Mizuho Economic Outlook & Analysis

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The ASEAN Export Industry Is Evolving

Production transfer from China has promoted the industry's qualitative growth

< Summary >

◆ Since 2015, growth of value-added exports in ASEAN has excelled growth in other regions. This achievement was brought about not only by transaction volume growth but also by qualitative development of the export sector, most likely driven by import replacement of high value-added intermediate goods.

◆ Technology-intensive industry in Malaysia and labor-intensive industry in Vietnam have fueled the qualitative development of ASEAN. The background behind this development includes production transfers from China, triggered by US-China trade tensions and increased capital investment by foreign companies.

◆ ASEAN's international trade position is expected to continue improving going forward. However, given concerns over possible sanctions imposed by the US, production transfer to Vietnam becomes a two-edged sword. It is important that Vietnam introduce such measures as improving its labor force skills to advance to the next development stage in the future.

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1. Introduction

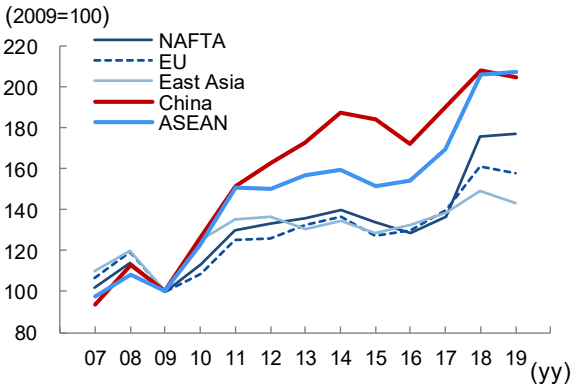
We begin by reviewing the expansion of international trade after the Global Financial Crisis. If we focus on value added produced in local regions, or "value-added exports" in total exports (**Chart 1**), China's growth stands out from other regions up until around 2015. However, after the Chinese economy clearly began slowing down in 2015, we could see the pace of ASEAN growth accelerate and surpass other regions. This implies that the weight of ASEAN in global trade, or the presence of ASEAN in international trade, has heightened significantly over the past five years.

This growth was not driven simply by expanding the transaction volume but also by a qualitative change in trade transactions. In this report, we focus on the qualitative change in trade transactions to consider the background behind ASEAN's growth and its implications for future economic development. In the last section, we examine the sustainability of development in Malaysia and Vietnam, the two countries that have led the qualitative growth of recent trade transactions.

2. GVC participation index suggests progress in import replacement in ASEAN's export sector

What does qualitative change in ASEAN mean specifically? We can answer this question by describing ASEAN as having "gone upstream" in the global value chain ("GVC"), starting with the local production of intermediate goods long imported from other nations, and this change has resulted in the expansion of value-added exports. In the following section, we discuss the "GVC participation index," which is a useful benchmark for studying the trade structure. We then confirm the trend of qualitative development of international trade by studying the movement of the GVC index.

Chart 1: Value-added exports



Note: Value-added export refers to the value added produced in local regions and not overseas (local content) in the country/region's total exports. The above index is calculated on a nominal US Dollar basis. ASEAN data include nine ASEAN countries, excluding Myanmar due to data restrictions. EU data include 28 nations, including the UK, and East Asia data include Japan, South Korea and Taiwan.
Source: Made by MHRT based on the ADB.

(1) Definition of the GVC participation index and its interpretation

We can grasp a country's degree of GVC participation by looking at two measures of the GVC participation index. The first measure expresses a link with GVC as a supplier of intermediate goods and is called "forward linkage," since it shows the degree

of linkage in a forward direction from the viewpoint of the country in question. The other measure depicts a link with GVC as a demander of intermediate goods, and this is called "backward linkage" as it shows the degree of linkage in a backward direction (**Chart 2**). For details on how to calculate these measures, refer to the Supplementary Discussion.

