

Research and Analysis on Improving the Competitiveness of Ningbo Zhoushan Port

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Abstract

In view of the fierce competition in the surrounding ports in the development of Ningbo Zhoushan Port, insufficient hinterland resources, insufficient transportation and distribution conditions, and lack of port logistics talents, this article discusses the development status of Ningbo Zhoushan Port, the current status of cargo flow, and the port's economic hinterland. To comprehensively analyze the current situation of Ningbo Zhoushan Port. From the aspects of policies and port enterprises, suggestions are made to enhance the competitiveness of Ningbo Zhoushan Port.

Keywords

Ningbo Zhoushan Port; Hinterland economy; Port competitiveness.

1. INTRODUCTION

The port is the basic condition for trade development. With the continuous advancement of the integration process of Ningbo Zhoushan Port, sustained high-speed growth is facing great challenges. Haezendonck and Notteboom [1] found that factors such as port reputation and hinterland transportation convenience are conducive to improving port competitiveness; Wu Heng et al [2]. put forward the important factors related to port competitiveness, namely: waterway depth, vessel selection of ports, hinterland traffic convenience, service level and port reliability, and used principal component analysis to establish indicators; Yuan Bing [3] proposed that my country's coastal ports should strengthen the integration of resources, increase the utilization rate of port resources, and rationally allocate resources among port groups to enhance port competitiveness; Yan Yixin [4] uses the fuzzy comprehensive evaluation method to analyze and research the location conditions of the port and the source of goods in the hinterland of the port, the port hardware and software facilities, the port development and operation management level, the overall development direction of the port, and the micro strength of the port; Zhu Junmin [5] established a port competitiveness evaluation system based on entropy weight and TOPSIS method, and put forward countermeasures and suggestions for Ningbo Zhoushan Port to effectively improve its comprehensive competitiveness.

2. DEVELOPMENT STATUS OF NINGBO ZHOUSHAN PORT

Ningbo Zhoushan Port is the port of Ningbo City and Zhoushan City, Zhejiang Province, China, located in the coastline of mainland China. Ningbo Zhoushan Port is located at the intersection of "Silk Road Economic Belt" and "21st Century Maritime Silk Road". It is a first-class port opening to the outside world in China.

As of the end of 2019, Ningbo Zhoushan Port has completed a total cargo throughput of 1.119 billion tons, becoming the only super port in the world with an annual cargo throughput exceeding 1.1 billion tons, and has ranked first in the world for 11 consecutive years.

From the perspective of the development status of the collection and distribution system, Ningbo Zhoushan Port has multiple transportation modes such as waterways, roads, railways and pipelines, and is a port with a complete domestic transportation method. Ningbo Zhoushan Port has built a comprehensive external transportation channel, which is connected to the national highway network through the "two rings, ten shots, four continuous ports". Two Rings: Ningbo Ring Expressway, Ningbo Outer Ring Expressway (planning); Ten shots: Hangzhou Bay Bridge and South Link, Hangzhou Bay Cross-sea Bridge East or West Double Line (planning), Hangzhou-Ningbo Expressway, Hangzhou-Ningbo Expressway Double Line (planning), Yongjin Expressway, Yongtaiwen Expressway Highway (Shenhai Expressway), Yongtaiwen Expressway Double Line (Yongguan Expressway), Yongzhou Expressway, Yongzhou Expressway Double Line (planning), Ningbo Zhoushan Port Liuheng Highway Bridge; Four Links: Hangzhou Bay Cross-sea Bridge Hangzhou-Ningbo Expressway Link, Chaoyang-Xiwu Link, Hangzhou Bay Cross-sea Bridge Yuci Center Link, Simingshan Expressway; Four Ports: Daqi Port Highway, Crossing Mountains to Haosi The hinterland of the port is expanding continuously on the highway to Fanglu, the Shenhai Expressway connecting line of Meishan Port Area of Ningbo Zhoushan Port, and the Shenhai Expressway connecting line of Shipu Port Area of Ningbo Zhoushan Port. There are intensive flight routes, with more than 240 international routes connecting more than 600 ports in more than 100 countries and regions; as of December 2019, there are 244 container routes in Ningbo Zhoushan Port, including 110 ocean trunk routes, with an average monthly flight of about 1670. The railway goes directly to the port area. In the port area of Ningbo Zhoushan Port, there are three branch railway lines of Baisha, Hongzhen, and Beilun that are connected to the Xiaoyong Railway, and are connected to the national railway network through the Zhejiang-Jiangxi, Shanghai-Hangzhou and Xuan-Hang lines. Up to now, 16 sea-rail combined trains have been opened, with business covering 49 prefecture-level cities in 15 provinces, municipalities, and autonomous regions, and the hinterland continues to extend to the central and western regions. However, the proportion of sea-rail intermodal containers in 2019 was only 1.6%, and the proportion of water-to-water transshipment containers reached 22%. (Data source: Ningbo Zhoushan Port Co., Ltd. official website and 2019 Global Port Development Report)

