Chapter 8
Features of Industrial and Economic Structure as Factors for Firms' Location Selections: An Analysis of ASEAN Countries

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Abstract Globalization in economic activities has had a large impact on the behavior of firms. Recently, with the progress of globalization, firms tend to fragment activities and functions of their production, sales, and management into many processes, and to concentrate production bases in a limited area or disperse them into various areas. While location trends of firms have an impact on industrial and trade structures in each region or country, such trends are also influenced by those structures. Clarifying the factors that may influence the choice of location for activities and functions of production, sales, and management is one of the most important tasks for central/local governments in the potential host countries as well as firms. This study, therefore, compares the data and information on the economy, industry, trade, and investment between the four Association of Southeast Asian Nations (ASEAN) member countries (Indonesia, Malaysia, the Philippines, and Thailand) and attempts to elucidate the industrial and economic features of those countries. Such a comparison analysis would provide us with basic information that can clarify how industrial locations and each country's participation in the international production and distribution networks are decided. This study pays special attention to the manufacturing industry, and in particular, to the processing and assembly production type machinery industry, which intensively entails the inter-process division of labor.

Keywords ASEAN • Industrial structure • Business environment • Foreign direct investment

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1 Introduction

Globalization in economic activities has had a large impact on the behavior of firms. Recently, with the progress of globalization, firms tend to fragment activities and functions of their production, sales, and management into many processes, and to concentrate bases for the division of labor among those processes or disperse them into various areas.[1] While location trends of firms have an impact on industrial and trade structures in each region or country, such trends are also influenced by those structures. Clarifying the factors that may influence the choice of location for activities and functions of production, sales, and management is one of the most important tasks for central/local governments in the potential host countries as well as firms.

When economic activities are undertaken over spatially wide areas, firms will be required to locate their production processes in regions/countries without detailed information. In such a case, firms would decide to locate their own production processes by narrowing down a geographical range in a gradual manner. According to Matsumoto et al. (2013), firms would take the following four steps to make their choice of relevant location: (1) the selection of, from a spatially wide range, optimal locations, including not only the best location but also the second best or feasible locations, based on basic factors and information; (2) the selection of a particular country from among the optimal locations given the economic and social characteristics; (3) the selection of, from the particular country, a particular city that can minimize the production cost for production processes; and (4) the selection of a specific area as a final location point from the particular city given the convenience of land and transportation.

Using several Association of Southeast Asian Nations (ASEAN) member countries as cases, this paper shows current situations and characteristics of the economy, industry, foreign trade, investment, etc. to indicate the important roles of economic features in each country in the firms' location decision-making processes at earlier stages such as step 1 or 2 outlined above. This study deals with four ASEAN member countries, including Thailand, which has been developed as an established production base for processing and assembly production type industry and as a market, together with its neighboring countries Indonesia, Malaysia, and the Philippines. This paper examines the situations of economy, industry, trade and investment in these four countries.

In the following sections, this study compares the data and information on economy, industry, trade, and investment between the four ASEAN member countries, and attempts to elucidate the industrial and economic features of those countries. Such a comparison analysis would provide us with basic information that can clarify how industrial locations and each country's participation in international production networks are decided. This paper pays special attention to the

[1] While there are many theoretical studies concerning the division or fragmentation of production, Shi and Yang (1995) and Malone et al. (2011) are helpful here as a reference.

manufacturing industry, and in particular, to the processing and assembly production type machinery industry, which intensively involves fragmentation of production processes in the international division of labor.

2 Basic Characteristics of ASEAN Countries

Table 8.1 shows that Indonesia is the largest of the four ASEAN countries in terms of land area, population, and economic size. Indonesia has an area of 1.8 million km^2 (about five times larger than Japan) and is rich in natural and agricultural resources such as natural gas, coal, tin, copper, nickel, bauxite, rubber, and palm oil. In 2010, Indonesia had a population of 240 million people and a gross domestic product (GDP) of US$700 billion, with an average annual growth rate of 5.2 % for the 10 years from 2000. It is presumed that the size of both production and the market in Indonesia is large. GDP per capita has grown to nearly US$3,000 in 2010 from only US$800 in 2000 following the Asian economic crisis. Such a rise in people's purchasing power in Indonesia, along with the massive population, has increased the attractiveness of the market.

Malaysia comprises the Malay Peninsula and the northern side of the island of Borneo and has an area of 330,000 km^2 (equivalent to almost 90 % of the size of Japan), in which 28 million people live. GDP has grown at an average annual rate of 4.6 % for the 10 years from 2000 to reach US$238 billion in 2010. Malaysia's per capita GDP in 2010 became more than US$8,000, the highest among the four ASEAN countries. Although the population is relatively small, per capita income has been rising, as has the middle-income population, as might be expected of a country aiming to join the ranks of developed countries by 2020.

The Philippines is an island country consisting of approximately 7,000 islands, including three main islands of Luzon, Visayas, and Mindanao. The total land area of the Philippines is around 300,000 km^2, almost equal to that of Malaysia. It has a population of 93 million people, the second largest population in the four ASEAN countries, next to Indonesia. Its GDP has grown at an average annual rate of 4.8 % over the past 10 years since 2000. However, the Philippines has a GDP of approximately US$200 billion and per capita GDP of around US$2,100, both of which are the lowest among the four countries in 2010. Although the Philippines was ahead of the pack among southeast Asian countries in terms of per capita GDP during the 1950–1960 period, its economic levels have currently been low.

Thailand has a land area of 510,000 km^2 (about 1.4 times larger than Japan) and a population of nearly 70 million people. GDP in Thailand was about US$320 billion in 2010 and has been expanding annually at 4.3 % over the 10 years since 2000. It holds about US$4,600 of GDP per capita, which is the second highest, next to Malaysia, among the four ASEAN member countries.