Chart 3 shows the concept of change in GVC participation in a four-quadrant chart. "Case 1" is where both the forward and backward participation indices rise. Here, the percentages of both imported intermediate goods to be added in the local export value and locally produced intermediate goods to be added in the foreign export value in total exports go up, and we can interpret a more multi-layered GVC centered on the subject country. Generally speaking, this case corresponds to the relationship between Germany and EU peripheral countries where vertical integration has deepened. "Case 2" depicts a situation where the forward participation index rises while the backward participation index lowers, representing an upstream shift in the value chain. The typical situation of Case 2 can be described as follows: a country traditionally dependent on imports for high value-added intermediate products, such as integrated circuits, due to technology challenges, succeeds in changing procurement to domestic production in a process known as "import replacement." As an example, China is now rapidly undergoing this type of structural change. In contrast, in "Case 3," the forward participation index lowers while the backward participation index rises, depicting a downward shift in the value chain. This is a case where a nation specializes in labor-intensive downstream processes, such as the assembly of machinery, while the procurement of intermediate goods depends on imports, a common situation seen in technologically immature countries where cheap labor is available, such as the Philippines. Lastly, in "Case 4" where both the forward and backward indices lower, a country becomes more distant from the value chain in contrast to Case 1. This case does not usually occur, but it can if the political situation of a country suddenly deteriorates due to such factors as a coup d'état and becomes isolated from the international society.

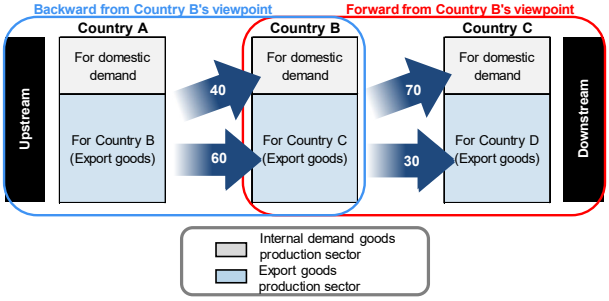
As value chains become more internationalized today,[1] participation in GVC has a deep connection with economic development through international trade. In general, a country at an early development stage specializes in the downstream process by accepting foreign direct investment (Case 3) and starts to enjoy the benefit of international specialization through GVC participation. Later, the country is incorporated into more high value-added technology-intensive processes (Case 2), and this results in the expansion of value-added exports. Meanwhile, developed countries adopt the position of organizing this international specialization. In other words, developed countries can improve their

[1] We believe the concept of "global value chain" is quite modern in the sense that it describes international specialization/trade based on the comparative advantage of process rather than goods as proposed by Ricardo (1817).

productivity by sending low productivity processes offshore to maximize the profit of the entire trade zone (Case 1). We can say that Japan has also experienced this kind of development pattern.

Hence, by studying the combination of the two GVC participation indices in the previous examples, we can detect the position of a country/region within the value chain and comprehensively assess the phase of economic development from an international specialization perspective.

Chart 2: Concept of GVC and forward/backward linkages



Note: Arrows represent the movement of intermediate goods. Figures in the arrows show examples of values.
Source: Made by MHRT.

Chart 3: Typical cases of trade structural change

Backward participation	Forward participation: UP	Forward participation: DOWN
UP	**[Case 1] External shift** (Deepening of vertical integration)	**[Case 3] Downward shift** (Specialization to downstream process)
DOWN	**[Case 2] Upstream shift** (Import replacement of intermediate goods)	**[Case 4] Internal shift** (Disruption of relationship with the international society)

Source: Made by MHRT.