In terms of policies, the overall implementation effect of the plan approved in 2009 has been good, effectively guiding the large-scale development of key port areas, initially adapting to the development requirements of the marine industry, and improving the development quality of port cities. Now to meet the development needs of Ningbo Zhoushan Port under the new situation, the government revised the master plan for the two ports in 2015 and approved the "Ningbo Zhoushan Port Master Plan (2014-2030)" in 2016. Aims to clarify the direction and positioning of port development, further integrate port resources, and further promote the orderly development of ports.

3. ANALYSIS OF CURRENT SITUATION OF PORT CARGO FLOW

With the rapid development of the mainland economy and the rapid innovation of the logistics industry, Ningbo Zhoushan Port is still growing at a rate of about 6%, of which the growth rate of containers is the fastest. As shown in Table 1, the container throughput of Ningbo Zhoushan Port has been showing a relatively fast and stable growth pattern this year. Especially after the merger of Ningbo Port and Zhoushan Port in 2015, the growth rate showed a significant upward trend. At the end of 2019, the container throughput ranked third in the world, playing an increasingly important role in international trade.

Table 1. List of container throughput of Ningbo Zhoushan Port

years	Container throughput (Ten thousand TEU)	International transfer volume (Ten thousand TEU)	International transfer ratio (%)
2011	1464	123.19	8.42%
2012	1683	177.46	14.03%
2013	1735	207.39	7.30%
2014	1945	258.56	12.10%
2015	2063	273.84	6.07%
2016	2157	305.40	4.51%
2017	2464	217.61	14.15%
2018	2635		
2019	2753		

Source: Ningbo Statistical Yearbook

From 2011 to 2016, Ningbo Zhoushan Port's international container transshipment volume increased by 1.8221 million TEU, and the proportion of transshipment increased by 5.75%. In 2016, the transshipment volume reached 14.16%. The reason for this is that Ningbo Zhoushan Port's competitiveness is increasing. The location advantage is more prominent. In 2017, the transfer volume decreased by 877.9 thousand TEU, and the transfer volume accounted for as low as 8.83%, which was basically the same as the port's transfer volume in 2011. During the same period, the transfer ratio of Singapore Port and Hong Kong Port was 80% and 68.8%, respectively. The transfer ratio is 7.4%. From this comparison, it can be seen that although Ningbo Zhoushan Port has developed rapidly among domestic ports in recent years, it is still difficult to fully play its role as a quasi-international shipping center.

Ningbo Zhoushan Port has developed into an important ocean-going container port in the world, an important domestic iron ore transfer base and crude oil transfer base, an important domestic liquid chemical storage and transportation base, and an important coal and grain storage and transportation base in East China. One of the main hub ports. Among them, in 2018, Ningbo Zhoushan Port's iron ore unloading volume reached 136 million tons, a year-on-year increase of 3%; coal unloading volume reached 43.14 million tons, basically the same as in previous years; crude oil unloading volume reached 73.49 million tons, a year-on-year increase 2.1%; the throughput of liquefied chemicals reached 9.51 million tons, a slight decrease year-on-year; while the ro-ro business showed explosive growth, with 150,000 auto ro-ro completed, which was 12 times that of the same period last year. In addition, container throughput has increased significantly. Water-to-water transfers completed 7.12 million TEUs, a year-on-year increase of 7.5%; domestic trade containers completed 3.194 million TEUs, a year-on-year increase of 6.5%; sea-rail combined transport achieved another good result, completing 602,000 TEUs, a year-on-year increase of 50.1%. In terms of coal, Ningbo Port's coal market share dropped from 48.5% in 2007 to 39.1% in 2012. Although the total amount is still large, the comparative advantage is not obvious. As for the metal ore market in the coastal port system of Zhejiang Province, Ningbo-Zhoushan Port is basically monopolized. Secondly, Ningbo-Zhoushan Port also accounts for a large part of the throughput of petroleum and petroleum products.