Table 8.1 Basic indicators: Indonesia, Malaysia, Philippines, and Thailand

	Indonesia	Malaysia	Philippines	Thailand
Land area (2010, 1,000 km^2)	1,812	329	298	511
Population (2010, million people)	239.9	28.4	93.3	69.1
GDP (2010, US$ millions)	706,558	237,797	199,589	318,522
GDP average annual growth rate (2000–2010, %)	5.2	4.6	4.8	4.3
GDP per capita (2010, US$)	2,946	8,373	2,140	4,608

Source: World Bank 2012, *World Development Indicators & Global Development Finance* (online)

3 Industrial Structures of ASEAN Countries

Table 8.2 shows that secondary industries in Indonesia accounted for nearly 50 % of GDP in 2010, while tertiary industries accounted for more than 35 % of GDP. This represents Indonesia's transformation from an agricultural-centered economy to an industrial- and service-oriented economy. As stated above, value added is large in the mining and manufacturing industry. Value added to the manufacturing industry is particularly significant and accounts for 25 % of the total value added. According to 2007 United Nations Industrial Development Organization (UNIDO) data, the Indonesian manufacturing industry comprises, on a GDP basis, light industries of 40 % and heavy and chemical industries of nearly 60 %, where the share of the latter exceeds that of the former. While food and textile/apparel industries classified as light industries are large in the manufacturing industry, the machinery industry classified as heavy and chemical industries has also become a sector capable of generating more than 20 % of the manufacturing GDP. Among the machinery industry, electrical and electronics industries and automobile and other transport machinery industries, which are typical processing and assembly industries and have an established international production and distribution network, account for a total of nearly 20 % of the manufacturing GDP and their economic influence has been growing.

In terms of the sectoral composition of Malaysia's GDP, the secondary and tertiary industries each account for roughly 45 %, which illustrates a shift from an agriculture-based to a manufacturing- and service-based economy. While the mining and energy sectors that extract and/or produce oil, natural gas, tin, etc. have a strong presence in the economy, the manufacturing industry has developed and occupied nearly 60 % of GDP of the secondary industry, as well as over 25 % of the total GDP. In the manufacturing industry, the proportion of heavy and chemical industries is overwhelmingly significant (more than 80 %). Within this, the chemical industry, including petroleum refining and basic chemicals, accounts for nearly 50 %; the machinery industry accounts for the other 50 %. Over two-thirds of the machinery industry or more than a quarter of the overall manufacturing industry is accounted for by the electrical and electronics industry, one of the most active sectors in Malaysia.

Table 8.2 Indicators for industrial structures: Indonesia, Malaysia, Philippines, and Thailand

	Indonesia	Malaysia	Philippines	Thailand
A. Sectoral composition of overall GDP (2010, %)				
1. Primary industry	15.3	10.6	12.3	12.4
2. Secondary industry	47.1	44.4	32.6	44.6
2.1 Manufacturing industry	24.8	26.1	21.4	35.6
3. Tertiary industry	37.6	45.0	55.1	43.0
Total (1 + 2 + 3)	100.0	100.0	100.0	100.0
B. Sectoral composition of manufacturing GDP (2007, %)[a, b]				
1. Light industry	43.0	16.6	30.4	29.3
1.1 Food industry	25.6	9.1	22.3	15.7
1.2 Textile/apparel industry	10.1	1.8	4.4	7.2
2. Heavy and chemical industry	57.0	83.4	69.6	70.7
2.1 Machinery industry	22.5	38.0	40.4	45.3
2.1.1 Electric/electronics industry	5.3	27.2	31.3	20.2
2.1.2 Automobile/transport machinery industry	13.2	4.3	3.9	14.2
Total (1 + 2 + 3)	100.0	100.0	100.0	100.0

[a]Based on the UN ISIC (International Standard Industrial Classification Rev 3), sectors are classified as follows. Light industry: ISIC 15–20 + 36 + 37; Food: ISIC 15 + 16; Textile/apparel: ISIC 17 + 18, Heavy and chemical industry: ISIC 21–35; Machinery: ISIC 28–35; Electric/electronics: ISIC 30–33; Automobile/transport machine: ISIC 34 + 35

[b]Data for the Philippines and Thailand refer to 2006

Sources: Sectoral composition of overall GDP: World Bank 2012, *World Development Indicators & Global Development Finance* (online). Sectoral composition of manufacturing GDP: Calculated from UNIDO, 2012, *Statistical Country Briefs* (online)

As shown in Table 8.2, in terms of GDP, the economy in the Philippines in 2010 comprises 55 % tertiary industry, 33 % secondary industry, and 12 % primary industry. The contribution of business processing outsourcing (BPO) to a rapid growth of the service industry in the country is becoming more significant. The manufacturing industry in the Philippines, which accounts for only 20 % of GDP, has not played a prominent role compared with the other three ASEAN countries. A breakdown of the manufacturing GDP by sector, based on UNIDO data, indicates that the manufacturing industry consists of light industries at 30 % and heavy and chemical industries at 70 %. In the light industries, the food industry stands out and accounts for more than 20 % of the total manufacturing GDP. The machinery industry accounts for a large proportion of the heavy and chemical industries, at 40 % of the manufacturing value added. Of the machinery industry, the electrical and electronics industry, dominated by the semiconductor industry, accounts for a considerable share of GDP: almost 80 % of the machinery industry and more than 30 % of the manufacturing industry. The automobile and other transport machinery industry is significantly smaller than the electrical and electronics industry in terms of value added and only accounts for 10 % of the machinery industry and 4 % of the manufacturing industry.

