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The research on port integration in the Yangtze river delta under the promotion of government

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THE RESEARCH ON PORT INTEGRATION IN THE YANGTZE RIVER DELTA UNDER THE PROMOTION OF GOVERNMENT

By

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DECLARATION

I certify that all the material in this research paper that is not my own work has been identified and that no material is included for which a degree has previously been conferred on me.

The contents of this research paper reflect my own personal views and are not necessarily endorsed by the University.

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ABSTRACT

Title of research paper: **THE RESEARCH ON PORT INTEGRATION IN THE YANGTZE RIVER DELTA UNDER THE PROMOTION OF GOVERNMENT**

Degree:**MASTER OF SCIENCE**

Urban agglomeration is an advanced form of regional integration. Throughout the evolution history of major urban agglomerations in the world, an obvious feature is that the development of world-class urban agglomerations must be supported by world-class port groups. The integration of the ports in the Yangtze River Delta will become a great opportunity to promote the development of port logistics. At present, the ports in the Yangtze River Delta are developing from urban ports, provincial and municipal ports to port group. The division of labor system is relatively clear. The pattern of "one body, two wings and multiple connections" has taken shape. However, there is still a gap in the goal of port groups to promote the formation of urban groups and achieve a new development pattern with domestic development as the main body and mutual promotion of domestic and international development.

This article will use literature analysis method and case analysis method to conduct a comprehensive analysis about the integration of ports in the Yangtze River Delta under the promotion of government. So that we can know about the outstanding points and weaknesses in all aspects to find the corresponding solutions accurately and accurately. On the other hand, I will looking for a suitable form for the pursuit of port integration in the Yangtze River Delta basing on the analysis of the cases of domestic and foreign port group integration. Finally, on the basis of theory and practice, the development goal of port integration in the Yangtze River Delta will be determined, and technical measures and suggestions will be proposed.

KEYWORDS: Port, Port Integration, Theory of integration and reorganization, Theory of government function

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1 Introduction

1.1 Research Background and Research Proposal

1.1.1 Research Background

Yangtze River Delta is one of the regions with the best economic development, best innovation capacity and highest potential for opening up in China which accounts for about 20% of China's total GDP. The party central committee and state council attaches great importance to the development of the Yangtze river delta integration, making a major future development strategy that promoting the integration of the Yangtze river delta development to a national strategy. The Outline of the Yangtze River Delta Regional Integrated Development Plan, released on December 1, 2019, sets the strategic goal of "building a world-class city group in the Yangtze River Delta at a high level".

Urban agglomeration is an advanced form of regional integration. Throughout the evolution history of major urban agglomerations in the world, an obvious feature is that the development of world-class urban agglomerations must be supported by world-class port groups. In other words, port group is an offensive move for the rise of urban agglomeration, and the construction of urban agglomeration should firstly realize the rise of port group. The integration of the Yangtze River Delta will become a great opportunity to promote the development of port logistics. The first thing is to enhance the opportunity of port group, to maximize the scale effect of port group, to achieve mutual benefit and win-win cooperation. Secondly, it is the opportunity to make up the short board of logistics development, organic combination of domestic trade and foreign trade, to ensure adequate logistics supply of goods, reasonable division of labor, and give full play to the overall benefits. At present, the ports in the Yangtze River Delta are developing from urban ports, provincial and municipal ports to port group. The division of labor system is relatively clear. The pattern of “one

body, two wings and multiple connections" has taken shape. However, there is still a gap in the goal of port groups to promote the formation of urban groups and achieve a new development pattern with domestic development as the main body and mutual promotion of domestic and international development.

1.1.2 Research Purpose

This article will use literature analysis method and case analysis method to conduct a comprehensive analysis about the integration of ports in the Yangtze River Delta under the promotion of government with domestic and foreign documents and government working documents of the national governments and provincial and municipal governments in the Yangtze River Delta. So that we can know about the outstanding points and weaknesses in all aspects to find the corresponding solutions accurately and accurately. On the other hand, I will looking for a suitable form for the pursuit of port integration in the Yangtze River Delta basing on the analysis of the cases of domestic and foreign port group integration. Finally, on the basis of theory and practice, the development goal of port integration in the Yangtze River Delta will be determined, and technical measures and suggestions will be proposed.