4. ECONOMIC ANALYSIS OF PORT HINTERLAND

4.1. Current Situation of Ningbo's Economic Development

(1) Current status of economic aggregate development

The total economic development indicator represents the overall situation of economic development. As shown in Figure 1, Ningbo's regional gross product (GDP) has shown a rapid

growth trend from 2010 to 2019, but the growth rate has been significantly slower since 2010. slow. The 2008 global economic crisis, following the economic recovery in the following two years, resisted a rebound in 2010 and grew rapidly. In 2012-2018, facing the unfavorable conditions of the slowdown in global economic growth and continued sluggish external demand, Ningbo City still maintained a relatively high growth rate, and finally achieved a relatively rapid increase in 2019, breaking through 10%.

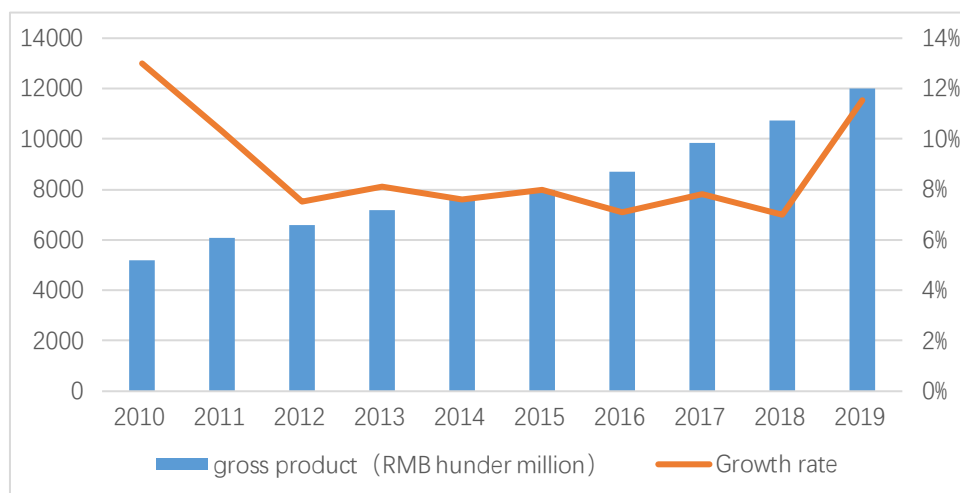


Figure 1. Gross Regional Product of Ningbo City

(Data source: 2019 Ningbo Statistical Yearbook and 2019 Ningbo National Economic and Social Development Statistical Bulletin)

As shown in Figure 2, the local fiscal revenue of Ningbo City has been increasing year by year, but the growth rate fluctuates greatly. The growth rates in 2010-2011, 2015 and 2017 are all in the range of 15%-25%. The growth rate in 2012-2014, 2016 and 2018-2019 is in the range of 5%-15%. Since 2011, the growth rate has suddenly slowed down. So far, the growth rate has never exceeded the 2-character mark. . The reasons for the slowdown are mainly due to the slowdown in economic growth, the low growth of corporate profits, the decline in price increases, especially the decline in factory prices for industrial producers, and the greater structural tax cuts.

