



# The Essence and Impact of US-China Technology Competition

Xinyan Peng<sup>(✉)</sup>

RSIS, Nanyang Technological University, Singapore 639798, Singapore  
peng0113@e.ntu.edu.sg

**Abstract.** After World War II, none of America's competitors or Allies of competitors such as Germany, Japan, or the Soviet Union reached 60% of US GDP, with China being the only exception. The great rejuvenation of China are seen by the United States as a huge threat to its global dominance. China is rapidly emerging as a global superpower to rival the United States, which undoubtedly poses a great threat and challenge to America's world leadership. On August 14, 2017, President Trump directed the Office of the United States Trade Representative (USTR) to determine whether Chinese laws, policies, or actions have the potential to harm U.S. intellectual property, innovation, or technological development. On 22 March 2018, the White House released the Presidential Memorandum on Actions Related to the U.S. 301 Investigation, in which the Trump administration accused China of using foreign ownership restrictions to demand or force US companies to transfer technology to China in order to acquire cutting-edge technology. The Trump administration says China seeks to challenge American influence and wealth, seeks to erode American security and prosperity, and uses technology, propaganda and coercion to shape a hostile world. Based on the results of the investigation, the US government imposed 25% retaliatory tariffs on Chinese imports to the US from July 6, 2018, marking the official start of the trade war between China and the US.

**Keywords:** US-China · Technology competition · Impact · Essence

## 1 Introduction

According to the content of the Sect. 301 investigation, the new US punitive tax policies are mainly aimed at China's medical equipment, artificial robots, new energy vehicles, high-speed rail equipment and other industries. However, by 2020, the top five Chinese products imported by the US were electronic machinery, textiles, furniture, toys and plastic products (US Census Bureau, 2020), indicating that the US trade deficit with China is mainly concentrated in industrial products rather than high-tech products.

Meanwhile, according to public data released by the Office of the US Trade Representative, China is the third-largest export destination for the United States, with the most export categories being electronic machinery, aircraft, optical and medical equipment, and automobiles. These are also sectors that the US has sanctioned in its new

trade restrictions policy, but China has subsequently responded. The development of various trade restrictions has caused some confusion. Why is the US willing to sacrifice its own interests to start such a costly and costly trade war? Is the essence of a trade war a technological competition?

John Mearsheimer, a representative of offensive realism, argued that hegemony must constantly strengthen themselves to ensure their own survival while containing the rise of new powers, which would lead to great power conflicts [7]. In the context of Sino-American technological competition, this competition is essentially the pursuit of world hegemony. Considering the U.S. sanctions against Chinese companies such as Huawei and ZTE, some argue that the fundamental purpose of the U.S. trade war is to curb the rise of China's overall national power. Through sanctions, the United States aims to suppress China's high-tech development, which in effect lays the foundation for future competition between the United States and China.

With this in mind, this paper attempts to discuss the nature and influence of Sino-US technological competition, and study the nature of technological competition. We will then analyze key policies and actions taken by China and the United States in the military, economic, and political spheres over the past several decades, and this comprehensive comparison will provide meaningful insights into the motivations and consequences of these policies and actions. The article argues that technological competition between the two countries will only exacerbate existing strategic dilemmas.

## **2 Case Study: Analysis the Essence of US-China Technology Competition**

Case study is a positivist approach to social science research. Case study is based on a specific purpose, select a few or even a single case for in-depth analysis, to explain international relations events.

Competition between countries at the technological level can be described as competition for relative advantage and national strength for future development, because technology is the engine of superpower development. Both the United States and China see the comparative advantage in technological capabilities as a fundamental prerequisite for economic, political and military power. Technological progress will determine their respective positions in international politics and economy. With the outbreak and heating up of Sino-US technology competition, the US government began to carry out all-round technology and trade protectionism against China.

### **2.1 Political Sphere**

Political and ideological competition is an important part of this competition for national power between the United States and China. Strengthening political competition with China will help the US domestic political awareness of the threat of China's rise and trigger domestic political support for competition with China. It will also expand the international influence of US politics and encourage other Western countries to join sanctions against China [2].

