



## **Global Value Chains in ASEAN**

**Ayako Yamaguchi**  
**Senior Economist**

[yamaguchi@iima.or.jp](mailto:yamaguchi@iima.or.jp)

**Economic Research Department**  
**Institute for International Monetary Affairs (IIMA)**

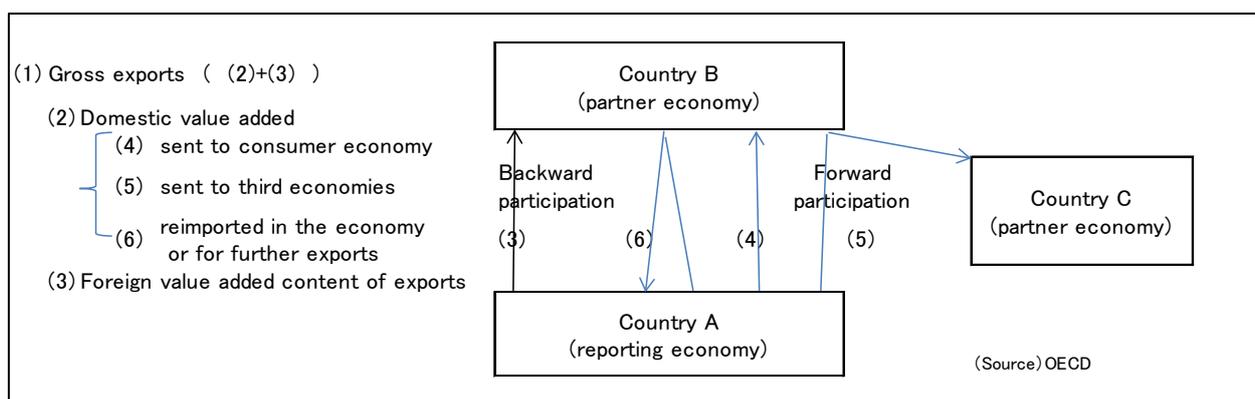
Global Value Chain (GVC) means a form of international division of labor in which companies try to optimize their production process by assigning the production of parts and intermediate products and services to various countries and mutually exporting and importing them among those countries. GVC is mainly utilized by multinational corporations and it has developed since the 1990s mainly in East Asia, North America and Europe with the advance of information and telecommunication technologies. GVCs in manufacturing mainly take advantage of labor cost differentials between the U.S. and Mexico in North America, between Western Europe and Central and Eastern Europe in Europe. In Asia, traditionally it was a vertical specialization where Japan exported high value-added parts and the ASEAN countries assembled these parts into finished goods. More recently, however, in addition to the traditional vertical specialization, utilization of more sophisticated and complicated GVCs is increasing to enjoy the merit of scale of concentrated production by dividing in various ways and in various countries the production process including parts and by mutually exporting and importing the parts and intermediate goods. The companies concerned involve not only the local affiliates of multinational corporations but also independent local firms cooperative with them on the base of manufacturing contract or license agreement but without capital subscription from multinational corporations.

# 1. Involvement in GVCs of ASEAN countries based on the value added trade statistics

## (1) Value-added trade statistics

The development of GVCs has transformed the meaning of trade statistics by obscuring the relationship between the place of production and the place of final consumption. In the traditional trade statistics, the exports and imports of parts and intermediate products are double counted. Trade in Value Added (TiVA) indicators is designed to reflect the activities of GVCs in trade statistics by eliminating the double counting. TiVA indicators are compiled jointly by the OECD and WTO based on the international input-output table. In the TiVA indicators the value added exports are divided into the domestically value added content and overseas value added content (imported parts, intermediate goods, designs, etc. Hereinafter referred to as foreign value added content)<sup>1</sup>.

Figure 1: A visualization of the value added components of gross exports and GVC trade flows



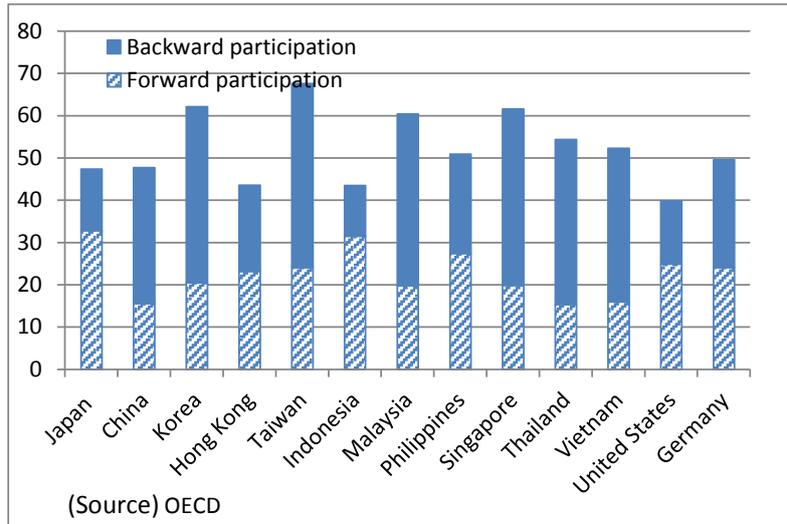
In the TiVA indicators, (1) gross exports (traditional exports on customs base) are divided into (2) domestic value added content and (3) foreign value added content. The domestic value added (2) is further divided into (4) exports to final consuming country and (5) re-exports (exports from the partner country to the third countries and (6) reimports. The foreign value added means the value added content imported from foreign countries which created it. Among these, (3) and (5) are deeply involved in the GVC activities.

