# Mizuho Economic Outlook & Analysis

May 27, 2019

# *The Impact of US-China Tensions on China's Exports*

## *Substitution of China's exports has expanded to over 30% of tariff items*

**< Summary >**

- Based on US tariffs thus far China's exports of targeted products to the US have fallen 30% y-o-y. If the fourth round of tariffs is imposed and exports to the US as a whole fall by the same level, the export decrease represents roughly 1% pt of GDP.

- Comparing the changed rates of "China" and "non-China" exports to the US before and after tariffs for all items subject to tariffs, 30% of subject items from China appear to be undergoing substitution.

- The possibility exists that export substitution leading to installations of new equipment may already be happening. Even if the US and China reach a trade agreement in the future, the return of production to China could be difficult, and restraints on new investment would seriously affect China's economy.

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## 1. The US and China both invoke retaliatory tariffs once again

The United States and China have again fallen into another round of mutual trade recriminations after US President Donald Trump announced on May 5 that the US would move to raise retaliatory tariffs on $200 billion worth of Chinese products from May 10. The 11th round of US-China trade talks scheduled for May 10 were held in Washington, but these did not stop Washington from acting. In addition, on May 13 the US announced a policy of 25% additional tariffs on $300 billion worth of Chinese goods as a fourth set of hikes against China. Implementation is expected to begin at the end of June at the earliest, and if realized, an additional 25% tariff will be imposed on almost all imports from China, along with the previous tariff measures. Also, ahead of the US announcement of the fourth round of tariff rate hikes, on May 13 China announced that it would raise retaliatory tariffs on $60 billion worth of US products as of June 1.

Since the US-China Summit on December 1, 2018, which has held for the first time in approximately 12 months, the two countries have conducted a total of six rounds of high-level trade talks to seek an agreement (not including round 11). During this period, in response to US demands for the expansion of imports of agricultural and other products in December and the US request for China’s structural reforms (in the areas of forced transfer of technology, intellectual property protections, non-tariff barriers, cyber attacks, services & agriculture), China has taken measures that include the early establishment of the Foreign Investment Law, and there has been positive coverage by Chinese media such as "new progress has been made" subsequent to each round of talks.

Nevertheless, the resurgence of US-China tensions showed the world that the gap between the two countries is not easy to overcome. If the fourth round of tariffs against China is implemented, China may not only see a fall in exports, but also face a substantial deterioration of economic conditions accompanying the slump of investment and consumption, due to the deterioration of business confidence and reluctance to invest in China.

This report analyzes trade trends based on all available tariff item data and examines the impact of past and future US tariffs on China's exports and the overall Chinese economy. Our conclusion upfront is that substitution of exports from China, including trends involving installation of new equipment, is expanding, and that even if the US and China reach an agreement, there are concerns that it would continue to have a serious impact upon the Chinese economy.

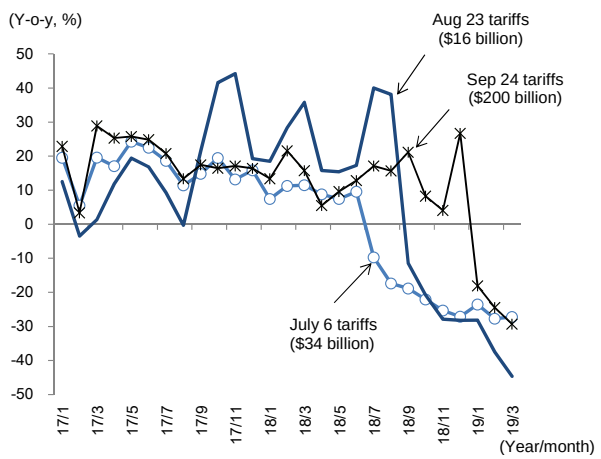
## 2. Analysis of the impact of US tariffs on China's exports

### (1) Overview of export items to the US subject to tariffs; down 30% y-o-y through March 2019

First, we confirm all US tariffs against China on China's exports to the US. Since the statistics from China do not disclose trade data details, we can take the value of trade items subject to US tariffs compiled using data from the US Department of Commerce to confirm that China's exports to the US suffer a major impact immediately after tariffs are imposed (**Chart 1)**. Subsequent to the first round of additional tariffs which were imposed on July 6th (25% tariff rate), there was a substantial deterioration of China's exports to the US from July onward. In the case of the second round (imposed on August 23rd, 25% tariff rate) and third round (imposed on September 24th, 10% tariff rate) of additional tariffs, US-bound exports either fell or slowed down sharply from each of the following months in September and October respectively.

