The Impact of US-China Trade Friction on Asian Supply Chains

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Summary

1. For the first time, China has become Vietnam's leading source of inward direct investment. Supply chain restructuring in response to the US-China trade friction tends to be seen primarily as an issue affecting Japanese, Taiwanese and South Korean companies. However, it is Chinese businesses that are reacting most sensitively to the deteriorating business environment created by tariff hikes. The shift of production operations to Vietnam is expected to accelerate with the launch of a fourth round of punitive tariffs by the United States.

2. Vietnam, which is recording strong trends in both exports to the United States and imports from China, is the most obvious example of a country in which increased investment by Chinese companies is leading to increased imports from China, which in turn results in higher exports to the United States. However, an analysis of trends in individual trade items indicates that the transfer of production operations to Vietnam has not yet started in earnest.

3. China has also increased its direct investment in Malaysia, Indonesia and Thailand, establishing itself as a major investor nation. Unlike China, however, there has been no shift toward ASEAN in foreign direct investment by South Korea, Taiwan and Japan. This is because these countries were already moving toward distributed production in response to soaring labor costs, even before the start of US-China friction.

4. Both Taiwan and South Korea are expected to increase their investment in ASEAN or India following the announcement of the schedule for a fourth round of tariff increases by the United States. The main focus of supply chain restructuring is the electrical and electronic equipment industries. Because Japan has industrial clusters in ASEAN that are comparable to those in China, Japanese companies have room to avoid punitive tariffs by rearranging their production structures.

5. The US-China trade friction will have a negative impact on the world economy, but the effects will vary from country to country. Countries and regions that become substitutes for China could enjoy significant increases in their exports to the United States. According to U.S. import statistics, exports of communication equipment, furniture, and bedding from Vietnam to the United States have expanded. Exports of Taiwanese office equipment and automatic data processors to the United States have also risen. China's shares of imports of these items into the United States have meanwhile fallen sharply.

6. If countries that substitute for China as production bases increase their imports from China as well as their exports to the United States, the negative impact of the US-China trade friction may not be as great as indicated by the decline in Chinese exports to the United States. However, this pattern is currently limited to just Taiwan and Vietnam.

7. Three conclusions emerge from an analysis of US and Chinese trade statistics. First, efforts to restructure supply chains will accelerate in response to the fourth round of tariff hikes. Second, countries that possess the same industries as those responsible for China's exports to the United States are advantageously positioned to take over production. Third, given the enormous scale of Chinese exports to the United States, supply chain restructuring will not occur overnight.

Introduction

During a meeting at the end of June 2019, U.S. President Donald Trump and General Secretary Xi of China committed to resuming trade negotiations and agreed to postpone a fourth round of tariff increases that would have affected all goods exported to the United States from China. U.S. stock prices and the yuan both rose as a result of this agreement, which was seen by the market as a temporary truce. However, concerns that the upcoming trade negotiations would be drawn out and unproductive led President Trump to announce on August 1 that the United States would be implementing a fourth round of tariff increases, consisting of an additional 10% tariff on certain Chinese goods that had previously been exempt.

The fourth round of U.S. tariffs can be divided into measures that were activated on September 1, and those that will take effect from December 15[(1)]. A total of 3,243 items with an import value of $111.4 billion were targeted by the September 1 tariffs, including smart watches, semiconductor memory devices, and flat screen televisions. The December 15 tariffs will affect 555 items with an import value of $156 billion. Among the items targeted are smartphones, notebook computers, computer monitors, video game systems, certain types of clothing and footwear, and toys[(2)]. The timing of the fourth round was staggered to reduce the impact on the U.S. Christmas shopping season. Because the United States is heavily dependent on China for the products affected by the December 15 tariffs, manufacturers will need time to make substitute production arrangements.

If the fourth round of tariffs is implemented as planned, punitive tariffs will be applied to all Chinese exports to the U.S., with the exception of specific items such as rare earth. President Trump reacted angrily to a Chinese announcement that it would take retaliatory action in response to the fourth round of tariff hikes, saying that he would lift the tariff rate for three rounds of measures from 25% to 30%, and that for the fourth round from 10% to 15%[(3)]. US-China trade friction has now entered a phase in which both parties are vying to see which will raise tariffs further.

At the same time, both the U.S. and Chinese governments are becoming increasingly concerned about the economic outlook and indicated a willingness to compromise ahead of the October trade talks. The United States was planning to raise tariffs on goods covered by the first three rounds of tariff increases from 25% to 30% on October 1, but this was postponed until October 15. China has meanwhile excluded certain U.S. agricultural products, such as soybeans and pork, from additional tariffs, allowing imports of these products to resume. However, given that hopes for an agreement between the U.S. and China have been dashed multiple times in the past, optimism would be unwarranted.

Companies that export to the United States from bases in China are expected to accelerate the restructuring of their supply chains amid growing fears of a prolonged US-China trade friction. In this article, we will use direct investment data and trade statistics to examine the trend towards supply chain restructuring, the direction of this restructuring, and the implications for Asian economies, including both China and its neighboring countries and regions.

1. Vietnam's Emergence as an Alternative Production Base—An Analysis Using Direct Investment and Trade Statistics

Vietnam is seen as the most promising candidate destination for the relocation of production operations from China. In this section, we will examine the unprecedented changes that US-China trade friction has triggered in Vietnam's investment and trade situation. We will also explore the factors that led to these changes.

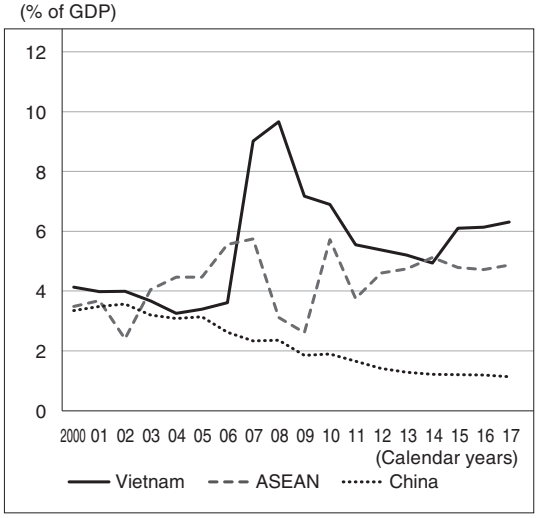
(1) Chinese Companies Pursuing a "China Plus One" Strategy

According to figures released by the General Statistics Office of Vietnam, direct investment in Vietnam during the first six months of 2019 declined by 9.2% year on year to $18.5 billion on a registered capital basis, and 37.9% year on year to $7.3 billion on a new registered capital basis. Despite this downward trend in investment, Vietnam is still attracting attention as the leading candidate for the relocation of production operations from China. As discussed below, there are three reasons for this.

First, investment in Vietnam is still increasing on an execution basis. Inward direct investment executed reached $9.1 billion in the first six months of 2019, an increase of 8.3% over the same period in 2018. This is higher than the totals for the first half of each year since 2015, which amounted to $6.3 billion, $7.3 billion, $7.7 billion, and $8.4 billion respectively[(4)]. Direct investment is helping to lift the level of the Vietnamese economy. According to the United Nations Conference on Trade and Development (UNCTAD), inward direct investment in Vietnam as a percentage of GDP (balance of payments basis, net, flows) reached 6.3% in 2017, exceeding the figures for both China (1.0%) and ASEAN (5.0%) (Fig.1). Based on the rate of increase in investment projects executed in recent years, Vietnam can be seen as one of the most successful countries in terms of attracting foreign investment, at a time when direct investment in other developing countries is stagnating.

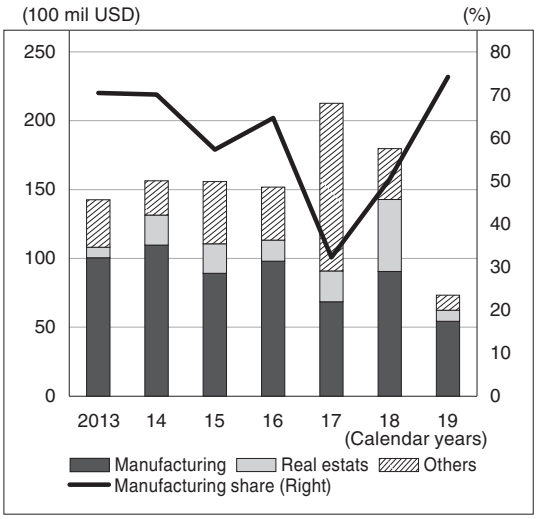
Second, investment in the manufacturing sector is expanding. From January to June 2019, investment in manufacturing increased by 32.7% over the same period in 2018 to $5.4 billion. This growth in manufacturing investment offset a major decline in real estate investment, which slumped by 83.3% to $800 million over the same period, and helped to prevent a significant decline in total investment (Fig.2). Several factors have contributed to the improvement of Vietnam's investment environment, including its participation in the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP), or TPP11, as well as the signing of EU-Vietnam Free Trade Agreement (EVFTA) at the end of June. Another advantage that makes Vietnam an attractive destination for the transfer of labor-intensive industries is the fact that its labor costs are the lowest among

Fig. 1 Inward Direct Investment as a Percentage of GDP



Notes: International balance of payments basis (net, flow), weighted average for the 10 ASEAN members.
Source: Compiled by JRI using UNCTAD data

Fig. 2 Inward Direct Investment in Vietnam by Sector



Notes: January-June 2019, newly registered capital basis.
Source: Compiled by JRI using CEIC data

CPTPP member countries.

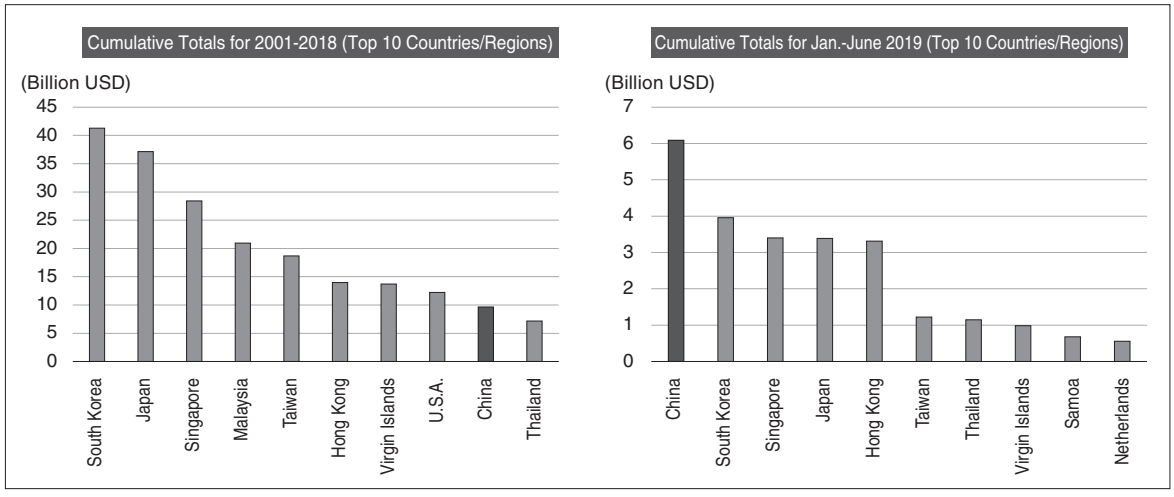
Third, Chinese investment in Vietnam is growing. China was ranked only ninth in terms of cumulative investment to Vietnam between 2001 and 2018 with a total of $9.7 billion. However, Chinese investment has expanded rapidly in 2019, and at $6.1 billion, the total for the first six months of 2019 was five times higher than the figure for the same period in 2018. Inward investment from China between January and June 2019 was equivalent to around 60% of the cumulative total up to that point, with the result that China became the leading source of inward direct investment in Vietnam for the first time (Fig.3). Information is strictly controlled in China, with the result that there is little comprehensive media coverage of the negative effects of trade friction on China, such as the exodus of production operations. However, Vietnam's investment statistics provide a clear picture of trends in the activities of Chinese companies.

According to the Chinese Ministry of Commerce (MOFCOM), foreign direct investment in the January-May 2019 period slowed to $47.2 billion, an 8.4% decline compared with the same period last year[5]. The Ministry does not release monthly data that allows foreign direct investment to be broken down by country, but if Chinese investment in Vietnam is increasing as indicated by statistics published by the Vietnamese government, it could be the result of moves by Chinese companies to relocate some of their production operations. This conclusion is supported by the number of downloads of the investment guides provided on the MOFCOM website for 172 countries and regions. All five countries for which these guides have been downloaded more than 3,000 times are seen as promising destinations for production operations. Vietnam scored the highest number of downloads at 3,812, followed by Thailand (3,274), Indonesia (3,265), Cambodia (3,131), and India (3,047)[6].

Supply chain restructuring in response to US-China trade friction tends to be seen as a problem for Japanese, Taiwanese and South Korean companies with production networks in China. In fact it is Chinese companies that are most sensitive to the deterioration of business environments due to tariff increases. This has extremely important implications when forecasting the outlook for supply chains in Asia.