The OECD defines the involvement in GVCs of importers of parts and intermediate products as “backward participation”. The share of exports of foreign value added in the gross exports (namely, (3) divided by (1) in the Figure 1 above) is defined as “backward participation ratio”.

<sup>1</sup> For instance, the U.S’s trade deficit against China has become a political problem. Among the Chinese gross exports in 2011 the domestic value added accounted for about slightly less than 70%, and foreign value added content a little more than 30%. Specifically the U.S. manufacturing industry which accounts for a major part of imports from China has a large share of foreign value added content, with 55% for computer and electronic products for instance. If the U.S. deficit against China is recalculated based on the TiVA method, the conventional deficit declines by less than 40%, changing the political implication of the U.S. deficit against China.

Forward participation represents a pattern of GVC participation as suppliers of parts and intermediate goods. Among the exports of domestic value added content of a country A, the share of further exported compartment to the third countries in the gross exports of a country A (equals (5) divided by (1) in the Figure 1) is defined as “forward participation ratio”. The OECD defines the two ratio combined as the participation index in the GVCs (Figure 2).

Figure 2: GVC Participation Index (as percentage of gross exports, 2011)



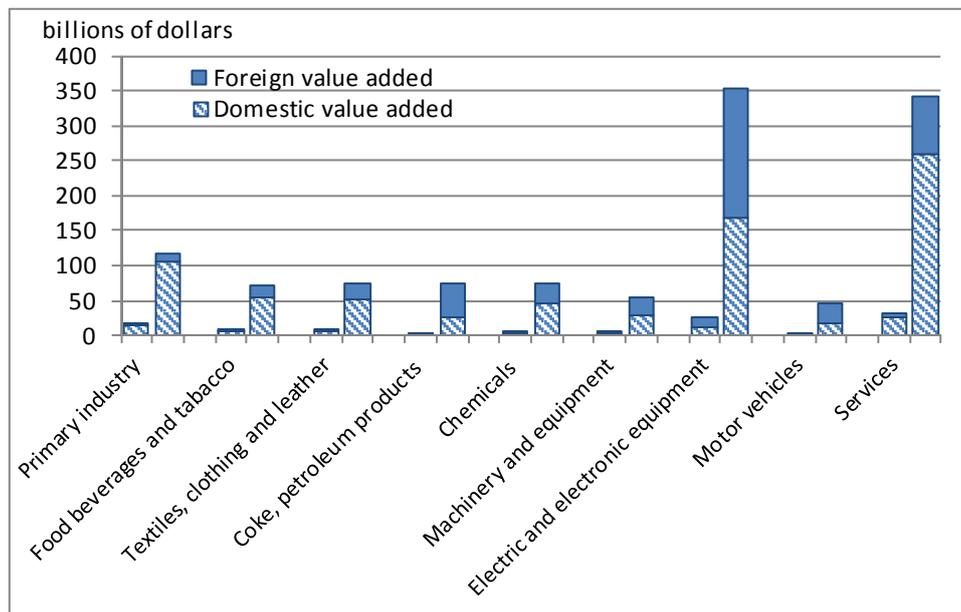
In Japan, the forward participation as suppliers of parts constitutes the main pattern. This reflects the Japanese style of division of manufacturing processes where Japan exports parts to such countries as ASEAN with relatively lower labor costs which in turn assemble them to export to such final consumption countries as the U.S. and European countries.

The Asian NIEs and ASEAN economies generally have a stronger tendency of backward participation, a pattern in which they export products assembled with imported parts and intermediate goods. Indonesia is an exception, which may be because Indonesia has a larger share of oil and its related products in its exports. The U.S. has a pattern closer to the Japanese one, and Germany has a balanced pattern between backward and forward participation. In the U.S. the division of manufacturing process, especially in the automobile industry, is popular based on the North America Free Trade Agreement (NAFTA), with final assembly being made in Mexico where the wage costs are relatively low. Germany is considered to represent a trade pattern of the European Union (EU) where the horizontal division of labor is much popular.

The comparison by country of the ratios of foreign value added contents in the gross exports (backward participation index in Figure 2) shows that countries of the NIEs such as Taiwan, Korea and Singapore, have higher ratios, suggesting that these countries have participated in the GVCs from early on (Figure 3). Similarly, China has a high ratio but the ratio has been declining since the latter half of the 2000s, indicating it has tried to increase the local content



Figure 5: Value added exports of ASEAN by industry



(Notes) Left bar is for 1990 and right bar is for 2013 for each industry.