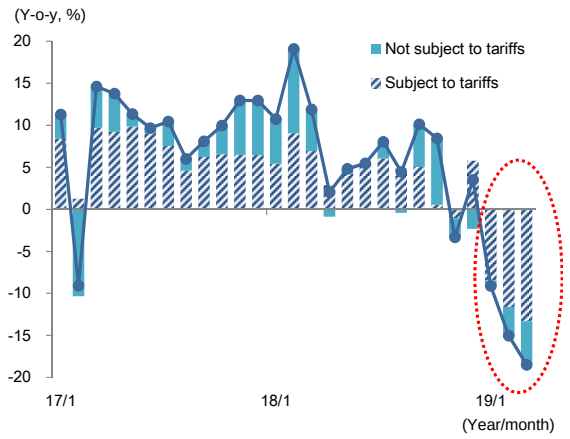
Since the tariff rate of the third round of additional tariffs was initially set lower than the first and second rounds of tariff hikes at 10% (while it was initially scheduled to be raised to 25% in January 2019, the actual rate hike was implemented on May 10, 2019 as noted earlier), US-bound exports subject to tariffs slowed down but still remained in positive territory even after the application of tariffs. However, as in the case of the first and second round of tariff hikes, they have fallen deep into negative territory after the turn of the year in 2019. Given that China's US-bound exports not subject to tariffs have also continued to fall below previous-year levels from November 2018 onward, it appears that the impact of the global manufacturing slowdown was not so small. March US-bound exports of all tariff items dropped sharply by 30.2% y-o-y and China's overall exports to the US dropped by 18.5% y-o-y. If the fourth round of tariffs is put into effect, retaliatory tariffs will be imposed on all of China's exports to the US. If overall exports to the US shrink by 30%, a simple calculation shows that this reduction would be equivalent to about 1% of China's GDP.

**Chart 1: China's exports to the US (tariff items)**




Note: Aggregate of items subject to US tariffs at the HS8 digit level.
Source: Made by MHRI based on US Department of Commerce data

**Chart 2: China's exports to the US (overall)**




Source: Made by MHRI based on US Department of Commerce data

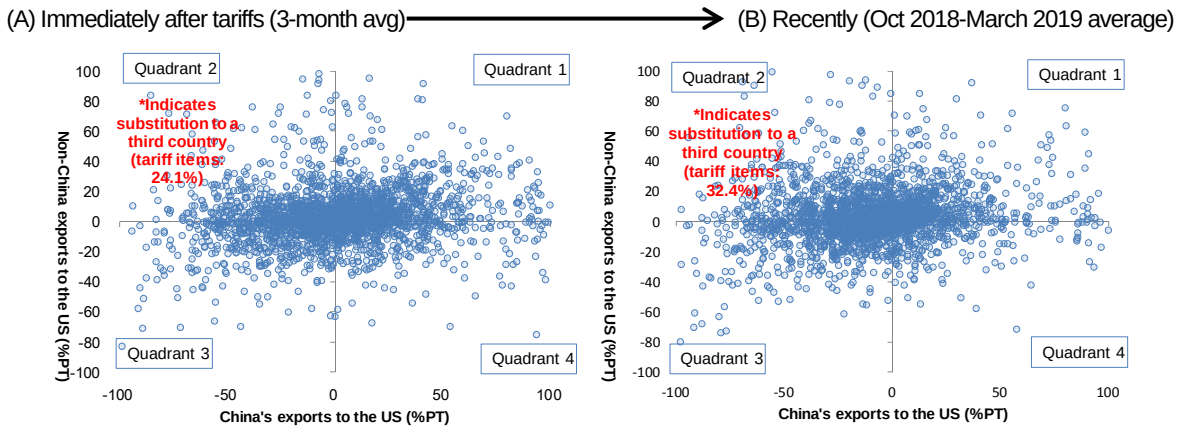
**Status of export substitution to other countries; possibility of substitution occurring on over 30% of tariff items**

If this decline in exports to the US continues, China may see substitution of exports to other countries even if the fourth round of tariffs is not invoked, which may affect not only exports but also investment. In fact, even at present there are many reports of transfers of production away from China. On the other hand, it is also true that some experts are noting that transfer is difficult due to human and material constraints.