1.2 Related studies at home and abroad

1.2.1 Related studies at home

Yao Bohong & Tan Chunlan. (2020) conducts an empirical study on the evaluation of the logistics production efficiency of Shanghai Port by using the DEA model and the Mulmquist index. It is concluded that the static efficiency value of Shanghai port logistics increased year by year during the study period, but rarely reached the effective state of DEA; the dynamic efficiency value of Shanghai port logistics was very unstable and even declined.

Based on the location entropy and diversity index, Ge Haoran, Fu Haiwei, Zhu Zhanfeng & Zhong Changbiao. (2020). analyzed the freight function and diversity pattern of the ports in the Yangtze River Delta, and the main conclusions were as follows:

1) There are obvious differences in the number of freight functions and functional structure among ports in the Yangtze River Delta, and there is a core edge trend in the spatial distribution. There are also differences in characteristics between ports with different functions.

2) The port freight function system differs greatly between provinces (cities). The freight function division of ports in Jiangsu Province is more abundant and balanced. Shanghai Port has always maintained its own characteristics, and the freight function division of ports in Zhejiang Province and ports in Anhui Province The system needs to be refined and improved.

3) The freight functions of super-large ports have more characteristics and advantages. The positioning of freight functions among ports of various levels has shown an evolutionary trend from overlap to differentiation and then to overlap.

4) Ports with the same freight transportation function have certain regional agglomeration, but the agglomeration methods and strengths of different functions are not the same, and the distribution pattern is still unstable.

Based on the fractal theory, the research of Jiang Ziran, Fu Haiwei & Cao Youhui. (2016). on the spatial structure of the port system in the Yangtze River Delta and its evolution trend shows that

(1) The spatial structure of the port system in the Yangtze River Delta not only has monopolistic characteristics, but also shows the spatial effect of the challenges of marginal ports, and generally tends to be stable.

(2) The main ports in the Yangtze River Delta are distributed in a linear space, and

the interaction between the main ports is strong

(3) Changes in the spatial structure of the port system in the Yangtze River Delta continue to decline and eventually stabilize

(4) The above-mentioned spatial structure and its dynamic mechanism of change are not only related to changes in the peripheral economic environment and policy environment of the port, but also inseparable from the interaction of the internal competition and cooperation mechanism of the port system.

1.2.2 Related studies at abroad

In terms of proposing the concept of port integration, foreign scholars Taaffe, Morrill and Gould (1963) conducted case studies on the ports of Nigeria and Ghana in Africa, and on this basis put forward the spatial structural model of port integration. Under the promotion and implementation of the governments of the United States and other countries, Rimmer (1967) improved the model on this basis and improved its due value. Hayuth (1981) put forward the theory of peripheral port challenge, focusing on the interaction between ports. The concept of port group was put forward by the Mediterranean Sea Rim Highway Conference (2004), which requires the ports in the port group not only to be highly integrated in the geographical scope, but also to be able to be effectively connected by railway, road and other networks. On this basis, the disorderly and chaotic competition among the ports in the port group should be avoided, and the proper central port should be selected through reasonable port planning to avoid the waste of port resources.

In terms of research on the development trend of port integration, Thomas (1957) was the first to study the concept that port resource integration develops toward land, believing that railway layout will have a great impact on the attribution of resources between ports. Patton (1958) focused on the role of inland transportation

construction in port shipping in his research on the resource integration of New York Port, Philadelphia Port, New Orleans Port and Baltimore Port. According to Culliane (2004), the most important thing in the competition after port resource integration is to compete for shipping enterprises. Objectively speaking, the layout and resources of any port cannot be changed the day after tomorrow. What can be changed is the inland layout and the distribution of resources. And shipping companies will choose inland and port routes that are more convenient for them. As a result, competition between ports is aimed at attracting more shipping companies. Paixao and Marlow (2003) put forward the concept of the fourth generation port and suggested that the government use the management mode of "agile port". Bichou and Gray (2005) introduced the expansion function and horizontal and vertical strategies in port resource integration. Panayides (2007) believes that the integration between ports should be interconnected with information technology, information sharing, shipping business, value-added services, etc.