(2) GVC participation by region

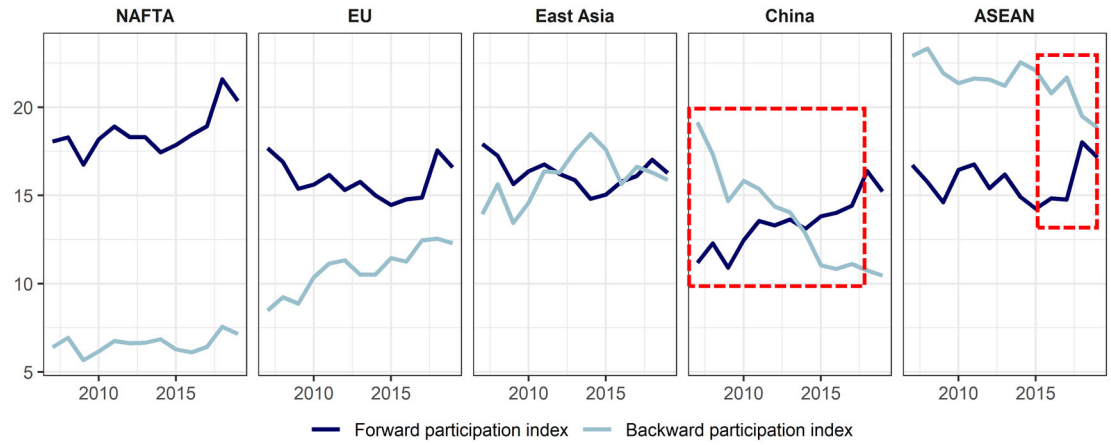
If we look at the GVC participation index by region[2] (**Chart 4**), the forward participation index was going up globally in the latter half of the 2010s. Another notable feature is that backward participation in the EU was also rising. This shows that during the said period, the strengthening of interrelations among EU nations was occurring on the back of recovery and expansion of the global economy.[3] As for ASEAN, backward participation, or import dependence for intermediate goods, was much higher compared to other regions given its lack of technological capability. But recently, the forward participation index has been increasing while backward participation has been declining significantly. This is a clear sign of an upstream shift. ASEAN in recent years has been reducing its dependence on overseas procurement by promoting local production of intermediate goods, and as a result, its influence in downstream countries or industries has

[2] We used the Asian Development Bank's Multiregional Input-Output Tables (ADB-MRIOT, 2007 – 2019) to calculate the index.

[3] In 2019, both the forward and backward participation indices fell in all areas (Case 4 in **Chart 3**). We can see that protectionism that prevailed in the US and China on the back of trade friction reduced the volume of international trade.

become greater. In this sense, ASEAN's presence in the world of international trade has also grown in qualitative aspects. It should be noted that the same phenomenon was observed in China after 2007, the period covered in our calculation of GVC participation. China outgrew such labor-intensive processes as the production of clothing and the assembly of machinery, and improved its manufacturing capability to turn out high value-added and technology-intensive products, such as semiconductors and wireless communication equipment. China is a representative example of a nation that has quickly gained presence in the global value chain, and ASEAN seems to be following the same path today. This fact suggests the progress that ASEAN has made in import replacement of high value-added intermediate goods.

Chart 4: GVC participation index



Note: ASEAN data include nine ASEAN countries, excluding Myanmar due to data restrictions. EU data include 28 nations, including the UK, and East Asia data include Japan, South Korea and Taiwan. The above data do not include coke, refined petroleum, and nuclear fuel since these products are greatly affected by natural resource price fluctuations.
Source: Made by MHRT based on the ADB.

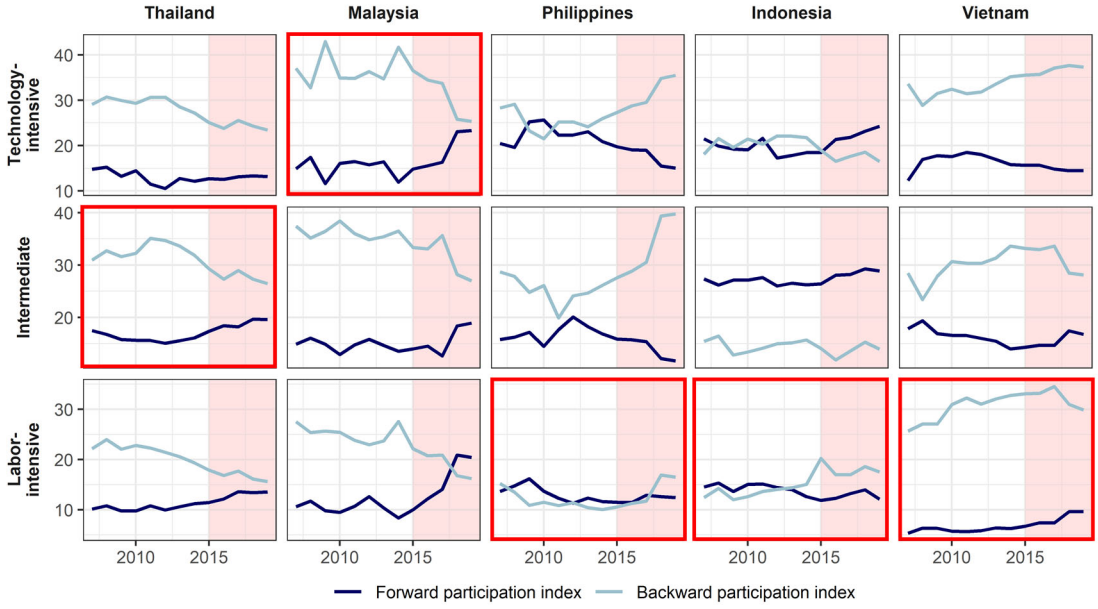
3. Background of the upstream shift is production transfers from China and expanded capital investment