Therefore, below we will quantitatively confirm how much substitution of China's export products to other countries has actually occurred. Although we sift through data on exports to the US (from both China and non-China) for all items subject to US tariffs, items for which there is a missing value or a month with zero trade in China's export data for the minimum required period (more than 60 months for monthly data; in this analysis, January 2013 to March 2019) due to seasonal adjustments are excluded. Therefore, among the total number of 6,842 items in the tariff list published by the US (first round: 818, second round: 279, third round: 5,745), this analysis looks at 2,404 items.

As an index to measure the export substitution trend, we used a ratio (substitution incidence rate) of the total of items where China's exports to the US decreased due to tariffs and exports to the US from countries other than China increased. Specifically, the US tariff items are divided into "China" and "non-China" exports to the US, with the former shown on the horizontal axis and the latter on the vertical axis in the chart below and then we plot the change in export volume before and after the triggering of tariffs (**Chart 3**). As shown in the chart, the ratio of the items to the total tariff items in the second quadrant is the substitution incidence rate. To calculate the rate of change, the export value prior to imposition of tariffs (denominator) is the six-month average just before tariffs are imposed and the export value after tariffs are imposed

**Chart 3: Changes before & after tariffs for export items subject to US tariffs (all items)**




Note: A plot of the rate of change before and after tariffs were imposed using seasonally adjusted values calculated by MHRI.
Source: Made by MHRI based on US Department of Commerce data

(numerator) is shown in (A) for periods of three months (tariffs round one: Jul-Sep 2018, tariffs round two: Sep-Nov 2018, tariffs round three: Oct-Dec 2018) immediately after tariffs are applied and (B) shows the recent six-month period (Oct 2018 to March 2019). By dividing into these two patterns we can see the change in the trade flux after the tariffs are imposed from (A) to (B). In addition, even if present in the second quadrant in (A), there are items that moved to other quadrants in (B). In taking the ratio in the second quadrant as the substitution incidence rate, it should be noted that the effects of temporary trends and factors other than tariffs are also included. Therefore, it is necessary to make continuous observations beyond the present analysis.