(Source) ASEAN-Japan Centre

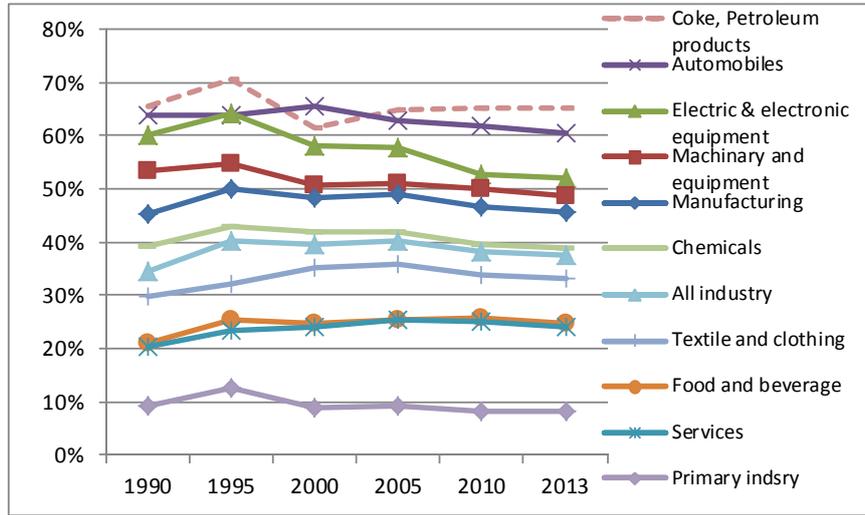
Viewed from foreign value added ratio, manufacturing industry has a high ratio of almost 50% (Figure 6). Especially for the electric and electronic industry, which was a driving force to exports in the area, foreign value added content accounts for more than half of their exports. Also it shows the ratio is high in the industries like machinery and transport equipment which require many parts to complete the products and involve a broad range of supporting industries. Looking at the whole ASEAN region, it seems that competitive capacity of the local industries is still weak without sufficient development of supporting industries around them, and therefore they are forced to rely on imported parts and intermediate products from other countries. The foreign value added in the services industry accounts for about 40%.

The change in the ratio of foreign value added exports from 1990 to 2013 shows the rise in the ratio in such industries as food and beverage, textile and clothing which traditionally had a low foreign value added ratio. This indicates that there have been increasing cases of participation in the GVCs of the traditional businesses which had been performed by local firms. Specifically, CLMV (Cambodia, Myanmar, Lao PDR, and Viet Nam), the ASEAN late comers, which used to have a high ratio in these exports have recently started to accept direct investment from Japan, Korea and neighboring ASEAN countries and gradually participate in GVCs (Figure 14 below).

On the other hand, ratio of foreign value added is declining in those industries like machinery and equipment, electric and electronic equipment, and transport equipment which traditionally had a low domestic value added ratio with a higher foreign value added (they used to make a

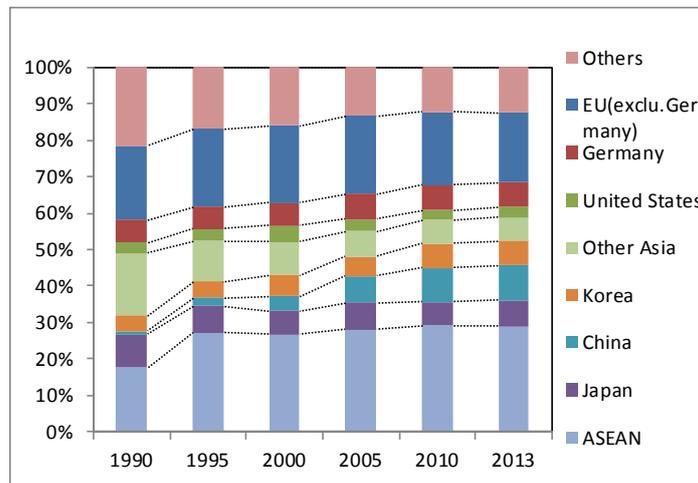
simple assembling). This may be attributed to an increase in local content ratio helped by the growth of local companies in supporting industries and increase of local subsidiaries of foreign companies.

Figure 6: Share of foreign value added in ASEAN exports by industry



(Source) ASEAN-Japan Centre

Figure 7: Share of foreign value added in ASEAN exports by foreign value added creators

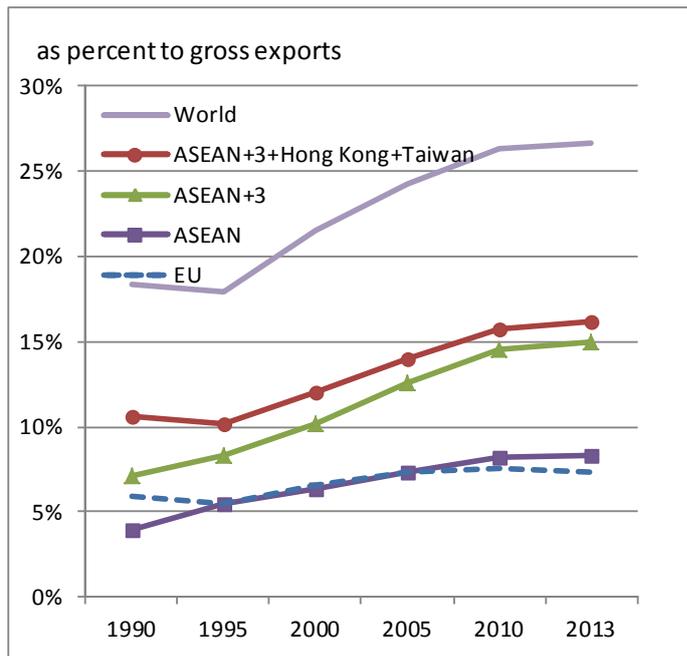


(Source) ASEAN-Japan Centre

Looking at the countries where the foreign value added of ASEAN exports was created, among advanced economies Japan's share (ratio of Japanese value added in gross ASEAN exports) declined from 8% in 1990 to 4% in 2013 and the U.S. share also dropped from 5% to 4% in this period while in Germany and the EU excluding Germany the ratio remained almost stable at around 2% and 5% respectively (Figure 7). Countries that increased the shares instead

were China (1%⇒5%), Korea (1%⇒2%) and ASEAN (3%⇒8%). The decline of the Japanese share can be attributed to the substitution of the parts exported from Japan with the local procurements from local subsidiaries of the Japanese parts makers due to the increased direct investments in the supporting industries, rather than the slowdown of the GVC expansion by Japanese companies in this area.