In terms of the management and policy research of the next stage after the integration of port resources, Pettit (2008) believes that the government should change its attitude, restrict the unlimited growth of port resources, and promote the benign development among ports through the guidance of government policies. Pallis and Psaraftis (1997) extended the research field of the refinancing management after the integration of port resources to the whole Europe and concluded that the port policies of EU countries should not limit the sharing of ports and corresponding infrastructure. They concluded that the homogenization of port policies was the inevitable trend of the future reform of EU port policies.

1.3 Research approach and research method

1.3.1 Research approach

The article will choose the government promotion about the port integration in Yangtze river delta as the research object on the basis of predecessors' research, using related theories of management and economics, and researching on the government promotion of the port integration in Yangtze river delta through the analysis about the collected data, the studied cases and government working documents. The research will be carried out in the following two aspects:

Firstly, making data collection about the promotion status and the resource layout in the Yangtze river delta, having a detailed understand about the actual situation of the government promotion of the integration of Yangtze river delta. Then analyzing and summarizing the problems encountered in the integration process of Yangtze River Delta ports by applying management and economic theories.

Secondly, obtaining some methods through analyzing the cases domestic and abroad to solve current problems, and implement specific improvement measures to achieve the optimal allocation of resources, and to maximize the promotion from government.

1.3.2 Research method

Literature research method: Collecting, sorting and classifying literatures related to concepts of port and resource integration, government function theory and merger and reorganization theory used to obtain correct and valuable research results from predecessors. These results will play a supporting role in the process of viewpoint discussion in this paper.

Case analysis method: Searching the advanced cases of China and other countries' governments promoting the integration of port resources, learning from them,

combining the situation of the governments of the three provinces and one city in the Yangtze River Delta in promoting the integration of port resources in the Yangtze River Delta. Correcting wrong methods, improving methods in time, evaluating the port resources of the Yangtze River Delta, and proposing the governments of the three provinces and one city to establish specific implementation plans for the countermeasures and plans for port integration in their jurisdictions. Maximizing the role of the government in promoting the integration of ports in the Yangtze River Delta, combining macro and micro factors.

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2. Basic concepts and theories

2.1 Brief introduction about port integration

To understand the basic concepts of port resource integration, we must first understand the basic concepts of port and port group. What is a port, in short, the port is a place to meet the needs of the ship berthing. From this simple definition, we can extend the definition of the port from four aspects to understand the specific role of the port.

First, the size of the port. A qualified large port should have upland area and water area. Among them, the water area include access channels, anchorage sites, and harbor pools. To ensure the safe and convenient entry and exit of the port, it must have sufficient depth and width, appropriate position and direction and the abilities to curve curvature radius, avoid strong cross wind, cross flow and serious siltation and minimize the opening and maintenance costs of the waterway. Anchoring area means water area with natural or artificial cover conditions against strong storms, where ships may anchor, wait for berthing docks or leave the port. Port pool refers to the water area directly adjacent to the port upland area for ships to rely off the wharf, have a temporary shutdown and make a U-turn. Upland area refers to the land area of the port for cargo handling, storage, transport and passenger distribution, and the upland area includes the incoming land access. The loading and unloading operation area in front of the wharf and the rear area of the port. Front loading and unloading operation area for the distribution of goods, the layout of wharf frontier railway, roads, handling machinery and equipment and fast turnover goods warehouse or storage yard and waiting hall. The rear area of the port is provided for the railway, storage yard, port ancillary facilities and service houses.