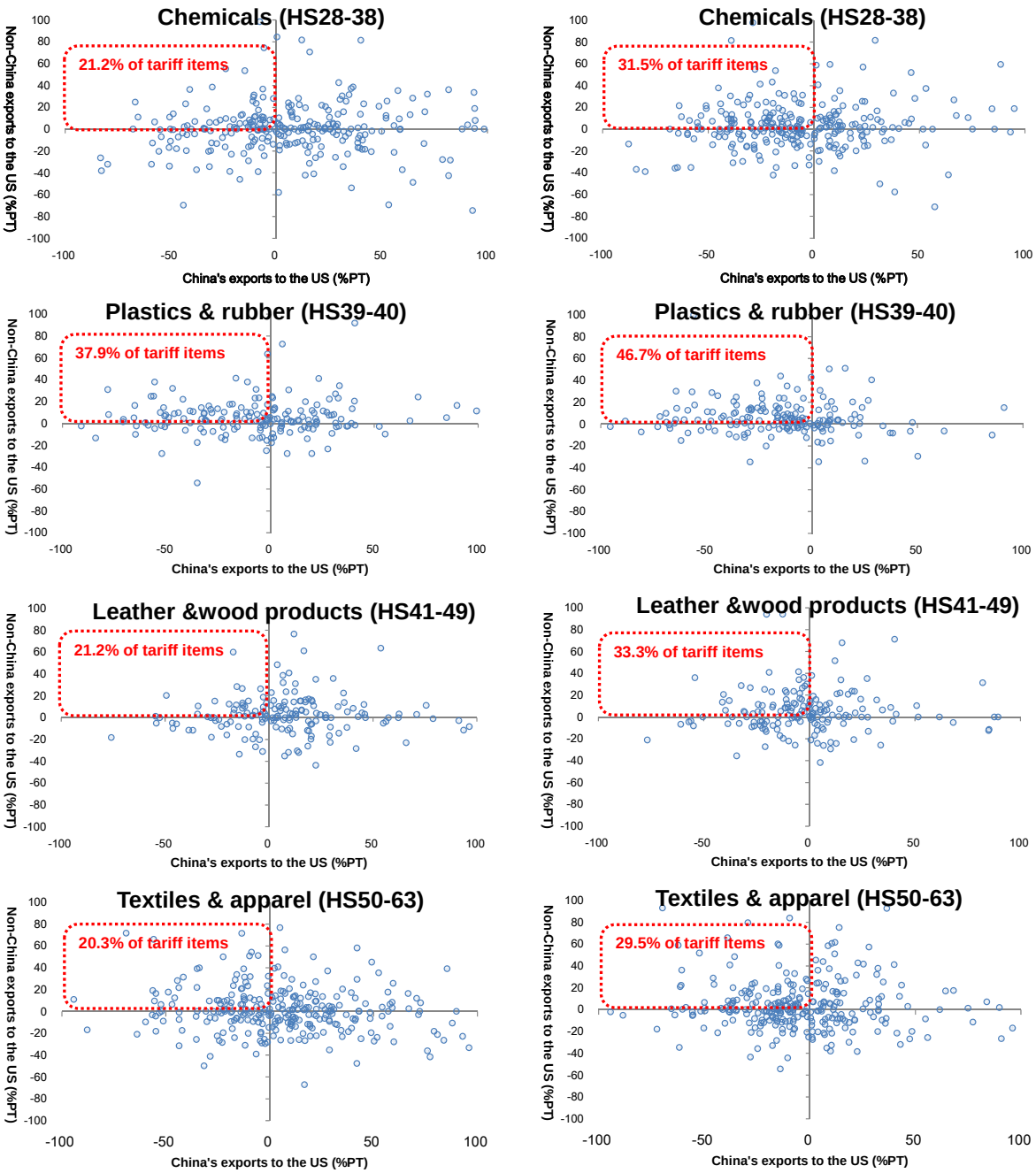
According to **Chart 3** based on the above method, the substitution incidence rate for all items subject to tariffs was 24.1% immediately after the punitive tariffs were triggered in (A) but 32.4% in the latest six months as seen in (B), so it can be surmised that substitution of China's exports is growing[1]. However, in both (A) and (B) the export substitution incidence rate is spreading in other quadrants. Even though the ratio of items (in the first and fourth quadrants) in which China’s exports increased even after imposition of punitive tariffs fell from 53.4% in (A) to 39.1% in (B), is still maintaining a certain level, revealing that export substitution is not so easy.

Looking at the substitution incidence rate for different item categories, in (A) "Plastics & rubber" and "Mechanical & electrical equipment" have relatively higher substitution immediately after the invocation of tariffs, but in (B) many items in the recent period have seen an increase in the substitution incidence rate (**Charts 4-1, 4-2** and **Chart 5**). In particular, in (A) “Animal & animal products," "Vegetable products," "Food & beverages etc.," "Leather & wood products" and "Footwear, feathers, magnetic products & precious metals" are more than 10% PT higher, suggesting that the substitution incidence rate has risen for categories of items having a relatively low degree of processing. On the other hand, the rate of substitution for “Machinery & electrical equipment” is only 4% PT higher from (A) to (B), indicating that this category is polarized into items that are easy to substitute and items that are difficult to substitute.

[1] When calculating the substitution incidence rate for tariff items based on calendar year year-to-year ratios for the period prior to the increase in US-China tensions, the average for the 2015 to 2017 period was 21.0% (2015: 21.2%, 2016: 19.6%, 2017: 22.3 %).