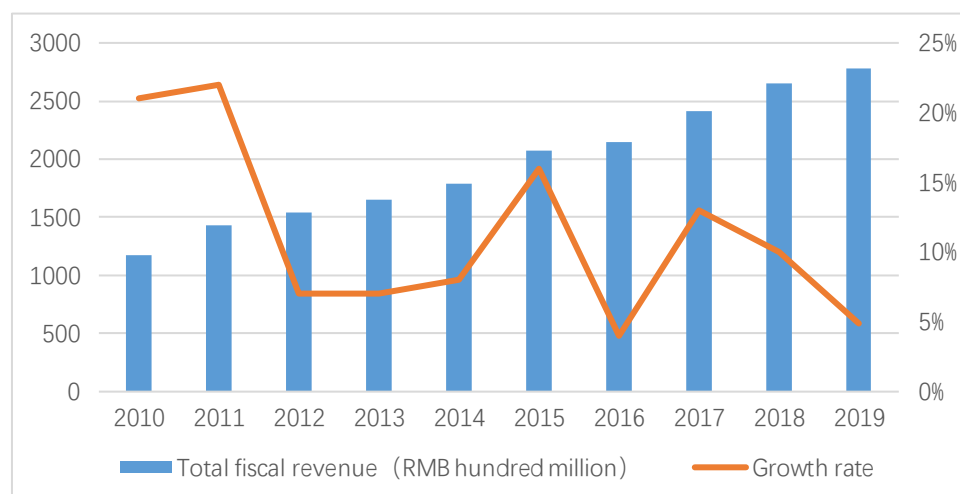


Figure 2. Total local fiscal revenue of Ningbo

(Data source: 2019 Ningbo Statistical Yearbook and 2019 Ningbo National Economic and Social Development Statistical Bulletin)

(2) Development status of industrial structure

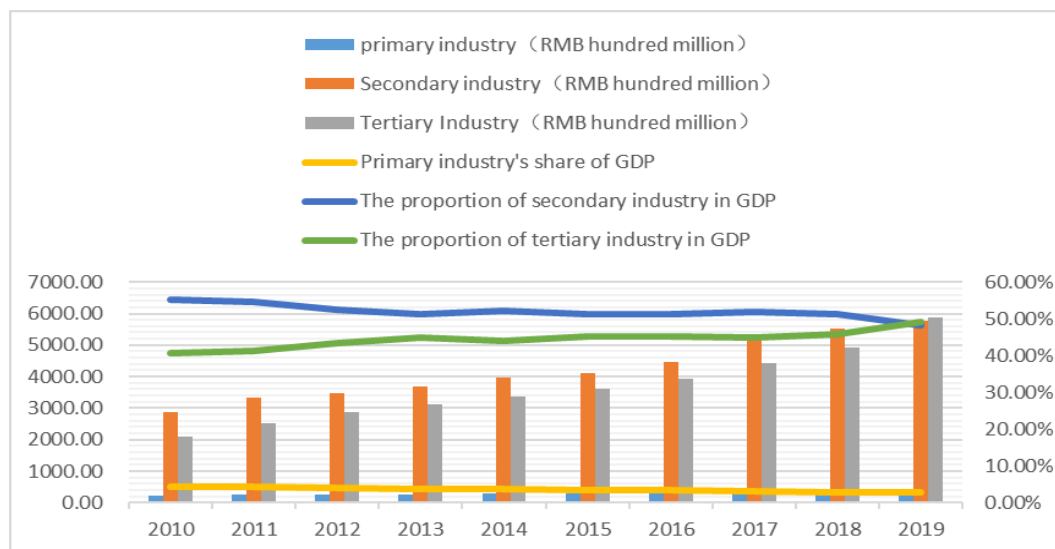


Figure 3. Proportion and total amount of Ningbo's industrial structure

(Data source: 2019 Ningbo Statistical Yearbook and 2019 Ningbo National Economic and Social Development Statistical Bulletin)

As shown in Figure 3, it reflects the growth trend and growth rate of the three major industries in Ningbo from 2010 to 2019, as well as the changes in the proportion of each industry in GDP. The total value of each of the three major industries in Ningbo is showing a trend of rapid growth. In 2019, the output value of each industry was 103, 2926 and 377.5 billion yuan higher than that in 2010, respectively. The primary industry's share of GDP fell from 4.23% in 2010 to 2.7% in 2017; from 2010 to 2019, the secondary industry's share of GDP showed an overall downward trend, only briefly in 2014 and 2017 It rebounded and remained above 50% before 2018, but fell to 48.2% in 2019, which was mainly caused by the impact of the rise of the service industry on the secondary industry. The tertiary industry's share of GDP has fluctuated between 2010 and 2019, in the range of 40%-50%, but overall it has increased from 40.63% in 2010 to 49.1% in 2019, an increase of nearly 9 percentage points.