In Thailand, the secondary industry and the tertiary industry each account for nearly 45 % of overall GDP, which indicates a shift from 'Thailand, the agricultural country' to 'Thailand is increasingly an industrialization and services-based economy.' In fact, the manufacturing industry generates 35 % of the total GDP in Thailand. In terms of the proportion of manufacturing GDP, Thailand is the most industrialized economy among the four ASEAN member countries.

The sectoral composition of value added in the manufacturing industry shows that great progress has been made with heavy and chemical industrialization in Thailand. Among these industries, which generate more than 70 % of the manufacturing value added, the largest sector is the machinery industry, of which the electrical and electronics industry and the automobile and other transport machinery industry have a large share, accounting for 20 and 15 %, respectively, of the manufacturing value added. Among the four ASEAN member countries, Thailand has the highest proportion of automobile value added to manufacturing. This would indicate that Thailand has been fostering and developing its automobile industry as the Asian Detroit, as a result of active attraction and agglomeration of automobile assembly firms and automotive supporting industries through policy measures for industrial development and investment promotion implemented by the Thai government since the 1980–1990 period.

4 Trade Structure and Trade of Processing and Assembly Production Type Machinery Industry in ASEAN Countries

Table 8.3 shows that, in Indonesia, the ratio of merchandise trade value to GDP (total merchandise exports and merchandise imports divided by GDP) in 2010 is approximately 40 % and the trade surplus is US$26 billion. These figures indicate that (1) Indonesia is relatively less dependent on trade than the other ASEAN countries due to its large-scale national economy; and (2) Indonesia records an excess of merchandise exports over merchandise imports.

In Indonesia, primary commodities account for more than 60 % of merchandise exports, of which the major items are fuel resources such as oil, natural gas, and coal; the rest include agricultural products and non-fuel mineral resources. Although Indonesia has been shifting to a manufacturing- and service-based economy in terms of industrial structure, it is still reliant on primary commodities in terms of trade structure. A little less than 40 % of the merchandise exports are manufactured goods, of which about one-third are machinery-related items. Most of the machinery items are intermediate and final goods for electrical and electronics products and automobiles and other transport machinery, which are produced and distributed under the international network.

Table 8.3 International trade indicators: Indonesia, Malaysia, Philippines, and Thailand

	Indonesia		Malaysia		Philippines		Thailand	
A. Merchandise trade-GDP-ratio (2010, %)	41.0		152.9		55.0		118.6	
B. Trade balance (2010, US$ millions)	26,081		34,067		−6,733		12,919	
C. Composition of merchandise trade items (2010, %)[a]								
1. Export								
1.1 Primary commodities	63.0		32.7		14.9		28.4	
1.2 Manufactured goods	37.0		67.3		85.1		71.6	
1.2.1 Textile/clothing	7.3		3.0		3.8		4.5	
1.2.2 Machinery	12.4		44.1		70.1		42.2	
1.2.2.1 Electric/electronics	7.6		39.2		63.9		24.4	
1.2.2.2 Automobile/transport machinery	2.5		1.5		4.9		10.3	
Total (1.1 + 1.2)	100.0		100.0		100.0		100.0	
2. Import								
2.1 Primary commodities	34.1		26.4		33.2		33.5	
2.2 Manufactured goods	65.9		73.6		66.8		66.5	
2.2.1 Textile/clothing	5.0		1.2		1.6		2.3	
2.2.2 Machinery	36.3		49.8		47.1		35.3	
2.2.2.1 Electric/electronics	13.7		35.9		35.2		20.2	
2.2.2.2 Automobile/transport machinery	8.3		5.4		6.3		4.7	
Total (2.1 + 2.2)	100.0		100.0		100.0		100.0	
D. Top five trade partners (2010, %)[b]								
Export (electric/electronics)								
1st	Singapore	25.0	China	16.4	Singapore	20.6	China	15.3
2nd	USA	12.1	Singapore	14.5	China	12.9	USA	14.8
3rd	Japan	10.7	USA	14.2	USA	12.9	Hong Kong	11.9
4th	Hong Kong	4.8	Hong Kong	10.1	Japan	12.6	Japan	11.7
5th	Philippines	4.3	Japan	7.3	Hong Kong	11.7	Singapore	5.9

(continued)

Table 8.3 (continued)

Import (electric/electronics)								
1st	Singapore	27.7	China	16.3	USA	18.1	China	26.3
2nd	China	27.1	USA	15.6	Japan	16.4	Japan	22.2
3rd	Japan	10.2	Japan	11.6	Singapore	11.0	Malaysia	9.5
4th	Hong Kong	6.6	Singapore	11.2	Taiwan	10.7	Taiwan	7.7
5th	Korea	6.4	Hong Kong	7.9	Korea	10.0	USA	7.4
Export (automobile/components)								
1st	Thailand	17.9	Thailand	13.4	Thailand	30.3	Australia	17.4
2nd	Japan	13.9	Indonesia	13.1	Japan	18.7	Indonesia	10.4
3rd	Saudi Arabia	9.3	China	10.7	Germany	13.6	Malaysia	6.7
4th	Malaysia	9.2	Singapore	7.8	Indonesia	6.1	Saudi Arabia	5.9
5th	Philippines	9.0	Taiwan	6.2	USA	5.3	Japan	5.9
			Japan (7th)	4.6				
Import (automobile/components)								
1st	Japan	41.5	Japan	41.1	Thailand	42.7	Japan	59.5
2nd	Thailand	26.3	Thailand	28.1	Japan	25.2	Indonesia	6.6
3rd	Singapore	7.0	Germany	11.1	Indonesia	10.1	Philippines	6.4
4th	China	6.3	China	4.8	Korea	6.6	Germany	4.9
5th	India	3.5	Indonesia	4.5	China	4.0	China	4.5