The escalation of political friction between China and the United States is mainly reflected in the fact that high-level communication between the two countries has yielded few results and differences are obvious. For example, the second China-U.S. Diplomatic and Security Dialogue, originally scheduled for October 2018, was postponed due to the lingering trade war between the two countries. In November 2018, the China-U.S. Diplomatic and Security Dialogue resumed. Despite their agreement to "seek common ground while shelving differences", the two sides still have clear differences on sensitive issues such as the South China Sea, Taiwan and human rights. The US insistence on freedom of navigation in the South China Sea and its use as an excuse to rationalize its military activities in the Asia-Pacific region could trigger a geopolitical crisis. On the Taiwan issue, the US accused the Chinese government of shrinking Taiwan's international space and showing an intention to interfere in China's internal affairs over human rights.

Friction between the US and China on politically sensitive issues such as Taiwan and the South China Sea will undoubtedly exacerbate the escalation of conflicts between the US and China, further weaken the practical role of the US-China political communication mechanism, and add challenges to the future development of US-China cooperation. At the same time, the competition between the two superpowers will also bring instability to Asian geopolitics.

## 2.2 Military Sphere

On the military front, Sino-American military dialogue has been increasingly strained by the friction between Chinese and American naval forces, especially the massive arms sales that the United States has announced to Taiwan.

On 18 December 2017, US President Donald Trump released his first National Security Strategy (NSS). In its National Security Strategy, the US government refers to China as a rival and revisionist power. The National Strategy Report even accuses China of stealing hundreds of billions of dollars worth of US intellectual property, claiming that China is trying to displace the US in the Indo-Pacific region and reshape the regional order. Territorial disputes in the South China Sea have long involved several sovereign states and regions, including Brunei, China, Taiwan, Indonesia, Malaysia, the Philippines and Vietnam. Among them, the Taiwan question is the key issue in the South China Sea.

In August 2022, Beijing suspended eight US-China cooperation and related meetings, including military and defense meetings, in response to US House Speaker Nancy Pelosi's visit to Taiwan. The cancellation of military exchanges between China and the United States means that the mutual trust between the two militaries and the relations between China and the United States have further deteriorated.

Pelosi is the highest-ranking U.S. elected official to visit the island in nearly two decades. Pelosi's visit to Taiwan, the escort of US warships and the massive arms sales to Taiwan can be seen as a misguided support for Taiwan's independence by the current US administration, a serious and egregious violation of Washington's previous political commitment to the "One China Principle" and a stalemate in military relations between the two sides. Beijing has reacted sharply to Pelosi's visit, including days of air and sea exercises near Taiwan. Taiwan and the South China Sea have also been affected by tensions between China and the United States.

### 2.3 Economic Sphere

The Trump administration's national outlook is characterized by America first and the economy first. Trade growth is a key driver of economic growth. On the trade front, trade talks between China and the United States have faltered. The course of the trade war between China and the United States has gone through the events of imposing tariffs on each other - long-term negotiations - breaking down of new negotiations-re-imposing tariffs. However, as the world's two largest economies, China and the United States are highly interdependent in trade, with China being the third largest export market and the largest source of imports for the United States. The ongoing trade war will not only fail to eliminate the trade deficit between China and the United States in the short term, but also hinder trade cooperation and economic development between the two countries in the long term. Meanwhile, the trade war between China and the United States has also caused an impact on the international multilateral trading system, making the reform of the World Trade Organization (WTO) imminent. At present, the international free trade system is under the most serious threat since 1947. The tide of trade protectionism is threatening the development of free trade [3].

### 2.4 Technology Sphere

In the field of science and technology, the US suppression of China's science and technology sector is mainly reflected in its intention to contain "Made in China 2025". In its negotiating demands released in May 2019, the United States demanded that China stop subsidizing and supporting "Made in China 2025" and crack down on the development of China's technology industry. Meanwhile, the US has imposed tariffs on China in high-tech industries that are the focus of the "Made in China 2025" initiative, including aerospace, information technology, communications engineering, automated robotics and medical equipment. The US Secure and Trusted Communications Network Act of 2019, US law specifically prohibits any government agency or company from using equipment and services from Huawei and other entities that pose national security risks. Moreover, the United States has even tried to persuade European Allies to boycott Huawei to guard against potential national security risks posed by Huawei and to contain China's technological rise [5].