(3) Current status of domestic and foreign trade development

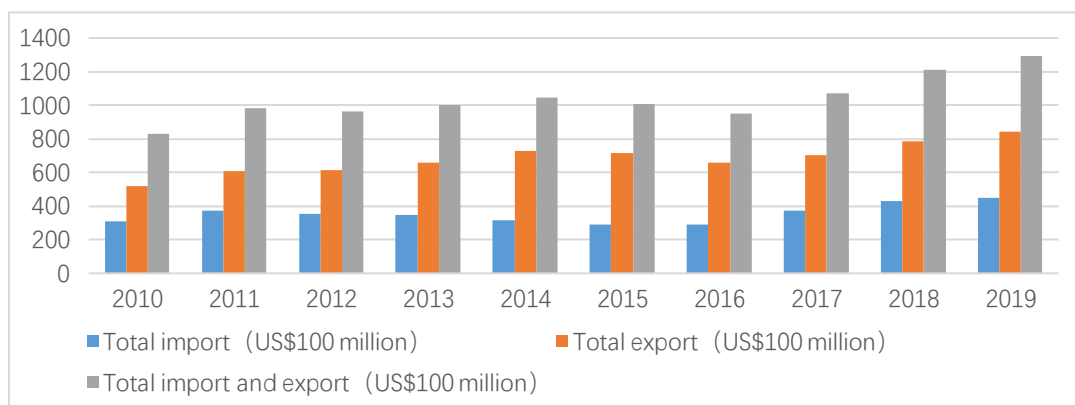


Figure 4. Ningbo's total foreign trade imports and exports

(Data source: 2019 Ningbo Statistical Yearbook and 2019 Ningbo National Economic and Social Development Statistical Bulletin)

Ningbo has the advantages of good location, convenient transportation and port resources for the development of foreign trade. As shown in Figure 4, Ningbo's total foreign trade import and export volume and the individual export volume have been on a growth trend from 2010 to 2011, and are developing at a relatively rapid rate. In the following years, due to unfavorable conditions such as weak global economic development and sluggish external demand, both total imports and exports, as well as individual imports and exports, showed a sluggish state. In 2012 and 2015-2016, trade volume experienced negative growth. Fortunately, in 2017, due to the dividends brought by the "One Belt, One Road" policy, Ningbo's total trade volume soared. Ningbo's foreign trade imports and exports maintained double-digit growth, and the growth rate of imports and exports hit a record high in the past six years.

4.2. The Economic Development Status of Zhoushan City

(1) Current status of economic aggregate development

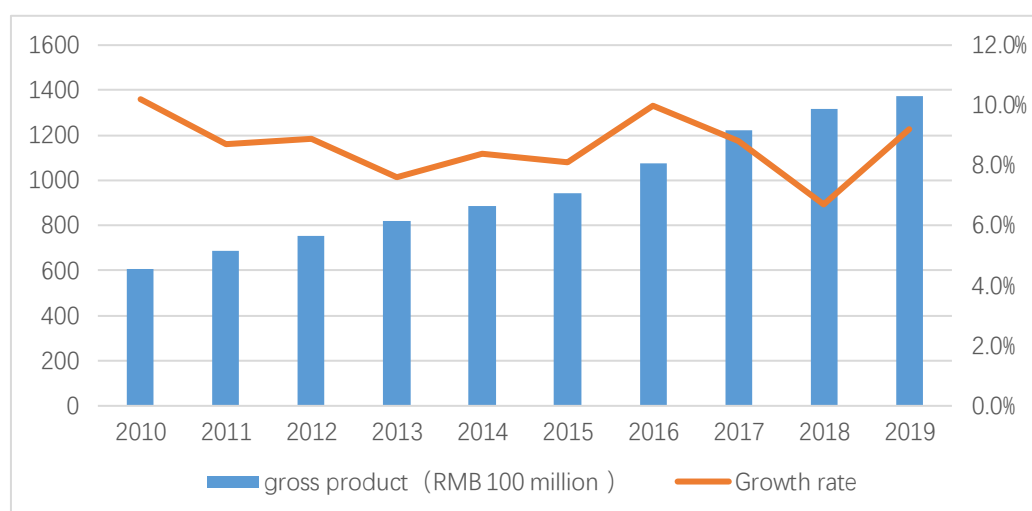


Figure 5. Regional GDP of Zhoushan City

(Data source: 2019 Zhoushan Statistical Yearbook and 2019 Zhoushan City National Economic and Social Development Statistical Bulletin)

