promote private investment in industrial activities, an investment promotion law was enacted in 1959. The intention of the government to promote private investment through incentives and the policy of not creating new government enterprises in competition with private business was also mentioned in the First National Development Plan which started in 1961. The promulgation of the investment promotion law reflected the desire of the government to build up a modern manufacturing sector in the economy. The strong commitment made by the government to foster private investment and reduce direct involvement by the government in manufacturing also had a

positive effect in encouraging both domestic and foreign investment in manufacturing.

Thailand's economic growth has accelerated since 1960. In the 1960's, the annual average growth rate of GDP at constant prices was around 8 percent, as compared to about 5 percent in the 1950's. Average growth of the manufacturing sector was estimated at 6.7 percent for 1952-60, and accelerated to 10.9 percent for 1960-69. Population growth also accelerated from 2.1 percent in the 1950's to 3.2 percent in the 1960's

The year 1960 is thus seen by many people to be the starting point of industrialization in Thailand. It is worth noting that by that time agriculture still dominated the Thai economy. In 1960, agriculture contributed 40 percent to gross domestic product, employed over 80 percent of the country's total labor force, and accounted for nearly 90 percent of the total export earnings. The share of manufacturing in GDP, on the other hand, was estimated to be 11.7 percent. Labor force engaged in manufacturing was only 3.4 percent. Manufactured exports were also very small in value.

III. Changes in Production and Trade Structure during 1960's and 1970's

The expansion of the industrial sector has been rapid since the launching of industrialization program in 1960. Growth rates of the manufacturing sector exceeded 10 percent per annum throughout the past two decades. In the mid-1970's, manufacturing has emerged as the second largest sector in the economy, next only to agriculture, and occupied around 20 percent of the GDP share. (see Table 1). Manufacturing also appeared to be the economic sector which contributed most to the GDP growth since 1960, and accounted for about a quarter of the GDP growth during 1960-1978.

Table 1

Gross Domestic Product by Industrial Sector (at 1972 prices)

Industrial Sector	Value (billions of baht)					Percentage Share				
	1960	1965	1970	1975	1978	1960	1965	1970	1975	1978
Agricultural	28.6	36.2	48.3	62.1	69.6	40.51	36.34	32.20	30.42	27.09
Mining and Quarrying	0.9	1.7	2.6	2.5	4.1	1.23	1.71	1.70	1.22	1.58
Manufacturing	8.3	14.0	23.3	37.1	54.8	11.74	14.05	15.54	18.20	21.31
Construction	3.4	5.7	8.7	8.5	13.6	4.79	5.75	5.80	4.17	5.27
Electricity and water supply	0.2	0.5	1.6	3.2	4.5	0.30	0.55	1.09	1.56	1.76
Transportation and communication	4.7	6.3	9.2	12.4	16.2	6.68	6.29	6.13	6.10	6.30
Wholesale and retail trade	11.2	16.2	26.5	36.1	41.6	15.84	16.28	17.67	17.71	16.17
Banking	1.3	2.6	5.8	9.9	12.2	1.87	2.61	3.87	4.85	4.75
Ownership of Dwellings	2.1	2.4	3.0	3.6	4.0	2.98	2.44	2.00	1.74	1.56
Public Administration	3.2	4.3	4.5	8.4	10.9	4.56	4.32	4.31	4.10	4.25
Service	6.7	9.6	14.5	20.3	25.6	9.50	9.66	9.69	9.93	9.96
Gross Domestic Product	70.6	99.5	150.0	204.1	257.1	100.0	100.0	100.0	100.0	100.0

Source : National Economic and Social Development Board, National Income of Thailand, various issues.

The rapid industrial growth in Thailand was accompanied by notable change in the domestic production and foreign trade structure. In domestic production, a modern industrial sector has come into existence and a variety of new products have been introduced as a result of increase in private investment from both domestic and foreign sources. In foreign trade, the share of consumer good imports has been reduced while that of producer goods increased significantly. From Table 2.1 and 2.2, which show the distribution in of different industrial groups and growth rates, we see that a number of industries experienced rapid growth during the past two decades. Particularly high growth rates are seen in petroleum refining, paper products, rubber products, electrical and non-electrical machinery, metal products, and textiles. The share of food, beverage and tobacco gradually declined, although these three industrial groups still constituted over one-third of manufacturing value-added in 1978. It is worth noting that a number of heavy industries such as petroleum refining, basic metal, metal products, and paper products experienced high growth during the 1960's. The growth in domestic production in many industries

Table 2.1

Gross Domestic Product Originating from Manufacturing (at 1972 prices)

Industry	Value (million of baht)					Percentage Share				
	1960	1965	1970	1975	1978	1960	1965	1970	1975	1978
Food	2,872	3,674	4,798	6,810	11,011	34.6	25.7	20.6	18.3	20.1
Beverages	876	1,517	3,035	3,348	6,011	10.6	10.6	13.0	9.0	11.0
Tobacco & snuff	1,079	1,729	2,401	3,444	3,883	13.0	12.1	10.3	9.3	7.1
Textiles	431	1,522	2,157	5,058	6,840	5.2	10.6	9.2	13.6	12.5
Wearing apparel & made-up textile goods	664	786	1,093	2,680	4,392	8.0	5.5	4.7	7.2	8.0
Wood & cork	397	743	735	942	891	4.8	5.2	3.2	2.5	1.6
Furnitures & fixtures	98	200	308	268	418	1.2	1.4	1.3	0.7	0.8
Paper & paper products	17	51	171	341	635	0.2	0.4	0.7	0.9	1.2
Printing, publishing & allied industries	265	378	517	1,026	1,306	3.2	2.6	2.2	2.8	2.4
Leather & leather products except footwear	49	71	232	326	374	0.6	0.5	1.0	0.9	0.7
Rubber & rubber products	46	94	374	903	1,446	0.6	0.7	1.6	2.4	2.6
Chemical & chemical products	566	837	1,478	1,840	2,992	6.8	5.8	6.3	5.0	5.5
Petroleum refining & coal	1	645	1,412	2,782	3,068	(0.01)	4.5	6.1	7.5	5.6
Non-metallic mineral products	240	567	1,176	2,192	3,246	2.9	4.0	5.1	5.9	5.9
Basic metal	36	78	392	408	580	0.4	0.5	1.7	1.1	1.1
Metal products	32	95	439	519	524	0.4	0.7	1.9	1.4	1.0
Repairing of non-electrical machinery	48	192	534	621	1,001	0.6	1.3	2.3	1.7	1.8
Electrical machineries & supplies	50	117	318	468	841	0.6	0.8	1.4	1.3	1.5
Transport equipments	449	850	1,200	2,378	4,331	5.4	5.9	5.1	6.4	7.9
Miscellaneous n.e.c.	75	164	547	792	1,011	0.9	1.1	2.3	2.1	1.8
Total value added	8,290	14,310	23,320	37,146	54,801	100.0	100.0	100.0	100.0	100.0

Source : National Economic and Social Development Board, National Income of Thailand, various issues.*

Table 2.2

Growth Rates and Contribution to Growth in Manufacturing Value Added by Industry

	Growth Rate (%)					Contribution to Manufacturing Growth*				
	60-65	65-70	70-75	75-78	60-78	60-65	65-70	70-75	75-78	60-78
Food	5.0	5.5	7.3	17.4	7.8	13.3	12.5	14.6	23.8	17.5
Beverages	11.0	14.9	2.0	21.5	11.3	10.7	16.7	2.3	15.1	11.0
Tobacco and snuff	9.9	6.8	7.5	4.1	7.4	10.8	7.5	7.5	2.5	6.0
Textiles	28.7	7.2	18.6	10.6	16.6	18.1	7.0	21.0	10.1	13.8
Wearing apparel and made-up textiles goods	3.4	6.8	19.6	17.6	11.1	2.0	3.4	11.5	9.7	8.0
Wood and cork	13.4	-0.2	5.1	-1.8	4.6	5.7	-0.1	1.5	-0.3	1.1
Furnitures & fixtures	15.3	9.0	-2.7	16.0	8.4	1.7	1.2	-0.3	0.8	0.7
Paper & paper products	24.6	27.4	14.8	23.0	22.3	0.6	1.3	1.2	1.7	1.3
Printing, publishing & allied industries	7.4	6.5	14.7	8.4	9.3	1.9	1.5	3.7	1.6	2.2
Leather & leather products except footwear	7.7	26.7	7.0	4.7	12.0	0.4	1.8	0.7	0.3	0.7
Rubber & rubber products	15.4	31.8	19.3	17.0	21.1	0.8	3.1	3.8	3.1	3.0
Chemical & chemical products	8.1	12.0	4.5	17.6	9.7	4.5	7.1	2.6	6.5	5.2
Petroleum refining and coal	264.7	17.0	14.5	3.3	56.7	10.7	8.5	9.9	1.6	6.6
Non-metallic mineral products	18.8	15.8	13.2	14.0	15.6	5.4	6.8	7.3	6.0	6.5
Basic metal	16.7	38.1	0.8	12.4	16.7	0.7	3.5	0.1	1.0	1.2
Metal products	24.3	35.8	3.4	0.3	16.8	1.0	3.8	0.6	0.03	1.1
Repairing of non-electrical machinery	32.0	22.7	3.1	17.3	18.4	2.4	3.8	0.6	2.2	2.0

	Growth Rate (%)					Contribution to Manufacturing Growth				
	60-65	65-70	70-75	75-78	60-78	60-65	65-70	70-75	75-78	60-78
Electrical machineries and supplies	18.5	22.1	8.0	21.6	17.0	1.1	2.2	1.1	2.1	1.7
Transport equipments	13.6	7.1	14.7	22.1	13.4	6.7	3.9	8.5	11.1	8.3
Miscellaneous n.e.c.	16.9	21.2	7.7	8.5	15.5	1.5	4.3	1.8	1.2	2.0
Total value added	11.5	10.3	9.8	13.8	11.1	100.0	100.0	100.0	100.0	100.0