Faced with soaring labor costs and deteriorating relations with China, Japanese, Taiwanese, and South Korean companies are increasingly correct-

Fig. 3 Inward Direct Investment in Vietnam (New Registered Capital Basis)



Notes: Cumulative figures represent total newly registered capital each year.
Source: Compiled by JRI using CEIC data

ing their excessive concentrations of production capacity in China through "China plus one" strategies. With Chinese companies also adopting this strategy, this pattern of moving out of China could spread throughout Asia. This will weaken China's vaunted dominance as the "world's workshop" while providing the countries that emerge as substitute production bases with opportunities for rapid growth through increases in inward direct investment and exports to the United States.

(2) Trade Relationships with the United States Reflected in Investment Trends

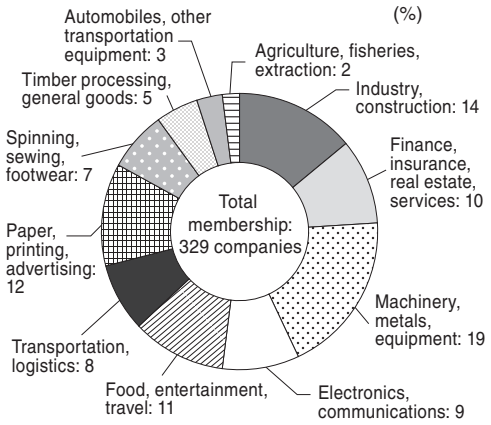
We will look next at the sectors in which Chinese companies are investing. Since Vietnam's inward direct investment statistics do not provide breakdowns by country or sector, we will instead approach this question using membership data from the Chinese Chamber of Commerce in Ho Chi Minh City, which is an organization of Chinese companies that have expanded into Vietnam. According to this organization, the majority of its 329 members (as of November 2017) are based in Ho Chi Minh City, which has a high concentration of Chinese residents in Vietnam. This is just one-third of the total for the Japanese Chamber of Commerce and Industry in Ho Chi Minh City, which had 1,020 corporate members, including 96 associate members, as of April 2019. However, given the current trends in investment in Vietnam, the membership of the Chinese Chamber of Commerce is likely to be increasing rapidly.

Established in 2012, the Chinese Chamber of Commerce in Ho Chi Minh City is a young organization compared with the Japanese Chamber of Commerce and Industry in Ho Chi Minh City, which was formed in 1993. The category with the highest number of members is machinery, metals and equipment which accounts for 19% of membership, followed by industry and construction (14%), paper, printing, and advertising (12%), food, entertainment, and travel (11%), and finance, insurance, real estate, and services (10%) (Fig.4). While the numbers vary according to the industry, the organization is characterized by a high percentage of members from the manufacturing sector. A particular contrast with Japan is the fact that many of these companies are active in labor-intensive fields, such as spinning, sewing, footwear manufacturing, timber processing, and the manufacture of household consumables.

According to the Vietnamese government, five of the seven biggest inward direct investment projects in Vietnam during the first half of 2019 came from China. These included (1) an investment (registered capital: $260 million) by Goertek Inc., which is best known for manufacturing AirPod wireless earbuds for Apple Inc., (2) an investment (registered capital: $280 million) by the Sailun Jinyu Group Co Ltd., which produces steel radial tires, and (3) an investment (registered capital: $210 million) by the tire manufacturer Guizhou Tyre Import and Export Co., Ltd.[7]

Goertek's wireless earbuds will be affected by the fourth round of tariff increases. The two investments in tire industry appear to be based on the belief that US-China trade relations will not improve. This is because the United States is par-

Fig. 4 Industry Distribution of Chinese Chamber of Commerce in Ho Chi Minh City Members (November 2017)



Source: Compiled by JRI using data from the Chinese Chamber of Commerce in Ho Chi Minh City

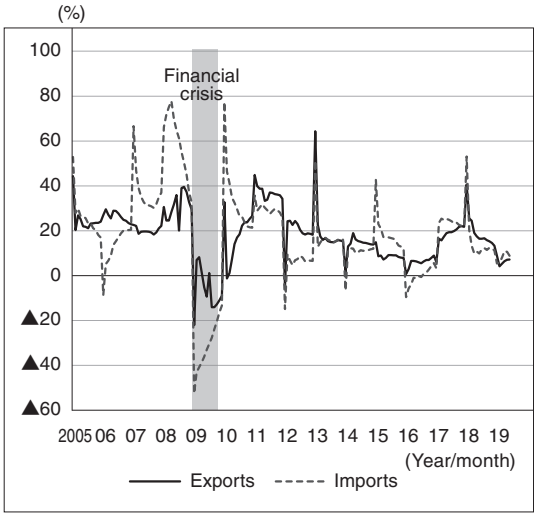
ticularly sensitive about increased tire imports from China, as evidenced by the imposition of anti-dumping and anti-subsidy tariffs in 2015[8]. In September, US-China trade friction will enter a new phase with the imposition of an additional 15% tariff on Chinese goods that have a major presence in U.S. consumer markets. The risk of higher tariffs, in addition to the constraints imposed by rising labor costs and other factors, is expected to result in a growing exodus of production operations to Vietnam.

(3) 22.4% Year on Year Growth in Exports to the United States

Contract manufacturing agreements are the dominant way of doing business in the sewing industry, which handles the final stage of the apparel manufacturing process. Since these agreements usually do not involve the establishment of a corporation through direct investment, the inward direct investment statistics published by Vietnam may not provide a full picture of the relocation of production operations. According to the Trade in Value Added (TiVA) statistics published by the Organization for Economic Cooperation and Development (OECD), China's share of the value added in goods exported by the Vietnamese textile industry amounted to 19.4% in 2015, an increase of 11.7 percentage points from the 2005 figure of 7.7% (Miura [2019a]). Vietnam has become so dependent on China that it cannot produce apparel without raw materials supplied from China. However, this trend is reflected little in the investment statistics.

Vietnam's trade figures for the first half of 2019 show that exports grew by 7.2% over the same period in 2018 to $122.5 billion, and imports by 8.9% to $120.9 billion (Fig.5). Since exports and imports over the same period in 2018 grew by 16.4% and 9.9% respectively compared with the same period in 2017, the 2019 results can be seen as a weakening trend. However, this is part of a global pattern. According the *Global Economic Prospects* (GEP) report published by the World Bank in June 2019, the real growth rate of the world economy stands at 2.6% in 2019, a 0.3 percentage point decline from the figure in the previous GEP report published in January, while the growth rate of global trade volumes was down by one percentage point at 2.6% (World bank [2019]). Vietnam is actually among the countries that are maintaining relatively firm trade statistics in this environment.

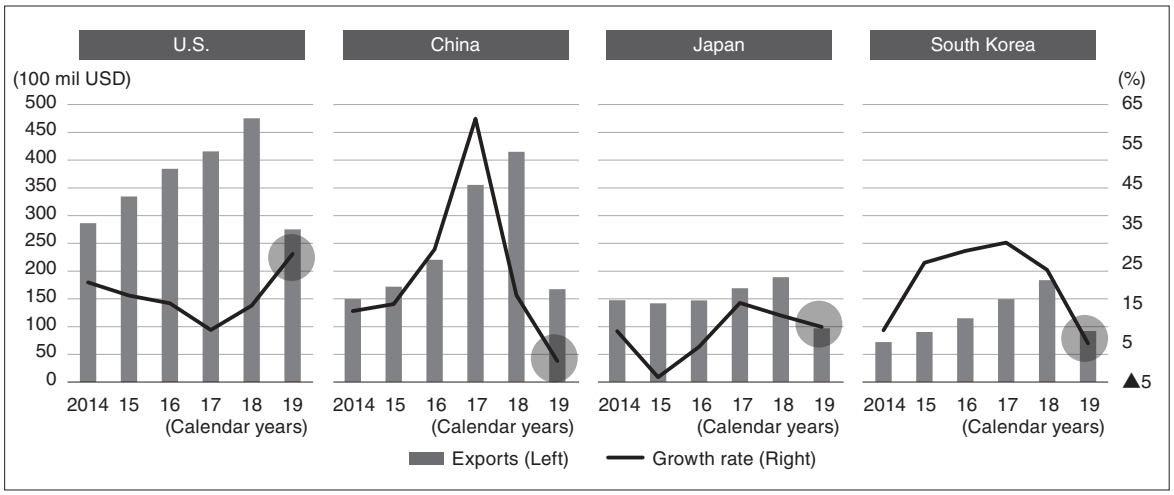
Fig. 5 Vietnam's Import and Export Growth Rates



Notes: Cumulative monthly data from January onwards.
Source: Compiled By JRI Using CEIC Data

Figures for individual countries and regions show that total exports are being underpinned by exports to the United States. The only four countries to which Vietnam exports goods worth over $10 billion per year are the United States, China, Japan, and South Korea, which accounted for 22.4%, 13.6%, 7.9%, and 7.4% respectively of Vietnam's total exports in 2018 (Fig.6). In 2019, a trend emerged in exports to the United States that has not been mirrored in exports to Japan, China, or South Korea. The growth rate of exports to the United States has surged to 27.3%, apparently because of the relocation of production operations from China to Vietnam. In contrast, Vietnam's exports to China are stagnating. This can be attributed to the economic slowdown in China, and to a decline in exports from China to the United States. According to Chinese customs statistics,

Fig. 6 Value of Exports and Growth Rates of Exports of Vietnam's Key Export Markets

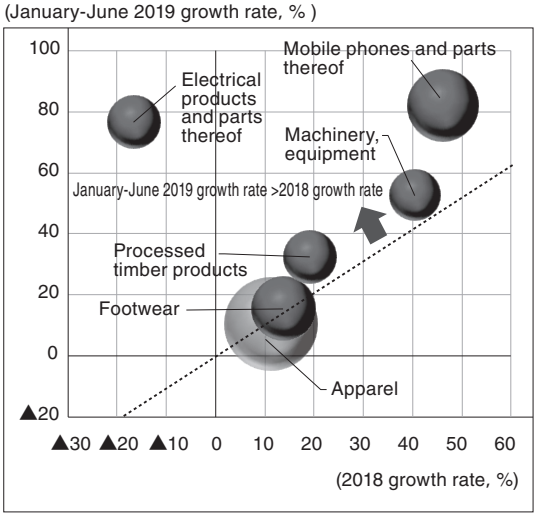


Notes: January-June totals for 2019.
Source: Compiled by JRI using CEIC statistics

exports to the United States fell by 8.1% in the first half of 2019 compared with the same period in 2018.

The main drivers of Vietnam's exports to the United States are mobile phones and parts thereof, electrical products and parts thereof, machinery and equipment, and processed wood items. Fig.7 shows the products that account for large shares of Vietnam's exports to the United States. Year on year growth rates in 2018 are plotted on the horizontal axis, and growth in the first half of 2019 compared with the same period in 2018 on the vertical axis. From this we can identify the items that are driving exports to the United States. Export items that appear above the 45-degree line are those that showed higher growth in 2019. This allows us to see which products that underpin the exports from Vietnam to the U.S. With some variation for individual items, electrical products and parts thereof, machinery and equipment, and processed wood products were all included in the third round of tariff increases in September 2018, when the U.S. government imposed a 10% tariff rate on imports of 5,745 food items and electrical appliances worth $200 billion. The tariff was further raised to 25% in May 2019. There is a high probability that Chinese production operations for some of these items were relocated to Vietnam.

Fig. 7 Changes in Vietnam's Main Export Items



Notes: The size of the bubbles indicates the value of exports.
Source: Compiled by JRI using CEIC data

Mobile phones have been a mainstay of Vietnam's exports to the United States since the start of smartphone production by South Korean company Samsung Electronics Co., Ltd. in 2008. However, the increase in exports in the first six months of 2019 resulted from the expansion of Samsung's share of the U.S. market following

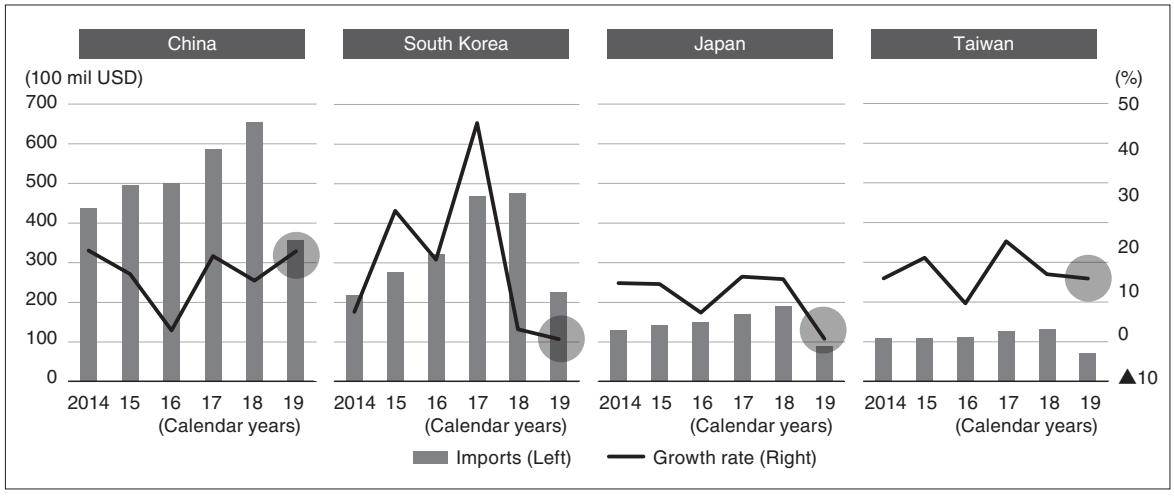
the launch of new products[9], and the reduction of production capacity in China[10]. The trend has little to do with trade friction. There was no significant change between the 2018 growth rates for exports of apparel and footwear, which are the biggest export items, and the rate of increase in the first half of 2019. This partly because these are included in the fourth round of tariff increases, which was postponed following a summit meeting at the end of June 2019. This suggests that the relocation of apparel and footwear production operations resulted from soaring labor costs, rather than from the effects of punitive tariffs imposed by the United States, and that the restructuring of supply chains in labor intensive industries will now begin in earnest.

