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The Impact of US-China Trade Friction on China's High-Tech Sector

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Abstract: The main axis of the US-China game deepens from Trump's trade war to Biden's tech wars. At the same time, the chip industry has gradually become the main battlefield for the United States to suppress and curb China's scientific and technological fields. Whereas chips are an essential part of modern military equipment, communications facilities, nuclear power plants, transport systems and other critical infrastructure. Early mastery of the core chip technology can be early not to be constrained by others, to avoid the risk of being "necked".This paper will analyse the reasons why China makes the US feel that its national security is threatened, the impact of the US-China trade friction on China's science and technology sector, and find out the measures that China can take to deal with the US sanctions related to the science and technology sector, as well as the right way for China to get along with the US.

Keywords: US-China trade friction, technology blockade, high-tech enterprises

1. Introduction

Against the backdrop of today's rapid economic development in China, the country has attracted the attention of the US military-industrial complex that creates volatile conflicts around the globe to help it profiteer. They take China as their rival, stir up antagonistic conflicts, target China and incite anti-China sentiments in response to the discontent of the American public with all kinds of political chaos and economic and social problems in the country, so as to gain political capital for themselves. The United States first formulated and implemented a series of policies on trade sanctions against China, imposing punitive tariffs on high-tech products from China. Next, the United States imposed sanctions on Chinese high-tech enterprises, and then successively included a number of governmental and commercial organizations in a list of so-called entities to restrict exports in an attempt to suppress and curb China's development. The study shows that from a short-term perspective, US sanctions against China in the area of science and technology are detrimental to the country's innovation output. And from a long-term perspective, the relevant technology embargo measures will contribute significantly to a breakthrough in the country's innovation output. This paper will examine the impact of U.S. sanctions against China in the area of science and technology, using a timeline from the U.S. presidency of President Trump in 2017 to the continuation of the Biden administration's deepening decoupling policy in 2022.

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2. United States Military-industrial Complex

2.1. President Eisenhower's Perception of the U.S.Military-Industrial Complex

2.1.1. The Military-Industrial Complex Becomes a New Phenomenon in the Course of American History

In his farewell address on 17 January 1961, President Eisenhower noted that "the marriage of a powerful military organization and a huge arms industry is a new phenomenon in the course of American history". Its overall impact - economic, political, and even spiritual - is felt in every city, every state deliberative body, and every office in the Federal House."He recognize the unavoidable need for such a development. However, he cannot fail to appreciate its significant implications [1]. He warned that "a vast and enduring confederation of the military sector and the military-industrial complex threatens democratic governments and the quest for world peace, and the military-industrial complex could become an independent force dominant in domestic and foreign policy" [2]. Yet instead of restraining the growth of the military-industrial complex, his warnings hit the nail on the head in terms of the military-industrial complex's influence on U.S. policy - the high profits from the series of wars the U.S. has been involved in with other countries—the high profits from the series of wars the U.S. has been involved in with other countries [1].

2.1.2. The Expansion of the U.S. Military-industrial Complex

So far, the power of the military-industrial complex is still swelling all the time. As far back as the Cold War, American defence policy has been largely manipulated by the military-industrial complex. In his book The New Industrial State, published in the early 1970s, Galbraith, a leading American economist, stated that "the military-industrial complex decides not only on the development and exploitation of weapons, but also on their procurement, deployment, that is to say, who are the enemies of the United States" [3]. Prosperity through sustained war is the strategy of the military-industrial complex as an interest group that benefits from offensive foreign or military policies.

2.2. Reasons Why China Makes the Us Feel Threatened

Since the Cold War, China's rapid increase in comprehensive national power has undoubtedly posed a threat and challenge to the United States, triggering American pressure and containment of China. Based on China's basic national policy of opening up to the outside world, many of China's high-tech enterprises have set up high-tech subsidiaries around the world in the context of the "going out" strategy. As China's scientific research strength and comprehensive national power continue to improve, China's high-tech industry has gradually climbed from the middle and lower reaches of the global industrial chain to the middle and upper reaches, and is playing an increasingly important role in the global market, and China's trade relations with other countries are also undergoing subtle changes. China's industrial relations with developed countries, China and the United States as an example, China in the field of high technology continues to develop and grow, from the "manufacturing power" to the "intellectual power" transformation, so that the United States in the field of high-tech feel threatened by the previous complementary to competitive changes, and even developed into the current trade disputes.