Source : Table 1

* Let Y_t designates GDP of end year, Y_o GDP of beginning year, V_{it} value added generated by the i th industrial sector in year T , and V_{io} value added by i th industrial sector in beginning year. The contribution of the i th sector to GDP growth for the period is calculated by $\frac{V_{it} - V_{io}}{Y_t - Y_o} \times 100$

including textiles, paper products, chemical products, basic metal, machinery, electrical appliances and transport equipment is in part the result of the government investment promotion program since 1960. Under these industrial groups, many firms were established during the 1960's, and numerous products were introduced. Among them are vehicle tires, passenger car and truck assembly, petroleum refining, tin smelting, and various kinds of household electrical appliances. Thus, in Thailand's industrial development, consumer durables and heavy industries developed along side with light consumer industries. This is partly due to the import substitution strategy in the early 1960's which emphasized the establishment of large scale production with modern techniques, and gave relatively high incentive to capital-intensive industries. However, industrial activities in Thailand until late 1970's were still dominated by consumer goods. The share of light consumer goods (including food, beverage and tobacco, and other consumer durable and non-durables) in total manufacturing value-added decreased from 82.6 percent in 1960 to 67.5 percent in 1965 and stayed at around 60 percent since then (Table 3)

Table 3

Percentage Share of Manufacturing Value Added by End-Use

Industrial Group	Percentage Share				
	1960	1965	1970	1975	1978
Processed Food	36.8	26.7	20.6	18.3	20.1
Beverage and Tobacco	23.9	22.4	23.3	18.3	18.0
Construction Materials	2.4	3.5	4.4	5.1	5.0
Intermediate Products I	5.3	12.2	14.9	16.8	14.3
Intermediate Products II	5.0	8.3	8.3	9.8	9.5
Consumer Non-Durables	19.8	15.9	17.8	21.6	21.2
Consumer Durables	2.1	2.5	3.1	2.6	3.2
Machinery	0.6	1.4	2.3	1.7	1.9
Transportation Equipment	4.2	7.0	4.7	5.8	7.0
Total	100.0	100.0	100.0	100.0	100.0

Source : National Economic and Social Development Board.

Turning to foreign trade, we see that the value of merchandise imports and exports increased tremendously during the past two decades, and the country has turned to be more dependent on foreign trade. The ratio of imports and exports to GDP has increased significantly since 1960. (Table 4). The structure of imports and exports has also changed much. From Table 5, which shows the percentage distribution of imports by economic uses, we see that the share of consumer goods in merchandise imports was considerably reduced over time. Within consumer goods imports, the share of consumer non-durable appeared to decline more rapidly from the beginning stage of import substitution. The share of consumer durables, on the other hand, stayed relatively constant during the 1960's, and started to decrease in the first half of the 1970's. (Intermediate products both chiefly for consumer and capital goods, show an increasing trend from the 1960's to the 1970's. As for capital goods, their share in total imports increased significantly during the 1960's, but showed a slightly decreasing trend since the early 1970's, which is consistent with the increase in intermediate products for capital goods production during the same period. Fuel and lubricant imports stayed at

Table 4

Ratio of Trade to GDP, 1960-1978

Year	Commodity Import /GDP	Commodity Export /GDP	Import of Goods and Services /GDP	Export of Goods and Services /GDP
1960	17.8	15.9	18.9	17.5
1961	17.4	16.9	18.5	18.8
1962	18.0	14.9	19.1	17.0
1963	18.8	14.3	19.9	16.4
1964	19.1	16.5	20.3	18.8
1965	18.3	15.4	19.6	18.3
1966	18.2	13.9	19.4	19.1
1967	20.5	13.1	22.0	19.7
1968	20.6	11.7	22.5	18.4
1969	19.9	11.3	21.4	17.0
1970	19.9	10.9	21.6	16.7
1971	18.6	12.0	20.7	17.5
1972	19.1	13.9	20.9	19.7
1973	19.5	14.9	21.3	19.6
1974	23.8	18.5	25.4	22.9
1975	22.6	15.2	24.0	19.3
1976	21.9	18.3	24.0	21.4
1977	25.4	19.2	27.2	21.8
1978	24.5	18.7	26.9	19.3

Source : Bank of Thailand Monthly Bulletin, various issues.

Table 5

Percentage Distribution of Imports by End Use

Type of Imports	Percentage Distribution (%)						
	1958-60	1961-63	1964-66	1967-69	1970-72	1973-75	1976-78
I. Consumer Goods							
A. Non-durable	28.09	24.35	18.79	14.70	11.38	8.28	7.06
B. Durable	8.16	7.29	7.79	8.23	6.00	4.84	5.07
Total consumer goods	36.25	31.65	26.58	22.93	17.38	13.15	12.13
II. Intermediate Products & Raw Materials							
A. Chiefly for consumer goods	10.88	11.72	13.47	13.78	17.73	17.45	16.50
B. Chiefly for capital goods	7.17	6.07	7.15	7.99	10.16	10.34	11.31
Total intermediate product & raw materials	18.05	17.78	20.62	21.71	27.89	27.79	27.81
III. Capital Goods							
A. Machinery	13.60	15.77	17.20	21.39	21.65	21.02	18.42
B. Others	10.76	12.96	13.34	13.28	11.16	10.69	8.80
Total capital goods	24.36	28.48	30.54	34.67	32.81	31.71	27.22
IV. Others							
A. Vehicle & Parts	7.55	8.98	9.85	10.59	7.80	7.03	7.49
B. Fuel and lubricants	10.70	9.99	9.72	7.49	9.64	18.18	21.90
C. Others	3.01	3.12	2.69	2.60	4.47	2.16	3.45
Total of others	21.35	22.09	22.26	20.69	21.90	27.35	32.84
Grand Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source : Bank of Thailand Monthly Bulletin, various issues.

around 10 percent of total imports until 1972, and its share increased significantly after that due to increase in oil prices.

The change in the import structure described above reflects the development of import - substitution industrialization in Thailand. When domestic manufacturing capacity was set up as the country manufactured own industrial goods, the rate of increase of imports in these manufactures slowed down. But since the economy had not yet developed the capacity to manufacture producer goods, importation of producer goods was necessary for the increased production of import substituting commodities. Thus as the domestic capacity for producing imported consumer items increased, the share of these import-competing goods in total imports would gradually decline, while the share of producer good imports would increase through time. This is the import substitution in a foreign allocation sense, i.e., the available foreign exchange was allocated increasingly to the importation of producer goods (including capital goods, intermediate products and raw materials) for domestic production of certain consumer goods. As in other developing countries the replacement of import for non-durable consumer goods

seems to be relatively easier than other types of product in Thailand, and the share of non-durable consumer imports appeared to decline more rapidly immediately after the launching of import substitution program. For consumer durables, although certain assembly type industries in this category were set up since the very beginning of the investment promotion program in the early 1960's, the proportion of imports did not decline until early 1970's, indicating the relative difficulty and hence the lag of development of consumer durables as compared to consumer nondurable items in general. The lag of development was also seen in capital goods industries, of which the absolute amount of imports increased significantly and the percentage share in total imports portrayed only a slightly decreasing trend in the 1970's, as shown in Table 5.

It should be noted that despite the rapid increase in domestic production in the manufacturing sector, Thailand's merchandise imports are still dominated by industrial products. If we classify imports by major SITC groups, mineral fuels and lubricants, chemicals, machinery, and other manufactured goods still occupied nearly 90 percent of total merchandise export value (see

Table 6). We may thus say that Thailand's industrial development has been highly dependent on imported manufactured goods.

The export structure in Thailand has also changed much during the course of industrialization. In late 1950's, export of primary products contributed to over 90 percent of the country's total merchandise export value. Four major export commodities of the country were rice, rubber, tin and teak. Since then, there have been a structural change in the country's exports, when other types of primary products, particularly maize, cassava, jute and kenaf has increased their share in total export value. There are also increased items of mineral, forestry and fishery products. Manufactured products have also started to make some ground in the export market. It is during the 1970's that manufactured exports expanded rapidly. Different definitions of manufactured exports give different export share and growth rates. According to the classification made by the Bank of Thailand, which shows in Table 7, exports of manufactured goods rose from a share of 4 percent in total exports during the 1960's to over 20 percent in the 1970's. Exports of primary products which traditionally form a major bulk of total

Table 6

Import by SITC Commodity Groups*

SITC	Import Value (million of baht)					Percentage Distribution				
	1960	1965	1970	1975	1978	1960	1965	1970	1975	1978
0. Food	784	878	1,091	1,952	2,846	8.20	5.74	4.05	2.92	2.63
1. Beverage	108	192	303	753	1,013	1.13	1.25	1.12	1.12	0.93
2. Crude materials	143	477	1,400	3,977	7,316	1.50	3.11	5.20	5.95	6.77
3. Mineral fuels & lubricant	1,025	1,353	2,329	14,233	22,851	10.72	8.84	8.65	21.29	21.14
4. Animal & vegetable oils & fats	20	33	35	105	272	0.21	0.21	0.13	0.16	0.25
5. Chemicals	974	1,659	3,505	9,122	14,979	10.18	10.84	13.02	13.65	13.86
6. Manufactured goods	3,289	4,829	6,458	10,560	18,479	34.40	31.56	24.00	15.80	17.10
7. Machinery	2,390	4,706	9,536	23,125	33,636	24.99	30.76	35.45	34.60	31.12
8. Miscellaneous manufactured goods	522	820	1,350	2,145	4,843	5.46	5.36	5.02	3.21	4.48
9. Miscellaneous transport & commodities	306	350	894	860	1,830	3.20	2.28	3.32	1.28	1.69
Total	9,561	15,297	26,901	66,835	108,065	100.00	100.00	100.00	100.00	100.00

* Excluding Gold Imports.

Source : Bank of Thailand Monthly Bulletin, various issues.

Table 7

Percentage Distribution of Exports by Different Industrial Sectors

Industrial Sector	Percentage Distribution (%)			
	1963	1968	1973	1978
Agricultural	80.0	71.3	53.4	47.2
Fishery	0.8	2.3	4.9	5.0
Forestry	2.4	1.6	2.1	0.4
Minery	8.0	13.6	8.6	10.5
Manufacturing	4.3	4.0	20.7	22.7
Others	4.5	7.2	10.3	14.2
Total	100.0	100.0	100.0	100.0

Source : Chaiwat Wibulswat and Somkid Saengpet "Export Structure of Thailand: 1959-1978" International Economics Division, Economic Research Department, Bank of Thailand, September 1979, Table 7.

export value, on the other hand, declined significantly from 80 percent of total exports in 1963 to 47.2 percent of that in 1978.