In this section, we break down ASEAN into five major nations to study the background behind the upstream shift by country. **Chart 5** shows GVC participation by dividing the manufacturing industry of five major ASEAN countries into the three categories of technology-intensive, intermediate, and labor-intensive sectors based on product characteristics. If we focus on the main industry class (marked with a thick red line) with heavier weight[4] to confirm trend changes after 2015, Malaysia's technology-intensive

[4] We used the Asian Development Bank's Multiregional Input-Output Tables from 2010 to 2015 to calculate the share in value-added exports as each year's average. The main industrial classes selected for each country are intermediate industry for Thailand, technology-intensive industry for Malaysia, and labor-intensive industry for Indonesia, the Philippines, and Vietnam. The main industrial classes account for more than 40% in all the countries. Particularly in Vietnam, labor-intensive industry accounts for more

industry and Vietnam's labor-intensive industry experienced an upstream shift, or a rise in the forward participation index and a decline in the backward participation index. In the other countries, we could not detect a clear upstream shift in the major industry class. Hence, we can say that the two leading nations driving ASEAN's upstream shift are Malaysia and Vietnam. It should be noted that the GVC participation index is measured using the data of a country where value-added production takes place, and we cannot distinguish whether the value was produced by a foreign company or a local firm. For this reason, we need to bear in mind that changes in the GVC participation index do not necessarily mean that the entire country has undergone a structural change.

Chart 5: GVC participation index of ASEAN5 manufacturers by industry class



Note: Technology-intensive sector = general machinery, electronic/optical equipment, transportation equipment and chemical products. Intermediate sector = rubber/plastics, non-ferrous metals and minerals and metal products. Labor intensive sector = food and beverage/tobacco, fabric and textile products, leather products, wood products, pulp and paper, and miscellaneous industrial products. Coal/petroleum refinery (coke, refined petroleum, and nuclear fuel), which are susceptible to natural resource price fluctuations, are not included.
Source: Made by MHRT based on the ADB.

First, in Malaysia's technology-intensive industry, the upstream shift from 2017 through 2018 was particularly noteworthy, and a similar jump also took place in its intermediate and labor-intensive industries during the same period. Considering the timing of this period, we can interpret that the shift was partly driven by production transfers from China on the back of US-China trade friction.[5] According to the announcement by the

than 70% of the total industry.

[5] Around 2010, there was a movement called "China plus one" to transfer production sites to ASEAN, triggered by rising wage levels in China. The gradual shift of the GVC index in Thailand, the Philippines, and Vietnam during the same period is considered to be a result of this movement. Companies which did not transfer their manufacturing base seem to have set aside their plans, and when the US and China began imposing additional tariffs on each other in 2018, production transfers to ASEAN suddenly gained

Malaysian Investment Development Authority,[6] it had invited 32 production transfer projects triggered by US-China trade friction by the end of May 2020, with the total investment value amounting to 17.5 billion ringgit. Also, in October 2018, the Malaysian government launched a strategic basic policy called "Industry 4WRD" (Malaysia's version of "Industry 4.0" promotion measures) as an initiative to raise the level of industrial sophistication, and this may have worked favorably to buoy direct investment. In fact, direct investment bound for Malaysia grew substantially centering on technology-intensive industries thanks to these various factors (**Chart 6**). As a consequence, import replacement of intermediate goods advanced through increased local production, and this gave rise to an upstream shift in GVC.