As shown in Figure 5, it shows the development trend of Zhoushan City's regional GDP from 2010 to 2019. The economic aggregate shows a relatively rapid growth trend like Ningbo City, which is in line with the basic situation of China's economic development. Adaptation is also related to the development of the port industry in Zhoushan City by leveraging its geographical advantages. Since the growth rate began to decline in 2010, the government has taken a series of measures to make the economy start to develop more steadily. However, during the "Twelfth Five-Year Plan" period, due to the increase in economic volume and the slowdown in the national economic growth, Zhoushan's overall economic development Seek change in stability. The implementation of the "13th Five-Year Plan" made the growth rate increase in 2016 for the first time, which opened a good start for the "13th Five-Year Plan", but the growth rate began to decline in 2017 and 2018, fortunately 2019 There was a relatively rapid growth in 2015. Generally speaking, during the 13th Five-Year Plan period, Zhoushan's production is always in fluctuating changes. I hope that 2020 can end with good results and start the next new phase.

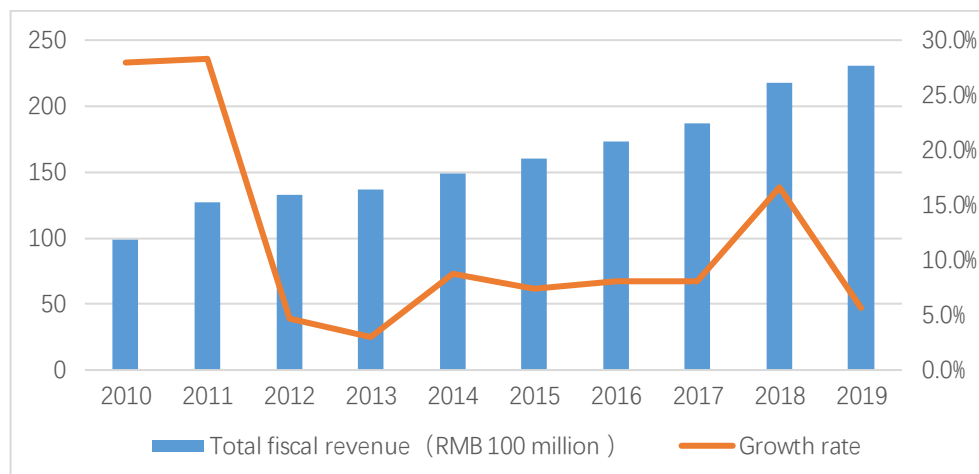


Figure 6. Total local fiscal revenue of Zhoushan City

(Data source: 2019 Zhoushan Statistical Yearbook and 2019 Zhoushan City National Economic and Social Development Statistical Bulletin)

It can be seen from Figure 6 that the fiscal revenue of Zhoushan City grew rapidly from 2010 to 2019, but the growth rate fluctuated greatly. During the "Twelfth Five-Year Plan" period, total fiscal revenue exceeded 10 billion yuan, and during the "Thirteenth Five-Year Plan" period, it broke through the two-character mark. Promoted by national policies from 2010 to 2011, the environment for the development of the private economy and private investment has been improved, and the growth rate has returned to the level before the economic crisis. However, there was a significant decline in 2012. From 2012 to 2019, the absolute value of the increase in fiscal revenue continued to increase, of which the absolute value of the increase in 2018 reached 3.1 billion yuan.