Local raw material based products constitute the largest share of Thailand's manufactured exports. Table 8 shows the export value along with share in total and growth rates of manufactured goods for 1972-1976. In broad industrial group, processed food occupied the most significant share in manufactured exports. In fact, a large proportion of export in each broad industrial group was attributable to only a few product groups. Such as sugar and food products in processed food, textiles in intermediate product II,, and clothings in consumer nondurables. In terms of growth rate, in broad industrial groups, consumer durables and machinery show the highest growth. This is mostly attributable to electrical machinery. The high growth of exports in electrical machinery during 1972-76 was due to the rapid increase in export of electrical components. Since 1972, a few large foreign firms have come to invest in Thailand utilizing cheap labor available in the country to assemble electrical components exclusively for exporting. The share of electrical good exports thus increased from a

Table 8

The Structure and Growth of Thai Manufactured Exports: 1972 and 1976

Industry	1972		1976		Annual Growth Rate 1972 - 1976
	Exports	Percent to total	Exports	Percent to total	
I. <u>Processed Food</u>	2,691.6	37.22	12,642.3	57.69	47.22
1. Neat and meat product	1.0	0.01	77.0	0.35	196.23
2. Sugar and confectionary	1,355.0	18.74	6,854.9	31.43	49.97
3. Dairy product	0.6	0.01	23.4	0.11	149.90
4. Cereal product	358.0	4.95	941.0	4.31	27.33
5. Food product	977.0	13.51	4,746.0	21.76	48.46
II. <u>Beverage and Tobacco</u>	290.0	4.00	6.8	0.03	-60.87
6. Beverage	4.0	0.05	6.8	0.03	14.19
7. Tobacco	286.0	3.95	-	-	-
III. 8. <u>Construction Material</u>	234.0	3.24	488.5	2.24	20.20
IV. <u>Intermediate Products I</u>	673.0	9.31	1,363.2	6.25	19.30
9. Lumber and plywood	208.0	2.88	897.5	4.11	44.13
10. Leathers	68.0	0.94	125.9	0.58	16.65
11. Fuel and Petroleum	284.0	3.43	118.5	0.54	-16.86

Industry	1972		1976		Annual Growth Rate 1972 - 1976
	Exports	Percent to total	Exports	Percent to total	
12. Glass and glass product	24.0	0.33	52.0	0.24	21.32
13. Chemical product	32.0	0.44	36.8	0.17	3.56
14. Iron and steel	93.0	1.29	132.5	0.61	9.25
V. <u>Intermediate Products II</u>	2,585.0	35.73	4,146.1	19.01	12.54
15. Textile	649.0	8.97	3,109.7	14.26	47.95
16. Paper and paper product	35.0	0.48	71.6	0.33	19.59
17. Rubber and rubber product	27.0	0.37	87.2	0.40	32.29
18. Metal product	1,729.0	23.91	403.8	1.85	-30.48
19. Chemical product	24.0	0.33	72.8	0.33	31.97
20. Wood product	121.0	1.67	401.0	1.84	34.92
VI. <u>Consumer non-durable</u>	733.9	10.15	2,109.0	9.67	30.20
21. Clothing	255.0	3.53	1,646.4	7.55	59.40
22. Textile articles	21.0	0.29	65.5	0.30	32.89
23. Shoes	0.3	0.00	7.7	0.04	125.08
24. Printing and publishing	2.6	0.04	2.1	0.01	-5.20
25. Pharmaceuticals	33.0	0.46	112.5	0.52	35.88
26. Miscellaneous	422.0	5.83	274.8	1.26	-10.17

Industry	1972		1976		Annual Growth Rate 1972 - 1976
	Exports	Percent to total	Exports	Percent to total	
VII. Consumer durable and machinery	25.0	0.35	1,055.6	4.84	154.91
27. Furniture	3.0	0.04	72.1	0.33	121.41
28. Consumer electrical goods	8.0	0.11	43.3	0.20	52.53
29. Machinery agricultural & non-electrical	2.0	0.03	5.8	0.03	30.50
30. Electrical machinery	7.0	0.10	918.8	4.21	238.48
31. Transport equipment (Motor vehicle)	5.0	0.07	15.6	0.07	32.90
Total	7,232.5	100.00	21,811.5	100.00	31.78

Source : Department of Customs.

negligible amount of 7 million baht in 1972 to over 900 million baht in 1976. Processed food is the next major group with high growth, with sugar and food products contributed to most part of the growth, while meat products and dairy products showed very high growth starting from a very small base. As seen in Table 8, besides sugar, food products, textiles, and clothings, other product groups are all with less than 5 percent share in total manufactured exports. Yet a number of these products portray very high growth rates during the 4 year period. An examination of a more detailed list of products exported reveals that there have been quite a number of manufactures which started to export at a very small amount, and some of them have shown good potential for further growth.

IV. From Import Substitution to Export Expansion

Table 9 and 10 shows the import-supply and export-production ratios of different industrial groups for certain benchmark years. The import-supply ratios are calculated to assess the extent of import substitution in a domestic market sense, i.e., the replacement of domestically produced industrial goods for imported items. A decline in the import-supply ratio of an industrial

Table 9

Import Supply Ratio in Thai Manufacturing Industries (%)

Industry	1960	1966	1972	1976
I. <u>Processed Food</u>	5.72	9.36	3.89	1.34
1. Meat products	0.96	0.72	0.12	0.01
2. Sugar and Confectionary	1.61	1.10	0.37	0.08
3. Dairy products	80.49	69.33	38.52	0.01
4. Cereal products	1.21	0.39	3.04	2.07
5. Food products	5.80	32.78	0.79	7.36
II. <u>Beverage and Tobacco</u>	0.72	11.83	0.37	0.69
6. Beverage	1.57	21.23	0.79	1.17
7. Tobacco	0.17	2.46	0.06	0.24
III. 8. <u>Construction Materials</u>	9.70	16.74	2.60	6.01
IV. <u>Intermediate Products I</u>	65.93	40.91	42.10	38.40
9. Lumber and plywood	0.45	1.18	19.44	2.23
10. Leathers	7.57	12.32	1.78	1.51
11. Fuel and petroleum	99.48	27.50	17.57	28.69

Industry	1960	1966	1972	1976
12. Glass and glass products	62.44	67.17	47.06	20.08
13. Chemical materials	*	*	92.44	63.44
14. Iron and steel	72.22	78.24	60.59	91.94
V. <u>Intermediate Products II</u>	60.34	63.29	32.87	29.55
15. Textiles	56.75	42.19	21.88	12.79
16. Paper products	63.67	65.56	48.93	53.32
17. Rubber products	53.91	33.17	8.92	13.43
18. Metal products	80.98	89.52	53.19	33.86
19. Chemical products	78.09	91.11	43.87	21.69
20. Wood products	5.81	37.21	*	*
VI. <u>Consumer Non-durables</u>				
21. Clothing	5.23	5.98	23.63	4.85
22. Textile articles	0.89	21.12	0.54	3.51
23. Shoes	15.14	14.72	9.43	33.33
24. Printing and publishing	*	*	*	*
25. Pharmaceuticals	32.43	28.36	8.08	14.78
26. Miscellaneous manufacturing	63.83	78.86	50.51	53.00

Industry	1960	1966	1972	1976
VII. <u>Consumer Durable</u>				
27. Furniture	5.98	11.38	2.29	1.07
28. Consumer electrical goods	92.11	87.89	35.95	93.23
29. Machinery, agricultural and non-electrical	91.57	84.46	48.25	29.46
30. Electrical machinery	76.44	71.32	67.17	46.61
31. Transport equipment	59.87	66.56	42.73	14.97
Total	29.94	34.60	23.15	10.15

* Production data not reliable

Source : Department of Customs and National Economic and Social Development Board.

Table 10

Export Production Ratio in Thai Manufacturing Industries

Industry	1960	1966	1972	1976
I. <u>Processed Food</u>	14.25	12.85	12.64	14.44
1. Meat products	7.93	4.70	0.03	0.19
2. Sugar and confectionary	5.76	10.64	83.69	41.63
3. Dairy products	-	0.42	0.06	0.93
4. Cereal products	18.80	14.16	6.88	6.14
5. Food products	5.81	16.90	9.51	44.70
II. <u>Beverage and Tobacco</u>	0.18	0.14	3.67	0.05
6. Beverage	0.07	0.26	0.12	0.10
7. Tobacco	0.25	0.44	6.16	0.12
III. 8. <u>Construction Materials</u>	2.69	1.28	6.89	10.54
IV. <u>Intermediate Products I</u>	6.90	8.21	7.80	6.74
9. Lumber and plywood	21.75	15.81	13.83	16.59
10. Leathers	2.46	15.48	13.65	12.77

Industry	1960	1966	1972	1976
11. Fuel and petroleum	0.02	2.27	5.31	1.05
12. Glass and glass products	15.82	3.11	6.20	6.13
13. Chemical materials	*	*	13.97	3.13
14. Iron and steel	0.37	14.38	6.97	16.64
V. <u>Intermediate Products II</u>	3.52	8.76	8.72	16.71
15. Textiles	4.05	7.60	11.73	24.07
16. Paper products	0.09	0.08	6.65	5.02
17. Rubber products	0.33	0.26	1.59	3.22
18. Metal products	11.52	11.27	9.33	9.53
19. Chemical products	5.63	6.67	2.14	2.29
20. Wood products	5.30	4.47	*	*
VI. <u>Consumer Non-durable</u>	2.09	4.54	4.46	7.16
21. Clothing	0.47	1.13	8.65	9.21
22. Textile articles	0.10	14/67	0.28	5.80
23. Shoes	0.07	0.04	0.31	38.50
24. Printing and publishing	-	-	-	-

Industry	1960	1966	1972	1976
25. Pharmaceuticals	0.33	0.42	1.56	2.27
26. Miscellaneous manufacturing	1.98	2.76	19.92	14.33
VIII. <u>Consumer Durable and Machinery</u>	0.25	0.60	0.33	4.80
27. Furniture	0.99	0.13	0.60	5.56
28. Consumer electronic goods	1.15	0.61	0.77	2.61
29. Machinery, agricultural and non-electrical	0.07	0.29	0.11	0.14
30. Electrical machinery	-	0.16	1.10	60.19
31. Transport equipment	0.07	0.13	0.14	0.10
Total	8.71	8.48	9.50	18.36

* Production data not reliable

Source : Department of Customs and National Economic and Social Development Board.

group implied an increase in the degree of import substitution for that industry. The export-production ratio, on the other hand, serves as an indicator of the degree of export orientation. The import-supply ratio in Table 9 in general show a declining trend for 1960-76. The overall import-supply ratio for manufactured goods decreased from 29.9 percent in 1960 to 10.2 percent in 1976. In broad industrial groups, except Intermediate Product I, all other industrial groups show an increasing import-supply ratios from 1960 to 1966, although the increases are mostly slight. Food, beverage and tobacco, consumer nondurables, consumer durables and machinery all show marked decrease in the import-supply ratio after 1966, while the ratio of the two groups of intermediate products also declined steadily. At a more detailed industrial classification, a number of product groups show marked decrease in their import supply-ratios over-time, notably dairy products, textiles, machinery and transport equipment. On the other hand, some product groups increased their import dependence from 1960 to 1978, and some were with import-supply ratios decreased from 1960 to 1972 but increased again for 1972-76. The reasons for the increase in import dependence in these

industrial groups varied, which include reduction in domestic production, increase of imported inputs to meet higher quality requirements for the export market, and increase in production for export which required more imported materials. On the other hand, the decrease in import-supply ratio may be due either to decrease in imports or increase in domestic production. The decrease in import-supply ratio in a number of industrial groups, particularly during the 1972-76 period, was due to increased production for export while the amount of imports did not decrease much.