## Chart 4-1: Changes before & after tariffs for export items subject to US tariffs (by item classification)

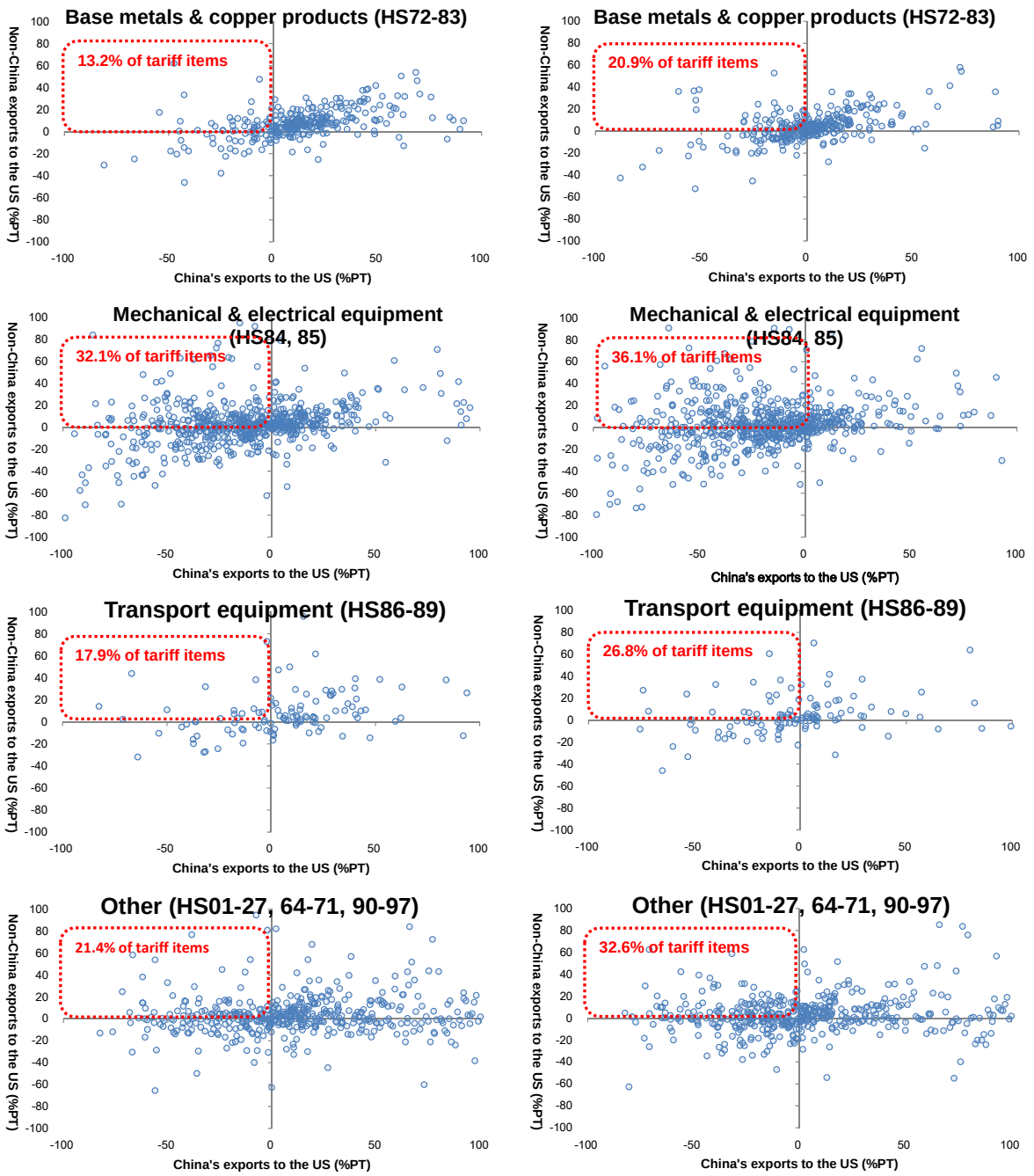
(A) Immediately after tariffs (3-month avg) → (B) Recently (Oct 2018-March 2019 average)




Source: Made by MHRI

## Chart 4-2: Changes before & after tariffs for items subject to US tariffs (by item classification)

(A) Immediately after tariffs (3-month avg) → (B) Recently (Oct 2018-March 2019 average)