Second, in the case of Vietnam's labor-intensive industry, although it was shifting downstream up until 2017, an upstream shift began to occur from 2018. The main factor seems to be production transfers from China triggered by the US-China trade tensions, just like in Malaysia. Many production transfer projects driven by US-China trade tensions have been announced in Vietnam centering on labor-intensive industries, supported by the advantage of cheap labor. We believe the great improvement achieved in labor productivity by foreign companies in Vietnam after 2018 offers evidence of production transfers making a positive contribution to the upstream shift in Vietnam (**Chart 7**). But the next question is why did an upstream shift occur instead of a downstream shift, even though a massive investment was made in labor-intensive industries? According to JETRO's "Survey on Business Conditions for Japanese Companies Operating Overseas," there was a two to three times difference in the wage level (general workers) between Vietnam and China as of 2018. To put it another way, production sites established in China had set up production systems that matched China's labor costs, which were a few times higher than Vietnam's. Hence, we can conclude that as the transfer of China's production sites also included more upstream processes, the share of value-added products produced in Vietnam improved and caused an upstream shift to occur.

4. Sustainability of qualitative development and issues to be addressed toward the next stage

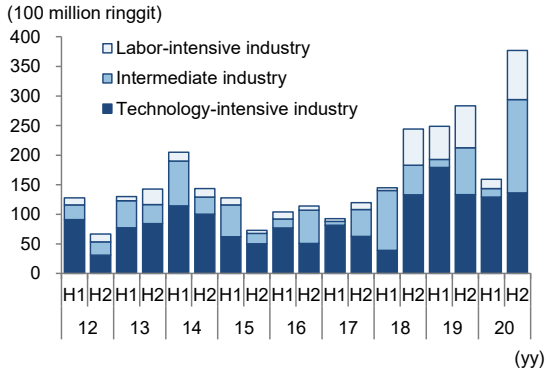
We have seen thus far that quantitative expansion of international trade in ASEAN also accompanied qualitative development. In order for ASEAN to further strengthen its position in the arena of international trade, it needs to pursue not only quantitative but also qualitative development of trade. In the coming section, we pick up a few topics to discuss

momentum. In particular, many firms unveiled their plans to invest in Vietnam.

[6] https://www.mida.gov.my/mida-news/us-china-conflict-mida-attracts-32-projects-worth-rm17-5-bln-via-relocations-to-malaysia/

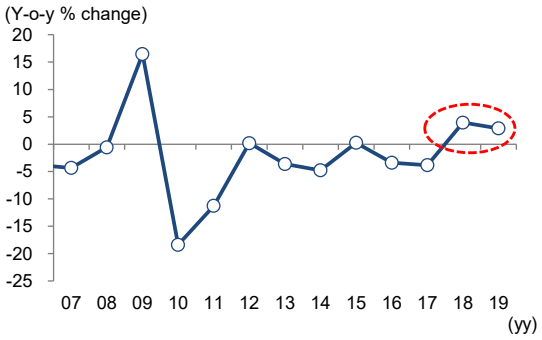
the sustainability of the upstream shift covered in this report and address the issues that need to be tackled in middle to long term.

Chart 6: Approval value of direct investment in Malaysia's manufacturing industry



Note: Industrial classification is based on the definition in **Chart 5**.
Source: Made by MHRT based on the Malaysian Investment Development Authority.

Chart 7: Labor productivity of foreign companies in Vietnam



Note: The above data are calculated by dividing value added (real basis) by number of employees.
Source: Made by MHRT based on the General Statistics Office of Vietnam.

(1) Growth of digital demand helped to make Malaysian industry higher value-added

For Malaysia with its growing electronic equipment industry, the recent expansion of digital demand may become a driving force in shifting its industry upstream. Amid strict stay-at-home restrictions due to the Covid-19 pandemic, the demand for digital-related products is heightening, and thanks to this phenomenon, the electronic equipment industry is performing favorably while other industries remain stagnant. Given the difficulty of predicting when the global pandemic will end in the next year or two, we expect the boom for digital-related products to be sustained, pushing up capital investment in the electronic equipment industry. **Chart 8** depicts the results of JETRO's survey targeting Japanese companies operating in the Asia and Oceania regions, asking what production capacities they plan to expand in the future. The survey results revealed that Malaysia was at the top in terms of high value-added products. Since capital investment planned in the electronic equipment industry will not be used only to boost production volumes but also to turn out higher value-added products, we expect this move to promote an upstream shift of Malaysia's industry.