[a]Based on the UN SITC (Standard International Trade Classification Rev 3), sectors are classified as follows. Primary commodities: SITC 0 + 1 + 2 + 3 + 4 + 667 + 68 + 971; Manufactured goods: SITC 5 + 6 + 7 + 8 (excluding 667 and 68); Textile/clothing: SITC 26 + 65 + 84; Machinery: SITC 7; Electric/electronics: SITC 75 + 76 + 77; Automobile/components: SITC 78 + 79

[b]This represents major trade partners for Indonesia, Malaysia, Philippines, and Thailand in electric/electronics (SITC 75 + 76 + 77) and automobile/components (SITC 78) and the ratio of exports/imports by trade partner to total exports/imports of those products

Sources: Merchandise trade-GDP-ratio and trade balance: World Bank 2012, *World Development Indicators & Global Development Finance* (online). Composition of merchandise trade items and top five trade partners: Calculated from UNCTAD, 2012, *UNCTADstat* (online)

Meanwhile, two-thirds of the merchandise imports are manufactured goods, more than half of which are machinery-related items dominated by electrical and electronics products and automobiles and automotive components. Most of the intermediate and final goods for those items are imported to Indonesia through the international production and distribution network. Prominent export/import partners for Indonesia in international transactions of input and final goods for electrical and electronics products are Japan, Singapore, China and Hong Kong, and the USA, while those for automobiles and automotive components are Japan, Thailand, Malaysia, the Philippines, and Saudi Arabia.

Table 8.4 shows the proportion of completed cars and automotive components to automobile-related trade. Most of the exports to Saudi Arabia and most of the imports from India are finished vehicles. Production bases for automobiles have not been established in Saudi Arabia, and the division of labor among processes cannot function. Therefore, almost all automobile-related exports from Indonesia to Saudi Arabia are completed cars. Also, at this stage, most of the automobile-related imports from India to Indonesia are finished vehicles. However, since the automobile industry already existed in India and the ASEAN-India free trade agreement (FTA) came into effect in 2010, imports of automotive components from India will gradually increase and the inter-process division of labor in the automobile industry between Indonesia and India will become active. Indonesia has the following export and import relationship with its major trade partners, Japan, Thailand, and other neighboring countries, except for Saudi Arabia and India as stated above: about 60 % of automobile-related exports are intermediate goods, while around 20–40 % of automobile-related imports are input goods. This indicates that Indonesia has already built the international fragmentation of processes in the automobile industry to a certain degree in East Asia.

Table 8.3 illustrates that, in Malaysia, the ratio of merchandise trade value to GDP exceeds 150 %, which suggests its reliance on overseas market due to the relatively small scale of the local economy. Malaysia has maintained an excess of merchandise exports over merchandise imports in recent years and achieved a US $34 billion trade surplus in 2010. Approximately two-thirds of the total merchandise exports and almost three-fourths of the total merchandise imports are manufactured products. Of the manufactured goods exports, a little less than two-thirds are machinery products, of which nearly 90 % are electrical and electronics products. Similar to the sectoral proportion of exports stated above, two-thirds of the merchandise imports are machinery items, of which more than 70 % are electrical and electronics goods. Referring to Table 8.4, Malaysia imports intermediate goods of electrical and electronics items from its major trade partners such as China (including Hong Kong), the USA, Japan, and Singapore, processes them into products with higher value added, and exports such processed or assembled goods to almost the same trade partner countries/economies.

Compared with electrical and electronics products, automobiles and automotive components account for only a small portion of the merchandise exports and

Table 8.4 The ratio of completed cars and automotive components to automobile-related trade: Indonesia, Malaysia, Philippines, and Thailand[a]

	Indonesia			Malaysia			Philippines			Thailand		
	Trade partners	Share of completed cars[b] (%)	Share of components[b] (%)	Trade partners	Share of completed cars[b] (%)	Share of components[b] (%)	Trade partners	Share of completed cars[b] (%)	Share of components[b] (%)	Trade partners	Share of completed cars[b] (%)	Share of components[b] (%)
Export (2010)												
1st	Thailand	40.5	59.5	Thailand	48.2	51.8	Thailand	20.0	80.0	Australia	95.0	5.0
2nd	Japan	35.8	64.2	Indonesia	30.1	69.9	Japan	4.9	95.1	Indonesia	72.2	27.8
3rd	Saudi Arabia	99.5	0.5	China	69.7	30.3	Germany	1.1	98.9	Malaysia	57.3	42.7
4th	Malaysia	40.2	59.8	Singapore	34.4	65.6	Indonesia	13.8	86.2	Saudi Arabia	95.5	4.5
5th	Philippines	68.8	31.2	Taiwan	72.4	27.6	USA	1.9	98.1	Japan	45.9	54.1
				Japan (7th)	17.1	82.9						
Export as a whole (average)		57.0	43.0		48.8	51.2		10.2	89.8		77.4	22.6
Import (2010)												
1st	Japan	64.6	35.4	Japan	77.6	22.4	Thailand	95.5	4.5	Japan	18.0	82.0
2nd	Thailand	69.9	30.1	Thailand	62.3	37.7	Japan	72.5	27.5	Indonesia	46.8	53.2
3rd	Singapore	73.3	26.7	Germany	74.4	25.6	Indonesia	80.9	19.1	Philippines	24.6	75.4
4th	China	79.1	20.9	China	61.8	38.2	Korea	95.9	4.1	Germany	52.0	48.0
5th	India	93.9	6.1	Indonesia	41.1	58.9	China	92.1	7.9	China	53.2	46.8
Import as a whole (average)		67.3	32.7		69.8	30.2		86.7	13.3		26.5	73.5

[a]Automobile-related trade in this table indicates exports and imports of items classified as automobiles (road vehicles, including motorcycles) and automotive components (SITC 78), based on the UN SITC (Standard International Trade Classification Rev 3)

[b]In this table, completed cars are items classified as SITC 78 (excluding 784), and automotive components are items classified as SITC 784. This table represents the ratio of completed cars and automotive components to automobile-related exports to and imports from major trade partners as indicated in Table 8.3

Source: Calculated from UNCTAD, 2012, *UNCTADstat* (online)

imports. However, according to Table 8.4, approximately 20–60 % of the automobile-related imports and 30–80 % of the exports are automotive parts/components categorized as intermediate goods. This trade flow indicates that the Malaysian auto industry has been involved in the inter-process division of labor.

