

An analysis of the causes of the Sino-US trade war

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Abstract. Since the establishment of diplomatic relations between China and the United States, the economy between the two countries has been developing rapidly, but it also inevitably brings about a lot of trade friction. On the issue of trade war that has just started, this article first analyzes the trade structure between China and the United States by calculating the Comparative Advantage Index. Then this article puts forward several real reasons for Sino-US trade friction based on the empirical analysis. Finally, the relevant countermeasures are briefly introduced at the end of the article.

1. Analyze the comparative advantages of the two countries by using RCA index

Before we analyze the reasons why the trade gap between China and the United States has increased year by year, an important indicator should be used to analyze the comparative advantages of China and the United States in trade to show the structure of trade between China and the United States.

The Revealed Comparative Advantage Index is proposed by the American economist and is used to reflect the Comparative advantages of a certain industry of a country relative to the world average level. The formula is as follows:

$$RCA_{ij} = \frac{X_{ij}/X_{it}}{X_{wj}/X_{wt}} \quad (1)$$

Among them, RCA_{ij} means the The Revealed Comparative Advantage Index of product j in country i . X_{ij} shows the value of country i export product j . X_{it} means the total export value of country i . X_{wj} shows that the total value of all the countries in the world export product j . X_{wt} represents total world exports to all products.

Generally speaking, if the RCA index is greater than 2.5, it indicates that the country has a very strong comparative advantage in such products. If the RCA index is greater than 1.25 and less than 2.5, it indicates that the country has a strong comparative advantage in such products. If the RCA index is larger than 0.8 and smaller than 1.25, the country's international competitiveness of such products is considered to be strong. However, if the RCA index is lower than 0.8, it indicates that the country does not have a comparative advantage in international competition.

Table 1. China's export RCA index for all types of products from 2008 to 2017

Year and product category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Product 0	0.4357	0.4423	0.4630	0.4691	0.4444	0.4275	0.4111	0.4049	0.4410	0.4258
Product 1	0.1439	0.1561	0.1587	0.1619	0.1632	0.1492	0.1536	0.1738	0.1927	0.1727
Product 2	0.2253	0.1985	0.1825	0.1838	0.1733	0.1682	0.1814	0.1775	0.1804	0.1657
Product 3	0.1345	0.1261	0.1126	0.0989	0.0896	0.0915	0.0965	0.1204	0.1480	0.1752
Product 4	0.0747	0.0542	0.0471	0.0496	0.0483	0.0545	0.0563	0.0582	0.0532	0.0615

Product 5	0.5319	0.4511	0.5044	0.5641	0.5245	0.5146	0.5350	0.5127	0.5183	0.5392
Product 6	1.3351	1.2215	1.2284	1.3031	1.3247	1.3500	1.3807	1.3704	1.3554	1.2850
Product 7	1.3699	1.4398	1.4520	1.4739	1.4445	1.4431	1.3524	1.2787	1.2568	1.2636
Product 8	2.2593	2.1445	2.1897	2.2874	2.3643	2.3517	2.2597	2.0253	1.9853	1.9629

Table 2. America's export RCA index for all types of products from 2008 to 2017

Year and product category	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Product 0	1.2557	1.1049	1.1478	1.2133	1.1310	1.1496	1.1405	1.0749	1.0425	1.0107
Product 1	0.5658	0.5412	0.5610	0.5620	0.5473	0.5783	0.5618	0.6198	0.6180	0.5785
Product 2	1.6766	1.7129	1.5748	1.4398	1.4706	1.4014	1.4425	1.4130	1.4459	1.2775
Product 3	0.3564	0.3853	0.4245	0.5103	0.5244	0.5649	0.6282	0.6790	0.7459	1.0082
Product 4	0.6307	0.6081	0.6619	0.5319	0.4852	0.4329	0.3856	0.3798	0.3775	0.3566
Product 5	1.3209	1.3162	1.3446	1.3032	1.2677	1.2596	1.2197	1.2343	1.2125	1.1525
Product 6	0.6999	0.7117	0.7304	0.7310	0.7461	0.7577	0.7506	0.7291	0.7340	0.7071
Product 7	1.2456	1.0171	1.0327	1.0518	1.0571	1.0381	1.0074	0.9616	0.9336	0.8990
Product 8	0.9937	0.9793	0.9612	0.9197	0.8923	0.8872	0.8497	0.8343	0.8565	0.8425

In the classification of SITC, products 0-4 are primary products, and products 5-9 are manufactured goods, among which products 5 and 7 are capital and technology-intensive products, and products 6 and 8 are labor-intensive products. The table 3-1 shows that China's process of manufactured goods and machinery and transportation equipment has significant competitive advantage in the world. The revealed comparative advantage index of products 6、7、8 are almost all above 1.25 in nearly a decade, especially the miscellaneous products, whose comparative advantage index are around 2 in recent years, sometimes (2011-2014, for example) even more than 2.25 and close to 2.5, which indicating that the export of manufactured goods of China have strong comparative advantage.