Then comes the use of the port. Ports are divided according to their use, including

commercial ports, military ports, fishing ports, industrial ports, safe havens and so on. Commercial port refers to the port for merchant ships for docking and handling passenger and cargo transportation business. Military port refers to the ports used by the military, exclusively for naval ships. Fishing port refers to ports exclusively for berthing and used by fishing boats and fishing auxiliary vessels. Industrial port is a port for direct transportation of raw materials, fuel and products for large industrial and mining enterprises in neighboring rivers, lakes and seas.

Then followed the port. Ports have always played an important role in the economic development of a country. Transportation connects the world, and ports are an important link in transportation. Developed countries in the world generally have their own coastlines and more well functional ports. The functions of the port can be summarized into the following four aspects: logistics service, information service, commercial and industrial.

After understanding the basic uses and functions of the port, the benefits of the port have become a logical answer. The port takes port resources development as the core, supported by industry and commerce, coastal cities and logistics and transportation as the artery. Through the economic development system of coastal cities and inland cities, ports gradually form an influence in inland cities, gradually expand the radiation scope to inland cities, and form an integrated port city system between ports, coastal cities and inland cities.

On the basis of the integrated port city system between port, coastal cities and inland cities, the concept of port group arises spontaneously.A cohesive and efficient port group requires both competition and cooperation between each port regional combination. The internal port level of the same port regional combination is clearly divided, feeding the port and branch port and hub port functions are reasonably positioned. Realizing the extremely high external cooperation ability. The transportation mode based on the development of ports and port groups is mainly

reflected in waterway transportation, railway transportation and road transportation. Due to the approaching geographical location of each port in the regional port group and the common economic hinterland, the external transportation network of each port is basically the same. From the perspective of the development process of the world shipping industry, the port group consists of the hub port and feeder port, which makes the development of the port group have its own characteristics. The mutual dependence and mutual support between the hub ports, feeder ports and feeder ports are the basis of the existence of the port group.

However, due to close proximity, similar geographical location and transportation network, the individual port in the port group has the same overall geographical advantages. As each port in the region is affiliated to different administrative divisions and has different local interests. In order to win local interests and promote local economic development, each port lacks unified and effective overall coordination, which leads to each port to develop alone and compete for the source of supply in the same economic hinterland. All ports are easy to form a situation of disorderly development.

In this case, the integration of port resources is the good solution to this situation. The so-called port resource integration is between port areas or between port and port through some link, can be asset acquisition behavior, simple cooperation and operation behavior, or resource sharing behavior realized through administrative means. This sharing of resources can be the sharing between the basic production equipment between ports, or the sharing of resources and soft environment.

2.2 Brief introduction about theory of government function

Government function, also known as the administrative function of the government, refers to the corresponding responsibilities and corresponding abilities of the

government when the government, as the administrative body, manages the national political, economic and social public services in accordance with the law.

Government functions can be divided into economic regulation functions, market supervision functions, social management functions and public service functions. Among them, economic adjustment function refers to the use of economic and legal means, supplemented by necessary administrative means to adjust economic activities by means, and promote economic development. The function of market supervision refers to the government to promote the law of fairness, standardize the law enforcement of the market, and strengthen the supervision over the areas involving the safety of people's lives and property. Social management function refers to strengthening the government function of promoting employment and regulating income distribution. Social management functions can better improve the social security system, establish a more complete grass-roots social management system, and maintain social stability. The current social management focuses on employment promotion, environmental protection, public security maintenance and social security. The focus of public service functions is to promote the development of education, health, culture and other social undertakings, to establish a public service system that is fair and just, to benefits the people and to promote equal access to basic public services.

This paper will mainly use economic regulation and market supervision to provide theoretical support for the integration of port resources within the jurisdiction. Among them, the function of economic regulation mainly lies in the provinces and municipal governments in the Yangtze River Delta in formulate integration goals and relevant legal systems, give financial and tax policy support directly or indirectly, macro or micro control the resource integration process of the ports under their jurisdiction. The aspect of market supervision function will focus on the Yangtze river delta governments in the process of promoting jurisdiction port resource

integration, the jurisdiction port supervision and management, correctly guide and solve the vicious competition in the process of port resource integration, maintain the jurisdiction port resource integration revenue and ensure that the jurisdiction port group reaches the optimal state after the resource integration.