According to Table 8.3, the Philippines has a trade-to-GDP ratio of 55 % and a trade deficit of US$6.7 billion. Among the four ASEAN countries, the Philippines is the second most populated country next to Indonesia and has a local economy on a certain scale. Therefore, it seems less dependent on international trade than Malaysia and Thailand.

In the Philippines, manufactured goods account for 85 % of merchandise exports. More than 80 % of exported manufactured goods are machinery products, around 90 % of which are electrical and electronics goods, the stars of manufactured items in the Philippines. Relative to the electrical and electronics sector, the automobile sector looks less remarkable, accounting for around 7 % of machinery exports. Looking at import, two-thirds of merchandise imports are accounted for by manufactured goods, which is almost the same level as that of the other three ASEAN countries. More than 70 % of imported manufactured goods are machinery items, of which 75 and 13 % are accounted for by electrical and electronics products and automobiles and automotive components, respectively.

The presence of an electrical and electronics sector in the Philippines has been significant and contributes hugely to exports. Many of the firms in this sector tend to branch out into export processing zones, import input goods from major trade partners such as the USA, Japan, Singapore, and Taiwan, process them into products under outsourcing contracts, and export such processed or assembled products with further value added to the major import suppliers as stated above. In terms of the automobile industry, as shown in Table 8.4, mutual trades with Thailand, Indonesia, Japan, etc. have occurred. These indicate that both electrical/electronics and automobile sectors in the Philippines have been involved in the international production and distribution network, particularly in Asia and the USA.

While Thailand also has a local economy on a certain scale, its trade-to-GDP ratio stands at about 120 % (Table 8.3), which indicates a relatively high dependence on foreign trade. Thailand's trade surplus amounted to US$13 billion in 2010. This trade surplus appears to continue over the medium term, driven by the export of manufacturing industry. Manufactured goods, of which 50–60 % are machinery goods dominated by electrical and electronics goods and automobiles and automotive parts/components account for around 70 % of merchandise exports and imports. Electrical and electronics products account for 20 % of merchandise imports and 25 % of merchandise exports, while automobile-related products account for 5 % of merchandise imports and 10 % of merchandise exports.

As for electrical and electronics products, the main import partners are China, Malaysia, Japan, Taiwan, and the USA, while the main export partners are China (including Hong Kong), the USA, Japan, and Singapore. Most of them overlap. Imported intermediate goods from these countries/economies are processed or assembled at factories in Thailand, and those products are exported as input or final goods to such trade partners. This suggests that, similar to Malaysia and the

Philippines, the division of labor among processes has taken place in the Thai electrical and electronics sector, and Thailand has also been involved in the international production and distribution network.

Automobile-related items are imported mainly from Japan, Indonesia, and the Philippines and then exported to those countries as well as Australia and Saudi Arabia after processing or assembling. According to the Japan Finance Corporation for Small and Medium Enterprise (JASME) (2007), Thailand has imported (1) functional parts/components (e.g., engine, transmission, clutch, brake, shock absorber, steering, etc.) and the steel for these parts/components from Japan; and (2) standard parts and functional parts/components from neighboring ASEAN member countries such as Indonesia and the Philippines. Meanwhile, Thailand has exported (1) completed cars to Australia and Saudi Arabia; (2) functional parts/components and completed cars to Indonesia, Malaysia, the Philippines, and other ASEAN countries; and (3) parts and completed cars to Japan. These trade patterns of finished cars and parts/components are clearly demonstrated in Table 8.4. We can confirm the large value and high proportion of exports of completed cars to Australia and the active inter-process division of labor between Thailand and its neighboring countries/economies, including other ASEAN member countries and Japan.

5 Foreign Direct Investment in ASEAN Countries: Trends in Firms' Location Selections

As shown in Table 8.5, foreign direct investment (FDI) in Indonesia amounts to US $13.4 billion in 2010, 1.9 % of GDP. Nearly 60 % of FDI in the manufacturing industry is directed to the heavy and chemical industries, of which 50 % goes to the machinery industry. Furthermore, around 40 % of FDI in the machinery industry is directed to the automobile and other transport machinery industry. Japan is the largest source of FDI in Indonesia's manufacturing industry in 2010, and a large proportion of investments from Japan to Indonesia tend to focus on the automobile industry (JETRO 2010). This kind of FDI appears to have a strong impact on structural changes in Indonesia's economy, industry and trade, intensifying the automobile and automotive parts/components industry, and promoting the development of an international production and distribution network between Indonesia and its neighboring countries, including Japan and other ASEAN member countries.