(2) Production transfer to ASEAN is expected to continue, but with double implications for Vietnam

In the case of Malaysia and Vietnam, production transfers from China were the main reason for the upstream shift. US-China trade tensions, the primary factor behind these production transfers, shows no sign of easing any time soon, despite the change in US administration from the Trump to the Biden administration. We believe that companies with production bases located in China will continue to have strong investment appetite for ASEAN while additional tariffs remain in place between the US and China, and hence production transfers to Malaysia and Vietnam are expected to continue going forward.

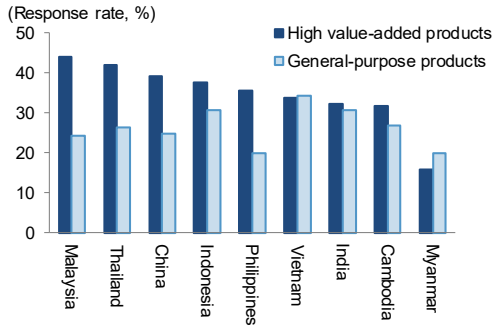
But we need to be aware that the Vietnam case is not always positive. Attention must be paid to the fact that while the increase in production transfer works positively in promoting an upstream shift of industry, it can also work negatively in terms of attracting direct investment from other countries. In December 2020, the US designated Vietnam as a currency manipulator as it met the three criteria of (1) a trade surplus with the US that exceeds $20 billion, (2) a current account surplus of at least 2% of GDP, and (3) foreign exchange intervention over six months. The US trade deficit vis-à-vis Vietnam has grown significantly fueled by production transfers from China, amounting to minus 60 to 70 billion USD in 2020, the third largest in the world. As the Biden administration is expected to increase US cooperation on the international stage, the possibility of actually imposing sanctions seems small. But if the US does impose sanctions, this will not only generate downward pressure on exports bound for the US, but will also become a major hurdle to inviting additional direct investment. In light of this situation, we believe that Vietnam wants to avoid trade friction with the US at any cost. The Vietnamese government will face a challenging situation where it wishes to receive more direct investment while nervously managing its relationship with the United States. As such, Vietnam's dependence on foreign companies to achieve growth also runs a risk.

(3) Vietnam should not continue to only profit from the US-China trade conflict

We have discussed thus far that Vietnam has experienced increased import replacement and local production thanks to production transfers, just like Malaysia has. However, unlike Malaysia, the situation in Vietnam arose as a result of Chinese firms advancing local production within China, and momentum to invest in Vietnam to promote import replacement is rather weak. If we look at **Chart 8** again, the share of firms in Vietnam planning to expand the production capacity of high value-added products is the smallest among the five major ASEAN countries. On the other hand, Vietnam sits at the top when it comes to the share of companies planning to strengthen their production capacity of general-purpose products, and we can see that Vietnam continues to remain a labor-intensive production site. From a middle to long-term perspective, countries that depend on low-cost advantages to achieve economic growth typically fall into the "middle income

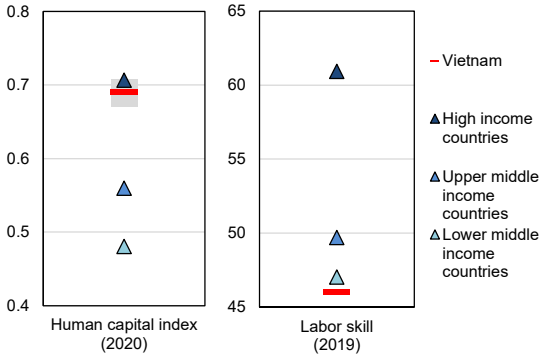
trap," and with a view to moving to the next development stage smoothly, such countries need to nurture growth factors that look ahead to the future. To create an environment that can attract high value-added industries, much like Malaysia has done, what measures should Vietnam be taking? While Vietnam faces a variety of issues, beginning with improving its infrastructure, development of the nation's labor skills is considered to be a most needed and effective measure. Education in Vietnam is said to be superior both in terms of quantity and quality, and Vietnam is equally ranked with high income nations in the "human capital index" that measures learning achievement and education years. This means that although the potential capability of the labor force is strong in Vietnam, actual labor skills have fallen behind other nations (**Chart 9**). And this makes it difficult for firms to hire skilled workers that meet their requirements and is an obstacle in improving Vietnam's competitiveness. Therefore, measures to develop labor skills, such as engineering skills, may be effective in strengthening Vietnam's economic competitiveness.