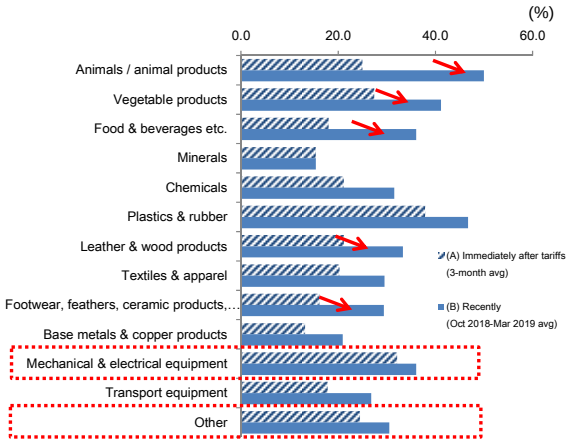

Source: Made by MHRI

### (2) Export substitution brought on by production transfers is also occurring

Lastly, using specific items as an example, we consider which countries are experiencing substitution effects as China's exports decline, and whether it is due to production transfers accompanied by the installation of new facilities. It is thought that export substitution immediately after tariff invocation is mostly accomplished by raising the operating rates of existing equipment. It is not easy to immediately judge new investments that involve a review of the supply chain while the future of US-China tensions is uncertain, and in any event, it takes a certain amount of time to set up production facilities. However, there are many cases of production transfers reported in the media. If production transfers are happening, that seems to suggest that exporting companies are starting to revamp the supply chain by responding with a temporary increase in capacity utilization rates in other countries, so the impact on China's economy is becoming more serious.

Looking at the top 10 items (all included in the third round of tariffs) of China's exports to the US subject to US tariffs by value, it can be seen that the growth of three products -- "printed circuit assemblies (HTS84733011)," "PC peripheral equipment (HTS84715001)" and "PC components (HTS 84733051)" -- turned negative immediately after tariffs were imposed (October), and significant negative growth has continued up to recently (**Chart 6**). These three items alone account for 9% of the tariff targets, and have a large influence. They explain 30% of the decline since the beginning of 2019 of China's exports to the US that are items hit with tariffs. Therefore, below we look at the details of export substitution for these three items.

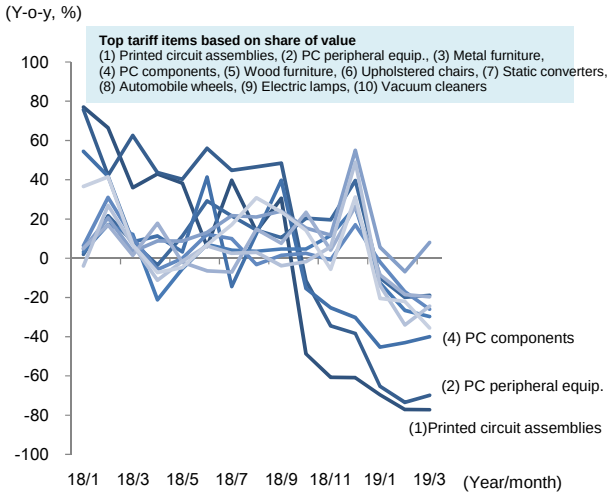
**Chart 5: Substitution incidence rate by item classification**




Note: The substitution incidence rate is the second quadrant ratios for the item classification in Charts 4-1 & 4-2. ("Other" refers to ""Other" in Chart 4-2, excluding animal & animal products, vegetable products, food & beverages, minerals, footwear/feathers/magnetic products and precious metals

Source: Made by MHRI based on US Department of Commerce data

**Chart 6: Exports of key items subject to tariffs to the US**

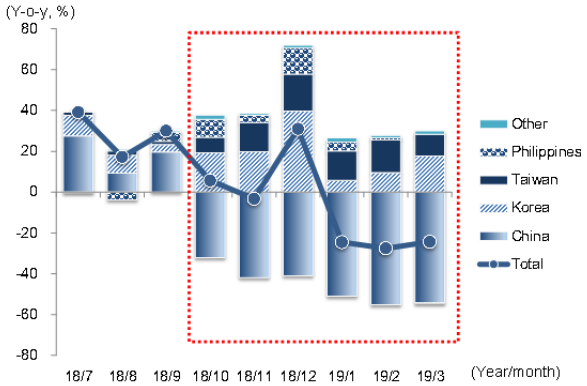



Note: The top 10 items by export value exported to the US subject to US tariffs.