(2) Development status of industrial structure

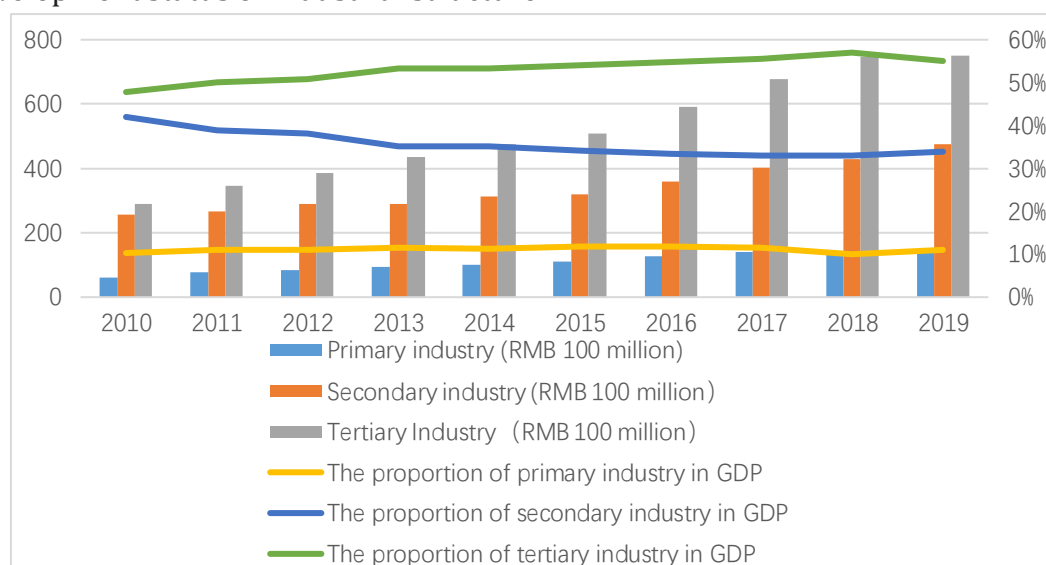


Figure 7. The proportion and total amount of Zhoushan's industrial structure

(Data source: 2019 Zhoushan Statistical Yearbook and 2019 Zhoushan City National Economic and Social Development Statistical Bulletin)

As shown in Figure 7, it reflects the growth trend of the total value of the three major industries in Zhoushan from 2010 to 2019, as well as the fluctuation of the proportion of each industry in GDP. The total value of the three major industries in Zhoushan City has shown rapid

growth. In 2019, the output value of each industry accounted for 84.4, 219.5 and 45.87 billion yuan higher than that in 2010. The proportion of the primary industry in GDP has shown a relatively volatile development, but the overall development is relatively stable. In 2019, it only increased by 1% compared with 2010. The proportion of the secondary industry has been on a downward trend from 2010 to 2019, reaching its lowest value of 33% in recent years in 2016, and increasing by 1% in 2019. However, the proportion of the tertiary industry showed a trend of first rising and then declining, reaching 57% in 2018, nearly 24 percentage points higher than the proportion of the secondary industry in GDP. The rise of service industry tourism has contributed to its development.

(3) Current status of domestic and foreign trade development

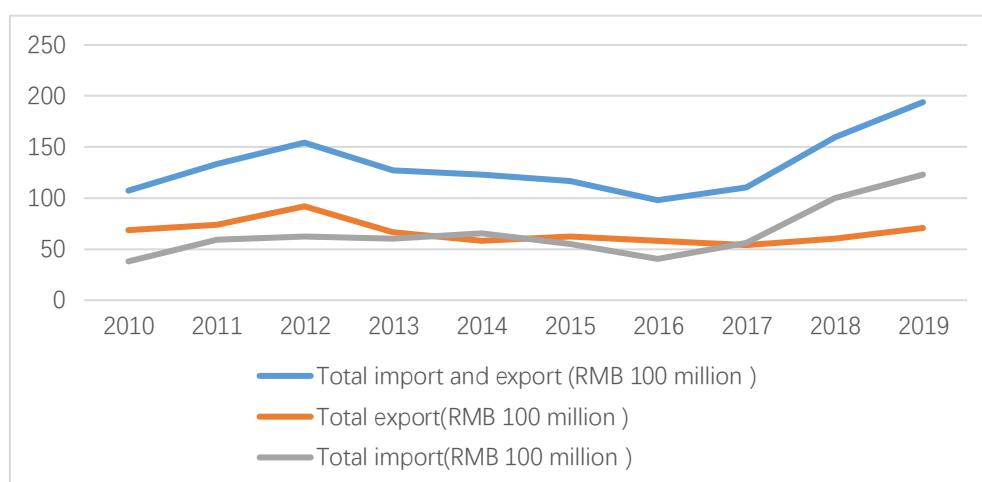


Figure 8. The development trend of Zhoushan's total foreign trade import and export growth rate