Figure 8: Forward participation in GVCs by ASEAN members and their partners  
(Domestic value added exports incorporated in other economies' exports)



(Source) ASEAN-Japan Centre

The development of ASEAN's forward participation in GVCs ((5) divided by (1) in Figure 1) shows a steady increase of the ratio from 18% in 1990 to 27% in 2013 (Figure 8). Looking at the creators (corresponds to country B in Figure 1) of foreign value added in ASEAN exports, ASEAN itself increased its share from 4% to 8%, while ASEAN+3 (China, Japan and Korea) from 7% to 15%, and ASEAN+3+Hong Kong and Taiwan from 11% to 16% respectively. We can see here a significant expansion of GVC construction in East Asia and Southeast Asia. During this period, the Japanese share remained unchanged at 2%, while China increased its share from 0% to 3%, and Korea from 1% to 2%. Among ASEAN countries, Singapore, an ancient hub of transit trade, showed an outstanding presence with an increased share from 2% to 4%.

Table 1: Participation in GVCs and RVCs by ASEAN (Percent of gross exports)

	Foreign value added			Domestic value added incorporated in other economies' exports			Value chain participation		
	Total	Created outside ASEAN	Created within ASEAN	Total	Incorporated outside ASEAN	Incorporated within ASEAN	GVC	RVC	Contribution by RVC(*)
	A=B+C	B	C	D=E+F	E	F	G=A+D	H=C+F	H/G
1990	34.6	31.3	3.3	18.4	14.5	3.9	53.0	7.2	13.6
1995	40.3	35.4	4.9	17.9	12.4	5.5	58.2	10.4	17.9
2000	39.4	33.9	5.6	21.6	15.2	6.3	61.0	11.9	19.5
2005	40.1	33.4	6.7	24.3	16.9	7.3	64.4	14.0	21.7
2010	38.2	30.8	7.5	26.3	18.1	8.2	64.5	15.7	24.3
2013	37.5	29.9	7.6	26.7	18.4	8.3	64.2	15.9	24.8

\*(Note) Figures on this column do not represent percentage of gross exports.

(Source) ASEAN-Japan Centre

As is seen above, the participation of ASEAN in GVCs has steadily expanded, and the participation in the regional value chain (RVC) within ASEAN has also been increasing (Table 1). In the background, there is a fact that the development of GVCs by the Japanese companies which took a strategic look at the future of ASEAN as a whole had played an important role in it. Also the development of RVC can be said to have been accelerated by increased direct investment in the late-coming members of CLMV by advanced ASEAN countries with the economic development of these ASEAN countries (Figure 14 below).

## 2. Developments of Major Industries in ASEAN

### 【Automobiles/Transport equipment】

Automobile industry is one of the industries with a rapid expansion in GVC involvement. Given the broad base of its supporting industries, the governments of the ASEAN countries have protected and nurtured their automobile industry while encouraging the introduction of foreign capital mainly from the Japanese affiliates/firms. Brand-to- Brand Complementation (BBC) Schemes<sup>2</sup> and ASEAN Industrial Cooperation (AICO) Scheme which were agreed as a step to enhance intra-regional cooperation in ASEAN were one of the driving forces that promoted the construction of GVCs by the Japanese automobile affiliates because they had facilitated a mutual mobilization of the parts within the region. Specifically, Thailand became a big production center of automobile related industries represented mainly by the Japanese makers. The number of annual production of automobiles in Thailand amounted to 1.94 million in 2016, of which 1.19 million were exported, making Thailand the top automobile exporter in