Source: Made by MHRI based on US Department of Commerce data

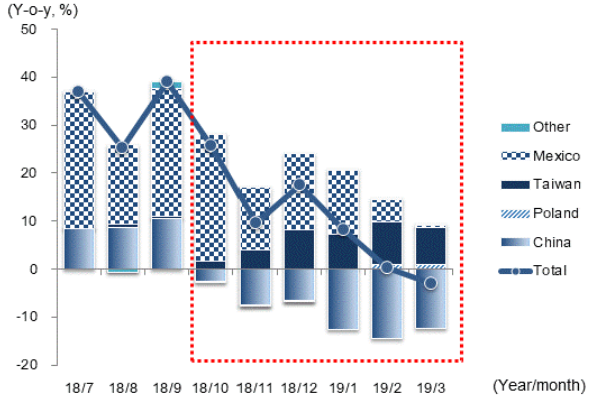
According to exports of the three products to the US by country (**Charts 7-9**), since the imposition of tariffs in October exports of "printed circuit assemblies" from such Asian countries as Korea, Taiwan and the Philippines have expanded, and exports of "PC components" from Korea and Taiwan in addition to Mexico have grown. However, these countries did not make up for the decrease in exports from China, and their exports to the US as a whole turned to decline after tariffs were applied. On the other hand, while Mexico's positive contribution to "PC peripheral equipment" began to shrink almost at the same time exports from China fell after tariffs were invoked, the contribution from Taiwan has greatly increased, and Taiwan's overall exports to the US showed positive y-o-y growth up to January 2019.

**Chart 7: Exports of printed circuit assemblies to the US**




Note: Total of HTS8473301140 and HTS8473301180
Source: Made by MHRI based on US Department. of Commerce data

**Chart 8: Exports of PC peripheral equipment to the US**




Note: Only HTS8471500150, a subitem of HTS84715001, is considered. Similarly, subitem HTS8471500110 is excluded due to many periods of defects.
Source: Made by MHRI based on US Department. of Commerce data

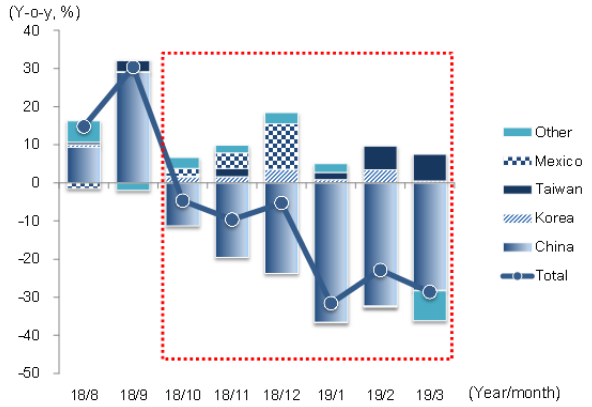
Although it is necessary to use data on operating rates by item and country in order to confirm whether such export substitution is due to increased production rates or production transfers that lead to new facilities, acquisition is difficult (it seems that there are many countries for which data were never initially developed). Therefore, based on operating rates calculated using various assumptions[2], we have identified countries that are believed to have had production transfers that involve new facilities after tariffs on exports to the US were imposed on the three items. "Printed circuit assemblies" is one country (Taiwan), "PC peripheral equipment" is two countries (Taiwan, Poland) and "PC components" is two countries (Philippines, Ireland). In addition to Taiwan and the Philippines, which have been exporting to the US since before tariffs, we note that production