(4) 18.2% YoY Increase in Imports from China

If the increase in Vietnam's exports to the United States has resulted from the relocation of production operations from China, there is a strong possibility that changes will also occur in Vietnam's imports from China. Vietnam is highly dependent on both China and South Korea, which together accounted for one-half the total value of Vietnam's imports in 2018. Figures for imports from the four biggest sources, which also include Japan and Taiwan, show that only imports from China are expanding (Fig.8). At 18.2%, the growth rate in the first six months of 2019 was higher than the 11.8% increase recorded in the same period in 2018.

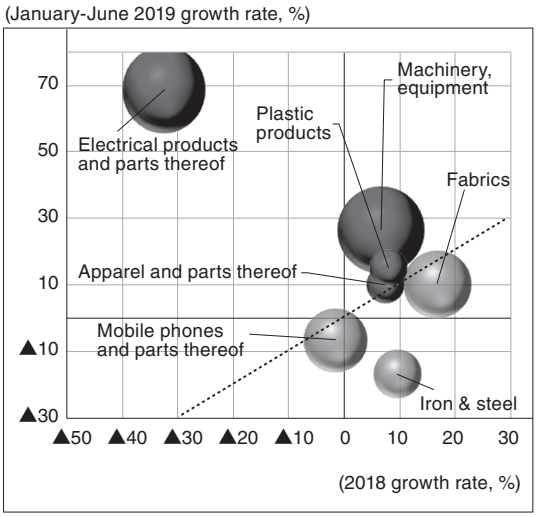
To understand the reasons for this increase in imports from China, we need to analyze the situation using the same method as in Fig.7 above. The main categories driving growth in imports from China are machinery and equipment, electrical products and parts thereof, apparel and parts thereof, and plastic products (Fig.9). Most notably, imports of electrical products and parts thereof, which are driven mainly by the PC industry, increased by 68.4% in the first six months of 2019 compared with the 2018 figure. This represents a complete turnaround from last year, when there was a decline of 32.4%. Because exports to the United States in this category are also increasing, there is a strong possibility that production operations have been relocated from China to Vietnam. PC manufacturers Lenovo and Dynabook and game console manufacturer Nintendo have all said

Fig. 8 Imports and Growth Rate of Major Vietnam Import Partners



Notes: January-June totals for 2019.
Source: Compiled by JRI using CEIC statistics

Fig. 9 Changes in Vietnam's Major Imports from China



Notes: As for Fig.7.
Source: Compiled by JRI using CEIC data

that they will move part of their production operations from China to Vietnam[11], which means that electrical products and parts thereof can be expected to overtake machinery and equipment as the biggest import category.

In contrast, growth in Vietnam's imports of textiles in the first half of 2019 was relatively weak at 10.3% relative to the same period in 2018, compared with the 16.8% year on year increase recorded in 2018. This is consistent with the lack of momentum in apparel exports to the United States, as shown in Fig.7 above. Imports of iron and steel products and mobile phones and parts thereof were also sluggish over the same period. The United States took issue over iron and steel products, which it saw as "detour exports"[12]. Vietnam's exports of mobile phones and parts thereof to the United States were strong during the first half of 2019, but the United States accounts for less than 20% of Vietnam's total exports of these items, which remained sluggish with just 4.0% growth compared with the first half of 2018. The world smartphone market began to shrink in 2016 because of stagnating replacement demand. In 2019, the market is expected to decline 3.3% year on year to 1.41 billion units[13].

There is an obvious link between Vietnam's exports to the United States and its imports from China, in terms of both growth rates and trends in individual items. Vietnam is the clearest example of a country in which increased investment by Chinese companies leads to increased imports from China, which in turn results in higher exports to the United States. This is because supply chains in which parts and intermediate goods procured from China are used to produce products for export to the United States existed before the present trade friction began. With imports from China accounting for 27.1% of its GDP in 2018, Vietnam ranks alongside Cambodia as one of the countries with the world's highest level of reliance on China.

2. Measuring Progress toward Supply Chain Restructuring through Direct Investment Statistics

To a greater or lesser degree, US-China trade friction has forced companies that export to the United States from bases in China to consider how they should structure their supply chains. Vietnam has experienced an increase in Chinese direct investment, but is the same true of other Asian nations? How are Japanese, South Korean, and Taiwanese companies reacting to this situation? In this section, we will examine trends in direct investment in key countries and regions by China, Taiwan, South Korea, and Japan.

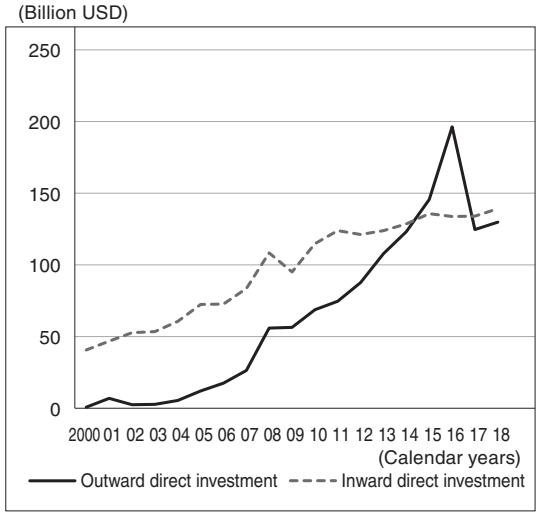
(1) China—Restructuring Investment Targets

According to the Chinese Ministry of Commerce, China's overseas investment (international balance of payments basis, net, flow) first exceeded its inward direct investment 2015-2016 as a result of the "Go Out" policy, which calls for

aggressive overseas business expansion. However, in 2017, China's foreign direct investment showed negative growth for the first time since statistics began to be collected, with a 19.3% year on year decline to $158.3 billion[14]. Despite a year on year increase of 4.2% to $129.8 billion in 2018[15], China's foreign direct investment remains weak (Fig.10).

These trends reflect increased wariness in the West about Chinese investment. One reason for the downturn in Chinese investment in the United States is tighter screening by the Committee on Foreign Investment in the United States (CFIUS) (Miura [2017]). The powers of the CFIUS were substantially strengthened[16] after President Trump signed the National Defense Authorization Act (NDAA), which includes the Foreign Investment Risk Review Modernization Act (FIRRMA), into law in August 2018. This law restricted Chinese investment in the United States, especially the acquisition of high-tech national security-related companies. Similar moves have caused a slowdown in Chinese investment in the EU[17].

Fig. 10 China's Foreign and Inward Direct Investment



Notes: International balance of payments basis, net, flow. Ministry of Commerce statistics for outward direct investment match UNCTAD figures. However, Ministry of Commerce statistics have been used for 2017.
Source: Compiled by JRI using Ministry of Commerce and UNCTAD data

Moves by the Chinese government to modify its foreign direct investment policy have also had a significant impact. After China's foreign currency reserves started to shrink in the summer of 2014, the Chinese government became concerned about foreign direct investment in areas unrelated to its industrial policies, such as the advancement of manufacturing (Miura [2017]). While encouraging investment that contributed to the Belt and Road Initiative and helped to improve the competitiveness of manufacturing industries, the government indicated that it would not approve other types of investment, such as the acquisition of real estate, movie theaters, and soccer teams. As a result of this policy shift, the Dalian Wanda Group, a major commercial real estate company, which had expanded its business activities through aggressive overseas investment, was forced to repay its debts by selling assets.

Chinese investment in Europe and the U.S. appears to have declined significantly in 2018. The Ministry of Commerce has yet to release figures for direct investment in individual countries or regions. However, the U.S. law firm Baker McKenzie has estimated that investment shrank by around 70%, using data from countries that received investment[18]. On the other hand, Fig.10 shows that China's foreign direct investment in 2018 actually increased slightly over the 2017 level, which probably means that the decline was offset by increased investment in countries other than the EU and the United States. According to the Ministry of Commerce, China invested a total of $15.6 billion (excluding financial sector investments) in 56 countries (including Singapore, Laos, Vietnam, Indonesia, Pakistan, Malaysia, Russia, Cambodia, Thailand, and the United Arab Emirates) in 2018 under its "Belt and Road" initiative. This represents an 8.9% increase over the 2017 total[19].

With the additional impact of trade friction with the U.S. in 2019, it would appear that China's preference for Asia in its foreign direct investment activities has only grown further. Figures released by the Ministry of Commerce show that while China's foreign direct investment was weak in the January to May 2019 period at $47.2 billion[20],

an 8.4% decline from the same period last year, there was actually an increase in its investment in Singapore, Vietnam, Pakistan, the UAE, Malaysia, Laos, Indonesia, Thailand, and Cambodia[21].

The countries with the greatest potential as destinations for the relocation of production operations are Vietnam, Malaysia, Indonesia, and Thailand. The latest inward direct investment statistics for these countries show that Chinese investment in all four countries in 2018 and 2019 was higher than the yearly averages for 2010-2017, and that the rankings for these countries all rose sharply as a result (Fig.11).

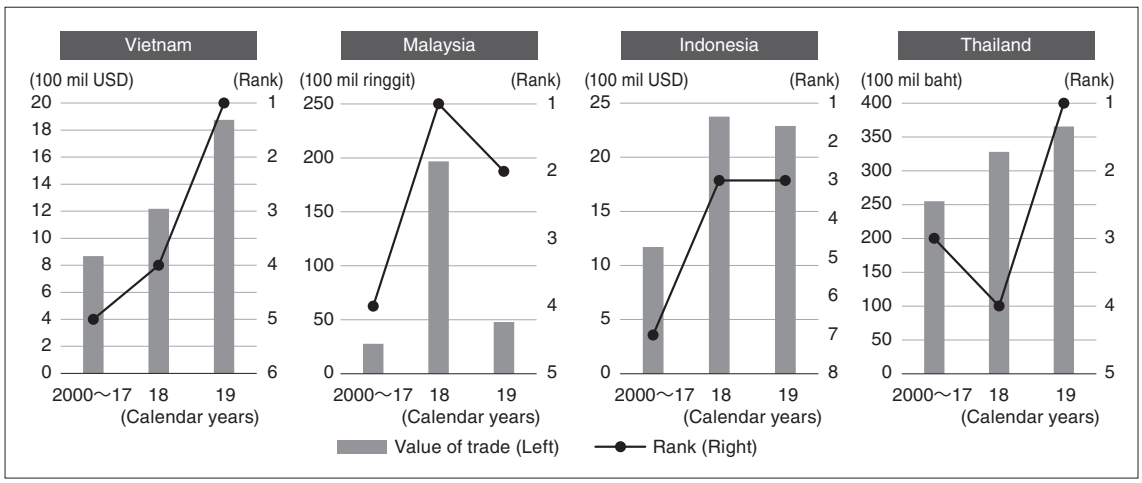
Most notably, Chinese investment in Malaysia increased five-fold over the previous year's level to MYR19.7 billion in 2018[22]. Similarly, Chinese investment in Vietnam in the first half of 2019 was five times higher than the same period in 2018 at $1.68 billion. The ASEAN+3 Macroeconomic Research Office (AMRO) predicts that Chinese investment in ASEAN will increase from $200 billion in 2018 to $500 billion by 2035 (Khor, Chaipat, Li, Foo Suan, Simon, Tang and Tanyasorn [2018]).

(2) Trends in Activities of Taiwanese, South Korean and Japanese Companies not Reflected in Foreign Direct Investment Statistics

Taiwanese, South Korean and Japanese companies cannot afford to ignore the US-China trade friction problem. There has been particular interest in moves by Taiwanese electronics manufacturing service (EMS) companies. For example, in November 2018, Quanta Computer Incorporated (Quanta), a contract laptop manufacturer, decided to move some of its Chinese production operations back to Taiwan[23]. Hon Hai Precision Industry Co., Ltd. (Hon Hai), a well-known contract manufacturer of iPhones, has established a production base in India and is also believed to have acquired land-use rights for a factory in Vietnam. In addition, Pegatron Corporation is reportedly considering the establishment of new production bases in Vietnam, Indonesia and India[24].