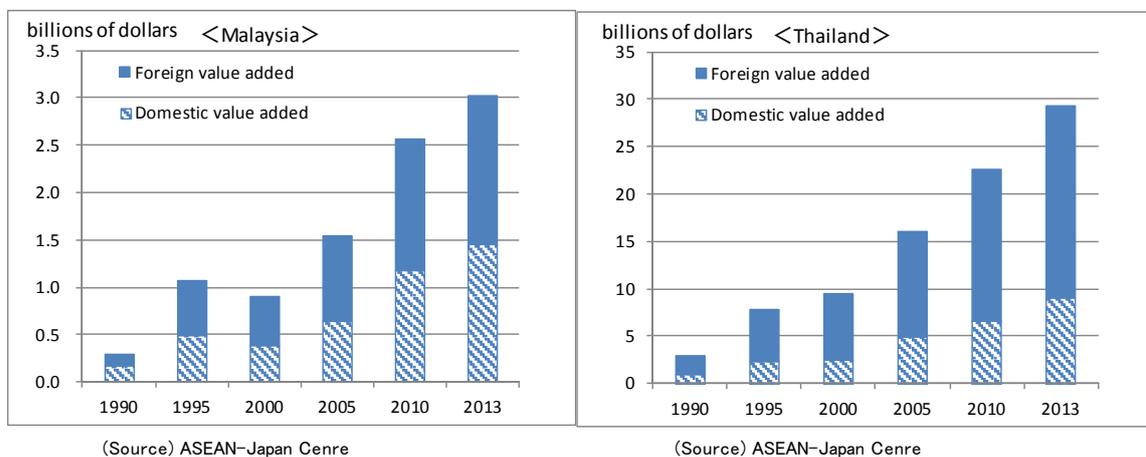
<sup>2</sup> BBC schemes were introduced in 1988. Until then, the ASEAN countries were separated by the customs tariffs, and automobile makers could not enjoy the scale merit of division of manufacturing process, and were forced to bear the high cost of making a full-scale production within a country. In order to solve this problem, special measures were adopted to allow the makers, limiting to the automobile parts, to include in the local content ratio and preferential tariff treatment the parts that were produced intensively in specified countries and exported to other countries. By amending the BBC schemes and broadening to other industries, the new AICO scheme was introduced in 1996.

the ASEAN region (based on the data of Federation of Thai Industries).

The exports of transport equipment by ASEAN expanded to \$45 billion in 2013, increasing by more than 10 times as compared to 1990. Among the member states, Thailand exported \$29 billion, showing an overwhelmingly high share among ASEAN, but 70-75% of its export value was attributed to the foreign value added, with the share showing almost no change in the past 20 years. Among the origins of the foreign value added, Japan had an overwhelmingly large share until in the 1990s (27% of Thai's automobile exports in 1990 which declined to 8% in 2013), while China expanded its share since 2000 to record 23% in 2013, far exceeding the Japanese share. In the meanwhile, the EU (mainly Germany) maintained the share of 12-3% while the share of the United States declined from 9% to 4%. ASEAN increased its share to 10%.

Malaysia's automobile exports accounted for only around one tenth (1/10) of Thailand's, but the share of domestic value added had been relatively high (little less than 50%), having a significant meaning for the Malaysian economy. The origins of foreign value added of Malaysia's automobile exports also had a common feature with the Thailand's, namely, a decline in the Japanese share and leveling off of the German share with increased shares of China and ASEAN.

Figure 9: Value added exports in automobiles from Malaysia and Thailand

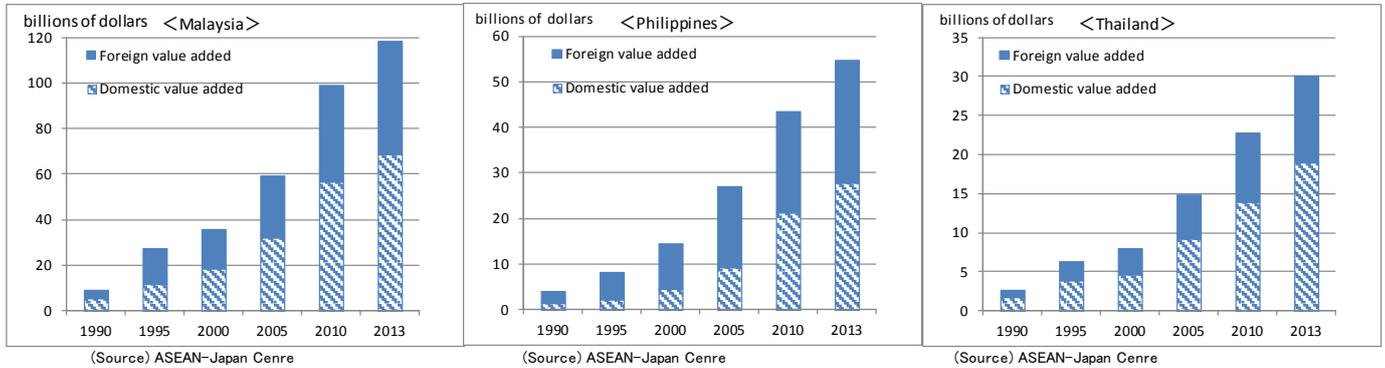


**【Electric and electronic equipment】**

Electric and electronic equipment industry had played a leading role in the ASEAN exports. The total export values amounted to \$353 billion in 2013, increasing by 13 times from in 1990. Malaysia, Singapore, the Philippines and Thailand are main exporters of this category. Unlike the case of automobile industry, Malaysia and Thailand had a similar share of foreign value added at around 50-60%. The origin countries of their foreign value added show a common trend in Malaysia and Thailand where the shares of Japan and the U.S. declined with unchanged

share of the EU and an increase in the shares of China and ASEAN. In the Philippines, Japan and ASEAN had a larger share.