The assessment of degree of import substitution based on the data of selected year should be made with care since irregular import or production figures in a single year will influence the conclusion. Unfortunately, production data are very hard to compile and we only present here data for selected years. With all the questions about the accuracy and representativeness of the data, however, it seems clear that import substitution has been achieved in a number of industries and the trend of decrease in import supply ratios seems to be continued in the 1970's.

Turning to the export production ratio, we see that the overall export-production ratio of the manufacturing sector increased slightly from 1960 to 1972 but increased much during 1972-76. In broad industrial groups, intermediate product II, consumer nondurables, consumer durables and machinery all show significant increased in their export-production ratio. Obviously, leading manufactured exports including a number of food products, textiles and clothing contributed much to the increase in the overall export-production ratio.

From the data presented thus far, it is evident that Thailand's industrial sector has gone through the process of import substitution and started to emerge the stage of export expansion. But what are the factors enabling these changes in industrial structure? A model neatly prescribes the pattern of industrial developments in Japan and also give much in sight to the international adjustments in industry has been developed several decades ago by Kaname Akamatsu. It is nowadays known as "the catching-up product cycle" model.² This model distinguishes various stages of industrial development in late comer or "catching up" countries. In the first stage, manufactured consumer goods are imported from

industrialized countries by the foreign exchange earned from traditional export items. Next, domestic production of previously imported consumer products comes into existence, entailing the import of producer goods for use in the consumer goods industries. The existence of domestic market for the products and availability of certain inputs assure the feasibility of the domestic production. Government protective policy in addition encourages the process of import substitution. The expansion of consumer good industries lead to economics of scale. Together with attempts made on technological adaptation serve to reduce the unit cost of the products, and as domestic cost reach the international competitive level, the import substitution industries will become export industries. At the same time, some capacity will be developed for the production of producer goods as the level of technological sophistication of the economy increases, and imports of producer goods will be reduced as a result. But at later stages, when the country starts to loose its comparative advantage in certain consumer goods industries, and other countries emerge as "catching-up" producers, exports of these consumer goods will decline and the country will eventually import these consumer goods from the late comers, while itself moves up to

specialize in producer goods exports.

The successful development of the product cycle from importation of the products, then import substitution, and exporting of the products as a later stage depends on a number of factors, and not all industries necessarily develop in that sequence. Among the crucial factors for the setting up of domestic production to replace imports are the existence of sufficient demand in the domestic market for economical production, the acquisition of technological know-how to manufacture the products, and the existence of certain factors of production in the local market, including entrepreneurs willing to venture in the domestic industries. The development of industrial exports is usually more difficult and thus perceived as the next stage of industrial development following successful import substitution and cost reduction.

In the case of Thailand, we have seen that primary import substitution for a number of consumer good industries started during the 1960's, and second stage import substitution of a few consumer durable, intermediate and capital goods industries started to be realized during the 1970's. At the same time, a number of industrial products have launched into the international market after a decade

of import-substitution industrialization. There are some important preconditions for the rapid industrial growth in Thailand since 1960. First, there existed a market large enough for the establishment of many consumer goods industries. The population in Thailand were estimated to be 26.4 millions in 1960. Although per capita income was still at a very low level of round 2,000 Baht (US \$ 100), the consumption of numerous products was large enough to warrant local production. In the 1960's, the annual average growth rate of GDP at constant prices was around 8%. Population growth was also at a high rate of 3% in the 1960's. But with the growth rate of national income considerably higher than that of the population, real per capital income was significantly raised. As income increased, the consumption expenditure of a number of household consumption items increased substantially. The domestic market for manufactured products has thus been steadily expanding. This has undoubtedly provided a strong inducement to investment in the manufacturing sector. A study of sources of industrial growth in Thailand during 1960-1972 using Chenery-type decomposition approach found that the increase in domestic demand, rather than import substitution or export expansion, was the most important source of growth of the manufacturing sector throughout the period, and contributed to over three-fourth of the total growth in the manufacturing sector. The finding by

major industrial group are shown in Table 11. With all the limitation on the assesment of sources of industrial growth for the decomposition techniques, we may still say that the industrial growth during the period was significantly attributable to the increase in domestic demand for industrial goods.

Besides the increase in demand for industrial goods, input situations in Thailand have also been favorable for the development of numerous industrial activities. Thailand is richly endowed with agricultural resources. Important as agricultural products and exports are rice, rubber, maize, cassava and several kinds of fiber including cotton, kenaf, jute and kapk. The most important mineral available in Thailand is tin, which has been a leading export commodity of the country. Also in abundant supply are gypsum, limestone, fluorite and various other non-metallic mineral resources. Metallic minerals in general, on the other hand, are in short supply.

Another important input for industry is labor. Thailand's wage level has been low as compared to other countries in Asia. Labor cost was particularly low during the 1960's due to abundant supply of unskilled workers and the government's intention to maintain industrial wage at

Table 11

Source of Growth of Domestic Production, by Industry Groups, 1960-66, 1966-72, 1960-72
(Percentage contribution to the increase, in million of baht)

	1960-66				1966-72				1960-72			
	ΔX	DE	EXE	IMSE	ΔX	DE	EXE	IMSE	ΔX	DE	EXE	IMSE
Processed food	8,544.8	68.5	42.1	-10.6	4,602.8	107.3	-7.8	0.54	13,147.5	84.5	24.7	9.2
Beverages and tobacco	2,159.4	125.8	0.1	-25.9	3,441.9	73.6	-0.1	26.4	5,601.3	99.6	0	0.6
Construction materials	987.5	112.0	0.6	-12.6	1,955.8	69.5	10.9	19.6	2,943.3	87.6	7.5	4.9
Intermediate products I	5,088.1	33.3	27.6	39.1	5,198.6	65.8	10.5	23.7	10,286.7	35.4	19.0	45.6
Intermediate products II	1,604.3	93.4	10.3	-8.7	4,408.3	33.6	15.9	50.6	6,012.6	52.2	14.4	33.4
Consumer durables	239.6	81.9	4.1	14.0	347.7	31.7	1.6	66.7	587.3	50.9	2.6	46.5
Consumer nondurables	1,756.2	124.4	8.2	-32.6	5,745.8	51.8	12.6	35.6	7,502.0	74.1	11.6	14.3
Machinery	429.8	68.1	0.2	31.7	991.8	48.3	2.7	49.0	1,421.7	46.5	2.0	51.5
Transport equipment	848.4	151.4	0.5	-51.9	2,061.2	24.7	0.1	75.2	2,909.6	66.8	0.1	33.1
Total manufacturing	21,657.9	88.9	24.7	-13.6	28,753.8	64.1	6.5	29.4	50,412.0	77.9	14.3	7.8
Total mfg. excl. food, beverages and tobacco	10,953.8	80.0	15.8	4.2	20,709.1	47.2	10.7	42.1	31,662.9	57.6	12.5	29.9

ΔX = increase in domestic production
DE = domestic demand effect
EXE = export expansion effect
IMSE = import substitution effect

Source : Narongchai Akrasanee : "Import Substitution, Export Expansion, and Sources of Industrial Growth in Thailand, 1960-1972" in Prateep Sondysuvan, (ed) Finance, Trade, and Development in Thailand, Bangkok, Sompong Press, 1975, pp 265-274.

a very low level. Until 1973, minimum wage rate was kept at 12 baht (US \$ 0.6) a day. Wage rates has risen substantially after that due to increase in demand for workers and rapid increase in the cost of living after the oil crisis.

The abundant factors of production have been used relatively heavily in small scale production which comprised the majority of manufacturing establishments in the country. The industrial promotion policy measures by the Thai government in the 1960's, on the other hand, emphasized more on the establishment of large scale modern plants producing products substituting for imports, and less of the utilization of domestic resources. It is undeniable that import substitution in Thailand during the 1960's and up to the present time has been influenced by the protective tariff structure and the official promotional program, which provide much incentive to domestic industries. These policy measures will be briefly described in the following.

Tariff structure in Thailand until late 1950's was mainly designed for the purpose of revenue. Since 1960, the protection of domestic industry has become an important objective of tariff policy. Tariff rates in Thailand have been changed several times since 1960. The general trend

for tariff changes is that tariffs on consumers goods, particularly those deemed luxuries, and those on intermediate goods produced domestically were raised, while tariff on other intermediate and capital goods have been reduced. The tariff structure thus gives the domestic producers of finished goods a high effective protection.

The first major revision in tariff rates since 1960 was the one made in 1964. The tariff rates were mostly adjusted upward and the results was to make practically all rates multiples of 5 percent, and with an escalated protective tariff structure favoring the

production of import substitutes at higher level of fabrication. Since then there have been revisions in the tariff schedule almost every year, with substantial revisions made in 1970, 1974 and 1978. Although the major changes in tariff rates sometimes were made in response to balance of payments deficits, such as the ones in 1970 and 1978, the protective effects to domestic industries have been substantial. Several studies on effective protection reveal that the tariff structure of Thailand since mid-1960's was biased in favor of import competing industries and against exporting industries. It also tends to encourage the substitution of imports of final products and certain intermediate industries, and also encourage import of capital goods and intermediate products. The structure of tariff protection in favor of import substitution has not been altered during the period of active export promotion, although various incentive schemes devised to promote manufactured exports have some effects on correcting the bias of the protective structure against exporting.