There have been similar developments in South Korea. In 2019, LG Electronics shifted production of refrigerators for export to the United States

Fig. 11 Trends in Chinese Foreign Direct Investment by Country



Notes: The figures for 2000-2017 are based on yearly averages, and ranks are calculated according to those averages. The figures for Vietnam are based on approvals for new investment. The 2019 result is for January to August. The figures for Malaysia represent approvals for investment in manufacturing. The 2019 result is for January-June. The Indonesian figures are based on investments executed. The 2019 result is for January-June. The figures for Thailand are based on approvals. The 2019 result is for January-June.
Source: Compiled by JRI using CEIC data

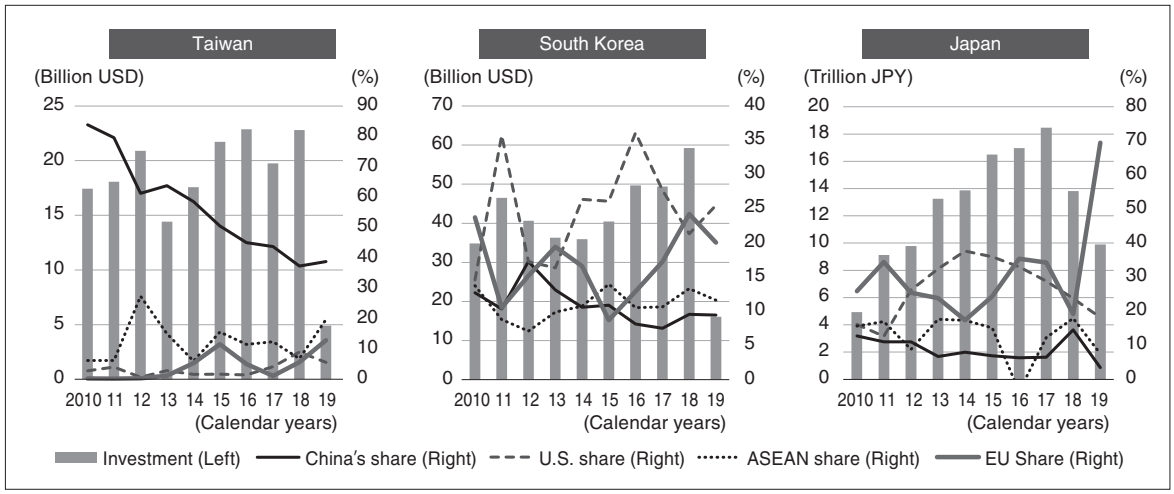
from China back to South Korea and began to use spare production capacity in its Chinese facilities to produce refrigerators for non-U.S. customers. In addition, Samsung Electronics is believed to have transferred some of its refrigerator production operations from China to Thailand[25]. It has become difficult to export refrigerators from China to the United States since the tariff was raised from 10% to 25% in May 2019.

As reported by the media, Japanese companies are moving to restructure their supply chains. According to a Nikkei article[26], Nintendo (home gaming consoles), Kyocera (multifunction peripherals) and Sharp (notebook PCs) are all considering moving some of their production operations from China to Vietnam. Similarly, Ricoh is planning to start manufacturing products for the U.S. market in Thailand, while Komatsu has reportedly transferred some of its production operations for construction machinery parts to Japan and the United States. However, because the transfer of production operations from China could potentially provoke opposition from local governments and factory workers, few Japanese, Taiwanese, or South Korean countries openly announce such moves. We therefore need to assume that the examples cited here represent only part of the picture.

Unlike China, however, there has been no shift to ASEAN in the foreign direct investment statistics for each country and region. Taiwan's foreign direct investment has grown by 15.2% year on year to $22.8 billion in 2018, but there is no evidence of a conspicuous increase in ASEAN's share of this investment. ASEAN's share of Taiwanese investment rose in the first five months of 2019, but in absolute terms investment is only $4.9 billion, stagnated with a 25.2% decline compared with the same period in 2018 (Fig.12, left).

South Korea's foreign direct investment increased by 19.9% year on year to a record high of $59.3 billion in 2018, but there was no dramatic increase in ASEAN's share of this total. As noted earlier, South Korea's investment in Vietnam rose sharply in 2018, but investment in China was also higher, with the result that there was no change in the percentages allocated to each country. In the first five months of 2019, South Korea's foreign direct investment remained buoyant at $16.1 billion, a 50.7% increase over the same period in 2018. Of course, the increase was driven by investment in Europe and the United States (Fig.12,

Fig. 12 Taiwanese, South Korean and Japanese Foreign Direct Investment Trends, Percentages Received by Key Countries/Regions



Notes: The figures for Taiwan and South Korea are based on approvals in January-May 2019. Those for Japan are based on international balance of payments statistics for January-March 2019.
Source: Compiled by JRI using CEIC and Bank of Japan data

center). The higher level of investment in the United States can be seen as a response to the "America First" stance of the Trump administration (Mukoyama [2019]).

Japanese foreign direct investment was sluggish in 2018, with a 25.2% year on year decline to ¥13.8 trillion. However, the percentages allocated not only to ASEAN but also to China have risen. This indicates that like their Taiwanese and South Korean counterparts, Japanese companies are not actively shifting into ASEAN. In the first three months of 2019, Japan's foreign direct investment expanded sharply, with a 136.1% increase over the same period in 2018 to ¥9.9 trillion. However, the percentages of investment flowing into ASEAN and China both declined (Fig.12, right).

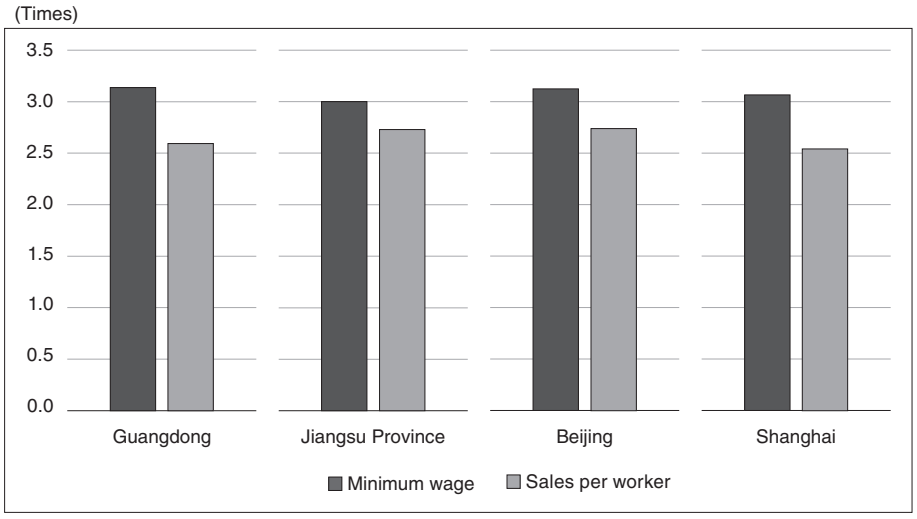
(3) Why Investment is not Shifting to ASEAN

One reason why there has been no conspicuous shift of foreign direct investment from Taiwan, South Korea and Japan toward ASEAN is that companies in all three countries were moving toward distributed production even before the start of US-China trade friction. As shown in Fig.12, China's share of Taiwan's foreign direct investment peaked at 83.8% in 2010 and has been declining gradually ever since, dropping to 37.3% by 2018. There has been a similar drop in China's share of South Korean direct investment, which has shrunk from 44.8% in 2003 to just 9.5% in 2018. Japan has always been less dependent on China than Taiwan or South Korea, with the result that China's share of direct investment from Japan has remained static at around 10%.

This shift to distributed production reflects a rapid increase in labor costs in China. In Guangdong Province, which has a high concentration of foreign-owned export-oriented companies, the minimum wage has risen by a factor of 3.1, from just 604 yuan in 2006 to 1,895 yuan in 2017. Over the same time period, sales per worker in industrial enterprises increased only 2.6 times, from 360,000 yuan to 940,000 yuan. A similar phenomenon has occurred in Jiangsu Province, Beijing and Shanghai, with the result that corporate profitability has become under pressure from rising labor costs (Fig.13).

China continues to hold its position as the "world's workshop" because of the ease of parts procurement thanks to the extreme depth of in-

Fig. 13 Trends in Minimum Wages and Sales Per Worker in Industrial Companies in Key Cities/Provinces (2006-2017)



Notes: Multiples were calculated by dividing 2017 results by 2006 results.
Source: Compiled by JRI using data from CIEC and the Chinese National Bureau of Statistics (NBS)

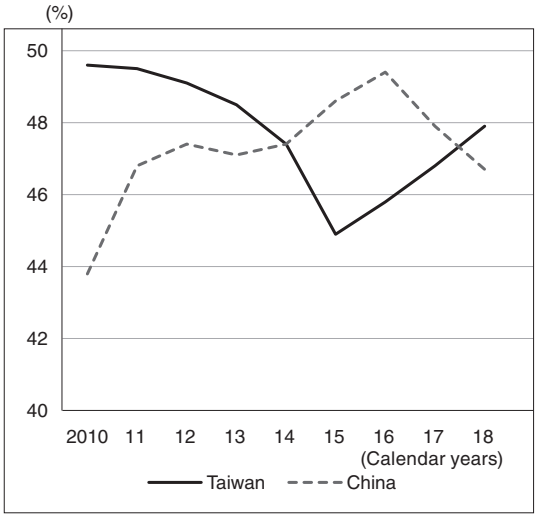
dustrial clustering. Another factor is the vast size of Chinese markets. However, there has been a decline in its ability to use low-cost labor as the basis for competitiveness in labor-intensive industries. This in turn is causing a drop in China's share of foreign direct investment from various countries and regions. Figures published by the Japan External Trade Organization (JETRO) indicate that at the end of 2018, average monthly wages for workers in the city of Guangzhou in Guangdong Province amounted to $551, or 2.3 times as much as the $242 earned by workers in Ho Chi Minh City, Vietnam.

In addition, companies have become reluctant to invest in China because of an increasingly harsh business environment, as symbolized by the growing number of World Trade Organization (WTO) disputes involving China. Between 2001, when China first joined the WTO, and 2004, China used the WTO dispute settlement system only once in a case relating to U.S. steel safeguards. Since 2006, however, there has been a rapid increase in cases in which China has sought consultations or been the subject of consultation requests from other countries (Ministry of Economy, Trade and Industry [2013]). While trade friction between the U.S. and China is often seen as being caused by the Trump administration, in fact the U.S. House Ways and Means Committee passed a bill that imposed sanctions on China, including retaliatory tariffs, in September of 2010[(27)]. The U.S. stance toward China has hardened since that time.

In addition to these factors, factors specific to each country and region have also played a role in limiting investment in China. A key factor in Taiwan has been the government's efforts to encourage companies to repatriate their production operations. In January 2019, the Tsai Ing-wen administration launched the "Action Plan for Welcoming Overseas Taiwanese Businesses to Return to Invest in Taiwan"[(28)] in an effort to encourage manufacturers that have invested in China to bring their operations back to Taiwan. By June a total of 73 companies had reportedly obtained approval under this policy for investment projects worth a total of NT$375 billion[(29)]. Regardless of the party in power, Taiwan has pursued a policy of bringing businesses back to Taiwan, as evidenced by the fact that even the previous Ma Ying-jeou administration, which emphasized reconciliation with mainland China, launched a program to encourage business repatriation in November 2012 in order to the avert the risk of excessive concentration in China. Figures published by the Taiwanese Ministry of Economic Affairs show that the domestic content ratio of Taiwanese exports fell to 44.1% in 2015 before beginning to rise again, and that by 2018 the domestic content ratio had reached 47.9%, which was higher than the Chinese content ratio of 46.7% (Fig.14).

South Korea first became concerned about the risks of excessive reliance on China in the mid-2000s (Lee [2006]). The obvious starting point for this pattern was the decision by Samsung Electronics to invest in Vietnam. The China risk was once again brought into focus after China blatantly launched retaliatory measures as part of an angry response to South Korea's decision to deploy a ground-based missile interception system (THAAD) in July 2016. The repercussions for the Lotte Group, which allowed the THAAD system to be deployed on one of its golf courses, were especially severe, and the company was forced to

Fig. 14 Domestic and Overseas Production Ratios of Taiwanese Exporting Companies



Source: Compiled by JRI using data from the Taiwanese Ministry of Economic Affairs

withdraw from the supermarket business in China[30]. Lotte also suffered a major decline in sales through its duty free outlets after China banned group travel to South Korea, causing a sharp decline in the number of Chinese visitors[31].

Anti-Japanese demonstrations have brought major changes in the way China is perceived in Japan. A visit to Yasukuni Shrine by then-Prime Minister Junichiro Koizumi triggered anti-Japanese demonstrations in China in 2005. Similar protests occurred in 2012 following Japan's nationalization of the Senkaku Islands. The 2012 protests were accompanied by rioting, which resulted in destruction and arson attacks targeting stores and factories owned by Japanese companies, as well as broken windows and other damage at the Japanese Embassy in Beijing.

