

The Impact of Technical Trade Barriers on China's Economic Development

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Abstract. This paper investigates the impact of technical trade barriers on various aspects of China's economic development, such as enterprise innovation and product exports, based on the research findings of existing scholars. Overall, the influence of technical trade barriers on China's development is more adverse than beneficial. Although there is evidence suggesting that technical trade barriers in China can to some extent promote the development of innovation capabilities in certain enterprises, the comprehensive data analysis indicates that technical trade barriers impede the overall development of Chinese enterprises. Therefore, it is imperative for China to enhance its capabilities in specific areas to partially counteract the impact of technical trade barriers on the export of Chinese products by enterprises and promote China's economic development to some extent. Analyzing technical trade barriers is instrumental in understanding trade patterns, guiding technological innovation, and addressing risks and challenges from various sources, thereby fostering economic development.

Keywords: Technical Trade Barriers, Foreign Trade, Innovation, Export Product Quality.

1. Introduction

China, as a major manufacturing and exporting country, has indeed been affected by technical trade barriers in its development process. These trade barriers mainly include a series of technical standards, intellectual property protection, export controls, etc., which have had an impact on China's outward-oriented economy and manufacturing development.

In terms of technical standards and compliance requirements, technical trade barriers in international trade usually include various technical standards and compliance requirements. The manufacturing industry in China faces various technical specifications from different countries and regions, which may involve aspects such as product design, manufacturing, and quality control. Adapting to these diverse technical standards requires enterprises to upgrade their technology and adjust their compliance, which may increase production costs and time.

In terms of intellectual property protection, intellectual property protection in international trade is an important technical trade barrier. Some industries in China may use foreign patented technologies or be subject to intellectual property restrictions during the production process. In this case, enterprises need to take measures to ensure the legal use of intellectual property rights while strengthening independent innovation to reduce dependence on foreign countries.

Regarding export controls, some countries impose export controls on specific technologies and products, which is also a form of technical trade barrier. Some industries in China, especially those involving high-tech and sensitive technologies, may face such export controls. This may restrict exports in some key areas and affect China's export business.

2. Overview of Technical Trade Barriers Faced by China's Exports

Since China's accession to the World Trade Organization in 2001, it has actively established good trade relations with Western developed countries, and interactions between countries have become increasingly frequent. However, after Donald Trump was elected President of the United States in 2016, the United States claimed to increase tariffs on Chinese exports to the United States by 45% [1]. In addition, the United States has imposed many restrictions on Chinese companies, directly

leading to a sharp decline in the quantity of Chinese exports to the United States. Under the WTO framework, some Western countries have adopted more concealed trade protection measures to replace tariff barriers, such as technical trade barriers, by imposing strict technical standards to protect domestic enterprises, intentionally restricting Chinese enterprises' export trade [2].

The trade conflicts between China and Western countries in the technology sector stem from China's rising status in the international division of labor [3]. Due to the existence of technical trade barriers, Chinese enterprises may face barriers to entering other countries' markets, especially in high-tech and knowledge-intensive industries, resulting in restricted market access. Technical barriers are usually related to intellectual property protection. Chinese enterprises need to strengthen intellectual property protection measures to prevent technology infringement or theft. In addition, Chinese enterprises are more committed to market diversification. Faced with technical trade barriers, Chinese enterprises may seek diversified markets and partners to reduce dependence on a single market and mitigate risks. Furthermore, the Chinese government has adopted policy measures to promote domestic enterprises to strengthen technological innovation and improve product quality to reduce the negative impact of technical trade barriers on the economy. Finally, to meet the technical standards and certification requirements of the international market, Chinese enterprises may need to increase investment in technological research and development to enhance product quality and innovation capabilities to maintain competitiveness.

3. Negative Impact of Technical Trade Barriers on China's Economy

In the 40 years since the reform and opening up, Chinese enterprises have made qualitative leaps in innovation, which is not only due to the technological dissemination brought about by trade between China and other countries but also due to the cost reduction effect and technology spillover effect brought about by the reduction in intermediate tariffs, which have promoted the improvement of Chinese enterprises' innovation capabilities. However, technical trade barriers have severely hindered the development of innovation capabilities in Chinese enterprises. Although China has a far higher number of patents than other countries, its quality is often criticized [4].

The most direct impact of technical trade barriers imposed by Western countries on China is that Chinese products have significantly reduced their share of imports into Western countries compared to the past and other countries. Due to the deliberate technical trade barriers set by Western countries, China's foreign exchange earnings from exports have shrunk significantly, resulting in an imbalance in revenue and expenditure in the Chinese economy. Although Chinese enterprises strive to improve their technological capabilities, even if they meet the stringent technical standards of some Western countries, their lower market prices mean that Chinese export products still lack a competitive advantage in foreign markets, which is also detrimental to the establishment of enterprise reputation. Over time, products without obvious advantages are marginalized and become historical inevitabilities.

As Western countries deliberately increase technical requirements, the difficulty for Chinese goods to enter foreign markets has increased, leading to higher research and development costs for export products, ultimately losing price advantages compared to other countries [5].

To meet the requirements of technical trade barriers, Chinese enterprises may need to invest more resources in technological research and development, product improvement, and certification testing, which will increase production costs and operating costs, reducing the competitiveness of enterprises. Faced with technical trade barriers, some enterprises may resort to unfair means to obtain technology or knowledge, thereby increasing the risk of intellectual property infringement and facing intellectual property disputes and legal litigation risks. If technical trade barriers lead to Chinese enterprises' inability to meet the demand of the international market or compete with international counterparts, they may lose market share and even face the risk of being squeezed out of the market. If Chinese enterprises fail to meet the technical standards and quality requirements of the international market,

it may affect their reputation and image in the international market, causing brand damage and affecting long-term development.