In addition to tariff protection, import control has also been used. But the extent of import control has been modest. There exist a list of goods under import control compiled by the Ministry of Commerce. To import the items under control, permission must be obtained. Permission is usually very difficult, if not impossible to obtain. Sometimes the importation of certain products was totally banned, either for protection of domestic

industries, for reducing balance of payment deficits, or for other purposes. The import control will usually be lifted once the underlying situations improve.

An important instrument used for promoting modern manufacturing industries in Thailand is the investment promotion legislation. The official investment promotion started around 1960. A Board of Investment was established in 1959 to administer the official investment program under the investment promotion law. The investment law gives various incentives to industrial activities considered important by the government. The incentives include exemption of import duties and taxes on capital equipment and intermediate products used in the activities under promotion. In the early 1960's, the aim of the investment promotion was largely import substitution. Large scale production will capital intensive techniques was given higher priority in the promotion list. The Investment Promotion Act in 1962, which was used with few revisions until 1972, classified activities eligible for promotion into group A, B and C according to their "importance to the economy". The division of promoted activities into different groups was made to differentiate industrial activities in obtaining an important privilege given to promoted enterprises: the exemption or reduction of import duties and business taxes on material inputs. Group A activities were fully exempted from import duties and business taxes on raw materials and other intermediate products, group B

activities were granted reduction of duties and taxes by one half, and those in group C by one-third. Activities classified under group A were mostly capital intensive industries such as metal smelting, production of machinery, vehicle tire, chemical and electrical products. Activities under group B comprised mostly the assembly stage of products classified under group A. These included such industries as automobile assembly, electrical appliances and assembly of machinery for use in agriculture. Group C activities include some eighty industries ranging from agricultural processing, textile, rolling mill to hotel and international air transportation.

The investment promotion law has been revised several times since 1960. The revision of the investment law each time tends toward giving more incentives to investors under promotion, and more discretionary power to the Board of Investment. To a certain extent, the revisions of investment law reflected the change in industrial policy of the government. During the Second Economic Development Plan period (1967-71), more attention was paid to the employment and linkage effects. From 1967, all industrial activities applying for promotional status were all considered as group C industries which only one-third of import duties and taxes on intermediate inputs were exempted. The importance of manufactured exports and a more balance regional industrial distribution were stressed in the Third Economic Development Plan (1972-1976). The investment promotion law was

revised in 1972 to give more incentives to export industries and industries located in provincial areas. The latest change in the investment promotion law was made in 1977. In the new investment law, the power of the Board of Investment was enhanced and incentives given to industries under promotion were increased. This might be a reflection of the government's concern on deteriorating investment climate due to political instability and other factors, and the reduction of foreign investment inflow during 1975-76 period.

In stating the importance of investment promotion scheme, it should be noted that industrial activities covered under the investment promotion law are only a fraction of total industrial activities in Thailand. But firms receiving promotional status are mostly large scale firms in which foreign investment are concentrated. By the end of 1978, these were only around 1,000 firms under official promotion. But various important consumer and intermediate products have produced by these firms. It is hard to make a precise estimate of the promoted industries in the Thai economy. If the estimated employment figures made by projection at the time of applying for promotional status could reflect the actual employment situation, the total employment of promoted manufacturing firms would constitute 17.3 percent of the total employment in the manufacturing sector in 1978.

The protection measures by the government have induced both domestic and foreign investors to establish plants in Thailand to produce consumer goods, both durable and non-durable, and a number of intermediate products in the promoted industries. Major import substituting items included motor vehicles and electrical appliances, spinning and weaving of textiles, production of chemicals, vehicle tires and paper products were mostly manufactured by promoted firms. During the 1970's some of these products turned to export market and there were also new investments in export-oriented industries. But a large number of promoted firms remained to serve the domestic market without any prospect for exporting.

The protection induced import substitution scheme has its merit in making a quick start on industrial development. Quite a number of foreign investors came to set up their manufacturing plants in the country and some of them have joined the local businessmen in industrial joint ventures. Many of the foreign firms invested in Thailand were those supplied their products through exports and were attracted by the protection and promotional measures. They have already possessed the technological know-how and some of them are producers of familiar-brand products. At the beginning of industrial development, when the setting up of new factories producing new products were proliferating, and as the products introduced were

mostly industrial consumer goods with high income elasticity, the growth of industrial output was high. But the import substitution scheme has also created a number of problems for Thailand's industrial development. The products introduced by firms under promotion were mostly modern consumer goods which generally cater for the consumption of urban high and middle income people. The production techniques of these products are mostly capital intensive in nature. Without sustained growth, the capital-intensive production would not be so helpful for the country's employment creation objective. The rapid expansion in general coupled with the uneven distribution of income in the economy might have helped the growth of the import-competing consumer industries. But as the majority of the country are low-income rural residents which cannot afford the luxurious products introduced, the market for these modern consumer products were soon be saturated. On the other hand, the escalated tariff structure has also induced a number of assembly industries. These industries, in their final stage of production, may be considered as labor intensive since a large number of workers were required to put the imported parts and components together. However, the creation of these assembly industries in addition to other capital intensive activities has led to the heavy importation of parts, components, and other capital and intermediate products, thus making the industrial production of the country highly import dependence. The protective structure which works to promote consumer goods industries with high import content

also has a side effect on the concentration of industrial location, as industrial firms tend to locate near the principal port and principal consumer market in Bangkok.

By late 1960's, a number of import-competing consumer goods reached the stage of exhaustion in the import substitution possibilities, and the rate of growth decreased in a number of industries including textiles, transport equipment and electrical appliance. There were some criticism on the policy of import substitution under heavy protection and recommendations were made on the promotion of industrial exports. The balance of payments deficits from 1969 to 1971 after many years of surplus also caused a great deal of anxiety for the government and the public and this might have some bearings on the change of emphasis toward export promotion. The government's intention to promote manufactured exports has been mentioned in the Third Economic and Social Development Plan (1972-76). The investment promotion law was revised in 1972 to give special rights and benefits to industrial activities engaged in exporting. But the major incentive for exporters has been the refund of import duties and business taxes on imported inputs which are used in the production of export commodities. The Bank of Thailand also offers rediscount facilities with preferential interest rates to exporters.

As we have seen in Table 8 and Table 10, expansion of industrial exports was rapid during the 1970's. Several factors

were attributable to the export growth: the incentives provided by the government, market situations in developed importing countries, and efforts made by individual firms in promoting their export sales. But what underlying the successful export performance is Thailand's comparative advantage in a number of resource-based and labor-intensive products. Manufactured exports from Thailand can be divided into four categories following the classification of export commodities made by Helleiner. The first category comprises primary-product based commodities or "export substitutes", i.e., products obtained from local material processing. Products of these category occupied the bulk of Thailand's export value. Rice, sugar, tin, tapioca products and a number of food products belong to this group. Some products in this category, however, are with few processing from their raw material form and should be more properly considered as agricultural instead of manufactured products. The second category of manufactured exports are those converted from import substitution to exporting. Examples of this type of products in Thailand's export list are textiles and clothing, shoes, ceramics, and certain chemical products. The third category of manufactured exports are new labor-intensive final products exports. These include jewelry, wood handicrafts and numerous household manufactured goods. They are "new" not in the sense that they have been newly produced in the country but rather for the fact that they have become export commodities rather recently. Actually many

commodities have been manufactured in the country for decades, but entered the list of manufactured exports only in recent years. Finally, there are labor intensive process or components within vertically integrated international industries. In Thailand, the important commodities in this category are various types of electronic components. Parts and components of other products have not yet emerged as significant export items in the country.

It is not hard to see that most of the manufactured exports in Thailand are either resource-based or labor intensive, which are consistent with the country's factor endowment'. However, the effort made by the government and individual firms to promote manufactured exports should not be neglected. The Thai government started to actively promote manufactured exports in 1972 when various incentives were given to exporters of manufactured goods. The incentives provided in the investment promotion law have also induced the establishment of export-oriented firms, such as those in electronics components, shoes, and garments. In 1975 an Export Service Center was set up under the Ministry of Commerce to provide information to exporters and potential importers of Thai products in foreign countries. The government's intention to promote manufactured exports serve to trigger off the desire of manufacturers for exporting. But the main driving force of export expansion appears to come from the private sector, with individual firms trying hard to find overseas outlets for their

products, and improve their product quality for more successful export sales. International market situations have also been helpful for some labor-intensive export items such as textiles, shoes and clothing. With quota restrictions made on exports from other major exporting countries, Thai exporters have found some room in the restricted market. As export of those products expanded, however, Thailand will soon be subject to the same export restrictions as those experienced in more advanced countries.

V. External Finance and Foreign Direct Investment

The rapid growth of the Thai economy during the past two decades has been made possible by high volume of investment, both from the public and private sectors. The share of investment in GDP has been high. The ratio of gross fixed capital formation to GDP was around 14 percent in late 1950's and rose to over 20 percent since mid 1960's (see Table 12). The investment funds mostly come from domestic savings, which were also at high rates but not sufficient to meet the investment requirements. External finance was thus necessary.

The process of industrialization in Thailand has also relied much on the primary sector. Besides providing raw materials and surplus labor to the industrial sectors, the agricultural sector also produced exportable surplus which provide

foreign exchange needed for importation industrial consumer and producer goods, primary products (include agriculture, fishing, forestry and minerals) accounted for over 90 percent of total merchandise exports in 1963. Although their share has been reducing, by 1978 primary products still accounted for 63 percent of the total value of merchandise exports Table 13) which shows the trade balance figures by SITC grouping, reveals that Thailand's industrial trade balance has been in deficit, while primary commodity trade has been in surplus every year. The gap of manufactured commodity trade seems to be widening as time passes. Actually the SITC grouping tends to understate the deficit in industrial trade balance since important raw materials such as petroleum and other crude materials are classified as primary commodities.

Table 12

Ratio of Savings and Investment to Gross Domestic
Product, 1960-1978

Year	Savings/GDP	Gross Domestic Fixed Investment/GDP
1960	15.5	14.0
1961	15.9	14.1
1962	14.4	15.8
1963	13.9	17.8
1964	14.4	19.4
1965	16.5	18.9
1966	20.9	20.1
1967	16.2	22.9
1968	14.3	23.7
1969	15.9	23.9
1970	14.1	24.1
1971	12.4	22.7
1972	14.9	21.0
1973	20.8	20.4
1974	20.3	21.9
1975	16.9	23.2
1976	15.3	23.3
1977	13.1	25.4
1978	18.8	27.1

Source : National Income Statistics of Thailand, various issues.