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2.3. U.S. Sanctions Against China in the High-tech Sector

2.3.1. Trump Administration's Sanctions Against China in the High-tech Sector

On 22 March 2018, the Trump administration in the United States formally announced that it would impose tariffs on related imports from China worth up to $60 billion and also imposes restrictions on the commercial activities of Chinese companies making business investments and mergers and acquisitions in the US. On 4 April, Trump announced a 25 per cent tariff on high-tech goods imported from China in the fields of aerospace, information and communications technology and other areas [4]. The target of trade friction has turned to high-tech products, and the high-tech industry has become the focus area of this trade dispute between China and the US. Shortly after the U.S. announced tariffs on Chinese high-tech products, the U.S. government restarted sanctions against ZTE, banning U.S. suppliers from exporting components, products and technology to ZTE for up to seven years. On 15 June, the United States once again escalated its high-technology import restrictions by announcing a 25 per cent tariff on thousands of products valued at $50 billion exported from China to the United States, including aerospace, railway rolling stock, high-end machinery, and biomedical equipment, among other hi-tech products planned under the Made in China 2025 programme. In May 2019, the US Department of Commerce added Chinese communications giant Huawei and its affiliates to a list of "entities" that threaten national security, imposing a blanket ban on Huawei's purchases of accessories, technology, and products from American companies. In October, the U.S. "Entity List" was expanded again, with Hikvision, KDDI, Dahua, Sangtang Technology, Itu, MPC, Kuangshi Technology, YiXin and eight other companies listed, in addition to 20 Chinese government agencies and commercial organizations [5]. In 2017, the Trump administration launched a "301 investigation" into China on the grounds that Chinese regulations, policies and practices "may harm U.S. intellectual property, innovation or technological development". The subsequent inclusion of China-related high-tech companies and organisations on the US Export Control "Entity List", as well as the Meng Wanzhou incident in 2018, have also shown that the US has strengthened its efforts to crack down on and penalise China's key high-tech companies through a variety of harsh means, such as the introduction of long-arm jurisdiction and a foreign investment regulatory regime centred on CFIUS [6]. To sum up, Trump has mainly adopted tariff hikes against China, multi-dimensional suppression of Chinese communications enterprises in terms of science and technology, finance and market, as well as the implementation of technology blockade through the mastery of key links in the technology. For this reason, Chinese enterprises that are subject to the core technology of the United States operate in the context of the trade friction between the United States and China, which is greatly affected.

2.3.2. Biden Administration Sanctions Against China in High-tech Areas

The Biden administration has largely continued the Trump administration's trade policy towards China, extending U.S.-China trade friction into more areas and at a deeper level, and has continued to push for sanctions in the supply chain industrial chain. On 24 February 2021, Biden signed Executive Order No. 14017 on "U.S. Supply Chain", instructing the U.S. government to conduct a comprehensive review of the key supply chain, in which three of the five major factors for assessing risk pointed to China, and the Biden government used the results of this assessment as a basis for reducing the dependence of the key supply chain on China and realizing the "precise delinking" of the industrial chain, and the export control has become an important means of the United States of America to delink China's industrial chain supply chain precisely [7]. In addition, the Biden administration is focusing on high-tech "leading companies" and is precisely cracking down on them, and almost all of the entities included in the "Entity List" are related to key and emerging

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technologies. It is foreseeable that the scope of the crackdown on China's high-tech "leading enterprises" will expand further as emerging technologies are identified and added to the list [7].

2.4. China's Corresponding Measures in Response to a Series of U.S. Sanctions Against China in the High-tech Sector

2.4.1. Statement by General Secretary Xi Jinping on the situation in China and the United States

In response to the current situation between China and the United States, and in the face of the confrontation between China and the United States, General Secretary Xi Jinping has stressed in the report of the Twentieth National Congress that " science and technology are the first productive force, human resources are the first resource, and innovation is the first driving force", the focus of US trade friction with China has shifted from tariff pressure to tech decoupling. Chinese enterprises, whether it is "going to the United States", or stockpiling, are emergency measures to enhance core competitiveness, independent research and development to seize the technological high ground is the fundamental solution to the problem of China's scientific research field [8].

2.4.2. Huawei's Response to the Situation of Being Sanctioned by the US

In the face of the predicament, Huawei has also taken active measures to "de-Americanise" the company. For example, in Huawei's Mate30 phone, Chinese-made parts have risen dramatically from 25 per cent to 42 per cent, while US-made parts have fallen from 11 per cent to around 1 per cent. Huawei also officially launched the "Nanniwan Project", which is Huawei's new measure to cope with the U.S. all-round blockade, with the intention of avoiding the application of U.S. technology in the process of manufacturing terminal products, and accelerating the de-Americanisation of its supply chain. Huawei's laptops, smart screens and IoT home intelligence products have been included in Project Nanniwan and will be the first to become "completely free of US influence."