Figure 10: Value added exports in electronics from Malaysia, Philippines and Thailand

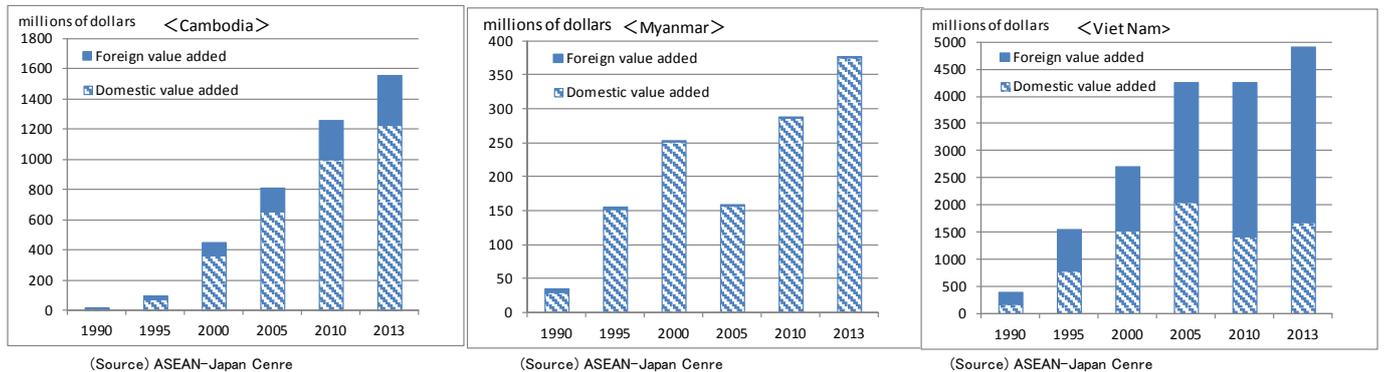


**【Textile and Clothing】**

The GVCs of clothing are mostly operated by companies with international brands. In Cambodia, the ratio of foreign value added is increasing, albeit from a small scale. About one fifth (1/5) of foreign direct investment outstanding in Cambodia has been made in the textile and clothing sector.

Viet Nam has the largest participation in GVCs in this sector. The origins of its foreign value added indicate an increased share for Japan, ASEAN and China with the unchanged share for the EU and the U.S. In 2013, the latest year for which the data are available, the share was highest in the order of Japan, ASEAN, and China.

Figure 11: Value added exports in textile and clothing from Cambodia, Myanmar and Viet Nam



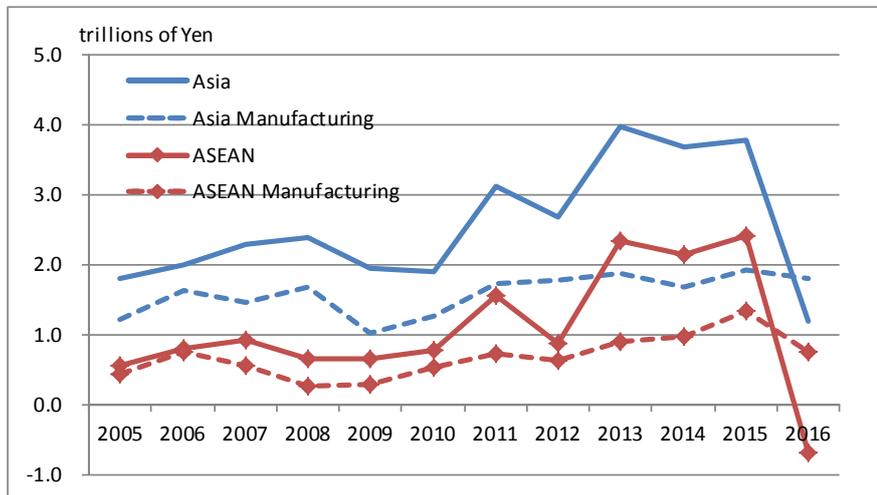
**3. Performance of the Japanese companies**

Most of the Japanese manufacturing companies regard the ASEAN countries as a part of their GVCs network in the automobile and parts, electric and electronic equipment sectors. To

construct their GVCs, the Japanese manufacturing companies had an active direct investment in the ASEAN region. As a result, the manufacturing industry has generally taken a major share in the Japanese direct investment in the ASEAN countries.

In the 2010s, participation of non-manufacturing companies has been increasing. As of the end of 2016, the Japanese direct investment outstanding in ASEAN stood at ¥19 trillion, of which manufacturing accounted for ¥11 trillion and non-manufacturing ¥8 trillion. This can be seen as reflecting the facts that with the improvement of income levels in ASEAN the need for the services of the whole and retail sales, finance and real estates has increased and with the expansion of GVCs by the Japanese companies the needs for the services of transport, information and telecommunication, finance and the like also have increased.

Figure 12: Japanese foreign direct investment to Asia (flow data)

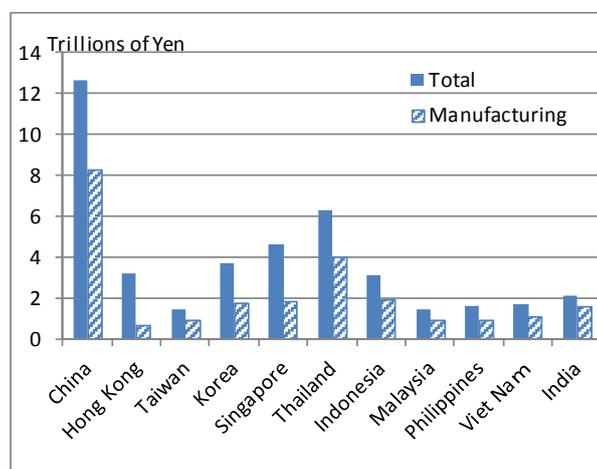


(Notes) Figures in this graph are compiled according to the Directional Principle--that is, investments from affiliated company in its parent company are recorded as withdrawals from the parent company from 2014. Thus the figures in 2014 and thereafter are different from before 2013 .