Table 13

Trade Balance of Primary and Manufacturing Commodities

Year	Primary Commodity Trade Balance*	Manufacturing Commodity Trade Balance*
1960	6,324	-7,301
1961	7,283	-7,726
1962	6,613	-8,715
1963	6,678	-9,913
1964	8,824	-10,988
1965	8,913	-11,579
1966	8,371	-12,955
1967	7,913	-16,158
1968	6,627	-17,564
1969	6,870	-18,607
1970	6,326	-18,977
1971	7,149	-17,239
1972	9,523	-18,782
1973	12,790	-23,828
1974	18,180	-33,586
1975	13,251	-36,012
1976	20,840	-33,528
1977	20,050	-43,772
1978	20,117	-46,929

*Primary commodities includes products under SITC 0-4 and manufacturing commodities are those classified in SITC 5 - 9

Source : Bank of Thailand Monthly Bulletin, various issues.

The agricultural sector which encompassed a great majority of population also generated income and saving on one hand, and increased demand for industrial goods on the other. In addition, the tax and tariff structure in Thailand has been in favor of the industrial and against the primary sector. The investment promotion scheme enables the importation of capital equipment free from import duties and business taxes, and also reduction of duties and taxes on the other material inputs. On the other hand, export of agricultural products are subject to export duties and other taxes. Export of rice, in particular, has been subject to rice premium, which sometimes accounted for as high as 30 percent of the export price of rice. The collection of rice premium serves to keep the price of rice low for domestic consumers, thus providing a cheap wage good for the industrial sector. Rice premium has also been a major source of government revenue, although its importance has been declining steadily.

Trade Surplus from primary product exports has not been sufficient to meet the high import requirements needed for domestic consumption and investment. Thailand has experienced deficit in her trade balance since the late 1950's. The deficit in merchandise trade accentuated since mid-1960's, and becoming worse in the 1970's. During the 10 year period from 1959 to 1968, the deficits in merchandise trade were more than offset

by the combined surplus in other accounts and there were surplus in the overall balance of payments. Since 1958 the country's balance of payments was in deficit only in 1969 to 1971 and after 1974. The large deficit in merchandise trade were compensated by the surplus in the service account, and the deficits in the current account were smaller. It was, however, the combined surplus in unrequited transfers, and capital movements which out weighed the deficits in the current account and enable the overall surplus in most of the years since the late 1960's. (see Table 14). In this regard, we may say that Thailand's industrial development during the past two decades has depended much on the inflow of foreign capital. However, the foreign resource inflows comprised only 15-20 percent of gross domestic capital formation, which was lower than those in a number of developing economics in their early stage of industrial development.

The inflow of foreign capital has been comprised mainly of grants and loans from international organizations and foreign governments, and private direct investment. Official grants and loans have contributed mainly to the building up of infrastructures, while private direct investment contributed to the setting up of firms producing a wide variety of industrial products.

Table 14

Thailand's Balance of Payment and Foreign Resource Inflow in Capital Formation

Items	1961-63	1964-66	1967-69	1970-72	1973-75	1976-78
1. Balance of Trade	-5,348.7	-8,996.3	-30,110.9	-31,070.3	-45,265.8	-65,178.8
1.1 Exports	28,935.1	38,645.7	41,290.0	52,712.0	124,619.4	213,074.2
1.2 Imports	-33,850.6	-47,278.0	-70,881.9	-83,647.5	-169,885.2	-277,361.5
1.3 Non-monetary gold	-433.0	-364.0	-518.9	-81.2	-	-891.5
2. Balance of Service (net)	1,514.7	6,282.3	18,016.0	18,023.4	20,597.9	8,608.6
3. Net transfer receipts	2,590.1	2,958.5	3,932.9	3,154.6	9,517.8	2,078.1
3.1 Private	348.7	493.4	403.4	819.2	7,909.0	672.1
3.2 Government	2,247.4	2,042.0	3,529.5	2,335.4	1,608.8	1,406.0
4. Capital movements	4,008.3	4,827.7	7,591.7	7,855.1	19,747.0	38,088.8
4.1 Direct investment	623.7	1,815.1	3,191.6	3,126.0	7,186.0	4,788.8
4.2 Private long-term loan	3,185.7	1,842.4	3,609.2	3,912.6	6,947.0	14,303.9
4.3 Private short-term loan	57.4	576.3	353.9	647.3	5,024.0	9,701.3
4.4 Government loan	132.5	593.9	437.4	170.2	590.0	9,294.8
5. Allocation of SDRS	-	-	-	618.9	-	-
6. Net errors and omissions	1,134.2	2,070.6	1,418.6	2,422.6	1,421.3	-4,515.4
7. Balance of Payments	3,898.6	6,719.4	848.3	1,004.2	6,018.2	-20,918.7
8. Gross Fixed Capital Formation	35,821.0	54,277.0	83,376.9	100,105.0	172,183.0	291,820.0
9. Direct Investment of GFCF (%)	1.74	3.34	3.83	3.12	4.17	1.64
10. Transfer plus long-term Capital to GFCF (%)	18.23	9.89	13.40	10.35	14.08	10.44

Source: Bank of Thailand Monthly Bulletin, various issues.

The inflow of foreign capital helped to finance the heavy import requirements in the process of industrialization. It should be noted, however, that foreign capital inflow either in the form of grants, or loans, or private investment, was also an important cause of the rise in merchandise imports and the resulting trade deficits. The construction of infrastructural facilities financed by international aids and loans had stimulated domestic construction and related industries, but also required large amount of imported materials. The American military expenditures during the Vietnam war was largely spent on the construction of roads and air bases had the same effect on merchandise imports. Private direct investment in import substitution activities required rising imports of machinery and equipment, and other intermediate products. All of these contributed to merchandised trade deficit.

In Thailand, import of capital goods usually comprises of nearly half of the total value of domestic capital formation. The high import content of domestic investment implies that if the country is to reduce the rate of economic growth somewhat, the import bill could be reduced substantially. On the other hand, if it is to sustain its momentum of growth, trade deficits will be widened, unless the country's exports can be increased substantially in the future.

Among various types of foreign capital inflow, direct foreign investment deserves special attention. Since it involves establishment of industrial activities in Thailand. Direct foreign investment in Thailand has increased substantially since early 1960's. From 1955 to 1960, net direct investment inflow averaged less than six million baht a year. It jumped to 120.9 million baht in 1961 and has since then sustained a trend of rapid increase. From the mid 1960's, direct foreign investment inflow has become an important proportion of the net foreign exchange receipts in the country's capital account. From 1965 to 1974, net direct investment inflow accounted for around 40 percent of the net inflow in the capital account. This ratio was, however, significantly reduced to around 15 percent during 1975-78 due to rapid increase in long-term and short-term loans both by the private and government sectors.

Foreign direct investment has been placed much importance by Thai economic policy planners. It has, however, not been so significant in terms of its share in capital formation. From Table 15 which shows the ratio of net foreign investment inflow to capital formation in the private sector, we see that the average rate has been less than 5 percent and was on a downward trend in recent years.

The reasons that direct foreign investment has been placed much importance may be due to the fact that many firms with foreign investment are under the official promotion program, and that a variety of industrial products which are generally consumed by the high and medium income groups are produced by these firms. In October 1979 there were 1,148 firms under official promotion. Nearly half of these firms had varying degree of foreign capital participation. In terms of registered capital, foreign share amounted to 23.6 percent of the total. Investors mainly came from Japan, Taiwan, the United States and England. They concentrated their investment more on textiles, transport equipment, chemical products, electrical appliances, and metal products. (Table 16). Most of the foreign invested firms are in the form of joint ventures with Thai business men. The size of foreign invested firms are in general much larger than the wholly owned Thai firms.

Table 15

Ratio of Net Foreign Direct Investment Inflow to Gross
Private Fixed Capital Formation, 1967-1978

Year	Foreign Direct Investment	Private Fixed Capital Formation	Ratio of FDI to PFCF (%)
1967	894.4	16,714	5.35
1968	1,239.7	18,358	6.75
1969	1,057.5	20,902	5.56
1970	890.5	22,248	4.00
1971	808.4	22,319	3.62
1972	1,427.1	23,167	6.16
1973	1,604.9	33,523	4.79
1974	2,766.3	48,901	5.66
1975	1,744.8	50,683*	3.44
1976	1,614.1	52,187	3.09
1977	2,163.8	70,087	3.09
1978	1,010.8	83,594	1.21

*Figures for 1978 are preliminary.

Source : Bank of Thailand Monthly Bulletin, various issues.

Table 16

Direct Foreign Investment in Promoted Manufacturing Industries, December 1978

Industry	No. of Firms	Equity Capital by Nationality (millions of baht)					Total
		Thai	Japan	Taiwan	U.S.	Others	
Food	99	1,178.6	78.0	19.6	22.2	179.5	1,477.9
Beverage	2	35.0	-	-	-	-	35.0
Tobacco	6	33.9	1.2	-	18.3	4.6	58.0
Textiles	109	3,346.0	830.8	193.1	36.0	245.3	4,651.2
Wearing apparel	16	187.6	21.6	38.9	-	17.5	265.6
Leather products	8	72.9	.8	18.9	-	1.5	94.1
Footwear	2	6.7	-	3.3	-	-	10.0
Wood products	48	364.8	.1	8.3	-	11.4	384.6
Furniture and Fixtures	19	52.0	4.4	2.0	.8	.4	59.6
Paper products	15	560.8	14.7	39.5	-	176.9	787.9
Printing and publishing	4	178.3	-	1.5	-	.8	180.6
Industrial chemicals	33	1,253.0	152.6	28.4	16.4	47.7	1,498.1
Other chemical products	20	73.8	10.1	4.3	-	105.1	193.3
Petroleum refineries	1	7.0	-	-	-	3.0	10.0
Miscellaneous products of petroleum and coal	3	9.4	7.6	-	-	-	17.0
Rubber products	20	193.5	37.7	4.0	60.8	2.6	298.6
Plastic products	8	50.0	2.4	5.2	-	4.5	62.1
Pottery	5	63.3	0.2	4.7	12.5	19.4	100.1
Glass and glass products	6	43.7	22.7	-	-	0.1	66.5
Other non-metallic mineral products	27	1,481.6	2.4	7.6	100.6	63.9	1,656.1
Iron and steel basic industries	17	208.6	35.7	24.6	11.0	24.3	304.2
Non-ferrous metals	11	215.7	-	42.0	5.2	86.6	349.5
Fabricated metal products	43	314.6	86.9	1.1	24.3	38.1	465.0
Machinery	25	165.8	23.9	2.0	10.4	20.9	223.0
Electrical machinery, apparatus appliances and supplies	50	248.7	104.1	6.7	89.1	29.1	477.7
Transport equipment	53	419.4	152.3	9.7	0.4	37.9	619.7
Scientific equipment	11	40.9	5.0	-	20.0	2.2	68.1
Others	16	49.6	-	-	-	5.4	55.0
Total	677	10,855.2	1,596.2	465.4	428.0	1,124.7	14,468.5

Source : Board of Investment.