4. Positive Impact of Technical Trade Barriers on China's Economy

Li Jiawei et al. believe that the effectiveness of technical trade barriers in improving the quality of exported products is mainly reflected in general trade enterprises, private enterprises, and capital-intensive enterprises, while the effectiveness is relatively small in processing trade enterprises, state-owned enterprises, and technology-intensive enterprises. Technical trade barriers force enterprises to increase investment in research and development, production, and quality control [6]. Through dynamic innovation, enterprises perceive the existence of trade barriers and can achieve disruptive technological innovation by continuously improving product quality [7]. Eventually, enterprises can gradually meet international standards, improve product competitiveness, and establish a good brand reputation. Once their products meet international standards, they will be more easily accepted by international markets. This enhances the competitiveness of products in international markets and helps expand business scope. It also provides development opportunities for enterprises. By actively adopting advanced technology and increasing research and development investment, enterprises are expected to improve production efficiency, reduce costs, and produce products with higher added value and market competitiveness.

In addition, technical trade barriers require enterprises to establish stricter quality management and monitoring systems to ensure that products still meet standards during production and delivery. At the same time, technical trade barriers may put pressure on enterprises' existing production systems and technological levels, especially when facing advanced technologies and standards. This may require enterprises to undergo large-scale technological upgrades, increase research and development investment, and adapt to changes. Technical trade barriers typically require exported products to meet higher technical and quality standards, forcing them to continuously improve production processes and quality management systems to meet the requirements of the international market.

5. Measures China Should Take in the Face of Technical Trade Barriers

Xiong Guangqin, Luo Linhan through statistical analysis of the export volume and financing amount of RCEP member countries, found that technical trade barriers have almost comprehensive negative effects on the quality of exported products, but the development of the digital economy can to some extent reverse this situation [8].

The digital economy provides more possibilities for innovation for enterprises. Promoting the integration of the digital economy and the real economy can unlock the potential of future industries [9]. Digital finance, through cost-saving effects, human capital matching effects, technology spillover effects, and industry competition effects, can increase the quantity and quality of innovation for enterprises [10]. Through the widespread application of digital technology, enterprises can upgrade products to better meet international technical standards. The rapid development of digital technology enables enterprises to more easily cope with technical trade barriers, thereby enhancing their competitiveness in the international market. The development of the digital economy brings about a reduction in production and delivery costs. By automating and digitizing the production process, enterprises can improve efficiency and reduce production costs. Digital supply chain management and logistics systems enable enterprises to manage global supply chains more effectively, reduce delivery time and costs, and help address trade barriers.

By comprehensively coordinating services and supporting standardized chains, China can establish standards for various processes within the supply chain [11]. In addition, the digital economy enables enterprises to better utilize data for decision-making. By analyzing big data, enterprises can better understand the demand and trends of international markets, adjust product strategies to meet market requirements. This data-driven international market strategy helps

enterprises to more flexibly adapt to different countries' technical standards and regulations, thus alleviating the pressure of technical trade barriers.

6. Conclusion

Overall, in China, small and medium-sized enterprises are the most affected by technical trade barriers, while the impact on enterprises at the forefront of technological innovation is minimal. Therefore, to enhance the overall competitiveness of China's economic development, the country should strive to develop positive factors such as the "digital economy" that can counteract technical trade barriers, thus strengthening China's economic development amidst the widespread existence of technical trade barriers in international competition. It is essential to enhance technological research and innovation, allocate more resources to technological research and development, and enhance the technical content and value-added of products to meet international market standards and certification requirements. Strengthening intellectual property protection, establishing a sound intellectual property management system, and enhancing the protection and management of technology to prevent infringement or theft are crucial. Actively participating in the formulation of international standards, engaging in the process of international standard formulation, and striving for favorable technical standards and certification requirements for Chinese enterprises are necessary. Enhancing brand value and reputation, establishing and maintaining a good reputation and image for enterprise brands, and enhancing product market competitiveness through brand premiums and word-of-mouth effects to withstand the challenges brought by technical trade barriers are important. Actively participating in the formulation of international trade rules, engaging in the formulation and negotiation of international trade rules, striving for the interests of Chinese enterprises in the international trade system, and seeking more development opportunities and space for Chinese enterprises are vital. Continuously monitoring and evaluating market environments, monitoring and evaluating changes in the international market environment, timely adjusting enterprise strategies and policies, and flexibly addressing the challenges and risks of technical trade barriers are essential. Strengthening international compliance capabilities, deepening understanding of the legal regulations and technical standards of target markets, strengthening compliance management of international trade regulations to reduce the impact of technical barriers on enterprises, is necessary. Collaborating with the government to promote policy adjustments, actively cooperating with the government, providing suggestions and opinions, and urging the government to take measures to reduce technical trade barriers, thus creating a better development environment for enterprises, are crucial. The current focus of research should be on developing industries that can reduce the impact of technical trade barriers on China, such as high-tech industries, information technology industries, life sciences industries, cultural and creative industries, energy conservation, and environmental protection industries, to enhance China's international competitiveness and achieve economic structural transformation and upgrading.

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