[2] If data on operating rates cannot be obtained, one method (known as the Warton School method) for calculating the operating rate is to consider the past production peak as an operating rate of 100%. Using this method as a reference, we take the ratio of the peak of each country's exports to the US prior to tariffs to the latest level of exports after tariffs (period (B) above) as a measure of the operation rate. If the calculated operating rate exceeds 100%, it indicates the installation of new equipment. However, since this report uses substitution data covering the substitution of exports from China to the US by other countries, there are also such responses as switching exports from other countries to the US or switching domestic-use products to exports. Therefore, countries where the calculated utilization rate exceeds 150% are considered as production transfer destinations accompanied by new equipment installation. In addition, in order to exclude cases of accidental small volumes of exports, we limit ourselves to countries having a value share of exports to the US in the most recent period (March 2019) of more than 1%.

transfers may have occurred in Poland, Ireland that have only had a minimal track record of exporting to the US. For example, in Poland, where exports of PC peripheral equipment to the US only averaged about $1 million per month before tariffs were imposed, exports of the same product to the US in February-March 2019 jumped to over $20 million a month on average (see **Chart 10**). The list of $200 billion worth of Chinese products, including PC peripheral equipment, subject to tariffs was published in July 2018. While it appears that substitution by production transfer occurring over roughly six months is somewhat too fast[3], it is necessary to continue to keep an eye on whether substitution trends are spreading to other countries.

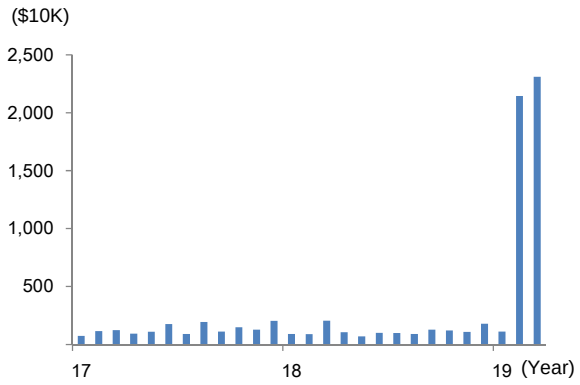
When matching the countries where this transfer of production seems to have occurred and, as shown in **Charts 7** to **9**, the countries where exports to the US expanded after tariffs were imposed, "printed circuit assemblies" are Korea and the Philippines, "PC components" are Korea, and we can surmise that Mexico responded by raising the capacity utilization rate.

**Chart 9: Exports of PC components to the US**




Note: HTS8473305100 is the only subitem for HTS84733051.
Source: Made by MHRI based on US Department of Commerce data

**Chart 10: Poland's exports to the US (PC peripheral equipment)**




Source: Made by MHRI based on US Department of Commerce data

## 3. Conclusion

To summarize the impact of US tariffs on China's exports as discussed above, among all exports covered by tariffs 30% have seen a sharp y-o-y decline up to the recent period (March 2019). Among the tariff items for which data are available, cases of apparent export substitution from China to another country have expanded from immediately after tariffs (23.5%) to more recently (31.6%). In addition, export substitution has not been limited to raising the operating rate, and possibly includes cases of production transfers (new equipment) that may be leading to an

[3] Since the period of the rapid increase in Poland's exports of PC peripheral equipment to the US is a short time of only two months (Feb-March 2019), it is possible that this trend is only temporary. In addition, if the recent export growth pace continues, that translates into annual increased production of $250 million. As a period of only six months to go from deciding this kind of plan for a large-scale increase in production to export shipping is seen as too short, the increase in Polish production may have been planned before the tariffs were announced. Poland is a participating country in China's Belt and Road Initiative, and in that context, it may be considered as a new destination for Chinese companies.

alteration of the supply chain.

The production transfer trend still appears to be limited, but once production transfers that lead to the installation of new equipment are executed, production operations are expected to continue at the transfer destination for a certain period of time in order to recover investment and other costs. Thus, it may be difficult for this production to return to China. In addition, downward pressure on new investments in China could lead to a slumping Chinese economy over the medium to long term. Even if it is possible to avoid a fourth round of tariffs, if the current third round is protracted, the negative impact on the Chinese economy may gradually increase. Whether it will be possible in future US-China talks to reach an agreement on eliminating the conventional retaliatory tariffs can be said to be an important point in determining the outlook for China's economy.