(Data source: 2019 Zhoushan Statistical Yearbook and 2019 Zhoushan City National Economic and Social Development Statistical Bulletin)

As shown in Figures 8, Zhoushan's foreign trade import and export volume has been in a growth stage from 2010 to 2012. From 2013 to 2016, affected by the weak international economic development, the total import and export volume has continued to decline. The average growth rate is negative. Because import and export trade is greatly affected by the international economy, it has brought considerable pressure to Zhoushan's economic development.

5. SUGGESTIONS FOR IMPROVING THE COMPETITIVENESS OF NINGBO ZHOUSHAN PORT

The competition between ports is mainly reflected in the contention of the source of goods. From the perspective of the main body of port competition, the common competition between ports can be divided into competition between different ports, competition between different ports in the same port group, and the same port. Competition among different port companies in China.

5.1. Policy

(1) Establish a shipping talent training center

The shipping industry is a large-scale industry. In addition to port operations, it also includes shipping services such as ship registration, management, trading, maritime insurance, and

arbitration, and requires a large number of professionals. Therefore, Ningbo Zhoushan Port can establish a shipping talent training center and a talent pool in a targeted manner on the basis of the existing shipping talent training system, and can provide Ningbo Zhoushan Port with professional and reliable high-end shipping talents at any time.

(2) Supporting the development of related facilities for sea-rail combined transportation, and improving the construction of a comprehensive port service system

On the basis of the construction of the port's existing collection and distribution network, strengthen the connection and integration between different modes of transportation to provide more complete and coordinated development of collection and distribution conditions for the development of the port. Continue to unblock the collection and distribution channels, continuously improve the port environment in the hinterland, and solve the problem of road congestion near the port. Improve the layout of regional collection and distribution, realize the effective connection of different transportation methods, and gradually increase the share of bulk material inland river turnover. It is necessary to realize the "zero-distance reloading" of railways, highways, and inland water transportation directly to the port area, and realize the "synchronous landing, synchronous design, and synchronous construction" between stations. Focus on sea-rail combined transportation and water-to-water transfer, and actively develop multimodal transportation. Not only can it maximize convenience for cargo owners, accelerate cargo turnover, and improve cargo owners' satisfaction, but also help to give play to the comparative advantages of different modes of transportation, achieve rationalization of transportation, and minimize logistics costs. Continuously increase the proportion of cargoes transported by rail and waterway in collection and distribution ports, and promote the balanced use of various modes of transportation, which will help to improve the situation of over-reliance on road transportation.

(3) Continue to promote the development of multimodal transport system

By strengthening the construction of multimodal transport infrastructure, improving the multimodal collection and distribution system, promoting the development of medium and long-distance markets, perfecting the hinterland container source organization system, advancing alliances, strengthening the coordinated operation of multimodal transport operators, and exploring multimodal transport New logistics model, open up more market sources of goods, break through the information bottleneck of multimodal transport, and improve the construction of information platform.

5.2. Port Companies

(1) Try to classify customers and expand various functions of the port

Ningbo Zhoushan Port also needs to adopt different service strategies for important customers and ordinary customers, so that different types of customers can get the services they expect in Ningbo Zhoushan Port, which will help increase customer stickiness and maintain a stable supply of goods.

(2) Vigorously develop port logistics

The port is an important guarantee for the development of modern logistics in a region. To cope with the goal of Ningbo Zhoushan Port to become the world's largest port, it should be equipped with complete logistics collection and distribution, cargo storage, distribution and distribution, international logistics services, market transactions, and information management. Service consulting and value-added services. According to the functional requirements of modern logistics, the port resources should be re-integrated, and the competitiveness of the port can be comprehensively improved through the transformation of diversified functions, international standards, rationalized layout, modernized management and efficient operation.

(3) Ensure the accurate implementation of relevant policies

Further improve the accuracy of relevant support policies in the implementation process, promote the transformation of ports from high-speed growth to high-quality growth, accurately design and implement annual support plans, and give full play to the role of support policies.

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