How direct foreign investment has contributed to Thailand's industrial development is not easy to assess. During the 1960's, direct foreign investment in manufacturing went mostly into import-substitution industries. Since early 1970's, there has been some foreign investment in export oriented activities. The motive of foreign investors in coming to established their business in Thailand in the 1960's were largely for the protection of market share in the country. The concessions given in the investment law and the tariff protection provided a strong incentive for foreign manufacturers who had hitherto exported their products to Thailand to consider setting their production "behind the tariff wall" in order to protect their share of the market, and to get ahead of their competitors in obtaining the promotional privileges. The launching of investment promotion scheme might have also served to call the attention of foreign investors to the investment opportunities existed in the country, but were previously not generally known. In the light of these motives for investment, it is not surprising that foreign direct investment in the 1960's was largely concentrated in industries producing or assembling consumer products replacing for imports, since the foreign enterprises previously supplied the Thai market by exporting usually possessed advantages in producing these products in the form of product differentiation, familiar brand name, and technological

knowledge of production, it is to be expected that many import replacing items would be manufactured or assembled by firms with foreign investment.

Foreign investment participation thus helped to quicken the process of import substitution industrialization. The contribution to the Thai economy of direct foreign investment in terms of income and employment generation, however, has not been significant. Most of the foreign firms established during the 1960's were found to rely heavily on imported parts and components, and other intermediate products, which contributed to the heavy import dependence in many industries. The reliance on imported inputs also implies that there have been small linkage effects to other industries. The capital intensive nature of production in many foreign invested firms has also hindered them to contributed much to employment creation.⁵

The high import content and capital intensive nature of production of foreign invested firms can be seen from the high investment in asset to employment ratio and high percentage of imported to total materials of promoted manufacturing firms, of which foreign investment has been concentrated (Table 17). The degree of import dependence of these firms were actually much higher since import of capital equipment has not been included in the material imports presented in (Table 17) and capital goods

in promoted firms are almost entirely imported. An average capital-labor ratio of nearly 300 thousand baht per worker should be considered to be very high since data from the industrial survey in 1977 indicated that average asset-worker ratio for manufacturing enterprise (excluding small cottage undertakings) in the country was about 100 thousand baht per worker. The degree of technological transfer of foreign investors to indigenous sector has also been found to be limited due both to the reluctance of foreign investor to import their technological knowledge to local people and lack of indigenous trained personnel to effectively learn the foreign technology. ⁶

The small contribution of foreign invested firms in various aspects, however, could in part be attributable to the overall industrialization strategy in Thailand during the 1960's, which gave heavy protection to domestic production of import substitutes, including a variety of luxury consumer goods and consumer durables that mainly used imported inputs. Import substitution industrialization usually started with the replacement of consumer goods with domestic production. But import of capital and intermediate goods would be increased in this early stage of import substitution. At a later stages, the growth of consumer goods industries will be followed by backward linkage import substitution as the country begins to substitute domestic production for imports of producer goods. In Thailand, however, the develop-

Table 17

Capital-Labor Ratio and Percentage of Imported to Total Materials
of Promoted Manufacturing Firms, December 1978.

	Assets/Employees	Import/Total(%)
Food	245.21	21.80
Beverage	263.16	-
Tobacco	66.41	3.44
Textiles	253.23	54.32
Wearing appared except footwear	78.85	53.01
Leather products	193.78	33.28
Footwear	287.71	19.88
Wood products	156.18	5.90
Furniture and fixture	78.29	2.37
Paper products	739.51	56.84
Painting and publishing	535.37	74.01
Industrial chemicals	831.44	56.78
Other chemical products	364.14	57.47
Petroleum refineries	7,873.09	100.00
Miscellaneous products of petroleum and coall	273.83	91.94
Rubber products	365.66	63.03
Plastic products	145.95	61.41
Pottery	242.05	43.68
Glass and glass products	273.35	64.18
Other non-metallic mineral products	470.73	39.79
Iron and Steel basic industries	488.41	72.20
Non-ferrous metals	568.62	38.72
Fabricated metal products	290.98	74.27
Machinery	273.56	69.94
Electrical machinery, appliances and supplies	136.83	73.81
Transport equipment	468.13	79.15
Scientific equipment	76.35	91.87
Others	72.24	41.28
Total	295.71	58.35

Source: Board of Investment.

ment of intermediate and capital goods has been relatively slow. This may be attributable to the small size of domestic market for final products, and the consumer good industries have not been expanded enough for the economic operation of the input industries. In addition, the protective structures which provide incentive to finished products with low tariff rates or tariff exemption on intermediate and capital goods also works to retard the development of the producer good industries.

On the development of manufactured exports, large international firms with their advantage in international marketing can help to develop market channels for exporting. However, since most of the foreign firms invested in Thailand also have the same type of business as that in other countries, unless the firms operated in Thailand have any cost advantage over other subsidiaries, it would not be to the best interest of the foreign investors to try to export the products they produced in Thailand to compete with their own subsidiaries. Most of foreign invested firms established in the early 1960's continued to serve the domestic market. There are, however, a few industries where foreign direct investment has been seen to be helpful for the development of manufactured exports. Export-oriented foreign firms can be found in textiles, pineapple canning, and electronic components assembling. These industries are in concurrent with Thailand's comparative advantage. Since there are mostly wholly

owned Thai firms in agro-based and new labor-intensive manufactured exports, it can hardly be concluded that foreign investment in general has contributed much to the development of manufactured export in Thailand.

VI. Japanese and Thailand's Experience Compared

We have completed our brief analysis of industrialization in Thailand. We will now proceed to make some comparisons on the Japanese and Thailand's industrial development experience. There have been numerous studies on the subject of Japanese development experience. In making comparisons, we will draw heavily from the existing literature on Japanese development and external relations. We will focus mainly on the development of product cycle from import substitution to export expansion. But the differences as well as similarities in internal and external conditions during the period of industrial development between both countries will also be noted.

It is more or less agreeable that meaningful comparison should be made between contemporary developing economies in the post-war period with the experience of Japan during the period roughly from the Meiji Restoration to the end of WW II. There are some similarities in terms of economic structure, per capita income level, and other pertinent macroeconomic variables. In the case of Thailand as compared to Japan, both countries are

pre-dominantly agricultural before the era of industrial development and experienced rapid change in production and trade structure in the development process. Setting aside the institutional factors, the economic structure in terms of major sectoral share in GDP between the two countries was not significantly different in the period before rapid industrial growth took place. The share of agriculture in GDP was 40 percent and that of manufacturing and mining was 13% in Thailand in 1960, which was similar to that of Japan in 1887, 42 percent for agriculture and 13 percent for manufacturing and mining. The proportion of labor force engaged in agriculture was higher in Thailand. Japan in addition had a greater restrain in arable land and other natural resource endowments. But the per capita income level was higher in Japan (US \$ 154 in 1876-67 as compared to US \$ 100 in Thailand in 1960), Thailand was also more open in her economy in late 1950's as compared to Japan in the 1890's. The share of import and export of goods and services in GNP was 18.9 and 17.5 percent respectively in 1960 for Thailand, which was substantially higher than those in Japan in the first decade of her industrialization (7.27 and 7.5 percent respectively). But the trade ratios rose more rapidly in Japan, particularly for exports.

The change in production and trade structure in Japan provides a successful example of structural adjustments. Exports

of agricultural based products, particularly raw silk, predominated in the beginning. These products were then replaced by labor-intensive light manufactures like textiles. Heavy industries including chemicals, metal products and machinery took up as leading exports in the 1930's. For imports, light manufactures predominated in the beginning, the share was gradually declined which matched by increase in capital goods and other heavy manufactures. Later on imports of raw materials became predominant. In the case of Thailand, we see that agricultural and mineral products predominate the country's export value, although export of light manufactures such as food products and textiles started to increase their share in total exports during the 1970's. Export of heavy manufactures is still at a very small amount at the present time. Import structure has also changed much in Thailand and followed the usual pattern of reducing share in consumer non-durables and increasing share of capital and intermediate goods in the beginning of industrialization. Then the share of capital goods and consumer durables started to decline a little in the second decade of industrialization. However, Thailand's merchandise imports still predominate by industrial products and the share of manufactured goods in total imports has not been reduced in the process of industrial development. This reflects the import-dependent nature and small linkage effects of industrial growth in the country, which will be discussed later.