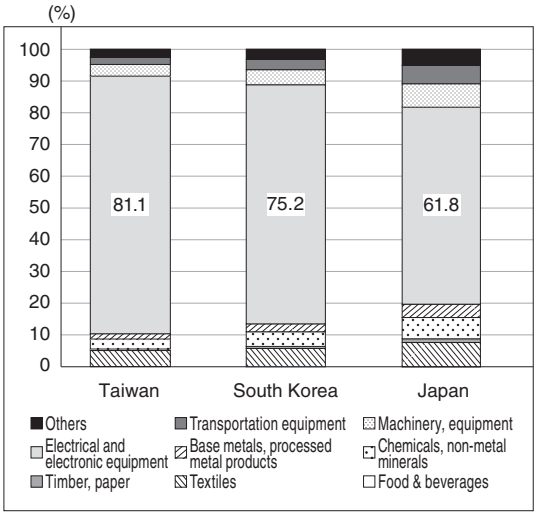
The demonstrations were eventually suppressed by the Chinese government, which became concerned about the spread of public disorder. These events engendered serious antipathy toward China, not only in the business sector but across society in general. The results of a 2018 public opinion survey carried out by Japan's Cabinet Office showed that 76.4% of participants felt no sense of affinity toward China. Despite recent improvements in Japan's relationship with China, there has only been a small recovery from the 2014, when attitudes reached an all-time low with 83.2% of survey participants reporting that they felt no affinity toward China (Cabinet Office [2018]).

(4) Restructuring of Taiwanese and South Korean Supply Chains—Focus on Moves by EMS Companies and Parts Manufacturers

Taiwanese, South Korean, and Japanese investment in ASEAN or India is expected to increase. A major reason for this is the activation of the fourth round of U.S. tariff increases, which will impact directly on the electrical and electronic equipment industries, which are key players in global value chains (GVCs), as well as on Asia, where these industries are concentrated. According to TiVA data maintained by the OECD, the electrical and electronic equipment industries account for 81.1%, 75.2%, and 61.8% respectively of Taiwanese, South Korean, and Japanese added value included in China's exports to the United States (Fig.15). Manufacturers will be forced to restructure their supply chains for smartphones and notebook PCs destined for the U.S. market, in which China is the final assembly point, to incorporate ASEAN members such as Vietnam and India as alternate production bases.

Taiwan is attempting to weather the current crisis by bringing home its manufacturing industries. However, Taiwan's capacity to accommodate returning manufacturers is limited, as evidenced by the fact that Hong Hai alone employs 1.3 million people in China[32], compared with Taiwan's total manufacturing work force of just 3.06 million workers[33]. This means that the repatriation policy alone will not be enough to overcome the current problems. Apple has reportedly asked its major suppliers to shift 15-30% of their China-based production operations to other countries[34]. Investment in ASEAN and India by Taiwanese companies will inevitably rise as investment projects

Fig. 15 Added Value from Other Countries/Regions Included in Chinese Exports to the United States (2015, Manufacturing Industries)



Source: Compiled by JRI using OECD, *Tiva December 2018*

by EMS companies, such as the aforementioned Hong Hai and Pegatron, start to be reflected in the investment statistics. Compal Electronics Inc., a contract manufacturer of notebook PCs, announced in April that it would expand production capacity at its PC assembly plant in Vietnam and quadruple exports from the present level to $2 billion[35].

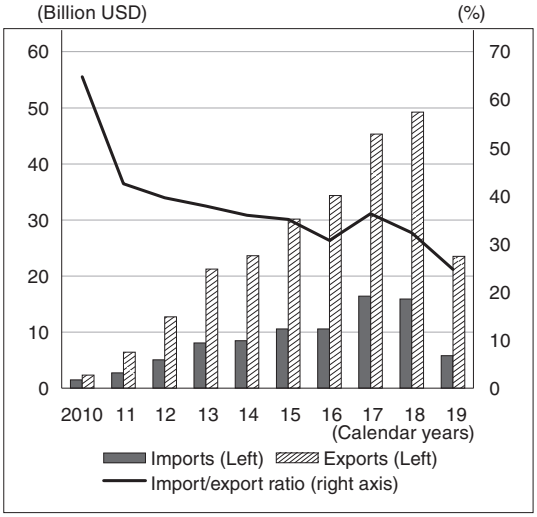
South Korean investment in ASEAN or India is also expected to expand. However, South Korea is less dependent on China than Taiwan and is unlikely to experience changes on the same scale as Taiwan, because it has already established an electrical and electronic equipment industrial cluster in Vietnam. For example, Samsung Electronics has been producing smartphones in Vietnam since 2008. This difference is evident from Vietnamese data for exports and imports of mobile phones and parts thereof. The import growth rate for mobile phones and parts is lower than the export growth rate for these products, and the import-export ratio has fallen from 64.8% in 2010 to 24.7% in 2019 (Fig.16).

Samsung Electronics is the only company producing smartphones in Vietnam. This can be seen as evidence that it has raised its local procurement ratio through the establishment of operations in Vietnam by affiliated companies that supply it with parts. In 2014 Samsung Electronics had just four suppliers. By 2017 it had 29 primary suppliers and 200 secondary suppliers, and the number of primary suppliers is expected to reach 50 by 2020[36].

Of course, Samsung Electronics is also a supplier of parts to other smartphone and computer manufacturers, which means that, like Taiwanese EMS companies, it will come under pressure to establish new production bases in countries other than China. China is the source for 60% of mobile phones and parts imported into Vietnam (Fig.17), where Samsung Electronics produces 50% of its smartphones[37]. From this it is clear that China is the biggest supplier of parts. If there is a significant shift of iPhone production to countries other than China, Samsung Electronics will also be forced to move some of its parts plants in China to those countries.

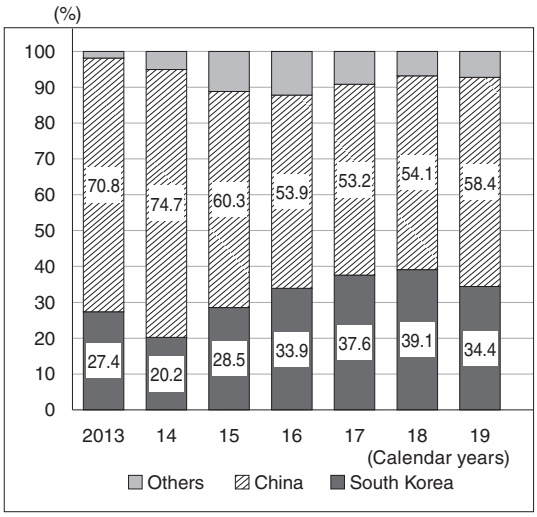
South Korean smartphone manufacturers have started to change their production networks in other ways. Samsung Electronics and LG Electronics have indicated that they will relocate production operations to India[38] and Vietnam[39], respectively.

Fig. 16 Vietnam's Imports/Exports of Mobile Phones and Parts Thereof



Notes: January-June for 2019.
Source: Compiled by JRI using CEIC data

Fig. 17 Sources of Mobile Phones and Parts Imported into Vietnam



Notes: January-June for 2019.
Source: Compiled by JRI using CEIC data

US-China trade friction has had little direct influence on these decisions. Samsung Electronics is moving into India because of the growth potential of the Indian market, while the decision by LG Electronics was prompted by rising domestic labor costs. In reality, South Korean smartphone manufacturers were already restructuring their supply chains in response to the emergence of Chinese manufacturers. They will expand investments in ASEAN and India.

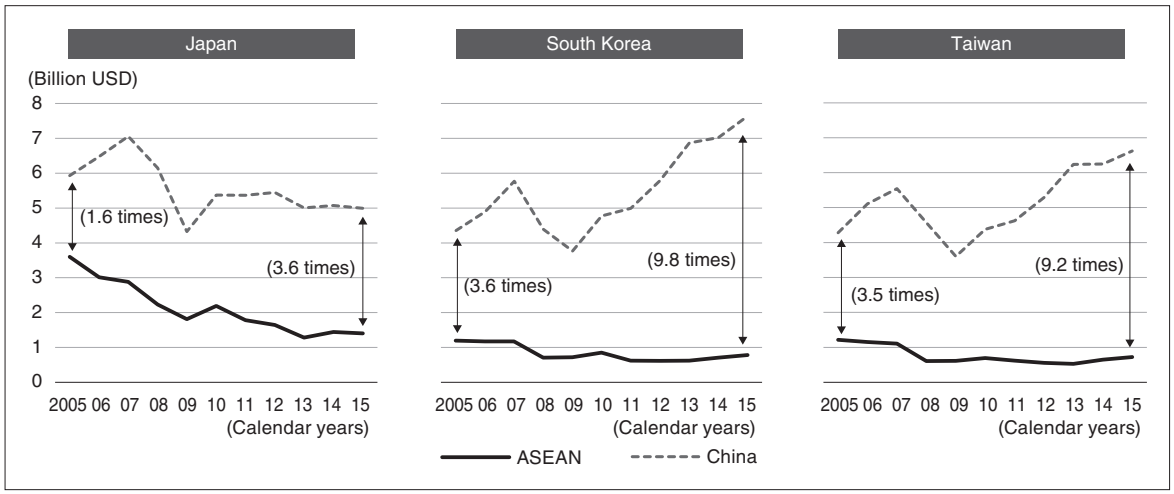
(5) Divisions of Labor between China and ASEAN — Key to Supply Chain Restructuring by Japanese Companies

Japanese manufacturers are expected to take a lighter approach to supply chain restructuring efforts than Taiwanese and South Korean manufacturers. This difference in the intensity of supply chain restructuring is attributable to differences in the depth of the industrial clusters created through direct investment. We can verify this aspect using the TiVA data published by the OECD. Fig.18 traces trends in the added value exported to the United States from each country and region via China and ASEAN. Added value exported to the United States via China by South Korea and Taiwan has expanded to 9.8 times and 9.2 times respectively more than their added value exports via ASEAN. Japan's ratio is just 3.6 times. This shows that Japanese electrical and electronic equipment manufacturers have not become as extremely dependent on China as their Taiwanese and South Korean counterparts.

Japanese added value included in exports to the U.S. via China and the ASEAN countries has declined significantly since 2005, apparently because Japan has been overtaken by South Korea and Taiwan. As shown in Fig.18, there has been a conspicuous decline in the competitiveness of Japanese manufacturers. Evidence of this includes the fact that while Japanese smartphone manufacturers hold a substantial share of the Japanese market, their share of the global market is so small that they are included in the "others" category. In addition, consumer electronics outlets in the West and in emerging economies allocate limited space to Japanese brands, while South Korean and Chinese brands have become increasingly influential.

However, there has been steady growth in Japanese investment in China and the ASEAN coun-

Fig. 18 Added Value Exports of the Electrical and Electronic Industries to the United States from China and Via ASEAN



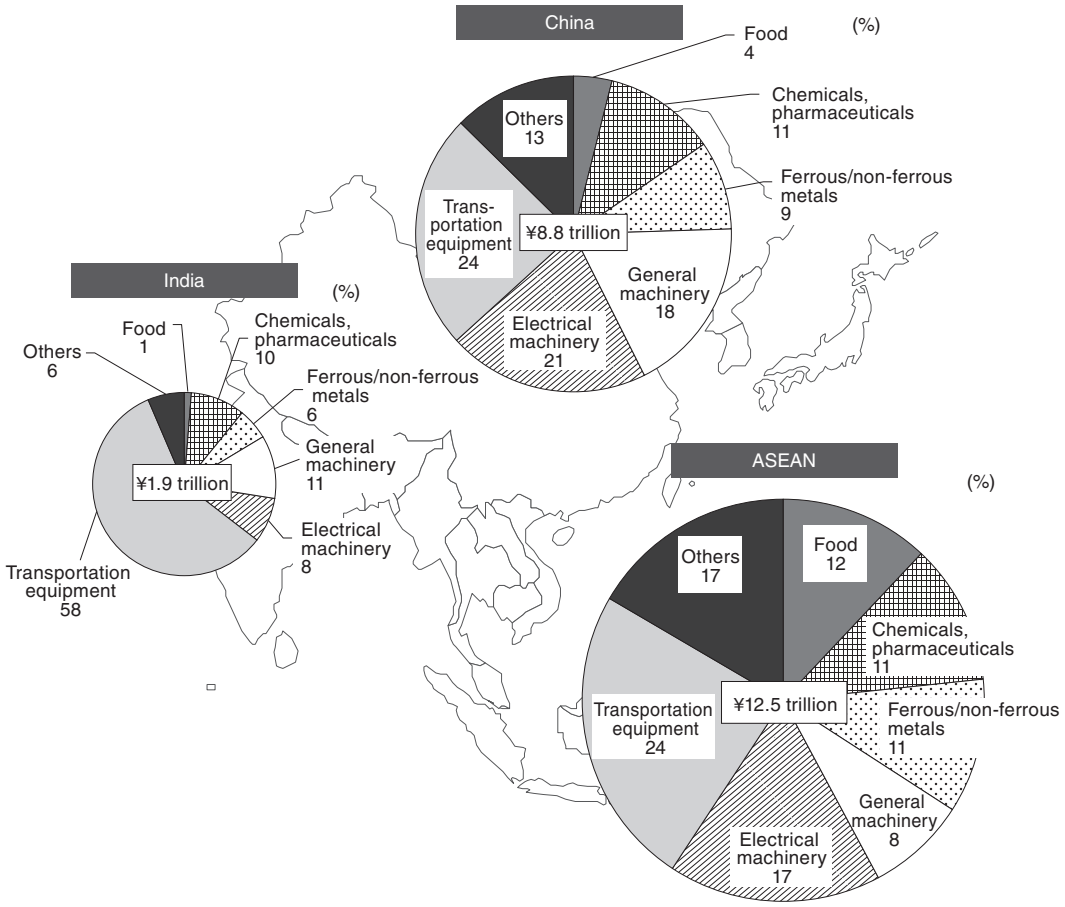
Source: Compiled by JRI using OECD, *TiVA December 2018*

tries, and we therefore need to be aware that the decline in Japanese added value included in exports to the United States via China and ASEAN is attributable in part to a rise in local procurement ratios as parts manufacturers move into the countries concerned, leading to the replacement of Japanese exports with locally produced parts. While Taiwan and South Korea have increased the amount of added value exported to the United States via China by establishing new production bases in China, Japan has instead increased its investment in the deepening of industrial clusters in both China and ASEAN, reducing the amount of Japanese added value in exports to the United States. According to the Ministry of Economy, Trade and Industry (METI), Japan's overseas production ratio rose from 16.7% in 2005 to 25.4% in 2017 (METI [2018]).