2.3 Brief introduction about theory of integration and reorganization

Integration and reorganization refers to the inability for some enterprises to continue to operate normally for some reasons. After considering the interests of employees, they carry out the integration and equity transfer in accordance with certain procedures, so as to realize the transformation of the enterprise and achieve the purpose of reorganization. After the integration and reorganization, company will have the industrial structure optimization, the necessary cost saving, enterprise competitiveness improvement and other advantages.

In this paper, the integration and reorganization of the port are mainly discussed. In the process of development, the individual port is mostly self-centered, while ignoring the development of the overall port group. The government-oriented port integration and reorganization will integrate the resources of each port to form a leading port. With the support of the government, the operating costs of individual ports can be reduced, form a strategic alliance for integrating port resources, and reduce vicious competition. At the same time, the integration and reorganization of the port has also brought about the sharing of resources and talents, which will be conducive to the development of regional port enterprises. On the basis of integration and reorganization, the paper analyzes the policy, and proposes the countermeasures to promote the integration of port group resources in the jurisdiction.

2.4 Brief introduction about Game Theory

Game theory is a new branch of modern mathematics, and also an important discipline of operational research. Game theory means that the two people consider each other's strategy and change their strategy to achieve victory. In turn, the game will be inevitable with the goal of victory. In this paper, the ports will inevitably produce games in their competition with the other ports, changing their development strategies according to the development strategies of the other ports. This paper will analyze the game phenomenon in the resource integration and summarize the rules based on the game theory. It is put forward corresponding countermeasures to the correct treatment of this phenomenon when the game between the ports occurs in time and using macro-control and other means.

3. Status and Problems of the promotion of Government in Yangtze River Delta

3.1 Status of the promotion of Government in Yangtze River Delta

In view of the new situation and requirements faced by the development of the shipping industry in the Yangtze River Delta, the State Council and the Ministry of Transport have introduced the corresponding shipping policy linkage mechanism and measures. With the issuance of a series of policy documents, such as the Three-Year Action Plan for the Integrated Development of the Yangtze River Delta Region, Six Action Plans for Coordinated Promotion of the Integrated Development of the Port and Shipping of the Yangtze River Delta Region, and the Outline of the Plan for the Integrated Development of the Yangtze River Delta Region, the coordination of ports and shipping in the Yangtze River Delta Region has achieved initial results. First, basically realize the integration of maritime supervision in the Yangtze River Delta. The Maritime Safety Administrations of Shanghai, Zhejiang, Yangtze River and Jiangsu signed strategic memorandums on maritime supervision integration with the East China Sea Navigation Insurance Center, gradually realizing information sharing, mutual recognition of law enforcement and business coordination in maritime supervision. Second, the initial formation of the Yangtze River Delta customs integration. The customs of the three provinces and one city in the Yangtze River Delta have realized the integration of customs clearance through the docking of cross-customs supervision system, the exchange of bayonet information, the mutual recognition of shipping arrival supervision and the sharing of stowage data. Third, the port development of the Yangtze River Delta has achieved synergy and integration. SIPG and Zhejiang Port Group jointly promoted the comprehensive development of Xiaoyangshan through equity cooperation in February 2019. Ningbo