The rapid change in trade structure in both countries reflects the change in structure of domestic production. The "wide geese pattern" of industrial development was seen in a number of leading industries in Japan, including textiles, steel and automobiles, in different time periods. Textiles and food products comprised more than half of manufactured output in Japan up until the 1930's. They were then replaced by such heavy manufactures, like chemicals, metals, and machinery. Table 18 and 19 show the import-supply and export-output ratios of Japanese manufacturing industries from 1874 to 1970. Overall import-supply ratio for manufactures first increased, reached the peak in the first decade of the twentieth century, and declined rapidly after that. Overall import-supply ratio of manufactures has not been high for the Japanese economy, indicating the modest extent of import substitution in general. When individual industries are considered, however, the picture looks much different. The import-supply ratio for textiles, for example, was 21 percent in the beginning, and rapidly reduced to less than 10 percent within two decades. By 1930's, the import-supply of textiles was only 1.5 percent. Heavy industries including chemicals, metals, and machinery first see the rise in their import-supply ratios, then the ratios rapidly reduced at different sub-periods starting from 1900. Other industrial groups also show trend of decreasing import dependence and the overall import-supply ratio for manufactures was less than

Table 18

Import-Supply Ratio in Japanese Manufacturing Industries

Year	Food	Textiles	Wood Product	Chemical	Ceramics	Metal	Machinery	Miscellaneous	Total
1874-81	4.32	21.02	0.41	4.69	0.41	20.36	21.67	6.65	10.37
1822-91	5.09	13.13	0.31	6.85	5.30	26.81	39.29	4.10	10.40
1892-1901	7.48	8.24	0.13	16.14	6.15	45.86	50.48	4.30	12.03
1902-11	6.50	7.25	0.38	25.16	7.50	47.08	28.10	4.25	21.38
1912-21	7.25	2.15	2.39	24.43	3.18	29.57	9.47	2.37	9.92
1922-31	8.18	3.94	12.50	21.52	4.74	24.07	16.24	5.17	10.32
1932-39	7.58	1.56	2.61	11.29	3.62	15.12	5.86	2.18	7.16
1951-55	1.82	0.50	3.46	2.55	0.55	1.43	5.62	0.81	2.23
1956-60	1.25	0.45	1.99	4.26	1.22	3.21	4.70	1.10	2.86
1961-65	1.88	0.59	2.02	3.97	1.60	2.67	4.45	1.41	2.90
1966-70	1.87	1.48	18.94	3.73	2.23	3.62	3.31	2.01	2.90

Source: Ippai Yamazawa and Yazu Yamamoto, Foreign Trade and Balance of Payments, Estimate of Long-term Economic Statistics of Japan since 1868, Volume 14, Tokyo: Toyo Keizai Shinposha, 1979.

Table 19

Export-Output Ratio in Japanese Manufacturing Industries

Year	Food	Textiles	Wood Product	Chemical	Ceramics	Metal	Machinery	Miscellaneous	Total
1874-81	0.59	15.67	0.31	2.51	5.02	11.25	0	6.43	5.66
1882-91	0.52	19.55	0.69	6.32	15.55	28.23	0.52	13.10	9.51
1892-01	0.70	22.70	2.24	11.28	16.05	41.16	4.19	30.53	13.70
1902-11	2.80	38.66	10.91	14.77	22.65	45.15	4.88	35.92	20.10
1912-21	4.80	36.57	74.96	18.56	22.32	20.08	6.05	31.34	20.59
1922-31	4.44	39.87	7.48	13.31	20.57	10.66	6.24	19.86	20.12
1932-39	8.26	34.41	61.13	12.19	23.92	10.74	9.50	24.57	17.50
1951-55	3.00	22.54	12.93	3.41	12.49	12.30	8.60	8.49	9.88
1956-60	3.92	26.14	15.15	4.11	11.28	8.00	11.28	11.73	10.08
1961-65	2.39	20.57	16.86	5.44	8.85	9.26	8.93	9.96	7.33
1966-70	2.22	16.67	19.86	6.99	6.62	9.94	13.81	8.93	9.77

Source: Same as Table 18.

3 percent since the 1950's. The overall export-output ratio, on the other hand, fluctuated from 5 to 20 percent. It shows an increasing trend from 1874 to the end of WW I and gradually decreased after that. Most product groups including textiles, wood products, chemical, metals and ceramics increased in export-output ratios in the earlier period, then decreased after that. But the ratio for wood product, metals, and chemicals, increased somewhat since mid-1960's. The export-output ratio for machinery, on the other hand, appears to increase much after the second world war.

A number of explanations have been made for the successful industrial development from import to import substitution, and then to exportation of Japanese industries. Labor was abundant in Japan in the beginning of industrial development. Labor-intensive light manufacturing industries therefore were among the first to be developed. The development of crude products was also preceded that of more sophisticated items. Technological level for manufacturing has been upraised while raw material resources and later on labor have become scarce factors of production. But the expansion of consumer good industries have brought about linkage effects to stimulate capital and intermediate industries. For example, the development of textiles has stimulated the development of dyestuff and textile machinery, and the development of steel industry facilitated the development

of a number of heavy industries, and consumer durables. Import substitution for a number of manufactured products was helped by tariff and production subsidies in the beginning.⁷ But genuine import substitution was achieved through cost reduction made possible by scale economies and technological adaptation. The import substitution industries were then successfully transformed into export industries as competitiveness in international market was strengthened. The development of manufactured exports was thus a natural consequence of successful import substitution industrialization in Japan.

In the case of Thailand, on the other hand, development of import substitution and exports in manufacturing industries has much been influenced by the various policy measures adopted by the government to foster industrial growth. Import substitution of consumer durables was seen in the beginning but confined mostly to the assembling stage of production. The protective scheme tend to encourage the setting up of relatively luxurious consumer products and a number of intermediate products not well suited to the country's natural endowments. With the help of direct foreign investment, a number of new industries soon appeared in the country. But the heavy protection given to final goods tends to reduce the efforts of industrial entrepreneurs to improve their efficiency and reduce their production cost. The low tariff rates together with tariff concessions on capital equipment and other intermediate imports also work to discourage backward linkage

import substitution and the development of producer good industries.

Thailand has been relatively successful in her drive for export promotion of industrial goods after the import-substitution scheme experienced some difficulties. The emergence of manufactured exports in most cases are, however, not a natural continuation of development of import substitution industries as experienced in Japan. Most of the products exported from Thailand are "new" products stemming from the processing of raw materials previously exported in raw form or labor-intensive goods previously consumed at a small amount in the country such as jewelry and handicrafts but later on increased foreign demand stimulate the production for exporting. Another type of export items is the processing of labor-intensive components by transnational firms coming to utilize cheap labor in the country. Only in a few cases like textiles, clothing, and canvas shoes have been developed from import substitution to exporting in a proper sense. The policy measures by the government again have played an important role in helping the emergence of industrial exports. Foreign firms were induced to set up plants producing export commodities following the revision of the investment promotion law to give additional incentives to export activities. Exporters of manufacturing goods in general have been benefitted from the duty-rebate scheme which give refunds on imported materials used in the production of export commodities. The heavy protection given to import-substitution

industries in Thailand has not been reduced during the period of active export promotion and hence tends to foster apparent rather than real import substitution, and retards the development of many industrial activities to the export stage.

One of the major differences in industrial development experience between Japan in the prewar years and that of contemporary developing economies is that Japan relied very little on direct foreign investment, while in nowadays LDC, direct foreign investment becomes an important ingredient in rapid industrial growth. In the case of Japan, direct foreign investment was kept at a very low level but considerable attempts were made to learn modern technology from industrially advanced countries. Joint ventures between foreign investors and Japanese businessmen were established in some modern industries but the management and controlling power were soon transferred to the Japanese. Japan has thus become a successful example of effective learning of foreign technology while keeping the control to her own nationals. A number of contemporary economies, including Thailand, seem to be in just in the contrary. Direct foreign investment manufacturing has been substantial, while the transfer of technology often encounters with many problems. In the case of Thailand, direct foreign investment in manufacturing also mostly comes in the form of joint ventures. But after nearly two decades of their establishment, the management and controlling power of many joint

ventures are still in the hand of the foreign investors. Lack of enthusiasm of the foreigners to transfer their technology and lack of ability to absorb advanced foreign technology are among the reasons for the ineffectiveness of the technological transfer. But underlying the relatively tight control of foreign investors over the invested business are the relative ease of control by foreign parent companies in nowadays well-developed communication system, and the better bargaining power of the transnational firms as against their local partners or even the host government. Developing countries today have to rely heavily on foreign investment firms for technological knowledge and financing. It is not that easy to "unpackage" various elements accompanying direct foreign investment. Every country tends to compete for foreign investment and various concessions are given to foreign firms. At the same time, these countries also tend to put too much reliance on foreign investment and neglect the development of trained indigenous entrepreneurs and personnel for effective learning of foreign technology. This may not be desirable for the long-term development objective.

It is undeniable that technology gap between today's developing countries and industrially advanced countries is more formidable than the case between Japan and Western countries in the nineteenth century. Inviting foreign investment enables the utilization of technological know-how already developed, and hence

quickness the process of industrial development. But direct foreign investment has not been an unmix blessing for the investment recipient countries. In the case of Thailand, without foreign investment, a number of industrial activities could have not been developed, or could be slower in their development. But what have the country gained from having a number foreign firms in the country is as open question, waiting for more research in this area. We have already noted the import dependence and other side effects brought about by foreign firms. There may be a trade off between more rapid growth and certain undesirable effects. Surely various adverse effects from the foreign investment are possible to reduce by certain policy measures. The Japanese experience of trying to erode the controlling power of foreign investors may still be applicable nowadays, though at a more limited extent.

On the development of manufactured exports, the obstacles confronted by today's LDCs also seems to be more difficult to tackle than in the case of Japan several decades ago. International structural adjustments are more rapid nowadays. Almost every developing country is trying to promote manufactured exports, and these countries have to compete with each other in the international market, in addition to breaking through the market already occupied by some industrialized countries. The wanning comparative advantage in labor intensive products in industrialized countries tends to favor less developed countries. But the protectionistic practices

in these countries also tend to obstruct the development of labor-intensive exports from LDCs in general.

Both Japan and Thailand relied much on the export of primary products to finance their industrial development. In the case of Japan, raw silk was the main foreign exchange earner prior to rapid industrial growth, while in the case of Thailand, rice was the principal export earners. In Japan, industrial trade balance appeared to improve along with industrial growth. For Thailand it is just the country, deficits in industrial trade balance have been widening. Export of agricultural products have been increased following diversification in the agricultural sector. But the increase in agricultural products in Thailand has been due more to expansion in cultivated area than improvement in productivity. Thailand has not faced with serious balance of payments difficulties since the beginning of industrialization program until recent years. The surplus balance in agricultural trade might have retarded the structural adjustment toward less dependence on imported commodities. With rapid increase in petroleum price and ever worsening trade deficits, balance of payments difficulties will become a serious constraint to the country's industrial growth. Further adjustment to increase exports and to reduce dependence on imported industrial goods will thus be necessary.

To conclude our brief comparison of Japanese and Thai industrial development experience, we may say that while the pattern of development from import substitution to exporting looks similar, there are vast difference in the factors underlying the structural change. In the case of Japan, the development has been more natural and based more on improved efficiency. While for Thailand, industrial growth has been influenced by policy measures, although the development of manufactured exports in the past decade have been in line with the nation's comparative advantage. It is not at all certain that Thailand would be able to follow the Japanese path in her industrial growth in the future. There are numerous factors pertinent to industrial development but have not been included in this paper, further studies, preferably on the microeconomic level, should be made for a more fruitful comparison.

Footnotes

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