According to the Bank of Japan, the foreign direct investment stock in ASEAN by Japanese manufacturers reached ¥12.5 trillion at the end of 2018, compared with ¥8.8 trillion in China. The stock in ASEAN by Japanese electrical machinery manufacturers is also higher than the that in China (Fig.19). Industrial clusters established by Japanese companies far surpass those created by South Korea and Taiwan[40], with the result that Japanese companies may be able to avoid the effects of retaliatory tariffs by restructuring their production systems to utilize their industrial clusters in ASEAN.

However, the investment burden will be greater

Fig. 19 Stock and Industry Breakdown of Foreign Direct Investment by Japanese Manufacturers (End of 2018)



Source: Compiled by JRI using Bank of Japan data

if Taiwanese EMS companies shift their production operations to India. The investment stock in India by Japanese manufacturers is ¥1.9 trillion, which is just one-seventh the figure for ASEAN. Moreover, the transportation equipment industry accounts for around 60% (¥1.1 trillion) of this total. An extremely important question for Japanese manufacturers will be whether to relocate smartphone and notebook PC production bases to ASEAN or India.

3. Progress on Supply Chain Restructuring as Indicated by Trade Statistics

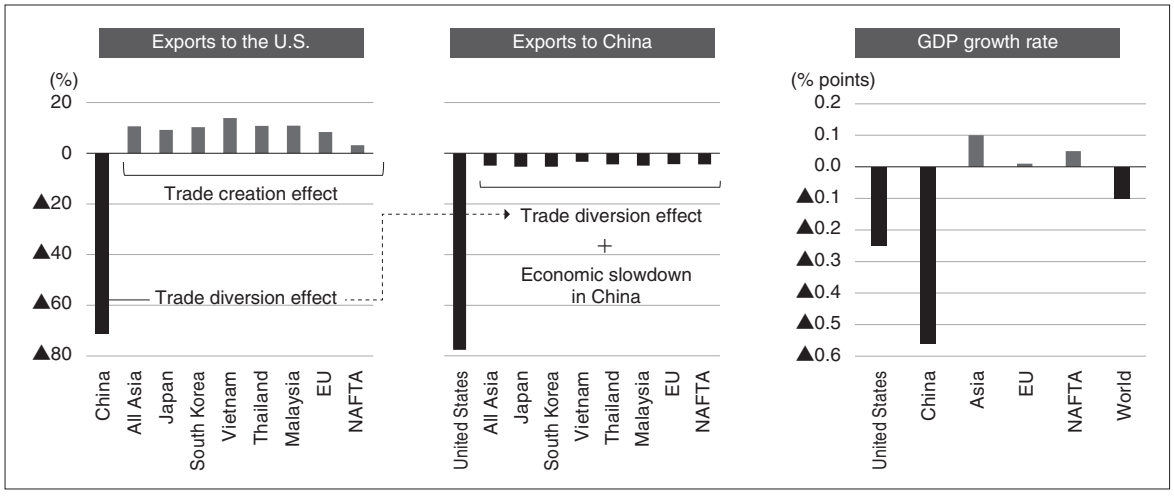
The US-China trade war will have a negative impact on the world economy by causing a decline in exports between the two countries. However, the situation will have a trade creation effect in countries that become alternative sources for exports from China, possibly resulting in increased exports to the United States. Another possibility is that the growth of exports to the United States will be accompanied by an increase in imports from China. We will ascertain the types of changes that are occurring using U.S. and Chinese statistics for 2018 and the latest statistics available for 2019.

(1) Trade Changes Resulting from Tariff Increases

The International Monetary Fund (IMF) believes that the imposition of high tariffs by the United States and China will result in a substantial decline in trade between the two countries, but that there will be an increase in exports to the United States from other countries and regions (Fig.20). The IMF further asserts that while growth rates will fall in both the United States and China, growth rates in other countries and regions will rise, albeit marginally. US-China trade friction will have a negative impact on the world economy because of the massive size of the two economies. However, an analysis of the outlook for individual countries indicates that the impact will vary and will not always be negative.

This is because the trade creation effect will cause increases in exports from Asia, the European Union (EU), and North American Free Trade

Fig. 20 The Trade Diversion/Creation Effects of a 25% Increase in Tariffs on U.S.-China Trade, and the Impact on the Growth Rates



Notes: GTAP basis.
Source: Compiled by JRI using IMF, *WEO April 2019*

Agreement (NAFTA) members, while Chinese exports to the United States are shrinking. The trade creation effect is phenomenon whereby tariff reductions under a free trade agreement cause trade between the signatories to expand. Tariffs on trade with third countries other than the signatories will be relatively high, causing trade to shrink. This is known as the "trade diversion effect". Trade shifts triggered by US-China trade friction are different from those caused by free trade agreements. However, the pattern is the same in the sense that changes in tariff rates applied to specific countries have a major influence on trade.

In contrast, few countries will see growth in their exports to China. One reason for this is the limited scale of U.S. exports to China. Another is the fact that agricultural products and energy make up a large percentage of U.S. exports to China, which means that only a few countries can serve as substitute sources for those exports, such as Brazil in the case of soybeans. According to U.S. trade statistics, U.S. exports to China in 2018 amounted to $120.1 billion, or just one-fifth of China's total imports of $539.7 billion.

Two other factors are likely to cause a decline in exports to China. First, because parts for smartphones manufactured in China are sourced from around the world, any reduction in smartphone exports to the United States will cause a decline in exports to China from the countries that supply those parts. Second, China's economic growth rate is falling because a downward trend in the working population, and declining investment efficiency.

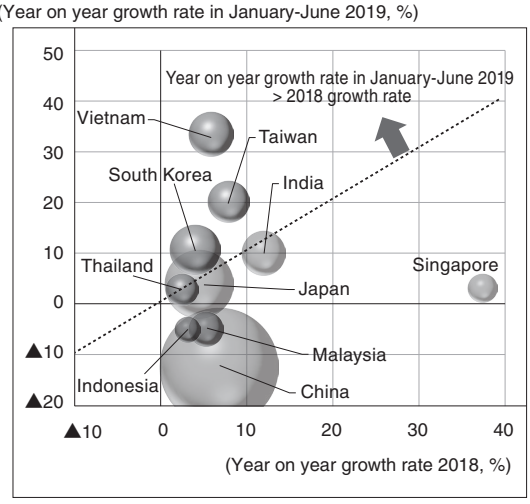
Trade friction between the United States and China is like a Chicken game. There is a risk that situation will have a negative impact not only on the United States and China, but also on the world economy. However, we also need to be aware of the trade creation effect in countries other than the United States and China. Furthermore, because of the enormous scale of Chinese exports to the United States, there will be massive increases in exports to the United States from the countries that have become substitute sources. Vietnam's GDP growth rate has risen gradually, from 6.8% in the January-March quarter and 6.7% in the April-June quarter, to 7.3% in the July-September quarter[41].

(2) Changes in Exports to the United States from Potential Substitute Sources

U.S. trade statistics show that imports from China grew steadily in 2018 with a year on year increase of 6.8% to $539.7 billion. The impact of the tariff increases has become apparent in 2019. In the first six months of 2019, imports from China declined by 12.4% year on year to $219.0 billion. The last time that imports from China shrank by over 10% was in 2009, when the global financial crisis caused a 12.3% year on year decline.

Which countries have become substitute sources for Chinese exports to the United States? According to U.S. import statistics for January to June, not many countries have recorded substantial increases in their exports. In Fig.21, import growth rates for Asian countries in 2018 are plotted on the horizontal axis, and those for the first six months of 2019 on the vertical axis. A circle with its cen-

Fig. 21 Changes in Asian Countries/ Regions Based on U.S. Imports



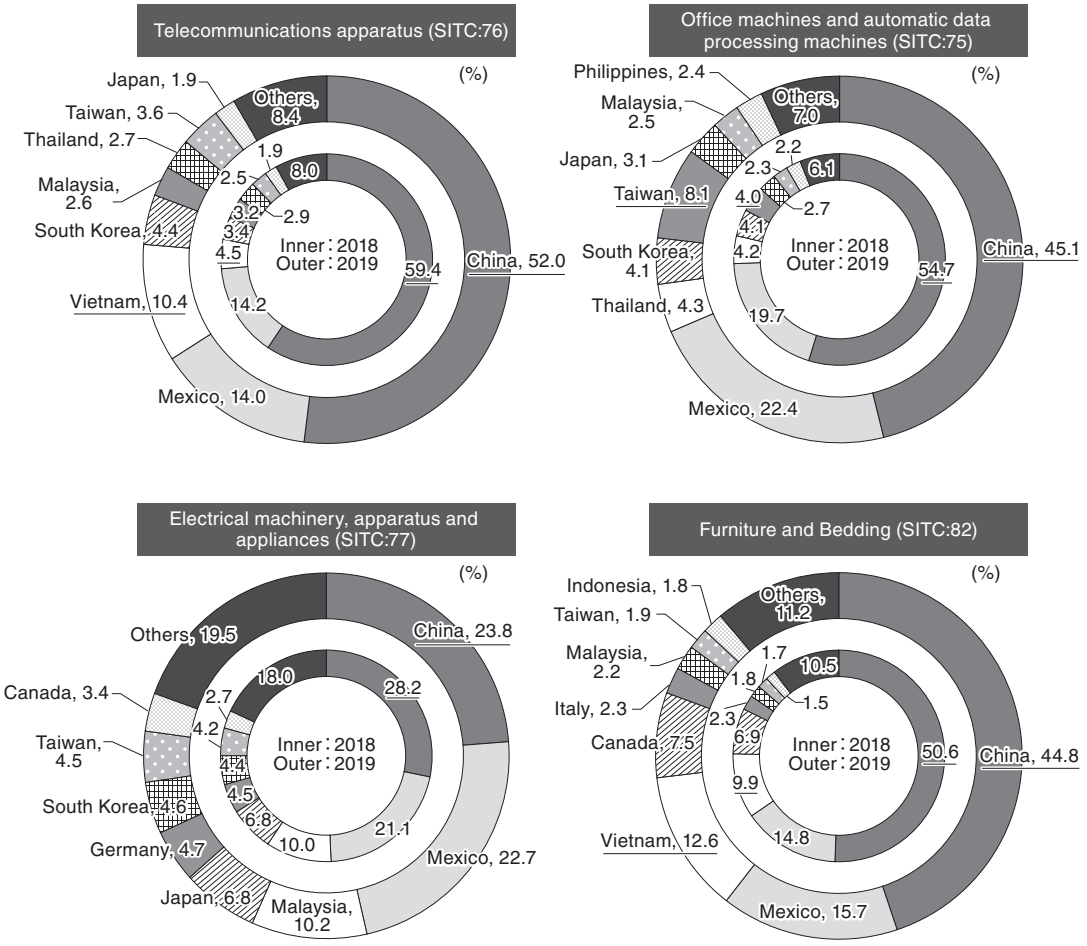
Notes: The size of the bubbles indicates the value of imports in Jan.-June 2019.
Source: Compiled by JRI using CEIC data

ter above the 45-degree line indicates that exports from the country concerned to the United States have increased. At present only Vietnam, Taiwan, South Korea, and Thailand are in this category.

Of these countries, Vietnam is the clearest example of the pattern of increased investment by Chinese companies leading to increased imports from China, followed by growth in exports to the United States. The repatriation of production operations is likely to be influencing trends in Taiwan and South Korea. In contrast, while Chinese investment in Malaysia and Indonesia has expanded, there has been no significant increase in their exports to the United States. This appears to reflect investment in the construction of infrastructure, steel works and other assets relating to China's "One Belt, One Road" strategy, which has caused an increase in total Chinese investment that is not directly related to US-China trade friction.

We next need to consider which items are driving growth in countries and regions that are exporting more to the United States, and whether these countries and regions are really functioning as substitute sources for Chinese exports to the United States. Fig.22 identifies which countries and regions are emerging as substitute sources for imports in the categories in which imports from

Fig. 22 Changes in Import Sources for Categories in which Imports from China have Declined Significantly (2018/January-June 2019)



Notes: January-June for 2019.
Source: Compiled by JRI using U.S. Census Bureau data

China have declined conspicuously, by comparing import sources for these items in 2018 and the first six months of 2019, using U.S. import statistics based on two-digit Standard International Trade Classification (SITC) codes. The categories compared are telecommunications apparatus (SITC:76), office machines and automatic data processing machines (SITC:75), electrical machinery, apparatus, and appliances (SITC:77), and furniture and bedding (SITC:82). Imports from China account for large shares in all of these categories, but the rates of increase in Chinese imports have fallen sharply in 2019. In the first six months of 2019, China's shares of total imports in these categories were 16.8%, 13.1%, 10.0%, and 5.6% respectively.

