**Abstract**: China's economic development is currently in a stage of internal and external troubles. When facing major changes unseen in a century, we need to structurally improve the economy. The Free Trade Zone provides us with a choice, and the Liaoning FTA also shoulders the important task of revitalizing the old industrial base. Through the measurement method, we found that the relevant supporting policies of the Liaoning FTA have promoted the adjustment of the industrial structure, which in turn drove the local economic growth; although the industrial transformation has caused the traditional industries to shrink significantly, the relevant preferential policies to a certain extent offset the pain of industrial transformation.

**Keywords**: Free Trade Zone; Economic Development; Tax Preferential; Industrial Reform

1. Introduction

China’s economic development is currently at a stage of internal and external troubles: internally, structural reforms on the supply side have entered the deep water zone, technological innovation and talent training still have a long way to go, and the potential of the consumer market has not been fully stimulated; externally, the trend of trade protectionism and anti-globalization is getting more and more intense, trade frictions between China and the United States have reached a white-hot stage. This is both a threat and an opportunity for development.

When facing major changes unseen in a century, we need to structurally improve the economy. This requires us not only to further strengthen the industrial upgrading and transformation, but also to actively explore the market. The so-called "double cycle" also emphasizes the coordinated development of domestic and foreign economies, that is, taking the domestic economy as the main body and the international market as a supplementary form of high-quality consumption. Free trade zones provide a way to implement such development ideas.

Starting from the Shanghai FTA, China has continuously absorbed development experience and promoted it, and has established a total of three batches of free trade pilot zones. The development goals of FTAs are constantly being adjusted in accordance with local economic and historical characteristics. Liaoning, which also has high-quality trading ports, is in line with the logic of economic development to establish a FTA. At the same time, its policies are closely related to the industrial background of Liaoning. This article will analyze the impact of Liaoning FTA on Liaoning's economy, and at the same time explain its internal mechanism from a qualitative perspective.

2 . Literature Review

2 .1 Definition of FTA and its basic functions

As a form lower than the customs union, the FTA facilitates the free circulation of goods between member states. According to the "General Agreement on Tariffs and Trade" , a FTA refers to a group composed of two or more countries with tariff sovereignty , and trade transactions between members cancel tariffs and other restrictions ; according to the "Kyoto Convention", the FTA enjoys Import taxes and fees outside the relevant borders, and exempt from the usual customs supervision measures.

FTAs, usually built in ports, are mainly attracted by services and knowledge innovation (Ni, 2015) and are mainly used to promote foreign trade and foreign direct investment (Kossof, 2014). They also provide institutional support by simplifying transaction procedures and providing preferential policies for overseas enterprises and personnel (Yang, 2009). These systems optimized for specific foreign trade structure, enhanced the country's logistics capabilities, and thus also contributed to the hinterland of economic growth (Yang, 2009). Although the main functions of the FTA at the beginning were product storage and re-export trade, as the FTA system matures, processing and manufacturing businesses have also become important functions of the free trade zone (Wang, 2017) to cope with the increasingly intense trade competition.

2 .2 The impact of FTAs on the overall economy

The mainstream view at home and abroad believes that the free trade zone has a positive effect on the regional economy. Lewis et al. (1995) bulit up a model to study how the establishment of a FTA in Asia would affect trade, welfare, economic structure, and calculated that China's exports would therefore increase. Siriwardana and Yang (2008) used the GTAP model to analyze the economic effects of the China-Australia FTA under four hypotheses , and found that its construction would increase the welfare of two countries , further verifying the results of Lewis et al. Santiago and Sweder (1994) found through a structural model that the establishment of the North American FTA will promote the increase of agricultural welfare in Mexico and the United States. Fadeyi ( 2014 ) used the gravity model to verify the role of the Southern African Development Community (SACU) in promoting agricultural trade in each member country .