3. Impact of U.S. Sanctions Against China in the High-tech Sector

3.1. The Impact of US-China Trade Frictions on China and the US and the World

The technological level of China's exports is low, and it is not the United States' export control policy that is holding back China's technological development [9]. Relevant studies have found that U.S. export control affects the technological innovation mode of China's high-tech industry, but does not affect the efficiency of industrial innovation [10].

3.2. Impact on the United States

Ni Hongfu uses the world input-one-output price model with the introduction of tariffs to simulate scenario analyses of the price and welfare effects of tariffs imposed by China and the United States, and concludes that tariffs imposed by China and the United States would result in a greater welfare loss for U.S. residents than for China [11]. Applying the Multi-Regional Input-Output Model, Zhang found that trade frictions between China and the United States can cause losses in the export trade of all economies linked to the value chain with China and the United States, with the United States' export trade suffering much more than that of China [12].The main reason for the trade imbalance between China and the United States is that the United States has implemented an export control policy on China, and if the United States can relax its export control, the economies of China and the United States will be greatly developed [13]. In fact, the negative impact of the US-

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China trade friction is not only limited to the two countries. On the one hand, after the reform and opening up, the vigorous development of foreign trade has become one of the important ways for China to speed up its modernisation, promote economic development and enhance its comprehensive national strength. After more than four decades of efforts, China has gradually realised the leapfrog development of its foreign trade, and it can be said that China has brought enormous economic benefits to the international community. The U.S. embargo on China's high-tech industries will inevitably undermine the original supply and value chains of high-tech industries between the international community and China, affecting the international community's stakeholders in trade, investment, production and sales. On the other hand, the chip embargo would at the same time have a significant negative impact on the job market in the chip-exporting regions involved in the chip embargo.

3.3. Impact on China, Taiwan and Other Countries

Employment in Taiwan, China, fell sharply by 2.74 per cent, with a new unemployed population of 315,600; employment in the Republic of Korea fell sharply by 1.85 per cent, with an increase in the number of unemployed by 502,200; and employment in Japan declined by 0.54 per cent, with a new unemployed population of 360,100, with the unemployment pressure brought about by the United States-led embargo coalition being borne mainly by other countries or regions [14].

4. Conclusion

An analysis of the above leads to the following conclusions.

Firstly, the reason why the United States has gradually deepened its trade sanctions against China at a deep level and in a wide range of fields may be one of the strategic containment measures against China in the face of the threat posed by China to the national security of the United States under the operation of the United States military-industrial complex.

Secondly, the impact of China-US science and technology decoupling is not all negative, for example, Huawei's shortcomings in independent research and development of chips have directly led to restrictions on the supply of chips after being sanctioned by the United States, China-US science and technology decoupling has made China deeply aware of the deficiencies that exist in the area of independent innovation, and thus made it clearer the direction of the future development - accelerating the domestic independent innovation and industrial upgrading. To a certain extent, the U.S. sanctions against China have stimulated China's independent R&D. In recent years, China's scientific and technological endeavours have been developing rapidly, with investment in R&D substantially increasing and the quality of patent applications also improving substantially.

Thirdly, "iron still needs its own hardness", China can only stand firm in international competition by continuously improving its own strength, promoting independent innovation, and constantly overcoming difficulties at the "choke point". In addition, while consolidating the hard power of the science and technology economy, it is also necessary to continuously improve the soft power. For example, the relevant enterprises to international trade related laws and regulations for systematic study and understanding to better avoid sanctions, not only can the future may be subject to sanctions in advance but also in the face of sanctions can be calm and timely response.

Fourthly, the United States scientific and technological embargo against China has also curbed the economic development of the United States itself, and the loss of total output of the United States is generally greater than that of China; under the United States' policy of export control, the United States will not only not benefit from it, but will also be hindered in its economic development. For this reason, China in the implementation of the relevant measures to deal with the United States of America's science and technology embargo on China at the same time should also

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actively promote the Sino-US consultations and negotiations, to promote peace and friendship between the two countries, and advocate that the two countries through win-win co-operation to promote the expansion of the market space is the right way to get along with the United States of China.

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