Looking first at telecommunications apparatus, we find that imports from China have fallen sharply in 2019, and that the figures for the first six months of the year were 14.7% lower compared with the result for the same period in 2018, when there was a year on year increase of 1.0%. This substantial decline caused China's share of imports of telecommunications apparatus to shrink from 59.4% to 52.0%. This decline in imports from China was offset by an increase in imports from Vietnam. In the first six months of 2019, imports from Vietnam expanded by 126.2% compared with the same period in 2018, causing Vietnam's share of total imports to surge from 4.5% in 2018 to 10.4%.

As noted earlier, however, we cannot really attribute this change to the effects of trade friction, since it reflects the expansion of Samsung Electronics' share of the U.S. market, and the shrinkage of production capacity in China. The key products in the telecommunications apparatus category are smartphones, which are included in the fourth round of tariff increases scheduled for December. Major changes in import sources due to trade friction are unlikely to emerge until 2020.

In the second category—office machines and automatic data processing machines—which includes notebook PCs, imports from China in the first six months of 2019 plummeted by 22.5% compared with the same period in 2018, when there was a 3.0% year on year increase. As a result, China's share of total imports in this category slipped from 54.7% to below half at 46.1%. The decline in imports from China translated into increased imports from Taiwan, which were 133.8% higher than in the same period in 2018. Taiwan's share of total imports in this category rose sharply, from 4.0% in 2018 to 8.1%.

Notebook PCs will be affected by the fourth round of tariff increases scheduled for December, but they are not currently subject to high tariffs. The occurrence of these changes is a sign that Taiwanese companies have repatriated their manufacturing operations and started production in anticipation of the tariff hikes. Four of the five major manufacturers involved in contract production of PCs are believed to have opted for "hometown investment"[(42)]. As a result, exports of office machines and automatic data processing machines from Taiwan are expected to remain on a growth trend even before the December tariff increases.

Imports from China in the third category, electrical machinery, apparatus and appliances, shrank by 14.2% in the first six months of 2019 compared with the same period in 2018. This reversed the previous year's growth trend (11.7% year on year increase) and reduced China's share of total imports in this category from 28.2% to 23.8%. However, instead of an increase in imports from a particular country to offset the decline in Chinese imports, the increase was spread evenly across multiple countries. This was partly because China's share of imports in this category was already lower than in the other two categories, and import sources are more diversified. Trends have also been influenced by the wide range of items included in the electrical machinery, apparatus and appliances category, which range from home appliances to semiconductors.

Statistics for the main electrical machinery, apparatus and appliance items that make up this three-digit SITC category show that China is the biggest import source only for household-type electrical and non-electrical equipment (SITC:775). Malaysia is the biggest source of thermionic, cold cathode or photo-cathode valves and tubes (SITC:776), the category that includes semiconductors, while Mexico is the leading sup-

plier of electrical apparatus for switching or protecting circuits (SITC:772) and equipment for distributing electricity (SITC:773) (Fig.23). In areas in which China's share of imports is small, it is not difficult to switch to imports from third countries.

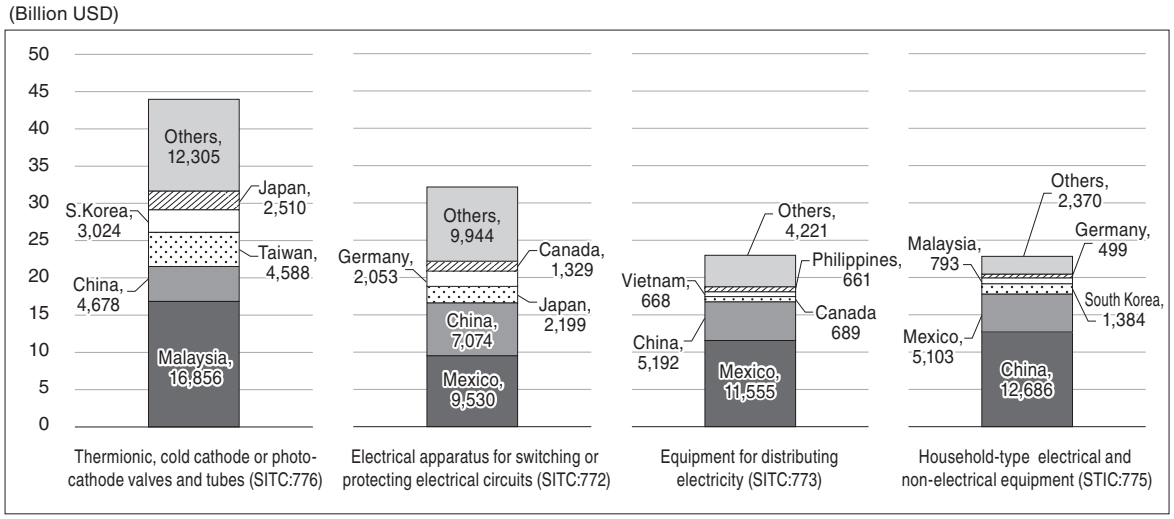
Many items in the fourth category, furniture and bedding, were included in the third round of tariff increases. For this reason, imports from China declined by 13.9% in the first six months of 2019 compared with the result for 2018, when imports increased by 9.6% over the previous year's level. The gap created by the decline in imports from China has been filled by Vietnam. The growth rate of imports from Vietnam has risen to 31.2%, which is substantially higher than the 8.9% year on year increase recorded in 2018. This acceleration lifted Vietnam's share of total imports in this category in the first six months of 2019 to 12.6%. Furniture and bedding are labor-intensive products, and the industry appears to have been valued for its large scale.

(3) Changes in Imports from China Influencing the Impact on the Chinese Economy

What changes are occurring in the imports from China by the countries and regions that are taking over China's share of exports to the United States? As stated earlier, the pattern of increased investment by Chinese companies leading to increased imports from China, followed by growth in exports to the United States is most clearly manifested in Vietnam. The question whether or not imports from China are increasing has great significance for analyses of the impact of trade friction. This is because the expansion of exports to United States from countries to which China is exporting parts and intermediate goods are expanding indicates that despite the decline in China's exports to the United States, the impact of trade friction may not be as great as suggested by the size of the downturn in exports to United States. There has been little discussion of this aspect, either by the IMF or by the Japanese media.

According to Chinese trade statistics, exports in the first six months of 2019 reached $1,171.2

Fig. 23 Import Sources for the Main Items in SITC:77 (Electrical Machinery, Apparatus and Appliances) (2018)



Notes: Semiconductors are included in thermionic, cold cathode or photo-cathode valves and tubes (SITC:776).
Source: Compiled by JRI using U.S. Census Bureau data

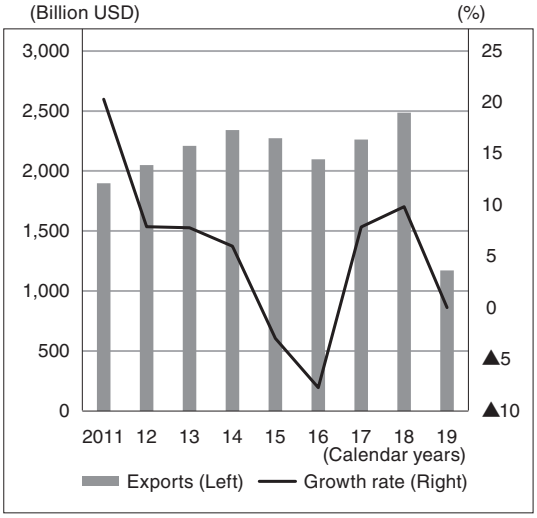
billion, an increase of 0.1% over the same period in 2018[43]. This can be seen as a slowdown compared with the 9.9% year on year growth recorded in 2018. However, China's exports are affected by a combination of factors, including a slowdown in emerging economies, a weaker yuan, and an exodus of production operations due to soaring labor costs. The export downturn that China experienced in 2015-2016 was even bigger than the present decline, which is actually within the range of the projected impact of trade friction (Fig.24).

Is China offsetting the decline in exports to the United States through exports to other countries? An analysis of exports to other key countries and regions shows that the only country for which China recorded a higher export growth rate in the first six months of 2019 compared with the 2018 result was Malaysia. From this we can conclude that exports to other countries are not growing sufficiently to mitigate the impact of the tariff increases. Yet China's exports to the EU and ASEAN remain strong and are clearly offsetting the decline in exports to the United States to some extent (Fig.25). In the case of Europe, exports to Germany and the United Kingdom are strong, but these consist almost entirely of final goods and appear to include few parts or intermediate goods, which are the focus of this analysis. As expected, it is Asian countries that are attracting attention in relation to exports to the United States through third countries. China's exports to Taiwan, Vietnam, and Malaysia in particular have remained buoyant in 2019.

However, exports to Japan, South Korea, India, Thailand, and Indonesia have either stagnated or declined in 2019. This appears to reflect the fact that these countries are not included in supply chains through which goods made using parts and intermediate materials sourced from China are exported to the United States. Japan and South Korea both have their own industrial clusters and are positioned to supply parts to China rather than source parts from China, while Thailand, India, and Indonesia have only tenuous links to Chinese supply chains and do not have industrial structures that would result in immediate increases in imports from China due to the escalation of trade friction.

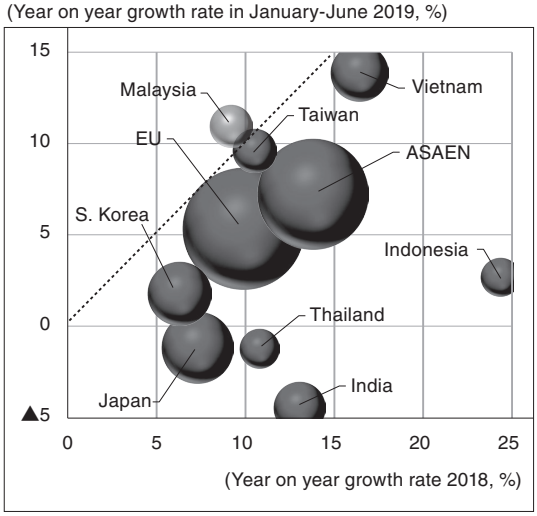
We will next look at countries and regions that have increased their imports from China and try to identify the particular categories that are driving that growth. Fig.26 traces changes in imports from

Fig. 24 Trends in China's Exports



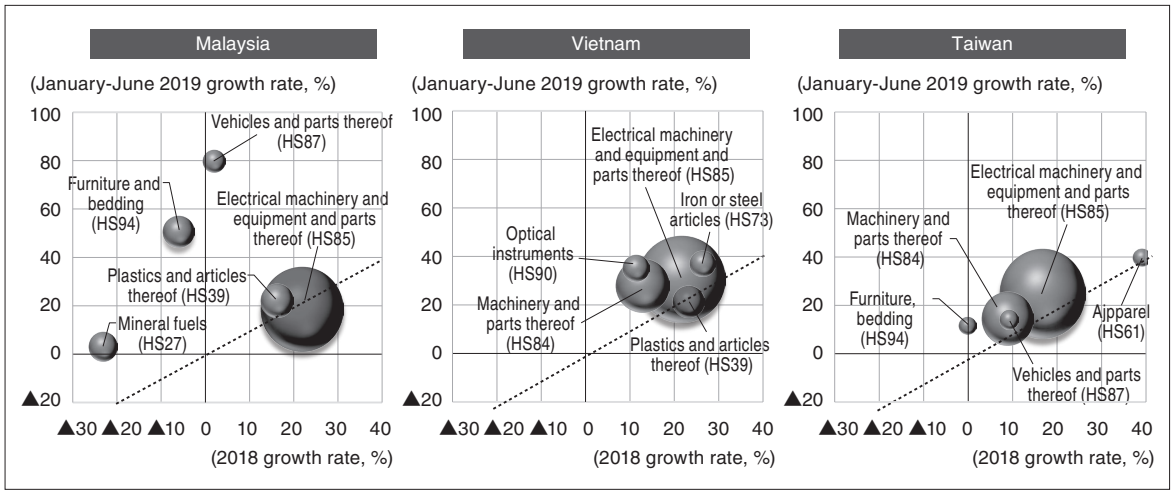
Notes: January-June for 2019.
Source: Compiled by JRI using data from CEIC (based on Chinese customs statistics)

Fig. 25 China's Exports and Export Growth Rate in 2018 and 2019



Notes: The size of the bubbles indicates the value of imports in January-June 2019.
Source: Compiled by JRI using CEIC data (based on Chinese customs statistics)

Fig. 26 Exports and Export Growth Rates in 2018 and 2019 for China's Major Export Items



Notes: Bubble size indicates each country's share of exports to the country/region concerned in January-June 2019.
Source: Compiled by JRI using Chinese customs statistics

China using Chinese trade statistics based the two-digit categories in the Harmonized Commodity Description and Coding System (HS). In each case, five items for which imports either grew at a higher rate in the first six months of 2019 compared with the 2018 growth rate, or as rapidly as in 2018, were identified from among items that account for large shares of total imports (Fig.26). All three graphs use the same scales to highlight differences among the countries and regions concerned.