According to Table 8.5, Malaysia had FDI inflows of US$9.1 billion in 2010 (about 3.9 % of GDP). More than 90 % of FDI in the manufacturing industry is directed to the heavy and chemical industries, of which almost two-thirds go toward the machinery industry. Of the machinery industry, nearly 70 % flows into the electrical and electronics industry. Such direct investments in Malaysia have been made by investors such as Japan, China (including Hong Kong) and the USA, which are almost the same countries/economies as its main trade partners. It can be

Table 8.5 Inward direct investment: Indonesia, Malaysia, and Thailand

	Indonesia	Malaysia	Philippines	Thailand
A. Inward direct investment, net inflow (2010, US$ millions)	13,371	9,167	1,713	9,679
B. Inward direct investment, the ratio to GDP (2010, %)	1.9	3.9	0.9	3.0
C. Sectoral composition of inward direct investment in manufacturing (2010, %)[a, b]				
1. Light industry	41.5	8.9	NA	47.2
1.1 Food	30.6	4.2	NA	13.6
1.2 Textile/clothing	4.6	1.7	NA	1.5
2. Heavy and chemical industry	58.5	91.1	NA	52.8
2.1 Machinery	29.3	59.6	NA	31.2
2.1.1 Electric/electronics	NA	40.8	NA	15.6
2.1.2 Automobile/transport machinery	11.7	2.6	NA	15.6
Total (1 + 2)	100.0	100.0	NA	100.0
D. Top three investment partners (2010, %)[c, d]				
1st	Japan	USA	Japan	Japan
	(66.7)	(40.4)	(29.8)	(21.9)
2nd	ASEAN	Japan	Netherlands	Netherlands
	(34.6)	(13.9)	(18.8)	(13.7)
3rd		China and Hong Kong	Korea	USA
		(11.7)	(15.9)	(10.4)

[a]NA indicates that data are not available. Automobile/transport machinery in Thailand includes general machinery except for electric/electronics

[b]Indonesia and Thailand are on an implementation basis, while Malaysia and the Philippines are on an approval basis

[c]Figures in parentheses are the ratio to total inward direct investment in each country

[d]Indonesia: Data are only manufacturing and on an implementation basis. Philippines: Data are whole industry and on an approval basis. Malaysia: Data are only manufacturing and on an approval basis. Thailand: Data are whole industry and on an implementation basis

Sources: Inward direct investment, net inflow, and inward direct investment, the ratio to GDP: Based on World Bank 2012, *World Development Indicators & Global Development Finance* (online)

Sectoral composition of inward direct investment in manufacturing: Indonesia and Malaysia: Based on JETRO (2011). Thailand: Based on Bank of Thailand, (http://www2.bot.or.th/statistics/ReportPage.aspx?reportID=77&language=eng)

Top three investment partners: Indonesia. Based on Bank Indonesia (http://www.bi.go.id/web/en/Statistik/Statistik+Ekonomi+dan+Keuangan+Indonesia/Versi+HTML/Sektor+Eksternal/) Malaysia and Philippines: Based on JETRO (2011). Thailand: Based on Bank of Thailand (http://www2.bot.or.th/statistics/BOTWEBSTAT.aspx?reportID=75&language=ENG)

imagined that FDI has had a great influence on how Malaysia is involved in the international production and distribution network, taking into account both items and partners of trade and sectoral composition and partners of inward direct investment together.

FDI in the Philippines amounted to US$1.7 billion in 2010 (0.9 % of GDP), the lowest level of the four ASEAN countries. This suggests that, as described below, the Philippines is less attractive as an investment target for foreign countries than Thailand, Indonesia, and Malaysia. The Japan External Trade Organization (JETRO) (2011) points out that in 2010 more than 80 % of FDI in the Philippines was directed to the manufacturing industry and that, although there are no accurate data, Japan, the Netherlands, and South Korea, the top three investors, invested in new and expanded facilities mainly for electronic apparatus, including semiconductors. Most of FDI in the Philippines is considered to focus on the electrical and electronics sector, which has led the manufacturing industry in the country.

Table 8.5 shows that Thailand attracted US$9.7 billion in inward direct investment in 2010, 3 % as a percentage of GDP. It can be said that the effect of FDI on the national economy seems relatively large in light of its economic scale. More than 50 % of FDI in manufacturing is directed to the heavy and chemical industries, of which almost 60 % flows into the machinery industry. Of the machinery industry, 50 % is directed toward the automobile and other transport equipment industry. Japan, which is the largest investment partner and accounts for more than 20 % of inward investment in Thailand, appears to allocate a large part of its FDI to the automobile and automotive parts/components sector in Thailand (JETRO 2010).

6 Industrial and Trade Policies and Business Environments in ASEAN Countries

This section discusses the recent changes in the economy, trade, and investments in the four ASEAN member countries. In Indonesia, during the second term of the former president Yudhoyono regime starting from 2009, the target economic growth rate was set at an average of 6–7 % per year in the National Medium-Term Development Plan between 2010 and 2014. To achieve this target, the Indonesian government implemented various programs and projects. One of the landmark programs is the Metropolitan Priority Area (MPA), which was developed as a core part of the Indonesia Economic Development Corridors (IEDCs) and has been conducted with the cooperation of the Japanese government with the aim of improving investment environments by upgrading soft and hard infrastructure in the metropolitan Jakarta area. As shown in Tables 8.6 and 8.7, there is a large possibility that the development of infrastructure would attract more inward direct investment in Indonesia, because the lack of infrastructure has been one of the major bottlenecks in the country. A large population of more than 200 million people, as well as the possibility of continuing economic growth at 6–7 % per annum will expand the middle-income class and enhance the attractiveness as a market. These investment climates will give Indonesia more opportunities to participate in the international production and distribution network.