(Source) Japanese Ministry of Finance

By country, Thailand ranks the second largest recipient of Japanese direct investment in Asia next to China, with outstanding amount of ¥6 trillion. This is about a half of China, the top recipient, but taking into account the China's big scale in GDP that amounted to more than 28 times of Thailand's (IMF data for 2015), the outstanding amount of investment by the Japanese companies will tell the significance of the Japanese investment to Thailand. The outstanding amount of investment by the Japanese manufacturing companies amounted to ¥4 trillion, which is mostly attributed to the investment by two industries, namely, transport equipment by ¥1.23 trillion and electric machinery by ¥809 billion. The next largest recipient is Indonesia, with the outstanding amount of less than ¥2 trillion, nearly half of which is also accounted for by transport equipment.

Figure 13: Japanese foreign direct investment to Asia by host economies  
(Outstanding at the end of 2016)



(Source) Japanese Ministry of Finance

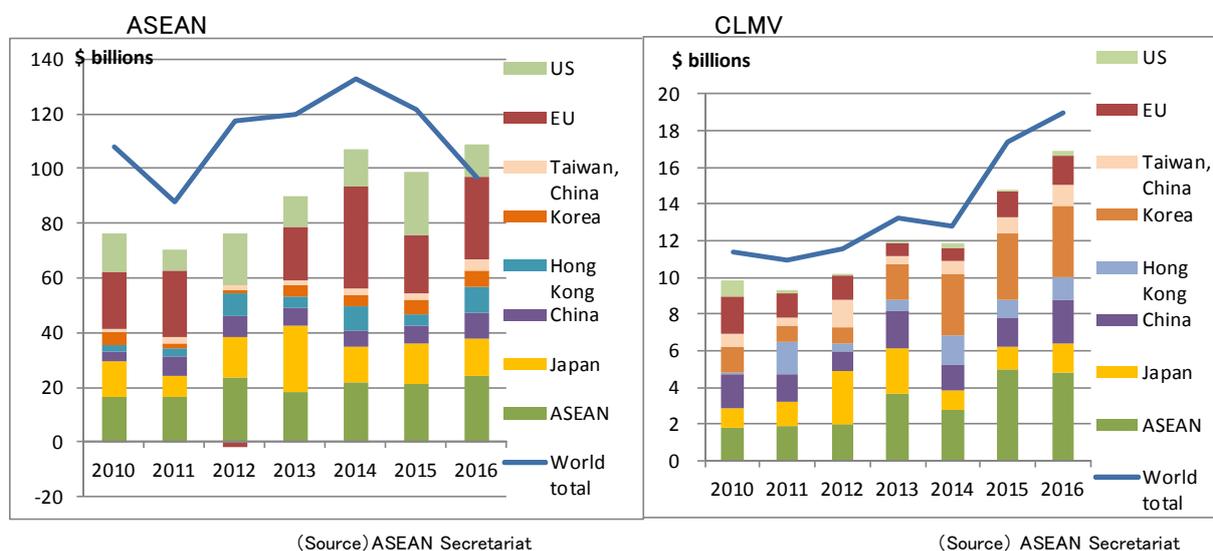
Looking at the direct investment in ASEAN from the recipient countries statistics, there has been a continued investment from the EU and the U.S., while the investment has been steadily increasing from the East Asian countries including intra-ASEAN countries, Japan, China, Korea, Hong Kong, and Taiwan (Figure 14). Manufacturing industry has been at the center of investment, but more recently the investment in increasing also in such sectors as the whole and retail sales, finance, insurance, etc.

Although still small in scale, direct investment has been increasing in the late coming CLMV countries. Among ASEAN countries, Singapore, Thailand, and Malaysia are the prominent suppliers of funds to CLMV. Also, investment is increasing from a more advanced Viet Nam to Cambodia and Myanmar among CLMV. The suppliers of funds from extra-ASEAN region mainly include such East Asian countries as Japan, China, Hong Kong, Korea and Taiwan. It can be seen that in a growing trend of strategy<sup>3</sup> for “China+one”, or “Thailand+one”, not only Japanese companies but also the companies in East Asia are expanding their construction of GVCs across the whole region. The participation in GVCs will help speed up the industrialization of the developing countries<sup>4</sup>. The global activities of the Asian companies including the Japanese ones are considered to have surely supported the rapid catch-up of CLMV countries in recent years.

<sup>3</sup> Direct investment in China from Japan rapidly increased since the 1990s, but rising wages in China, deceleration of the Chinese economy and heightening political risks increasingly encouraged the Japanese companies to diversify, taking the overconcentration of investment in China as a business risk, their investment to Thailand and Viet Nam etc. (China + One). Also in Thailand, concerns over labor shortage and wage increases have increased, inviting a move to further diversify their investment to peripheral CLMV countries (Thailand + One).