Chart 8: Production capacities that Japanese companies plan to expand in the future



Note: The above data represent multiple answers by respondent companies to the question asking, by country, what production capacities they plan to expand in the coming one to two years. The survey was conducted in August – September 2020.
Source: Made by MHRT based on JETRO.

Chart 9: Human capital and labor skill in Vietnam



Note: The human capital index reflects learning achievement and education years. Labor skill reflects the degree of digital skills and employee skills developed by companies. The grey shadow in the left panel shows uncertainty of the index.
Source: Made by MHRT based on the World Bank and the World Economic Forum.

5. Conclusion

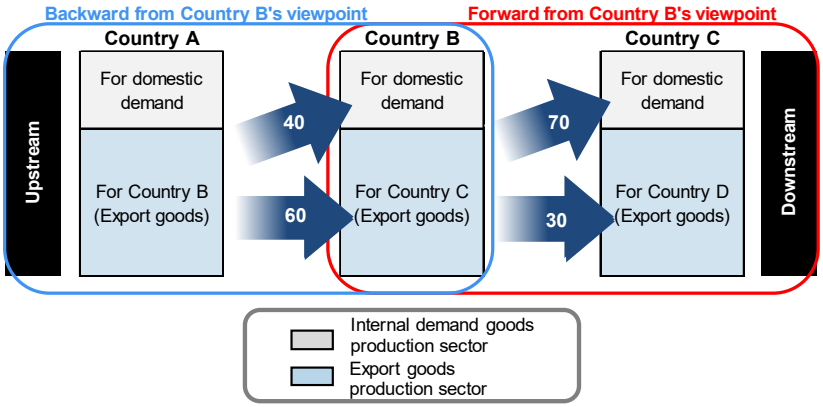
China, or the "factory of the world," has established its position today by succeeding not only in promoting industrial clusters by accepting companies from all around the world, but also in improving the value of locally made products by absorbing the technological edge of foreign firms. While China has its own advantages, such as huge domestic demand to achieve strong economic growth, ASEAN in following China also demonstrates its own

merits. It should be noted that ASEAN has a wide range of competitive advantages. For example, while ASEAN boasts Malaysia as a prominent production site for high value-added products, it also includes countries like Vietnam and the Philippines, characterized by their abundant, low-cost labor force, hence covering a wide range of the value chain from upstream to downstream. Differences in the degree of development among member nations should be seen as a strength, and if we look at the region as a single trade sphere, the ASEAN region can enhance the merits of attracting industry, just like in Europe. Furthermore, ASEAN comprises nations with large populations, such as Indonesia and the Philippines, as well as the city-state of Singapore that occupies an important position in trade and finance, and this also offers ASEAN a distinctive advantage.

Nevertheless, ASEAN still needs to overcome major hurdles to reach the position that China has attained. We pointed out some of the issues that Vietnam needs to tackle, including the development of technical skills in section 4. The nurturing of local industries able to compete with foreign firms is also viewed as an important factor. But at the same time, ASEAN's export industries have made solid progress over the past few years, as explained in section 3. We believe it is also important for Japanese companies to devise their business plans considering the possibility that ASEAN will become a more important business partner in the future.

Supplementary Discussion: GVC participation formula

(See Chart 2) Concept of GVC and forward/backward linkages



Note: Arrows represent the movement of intermediate goods. Figures in the arrows show examples of values.
Source: Made by MHRT.

(1) Forward participation index

The percentage of domestically produced value of intermediate goods added in another country's foreign exports in total domestic exports. Calculation using the values in the above chart:

[Country B's forward participation index] = [Value of intermediate goods domestically produced by country B added to country C's foreign exports] / [Total export value of country B]

30 / (70 + 30) = 30%

(2) Backward participation index

The percentage of import value of intermediate goods added to domestic exports. Calculation using the values in the above chart:

[Country B's backward participation index] = [Value of intermediate goods added by imports from Country A] / [Total export value of Country B]

60 / (70 + 30) = 60%

Reference

Refer to the original Japanese report by clicking the URL below for the reference material.

https://www.mizuho-ir.co.jp/publication/mhri/research/pdf/insight/as210331a.pdf