Table 8.6 Efficiency of international logistics performance in 2010: Indonesia, Malaysia, Philippines, and Thailand

	Indonesia	Malaysia	Philippines	Thailand
Overall logistics performance	75	29	44	35
	(2.76)	(3.44)	(3.14)	(3.29)
1. Customs	72	36	54	39
	(2.43)	(3.11)	(2.67)	(3.02)
2. Infrastructure	69	28	64	36
	(2.54)	(3.50)	(2.57)	(3.16)
3. International shipments	80	13	20	30
	(2.82)	(3.50)	(3.40)	(3.27)
4. Logistics quality and competence	92	31	47	39
	(2.47)	(3.34)	(2.95)	(3.16)
5. Tracking and tracing	80	41	44	37
	(2.77)	(3.32)	(3.29)	(3.41)
6. Timeliness	69	37	42	48
	(3.46)	(3.86)	(3.83)	(3.73)

Note: The upper row represents rankings among 155 countries/economies, while the lower row with parenthesis denotes the rating between one (worst) and five (best)
Source: World Bank (2010)

Table 8.7 Assessment of business climates in 2011: Indonesia, Malaysia, Philippines, and Thailand

	Indonesia	Malaysia	Philippines	Thailand
Overall efficiency of doing business	129	18	136	17
1. Starting a business	155	50	158	78
2. Dealing with construction permits	71	113	102	14
3. Getting electricity	161	59	54	9
4. Registering property	99	59	117	28
5. Getting credit	126	1	126	67
6. Protecting investors	46	4	133	13
7. Paying taxes	131	41	136	100
8. Trading across borders	39	29	51	17
9. Enforcing contracts	156	31	112	24
10. Resolving insolvency	146	47	163	51

Note: Figures in this table represent rankings among 183 countries/economies
Source: World Bank (2012)

On the other hand, since the world financial crisis in the latter half of 2008, the Indonesian government has adopted protectionist policies unfavorable to foreign investment, such as import restrictions on seven specific sectors (electronics, clothing, etc.) and obligation of investors to follow the Indonesian National Standards (*Standar Nasional Indonesia*; SNIs) in the field of steel products. Although the Japan-Indonesia Economic Partnership Agreement (JIEPA) enacted in July 2008 has stimulated the division of labor between Indonesia and Japan, it has

also caused various problems and interrupted trade transactions. Such movements to place restrictions on investment and trade would negatively affect the establishment of the international industrial location and the international spatial linkages for industries.

As shown in Table 8.6, Indonesia ranked 75 out of 155 countries/economies in the 2010 Logistics Performance Index (LPI) reported in World Bank (2010), which presents the results of a multidimensional assessment of logistics performance, rated on a scale from one (worst) to five (best).[2] Thus, Indonesia has received poor evaluations for overall logistics performance, together with individual assessment areas including logistics infrastructure, logistics services, border procedures and time, and supply chain reliability. Table 8.7, which is based on the *Doing Business 2012* report (World Bank 2012), illustrates that Indonesia stands at 129 out of 183 countries/economies in the overall 'ease of doing business' ranking.[3] While Indonesia has performed well to some extent on procedures for international trade and protection of investors, problems that deteriorate the mindset of foreign capitals toward FDI have existed in its business climates; these include procedures for starting a business, access to electricity, and enforcement of contracts.

The 10th Malaysia Plan (Malaysia's Economic Development Plan) has targeted an annual economic growth of 6.0 % during 2011–2015 to increase per capita gross national income (GNI) to more than US$12,000 by 2015. To achieve this goal, the Malaysian government identified the electrical and electronics sector, the information and communication technology (ICT) sector, and several others as 11 key economic sectors and Greater Kuala Lumpur as a strategic geographical area. Malaysia has implemented a series of liberalizations and deregulations, particularly in the non-manufacturing sector (financial sector, retail/distribution sector, etc.) through the removal of government controls for Bumiputera, and has opened the domestic market for foreign capital in stages. Preferential treatments, including reductions or exemptions of taxes and deregulations have been granted to foreign capitals with specific functions such as operational headquarters (OHQs), international procurement centers (IPCs), and regional distribution centers (RDCs). In addition, Malaysia has also made effective use of FTAs and economic partnership agreements (EPAs).

[2] According to the World Bank (2010), this LPI summarizes the performance of countries in six areas that depict important aspects of recent logistics climates and encompass (1) efficiency of customs clearance process; (2) quality of trade and transport-related infrastructure; (3) ease of arranging competitively priced shipments; (4) competence and quality of logistics services; (5) ability to track and trace consignments; and (6) frequency with which shipments reach the consignee within the scheduled or expected time.

[3] The World Bank's *Doing Business 2012* is the ninth report examining the regulations that promote or constrain business activities (World Bank 2012). It ranks 183 countries/economies on the basis of ten areas of regulations: (1) starting a business; (2) dealing with construction permits; (3) getting electricity; (4) registering property; (5) getting credit; (6) protecting investors; (7) paying taxes; (8) trading across borders; (9) enforcing contracts; and (10) resolving insolvency.

Such efforts by Malaysia are reflected in Tables 8.6 and 8.7. Concerning the efficiency of logistics, Malaysia has an overall LPI score of 3.4, ranking 29 out of 155 countries/economies. As well as achieving high rankings on average, all six assessment areas, from customs clearance procedures to timeliness in reaching a destination, also received high ratings. These ratings and rankings (including those for the overall LPI) are almost the highest of the four ASEAN countries in our study. In terms of the ease of doing business, while there are difficulties with procedures for dealing with construction permits, other disaggregate indicators and the aggregate indicator show better performance with, on average, high rankings and ratings. Malaysia stands at 18 out of 183 countries/economies in the overall 'ease of doing business' ranking. In particular, its ranking is number 1 for the ease of obtaining credit. Therefore, it can be said that Malaysia has developed business environments favorable to foreign investments.