<sup>4</sup> World Bank Group and others (2017)

Figure 14: Foreign direct investment to ASEAN by investor economies  
(Outstanding at the end of each year)



#### 4. Bright and dark sides of GVCs: Challenges for ASEAN

According to the UNCTAD (2013), there is a positive co-relation in both advanced economies and emerging economies between “participation in GVCs and economic growth”, “participation in GVCs and foreign direct investment outstanding”, and between “participation in GVCs and returns on direct investment”. With the increased global competition, it has become an important point to the companies striving for survival how to procure qualified and low-cost parts and intermediate products. The construction of GVCs is one of their important strategies for the multinationals to lower the costs while keeping the quality and maintain the competitiveness. To the companies involved in the GVCs (many of which are those in emerging economies), the participation will allow them to access to a global market and improve their productivity through technology transfers and others. However, GVCs have drawn attention not only to these bright sides but also to the dark sides.

An increase in the shares of foreign value added exports in the progress of globalization shows that the gross exports of a country have not contributed to the GDP growth of that country as much as that gross numbers would suggest. In the advanced economies, there is a growing movement in many countries for an anti-globalization, as the participation in GVCs has caused a concern over the hollowing of domestic industries, loss of employment opportunities, and lowering of wages due to the competition with the emerging countries. In the United States, President Trump, with the support from the White low-income groups, has tried to review the NAFTA to make the manufacturing industries return to the U.S. Even if President Trump succeeds in his attempt, it will burden the US companies with higher costs if it increases

domestic employment to some extent. Many of the returning industries will be those with low value added, and the workers will not be able to expect high wages from them.

There is also a concern in emerging and developing countries, that the participation in GVCs will result in only specializing themselves in low value added process, losing the growth opportunity. Especially in Malaysia and Thailand, which have achieved economic growth to become upper middle income countries, it is a great important challenge how to improve the productivity indispensable to overcome the Middle-Income trap, and it is questioned how the countries can better utilize the GVCs for resolution of this big challenge.

For those countries which have finally joined the group of lower middle income countries like CLMV, in order to enjoy the merit of participating in GVCs as noted above, it will be an urgent task for them to lower the hurdles against expansion of GVCs by foreign companies especially by improving their infrastructures and reviewing their regulations and systems to enhance transparency.

UNCTAD (2013) points out that participation in GVCs is likely to accelerate the economic development in the developing countries but at the same time it will accompany various risks for them (for instance, an increased influence of business cycles in advanced economies, fiercer domestic competition, possible worsening of environmental or employment problems). Therefore, it urges, it is necessary for them to make a strategic judgement on whether they should promote GVCs or not, and which of the industries they should target at. Specifically, such measures are recommended as (1) enhanced synergy of trade and investment policies and between agencies concerned, (2) regional cooperation efforts for industrial development, and (3) construction of sustainable Export Processing Zones (EPZs).

ASEAN launched the ASEAN Economic Community (AEC) at the end of 2015, and currently aims at further deepening the AEC based on the “AEC Blueprint 2025.”<sup>5</sup> In the Blueprint, “increased participation in GVCs” is advocated as one of its 5 pillar priority measures. For ASEAN to increase the participation in GVCs, it is indispensable to strengthen the economic partnership including liberalization of services trades, and ASEAN countries as a whole are currently steering their policies toward promoting GVCs based on the recommendations of UNCTAD.

---

<sup>5</sup> See Yamaguchi (2017) for AEC.

## <References>

- ASEAN-Japan Centre, “Global Value Chains in ASEAN: A Regional Perspective”, September 2017
- UNCTAD, “World Investment Report” 2011,2013,2017 versions
- World bank group, JETRO, OECD,WTO, The Research Center of Global Value Chains,”Global Value Chain Development Report”, July 2017
- Ohno, Kenichi, “Avoiding the middle-income trap: Renovating industrial policy formulation in Vietnam”, February 2017
- Fukunari KIMURA, Toshihiro OKUBO, Mitsuyo ANDO, Hisayuki MATSUURA and Kazunobu HAYAKAWA: “Production Networks in East Asia and Economic Integration”, May 2016
- Ayako YAMAGUCHI: “50th Anniversary of ASEAN: Present Situation of its Economic Integration and Challenges Ahead”, Institute for International Monetary Affairs Newsletter No.12, August 2017

This report is intended only for information purposes and shall not be construed as solicitation to take any action such as purchasing/selling/investing financial market products. In taking any action, each reader is requested to act on the basis of his or her own judgment. This report is based on information believed to be reliable, but we do not guarantee its accuracy. The contents of the report may be revised without advance notice. Also, this report is a literary work protected by the copyright act. No part of this report may be reproduced in any form without express statement of its source.

Copyright 2018 Institute for International Monetary Affairs (IIMA) (公益財団法人 国際通貨研究所)  
All rights reserved. Except for brief quotations embodied in articles and reviews, no part of this publication may be reproduced in any form or by any means, including photocopy, without permission from the Institute for International Monetary Affairs.  
Address: 3-2, Nihombashi Hongokucho 1-Chome, Chuo-ku, Tokyo 103-0021, Japan  
Telephone: 81-3-3245-6934, Facsimile: 81-3-3231-5422  
〒103-0021 東京都中央区日本橋本石町 1-3-2  
電話 : 03-3245-6934 (代) ファックス : 03-3231-5422  
e-mail: [admin@iima.or.jp](mailto:admin@iima.or.jp) URL: <http://www.iima.or.jp>