By contrast, in recent years, the comparative advantage index of products 0, 2, 5, 7 and 8 in the United States is greater than 0.8. In other words, the United States has a strong comparative advantage in the export of crops, non-edible raw materials (excluding fuels), chemicals, machinery and finished products. America is a capital and technology intensive country, which with abundant capital, advanced technology and high-quality technical talent, and has rich experience for research and development and the creation. As a result, the United States has been one of the world's leading position and has a comparative advantage that can not be ignored for high-tech products like drugs and precise machinery.

2. Reasons of the trade war

2.1 The "encouraging export and limiting import" policy of China and technology export controls of U.S.

The Trump administration of the United States believes that the Chinese government has implemented "mercantilism" and has been encouraging exports and restricting imports, which result in a further expansion of the Sino-US trade deficit.

However, China believes that the reason for the Sino-US trade deficit is mainly because the United States restricts high-tech products to export to China, rather than the "reward-and-limit" policy. The United States is trying to slow down the development of China's high-tech sector by controlling its exports of high-tech products to China. The US's strength lies in its high-tech, and the export restrictions on China's technology-intensive products are not conducive to the reduction of the US trade deficit. This has caused the trade gap between China and the United States to increase year

by year. This is an important reason for the increasing trade deficit between China and the United States.

2.2 Differences in statistical methods between the two countries

The differences in statistical methods will also cause the Sino-US trade deficit which calculated by U.S. to be artificially high, and this "exaggerated" trade balance does not truly reflect the trade situation between the two countries.

The data showed that the difference of trade statistics between China and the United States is 9.4 billion US dollars. The reason why the statistical gap is so huge, Chen Deming, former Minister of Commerce of China, pointing out that if China and the United States have different annual trade surplus or deficit, the Ministry of Commerce of China and the Ministry of Commerce of the United States will attend a meeting to reach a unified number. "But the data cited by the US politicians are all statistics from the US Department of Commerce that have not been tabulated by both sides. After China and the United States reached a consensus, the U.S. Department of Commerce issued only a small message, which was often overlooked." he said. According to the data of 2017, the difference of trade deficit of goods between China and the United States is 99.4 billion US dollars. Chen Deming pointed out that the reasons for this are various, such as statistical differences, transit trade, services trade and so on.

2.3 The trade relations are gradually shifting from complementarity to competition

From the comparative advantage index proposed above, it can be seen that China and the United States now both have strong comparative advantages in the production of industrial manufactured goods. In 2017, China and the United States import and export the mechanical and electrical products most to each other, and the only difference is the level of technology. Since China has proposed the "Made in China 2025 Plan", it is also constantly improving its level of development in high-tech fields. China has paid more and more attention to the research and development of technology-intensive machinery products, which makes the technical difference between China and the United States decreases gradually. Moreover, the US government has restricted the export of high-tech products and only allowed the export of middle and high-end products, which has promoted the international competition between China and the United States.

2.4 China and the United States have different market demand structures

Due to the different economic development levels of China and the United States, the residents of China and the United States have different income status and consumption concepts, which has led to different market demand structures in China and the United States. The labor-intensive goods produced in China are mostly cheap and necessary, while the capital and technology-intensive products produced in the United States are mostly luxury or high-end products. Due to the low income level, Chinese residents may not be able to afford the high-end products produced in the United States. As a result, the Chinese market has insufficient market purchasing power for US-produced goods. If there is no necessities produced by China in the US market, the lives of American citizens will fall into the dilemma of high costs. Therefore, the different market structures of China and the United States also have a certain impact on the trade deficit between China and the United States.

3. China's countermeasures against trade war

3.1 Adhere to the strategy of "surrender part of the profits and adhere to the principle"

The government should seek political reconciliation through negotiation. This trade war is only an economic issue on the surface. In fact, it is ultimately a political collision between the two countries. China can make certain concessions in terms of economic interests, such as reducing tariffs appropriately, expanding imports of US products and services, and enhancing intellectual property

protection, but we must uphold the multilateral economic and trade framework based on the existing WTO, and oppose to unilateral trade protectionism that seeks its own development resolutely.

3.2 Enhance flexibility of foreign trade

Nowadays, China's most important exporting countries are still developed countries such as the United States and Europe. The United States is China's largest trading partner, followed by the European Union. In 2017, products sold to the United States and the European Union accounted for 36% of China's total exports. Africa's exports account for only 4.19% of total exports. The rise of China is so fast that all developed countries are eyeing China, and this Sino-US trade war is a lesson. China should "fully develop" and strengthen the construction of trade fronts with other countries, thereby enhancing China's foreign trade flexibility.

4. Summary

The Sino-US trade war has come to the forefront and the impact is growing. America is China's largest trading partner, so the mutual trade with the United States is of vital importance to China. We should try our best to maintain the trade relationship between the two countries without violating the principle. We should protect the development of domestic high-tech industries, strengthen self-innovation, accelerate the optimization and transformation within the industrial structure, increase the flexibility of China's foreign trade system and strengthen China's trade links with other countries to make China more adapted to the development of the world economy.

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