The unstable political, social, and macro-economic situations in the Philippines have led to the country long being seen as less attractive as an investment destination for foreign capitals. However, since the inauguration of the Aquino administration in June 2010, those situations have tended to stabilize, and the future of the Philippine economy seems to be promising. Macroeconomic indicators such as the budget deficit, external debt, and foreign currency reserve have pointed to a gradual recovery. In recent years, the Philippines have enacted the following FTAs/EPAs: FTA between Australia/New Zealand and ASEAN in January 2010; EPA between Japan and ASEAN in July 2010; and FTA between India and ASEAN in May 2011. It is expected that those FTAs/EPAs will function and yield substantial benefits to the Philippines.

As shown in Table 8.6, assessment against the Philippines on the efficiency of international logistics, which is one of the main factors for investment decisions, is not so bad. The LPI rankings and ratings of the Philippines are lower than those of Thailand and Malaysia, but higher than those of Indonesia. In particular, better access to international shipments was evaluated as high, and other criteria or areas in assessing logistics performance are also not so bad. Thus, the Philippines ranked 44th out of 155 countries/economies in the 2010 LPI. On the other hand, the results of *Doing Business 2012* (Table 8.7), which more comprehensively assessed business climates, the Philippines' rankings and ratings are not so bad on the ease of both getting electricity and trading across borders. However, it received considerably poor evaluations on the ease of getting credit, protecting investors, and paying taxes. The rankings on, in particular, the ease of starting a business and resolving insolvency stand at one of the lowest positions in *Doing Business 2012*. As a result, the Philippines ranks low on the overall ease of doing business, at 136 out of 183 countries/economies.

As already illustrated in Table 8.5, in 2010, inward direct investment in the Philippines in terms of both the ratio to GDP and the amount of capital inflow is at the lowest level of rank in the four ASEAN countries. This could result from insufficient progress in the improvement of business climates observed above. It seems necessary for the Philippines to improve investment and business environments in order to attract more foreign capitals and play an active role in the

international production and distribution network in the processing and assembly industry.

Thailand has problems with investment environments, as suggested by the political and economic turmoil caused by the 2011 Thai floods and the problems with the former Thai Prime Minister, Thaksin. However, Thailand has had advantages in its investment climates. The Thai government has sought to attract FDI in the automobile/automotive components sector and other preferable sectors through the introduction of policy instruments such as preferential treatments for investments in the environment, energy conservation, and high-technology sectors and regional operating headquarters (ROH) system that provides both tax and non-tax incentives to investors on the condition that several requirements are satisfied. It has also promoted the acceleration of investment and trade procedures by establishing a 'One Start One Stop Investment Center' (OSOS) enabling investors to execute all investment application procedures at only one office, introducing a paperless e-import system, and establishing customs clinics as consulting desks for export and import procedures.

Furthermore, the active involvement of Thailand in FTAs/EPAs has given the country advantages in investment climates. Thailand has entered into FTAs/EPAs, either as Thailand or as ASEAN, with Japan, China, South Korea, India, and Australia/New Zealand, in addition to the ASEAN Free Trade Area (AFTA). Such FTAs/EPAs have enabled Thailand to have access to large markets like China, India, and Indonesia. Thailand's many production plants have further enhanced its advantages in the automobile/automotive components, electrical/electronics, and food processing industries. In recent years, exports of completed cars from Thailand to Australia have increased dramatically, because FTAs between the two countries eliminated tariffs on automobiles. Thus, preferential treatments for investments and regional trade agreements (RTAs) have attracted FDIs to Thailand, encouraged the industry agglomeration, and stimulated Thailand to participate in the inter-process division of labor and the international production and distribution network.

These efforts made by Thailand to attract inward direct investment are reflected in Tables 8.6 and 8.7. Table 8.6 shows that Thailand stands at 35 out of 155 countries/economies in the overall efficiency of international logistics, which represents a high evaluation on the development of its logistics sector. Its rankings are also around 30–40 on almost all the disaggregate logistics areas. According to Table 8.7, Thailand has also received a high evaluation on access to electricity, protection of investors, acquisition of construction permits, and procedures for export/import, although there are problems with procedures for starting a business and payment of taxes. Its aggregate ranking on the ease of doing business is 17 out of 183 countries/economies. These favorable investment and business environments, including logistics have induced Japanese automobile manufacturers as well as automotive parts supplier firms to advance into Thailand. This would enable Thailand to become a major production base for automobiles/automotive components and to function well as a center of the international production and distribution network in the ASEAN region.

7 Concluding Remarks: Features of Industrial and Economic Structure and Their Roles in Firms' Location Selections in ASEAN Countries

Features of industry, trade, and investment in the four ASEAN member countries observed above can be summarized as follows.

Through its industrial, trade, and investment policies, Thailand has promoted the largest automobile industry agglomeration in the ASEAN region, and has developed as a production base for the regional supply and international export of completed cars and as a center of the inter-process division of labor in input and intermediate goods. Indonesia has had great potential as a market, thanks to a large population and recent high growth, while it has developed the automobile industry and become a production base for the regional supply of completed cars and auto parts/components, with an advantage of FDI. Through inward direct investment, Malaysia has developed electrical/electronics industry agglomeration, enhanced its competitiveness, and played an important role as a regional and global consumer and supplier. The past political, economic, and social instability in the Philippines has resulted in a smaller FDI inflow than seen in Thailand, Indonesia, and Malaysia. However, political and macroeconomic stability in recent years has promoted the agglomeration of electrical/electronics industries centering on semiconductors and has enabled the Philippines to participate in the international production and distribution network in the Asia–Pacific region. The Philippines has also tended to be involved in the inter-process division of labor in the automobile industry in the Asian region.

As stated above, geographically adjacent countries/economies have individual and distinctive economic features. These features appear to play an important role in the location decision processes of firms at an earlier stage, that is, the selection of optimal locations from a spatially wide range (step 1) and the selection of a particular country from among optimal locations (step 2). Thus, this kind of comparison work could help in determining possible firm locations during the first stage of the location decision process.

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