Its positive effect is not only reflected in the short-term growth of economic indicators, but also in the corresponding economic structure improvement. Wei and Qiu (2015) pointed out that the FTA plays an important role in attracting foreign investment, promoting trade transformation, and deepening financial innovation. Liu and Bian(2019) used the DID method to find that the establishment of a FTA will accelerate the flow of factors in the region, accelerate the decline of regional boundary effects, and promote regional coordinated opening. Zhao and Chen (2015) also found that the number of economies that have formed a free trade relationship in China is positively correlated with the economic benefits that China obtained from it.

However, some also pointed out that the establishment of a free trade zone may have an adverse effect on long-term economic development. Chong and Hur (2008) studied the Singapore-U.S., Singapore-Japan, and hypothetical U.S.-Japan FTAs from the perspective of the "axle-spoke" structure using a Computable General Equilibrium (CGE) model. They found that Singapore has benefited the most, while Japan had lost more . Hur and Park (2012) pointed out that the gap in GDP growth rate between members will continue to widen after the establishment of a bilateral FTA. Using the GTAP model, Liu and Wang (2014) found that the construction of the BRIC FTA can improve the economic welfare gains members, but was not conducive to industrial upgrading of the members .

2.3 The impact of FTAs on the regional economy

Many scholars have also tried to explore the impact of FTA policies on cities where the free trade zone is located from the perspective of regional economy. For example, Tan et al. (2015) used counterfactual analysis and found that the establishment of the Shanghai FTA had a significant positive effect on Shanghai's economic growth, thus verifying the theory that an increase in trade liberalization would help economic growth. Yin and Gao (2017) further verified the“system dividend”of the Shanghai FTA (promoting import and export trade, stimulating foreign investment, and increasing GDP growth), and the dividend will bring about long-term economic growth effects. However, there are also people who are wary of danger: using the DID method, Zhang et al. (2018) found that the establishment of FTAs can effectively promote regional economic growth, but such economic growth effect presents a U-shaped trend with the increase in the number of FTAs established.

As for the Liaoning Free Trade Zone, due to its late establishment and insufficient economic panel data, there are currently few empirical analyses. However, there are still scholars who have conducted qualitative comparative studies on the three batches of FTAs (including Liaoning), and found that the establishment of Liaoning FTA effectively promoted economic growth, industrial transformation and upgrading (Shi et, al., 2017). Some scholars have also analyzed the driving effect of Liaoning FTA on economic growth and technological innovation through the synthetic control method (Zhang and Lu, 2019) .

3. Policy context and logic of Liaoning FTA

The old industrial base of Liaoning has played an essential role in the construction of New China in the early days. However, as time elapsed, its structural problems have also been exposed: Liaoning's economic development initially depended on factor driving, but such rough development mode achieved economic growth at the cost of consuming a lot of materials. This is not in line with the concept of sustainable development, and it also promoted the exhaustion of resources and the loss of original resource advantages. Take water resources as an example. Although there are many water systems in Liaoning, it is still a major water shortage province (Wang, 2008) .

At the same time, since 1949, Liaoning's economic development has been based on investment-driven economic growth, which is far greater than the proportion of consumption and exports in GDP (Wang and Yang, 2012). The high growth of Liaoning Province is supported by high investment to a considerable extent. The development of Liaoning has now entered the middle and late stages of industrialization, and it is not advisable to use high investment to stimulate economic growth. Only by raising the level of residents' consumption, expanding the consumer market, optimizing the investment structure and scale, basing investment on the effective demand of consumption can the economy continue to develop in a balanced manner .

At the same time, the problem of“exchanging market for technology”is also very serious. Take Brilliance Auto as an example. Although it has a certain degree of independent research and development capabilities after the introduction of the BMW production line, its lack of core technology and weak production capacity made its new models have many quality problems and cannot stand the test of the market and consumers. From this point of view, although Brilliance has a strong partner-BMW, Brilliance's independent research and development capabilities have not been substantially improved, and it has not achieved the development and growth of its own brands as expected by Brilliance (Wang, 2019). In other words, at the stage of industrial upgrading, independent brands still rely on independent research and development to break through the bottleneck. There is no way to catch up with core technology through "exchanging market for technology". A joint venture between an independent brand and a foreign party only plays a role of "getting in the door" in technology. The core technology of the foreign cannot be learned or obtained by us (Shi, 2020).