"Made in China 2025" will help China become a modern manufacturing power and realize the great rejuvenation of the Chinese nation. Huawei's chip research, development and manufacturing technology are an integral part of the Made in China 2025 plan. Boycotting Huawei can directly inhibit Huawei's technological development and thus affect China's goal of becoming a technological power.

The above evidence clearly shows that the US-China technology competition is not just trade protectionism, but a competition for power. The technological competition between the United States and China can also be seen as technological nationalism. Technonationalism is the behavior of a country that defines its economic and technological sphere as related to national security and development. Although these areas may not be directly related to defense, military issues, for reasons of national competitiveness, the country wants to dominate in this area of technology. Both countries are trying to enhance their international competitiveness and influence by implementing the Fourth Industrial Revolution through technological innovation.

### 3 Impact of US-China Technology Competition

The famous realist Hans Morgenthau once noted that the fate of nations and civilizations often depends on technological gaps that cannot be bridged by other means. Technological competition among countries may lead to major changes in the distribution of power, and countries with technological advantages can often gain greater national power in international politics. Therefore, technological competition has a profound influence on the development and change of the world strategic pattern. Technological competition is an all-round strategic competition of national strength. Therefore, the next section will analyze the influence of Sino-US technological competition from three macro perspectives, namely military, political and economic, so as to empirically demonstrate the essence of Sino-US technological competition.

First of all, from the military and security perspective, the technological competition between China and the US at the military and security level will seriously damage the US-China security relations, which may trigger a new round of arms race between China and the US for the purpose of safeguarding national security. The US and China are both military powers, so this tense competition will seriously affect global strategic stability.

Second, from the global economic perspective, trade protectionism by the United States and China would be detrimental to the stability of the multilateral liberal trade regime of the Global Trade Organization. In its economic policy towards China, the US government attaches importance to reducing the trade deficit, promoting the return of manufacturing to the US and creating more jobs, and takes the imposition of tariffs as the main means to achieve this goal. The trade tax policies of the US and China are full of unilateralism, protectionism and economic nationalism [4].

Finally, from a geopolitical perspective, a full-blown competition between the world's two major political and economic claims would be detrimental to regional political and economic stability.

### 4 Conclusion

In conclusion, while technological competition between the US and China may promote the development of autonomous technology chains on both sides in the short term. However, in the long run, competition and decoupling between the US and China could also hinder the long-term cooperation and globalisation of the two countries. As the two superpowers in the international system, the United States and China have strong international influence in terms of politics, economy and military. The two countries should set an example, properly compete and maintain cooperation, so as not to cause any negative impact on the international relations system. In this trade war and technology war between China and the United States, both sides can find each other's advantages in competition and make up for their own shortcomings by learning from each other. Although China and the United States have different political and economic systems, they can still seek common ground while reserving differences, draw on each other's strengths to jointly develop the fourth global technological revolution and promote the completion of a properly distributed global production chain.

Competition is one of the main forms of international relations interaction and an inevitable outcome of historical development. The technological competition between

the United States and China is a manifestation of the relationship between the two countries entering a specific historical stage, as well as the result of major changes in the current international landscape. The growing economic, military and technological rivalry between the United States and China has reinforced the zero-sum game in world politics and economics, which shows that if either side wants to go further in “decoupling”, it will make the system of international relations more unstable.

The competition between China and the United States in science and technology is not only a contest for the comprehensive strategic development of the two countries, but also a starting point for the world political pattern to move toward multi-polarization [6]. The essence of Sino-US technology competition is who can take the lead in this fourth technological revolution and thus gain a leading position in the world. However, with the rapid development of globalization and high interdependence between countries, the technology war between the United States and China is a competition that no one can win. Only when China and the United States learn to cooperate in competition and adapt to the development of the globalization pattern can they truly contribute to the completion of the fourth technological revolution and promote the development of global high technology.

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