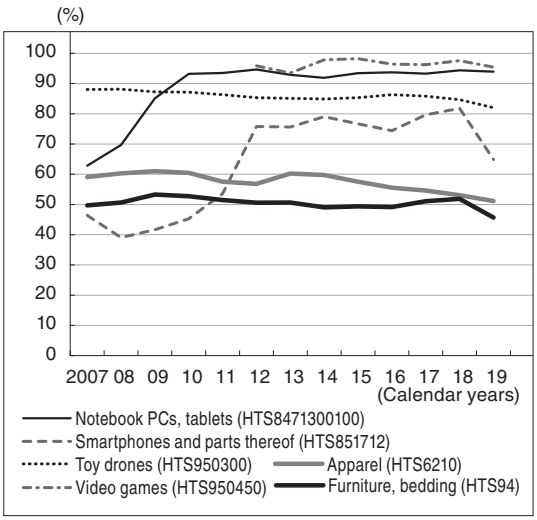
As is apparent from Fig.26, in all three cases imports of electrical machinery and equipment and parts thereof (HS85) from China are substantial and showing high growth. This tallies with the leading role played by the electrical and electronic device industries in Asian supply chains (Miura [2019]). However, the growth rates differ in each case, with Vietnam and Taiwan recording more conspicuous growth than Malaysia. This indicates that Vietnam and Taiwan have more firmly established supply chains based on exporting to the United States using parts procured from China. It is difficult to draw precise comparisons because China and the United States use different product categories. However, statistics for Taiwan and Vietnam show more correlations between items imported from China and items exported to the United States than those for Malaysia.

(4) Three Perspectives on Predicting the Outlook

How will Asian supply chains change in response to escalating US-China trade friction? Forecasting is never easy, but we can draw the following conclusions based on an analysis of U.S. and Chinese trade statistics.

First, industries that rely heavily on Chinese imports and manufacture products with large amounts of Chinese contents are likely to accelerate the restructuring of their supply chains when the fourth round of tariff increases comes into effect. The level of reliance on China should ideally be calculated according to shares of U.S. markets, but since there is little domestic production infrastructure for products imported from China, such as smartphones, and since such products are unlikely to be exported to third countries, we calculated reliance on China according to China's share of total imports of each item based on U.S. import statistics. Fig.27 shows trends in imports on items

Fig. 27 U.S. Reliance on China for Key Import



Notes: January-June for 2019. Reliance on China = (imports of an item from China ÷ total imports of that item) × 100.
Source: Compiled by JRI using U.S. Census Bureau data

for which the United States is heavily reliant on China.

In 2019 there were significant declines in U.S. reliance on China for smartphones and parts thereof, and furniture and bedding. These trends were caused by increased imports from Vietnam in the case of smartphones and parts thereof, and by the inclusion of furniture and bedding in the third round of punitive tariffs. Reliance on China for furniture and bedding is expected to fall further, since tariff rate for furniture and bedding was raised to 25% in May and will reach 30% in October[(44)].

Reliance on China for notebook PCs, tablets, smartphones and parts thereof, toy drones, video games, and apparel has not yet declined. This is probably because the situation does not yet warrant drastic changes to imports from China, since these items will not be impacted until the fourth round of tariff increases. When the tariff rate for these items rises from the initial level of 10% to 15%, we are likely to see accelerating moves to relocate production operations from China to other countries and regions.

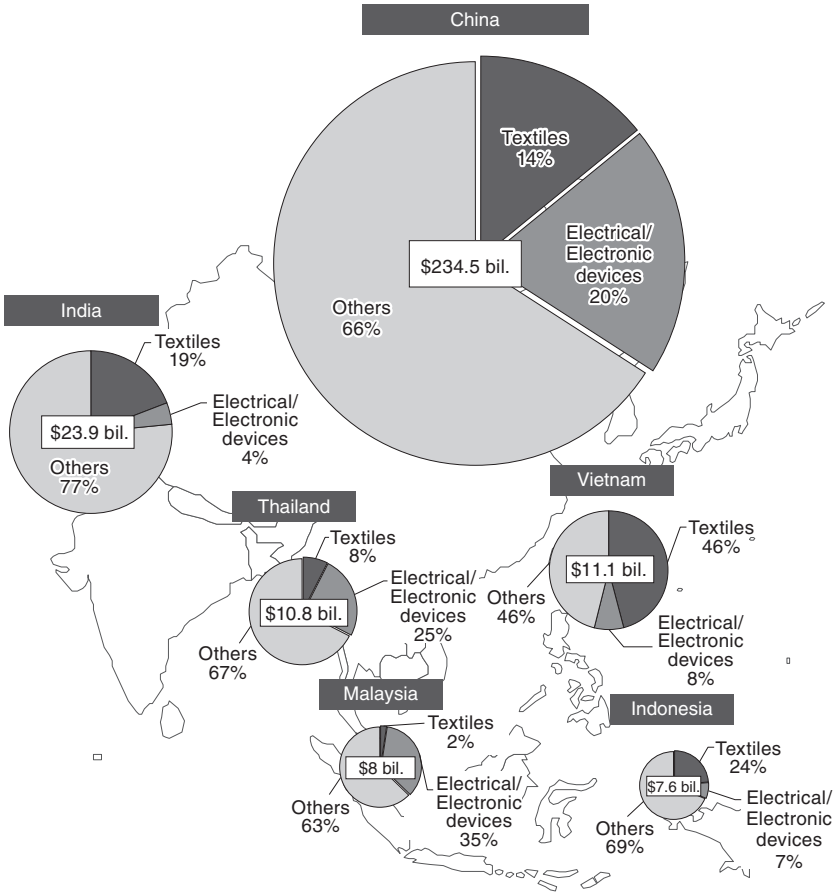
The items in Fig.27 for which the value of imports is highest are smartphones and notebook PCs. The extent to which imports of these items from China will decline will be influenced by PC manufacturers and Apple, and by Taiwanese EMS companies that react to their decisions. Fig.22 above indicated that declines in imports from China were being offset by imports from Vietnam and Taiwan. However, we need to assume that the industries that produce these items will make even more drastic changes if the fourth round of tariff increases is activated.

Second, countries with the same industries as those that support Chinese exports to the United States will benefit from the present situation. Fig.28 shows the scale of value added exports by manufacturing industries involved in exporting to the United States from China and key ASEAN members, based on the OECD TiVA statistics. Since value added exports do not include parts procured from third countries, the scale of those exports can be seen as an indicator of the real strength of an exporting industry and the depth of the home-grown industrial cluster (including foreign-owned companies) supporting those exports. These are qualities that cannot be identified solely from conventional export statistics.

The country with the next biggest industrial cluster after China is India. India appears to have great potential as an alternative production base, but when we look at the industries that make up India's manufacturing sector, it becomes apparent that this is not the case. The electrical and electronic device industries are the mainstays of Asian supply chains for exports to the United States. The next biggest contributor is the textiles industry. India's industrial clusters in these two areas lack depth. Malaysia has made outstanding progress toward the development of its electronic and electronic manufacturing clusters, while Vietnam leads in the area of textiles.

The conspicuous growth of Vietnam's exports to the United States compared with other ASEAN countries suggests that it is better positioned than other countries to take China's place as a production base (Fig.21 above). The depth of industrial clustering by the electrical and electronic industries in Vietnam has also improved dramatically thanks to investment by Samsung Electronics and

Fig. 28 Scale and Industry Make-up of Value Added Exports to the United States (Manufacturing)



Notes: The size of the circles indicates the amount of value added exports. However, China's circle has been substantially reduced in size because it was far too big to fit into the diagram.
Source: Compiled by JRI using OECD, *TiVA December 2018*

its suppliers. Companies searching for alternatives to production bases in China are attracted to Vietnam by advantages that are not available in other ASEAN countries, including its unskilled labor resources and access to parts.

A key factor when trying to attract foreign investment is the state of the investment environment. Like Malaysia, Vietnam offers advantages in this area thanks to its participation in TPP11[(45)]. One advantage that India has over the ASEAN countries is the size of its domestic markets. Some Taiwanese EMS companies see India as a promising candidate for relocation, and some contractors are eager to take this opportunity to develop markets in India.

Third, because of the huge size of Chinese exports to the United States, supply chain restructuring cannot be accomplished overnight. Individual manufacturers are likely to restructure their supply chains in response to environmental changes by relocating their production bases out of China. However, there has been no discussion here about differences in the size of value added exports from China to the United States compared with value added exports from other countries. As shown in Fig.28, the value added exports of China's electrical and electronic device industries are worth 14 times those of Malaysia, while the value added exports by the Chinese textiles sector are worth eight times more than those of the Vietnamese

textiles sector.

According to an IMF estimate, China's exports to the United States will shrink by 70% if the tariff rate is raised to 25% (see Fig.20 above). However, it is unlikely that production bases could be relocated quickly because of capacity issues in the countries taking over production. This problem becomes obvious when we consider that China's manufacturing work force is believed to number 180 million[46]. Even Vietnam, which has substantial resources of unskilled labor, has only one-twentieth as many manufacturing workers.[47]

Even if these issues could be overcome, supply chain restructuring would still take a considerable amount of time. For example, Samsung Electronics obtained approval to set up an operation in Vietnam in March 2008, but production did not start until over a year later in April 2009. Exports of smartphones began in January 2010 and at that time were worth only $140 million. After steady investment by Samsung Electronics and its suppliers, monthly exports finally exceeded $1 billion in June 2012. It was not until the end of 2016 that there was sufficient capacity to support monthly exports in excess of $3 billion.

After obtaining approval, it took Samsung Electronics a year to start up its manufacturing operation, and a total of eight years for its plant in Vietnam to become functional as a global export base. In 2018, approximately 60 million iPhones were shipped in the United States. This is equivalent to just one-half of the output of Samsung Electronics' factory in Vietnam. However, even if production operations are shifted to Vietnam following the activation of round four of the tariff increases, it would take a considerable amount of time for production facilities to become fully operational.

China's value added exports to the United States are bigger by an order of magnitude, and supply chains could not be restructured overnight. This suggests that decoupling—the formation of separate supply chains that exclude China— as happened during the U.S.-Soviet Cold War—is unlikely. This might be possible in a few high-tech industries, but it would be impossible to exclude China from supply chains for all industries. China's industrial clustering is extremely deep. Producing manufactured goods without China would be very costly, resulting in higher prices for products.

Conclusions

In this article we have considered the outlook for changes in Asian supply chains, based on the assumption that the Trump administration's tariff increases would impact on investment and trade structures in Asia. Supply chain restructuring has only just begun. More obvious structural changes are likely to emerge when restructuring starts to occur on a significant scale following the activation of the fourth round of tariff increases. However, there is also a possibility that the scale of restructuring may be smaller than predicted. Finally, we also need to be aware that there are a number of issues that could delay supply chain restructuring.

First, in several industries, the cost of relocating production bases would be greater than expected. If the cost of relocating production operations to countries other than China exceeds the cost of tariff increases, relocation will not occur. Reuters reports that while Apple may want to move its production operations out of China, it is unable to do so because of its reliance on Chinese suppliers, including foreign-owned companies, which is extremely high at 47.6%[48]. With the emergence of Chinese manufacturers, such as Huawei, Apple's share of the Chinese market has fallen below 10%. Apple's inability to shift out of China despite this decline is a symbolic example of why the decoupling may not occur to the extent predicted by the U.S. government.

Second, there is the possibility that the Chinese government will restrict the relocation of production operations if the hollowing-out of industries starts to cause employment problems. The stabilization of society through the maintenance of employment is the greatest priority of the Chinese Communist Party. It may try to discourage companies from relocating by applying tangible or intangible pressures or offering subsidies and other incentives to maintain production.

However, these issues are unlikely to arise. An

analysis of China's working population by industry shows that the number employed in secondary industries peaked out at 220 million in 2011 and started to decline, reaching 210 million in 2018. Jobs are now being created in the tertiary sector. From this we can conclude that a far more effective and efficient approach for the government is to enhance the capacity of service industries to absorb workers by supporting the digitalization of the economy.

Third, the rapid growth of exports to the United States from the countries to which production operations have been transferred from China could trigger a new round of trade friction. Among Asian countries, Vietnam is most at risk from this problem. In the first seven months of 2019, the United States imported goods worth $36 billion from Vietnam, which became its eighth biggest source of imports. The trade deficit with Vietnam became the fourth highest at $30.1 billion. In May the U.S. Department of Commerce added Vietnam to its watch list of countries targeted by measures to curb currency manipulation. If the trade deficit continues to expand, the United States may seek trade negotiations.

However, it seems unlikely that these issues will escalate into tariff increases. The Vietnamese government is wary of detour trade based simply on the relabeling of Chinese products as "made in Vietnam"[49]. It has also shown consideration for the wishes of the Trump administration, including a decision not to introduce Huawei products based on the next-generation 5G standard[50]. The Trump administration has not hesitated to jeopardize relationships with allies under its "America First" policy. Even so, Vietnam is engaged in a dispute with China concerning sovereignty over islands in the South China Sea, so its relationship with the United States is unlikely to deteriorate to the extent that Vietnam is viewed with enmity.

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