In summary, Liaoning's overall resources are exhausted, and the original factor-driven development model is not feasible; the various problems presented by investment indicate that the investment-driven development model is not sustainable . This requires us to seek new driving forces for economic development.

On March 31, 2017, the Liaoning FTA was formally established with the approval of the State Council, and was divided into three districts: Shenyang, Dalian and Yingkou. According to the "Notice of the State Council on Printing and Distributing the Overall Plan for the China (Liaoning) Pilot Free Trade Zone", The strategic positioning of Liaoning FTA is to "strive to build the pilot free trade zone into a new engine to improve the overall competitiveness of the old industrial base in Northeast China and the level of opening up to the outside world". Its main development goals can be summarized as follows: improving the business environment, enhancing the attractiveness of elements, and establishing free trade parks in order to lead the northeast region to transform the economic development mode and improve the quality and level of economic development .

According to the basic functions of the FTA, the tariff preferences and institutional facilities provided by the free trade Zone will obviously enhance the level of opening-up, enhance the competitiveness of Liaoning's market while introducing foreign capital and foreign enterprises, and thus improve the overall business environment of Liaoning. However, the method of upgrading the old industrial base requires the cooperation of relevant supporting policies. With the exhaustion of the original advantageous resources and the unsustainable high investment in traditional industries, Liaoning needs to upgrade and transform the traditional secondary industry. According to the notice, the central government required Liaoning to accelerate the structural reform of the old industrial base, which is mainly reflected in the reform of state-owned enterprises, the promotion of industrial transformation and upgrading, the development of productive service industries, and the attraction of talents to accelerate technological innovation . State-owned old industrial enterprises naturally responded to the orders of government documents to accelerate their transformation and withdrawal. For the new secondary and tertiary industry enterprises, due to their small size, it was difficult to get a share of the market dominated by state-owned enterprises, so the FTA had adopted supporting tax incentives. Although the preferential tax policies were different in the three areas, the core was the reduction and exemption of corporate income tax, exemption of value-added tax and so on in small and micro enterprises, key development industries and high-tech industries. These preferential treatments to reduce the operating costs of enterprises improved their operating conditions and promote their development.

However, it should be noted that preferential taxation policies would bring about improvements in the status of beneficiary companies in the short term, but they may bring unexpected economic impacts. First, the form of tax incentives in the Liaoning FTA is relatively simple, mainly focusing on tax reduction and exemption and system simplification, but lacked corresponding labor employment training, environmental protection and other supporting systems (Teng and Li, 2019); moreover, the construction of Liaoning FTA also mainly relies on the guidance of the government on the construction of industrial parks, but it has not gotten rid of the inertia of government-led economy, which further affected the trade facilitation due to the FTA (Liu et al., 2017); finally, the preferential policy did not fundamentally solve many early problems in the development of emerging industries, such as insufficient market demand, high costs, inefficient input and output, lack of research and development capabilities, lack of coordination between policies and laws (Wu, 2015).

In a nutshell, the replacement of old and new industries in Liaoning is in a state of limbo: the output value of old state-owned enterprises has fallen sharply due to policy orders and their own business problems. Although there are many tax incentives to help emerging industries develop, there are still many problems that need to be resolved. Moreover, in a market where state-owned enterprises are still the majority, their development will still take long.

5. Summary

Through the above quantitative analysis methods, we found that most economic indicators of Liaoning have increased after the establishment of the FTA; although the FTA has accelerated economic growth, it has triggered a relative decline in import and export volume. We have verified that changes in the industrial structure are the possible reasons for the above-mentioned anomaly. This shows that Liaoning's economic growth has benefited from the adjustment of its industrial structure. Although the industrial transformation has caused a large shrinkage of traditional industries, relevant preferential policies have offset the pain of industrial transformation to a certain extent. However, due to the late establishment time, insufficient panel data and other factors, its impact on specific economic entities and the long-term impact on Liaoning's economy still need to be further studied.