Port introduced SIPG as a strategic investor through a private placement of shares in early 2020. While the synergy between ports and navigation in the Yangtze River Delta region has achieved preliminary results, we should not ignore that the implementation of some shipping policies has not achieved due linkage effects. In terms of optimizing the functional layout of ports, a coordinated development pattern of interlinkage between trunk and branch and rational distribution of offshore and ocean-going routes has not been formed. In terms of strengthening port resource integration, cross shareholding cooperative mode between port has not been carried out in the Yangtze river delta area, and this is based on "their own management, mutual benefit" concept formation way of cooperation effect is suspected, has not yet formed "common decision, mutual benefit" management mechanism, the distance to construct a rational division of labor, mutual cooperation world-class port group of target. There is no positive interaction among the cruise ports in the Yangtze River Delta, and Shanghai Port is "the dominant port", which has not formed a reasonable distribution pattern of the cruise industry chain. Moreover, due to the policy restrictions of the Ministry of Transport, international cruise ships cannot realize the "multi-point connection" in the real sense in the ports of the Yangtze River Delta. In the aspect of copying and popularizing the shipping policy of the Pilot Free Trade Zone, the innovative effect of the shipping policy of the Pilot Free Trade Zone in Shanghai has yet to be tested by practice, and its duplicity and generalization have yet to be demonstrated. Coastal piggyback and some provinces and municipalities to carry out the policy, the policy for international ship registration system innovation, transportation (port transportation system), and other related shipping policy, concentrated reflection for the principle of administrative instruction and guidance request too much, less comprehensive mechanism of operability, policy uncertainty and lead to policy after around cool response, response. In terms of ship type standardization, restricted by the trend of economic interests and policy bottlenecks,

the promotion of old ships and new energy ships is stagnant, and ships with poor safety and environmental performance, especially inland river transport ships with more than 20 years of age, are still common. In the aspect of strengthening the prevention and control of port ship pollution, the coverage rate and utilization rate of shore power facilities are low, and the improvement of port power and ship power receiving facilities is slow. In the aspect of increasing the use of low sulfur oil, the lack of effective supporting measures and incentive mechanism has affected the implementation of the policy. In terms of strengthening the construction of intelligent ports, Shanghai Yangshan Port has taken the first step, but the economic benefits of the port limit the layout of intelligent ports in other regions of the Yangtze River Delta.

The Yangtze River Delta has 8 coastal deep-water ports and 26 inland river ports, which are the most densely distributed and have the largest throughput among the five major port groups in China. Relying on Shanghai International Shipping Center, the Yangtze River Delta is represented by Shanghai Port, Ningbo Zhoushan Port and Suzhou Port. The ports of Lianyungang, Nanjing, Jiaxing, Nantong, Wenzhou, Wuhu, Taizhou, Changzhou, Hefei, Taizhou and other ports should be fully used to serve the economic and social development of the entire Yangtze River Delta and its coastal areas.

Since COVID-19 began to break out at the end of January 2020, the data of January 2021 and February fluctuated greatly compared with that of January and February 2020. Therefore, this paper selected the data of December 2020 and December 2019 for comparison. The following is the statistical data of the throughput of major ports in the Yangtze River Delta in December 2020 from the Ministry of Communications:

The Port	Volume of goods in the month / t	Growth rate /%	Container throughput of the month / 1 million TEU	Growth rate /%	Volume of foreign trade goods in the month / t	Growth rate /%
Shanghai Port	6478.0	12.0	363.6	11.3	3341.3	9.2
Ningbo Zhoushan Port	8835.0	-0.5	223.7	15.4	4286.4	1.8
Ningbo Port Area	4691.7	2.0	215.4	15.0	2849.0	2.6
Zhoushan Port Area	4143.3	-3.2	8.3	28.0	1437.4	0.1
Jiaxing Port	1142.0	19.9	19.7	15.4	124.0	4.1
Taizhou Port	572.3	23.4	6.0	37.4	63.6	28.4
Wenzhou Port	753.9	-2.5	9.9	38.5	58.9	127.5
Huzhou Port	1299.2	19.1	6.5	19.9	23.4	27.0
Lianyungang Port	1902.9	-5.0	37.8	10.6	1055.7	-11.0
Nantong Port	2407.6	-33.8	17.1	16.9	497.7	12.4
Suzhou Port	4860.9	11.8	50.8	0.2	1247.9	2.5
Zhangjiagang Port Area	2071.3	1.8	8.1	7.5	447.6	-17.2
Changshu Port Area	763.1	21.8	1.8	-26.6	96.2	28.7
Taicang Port District	2026.5	20.1	40.9	0.5	704.1	16.9
Taizhou Port	2826.9	17.9	3.3	-0.9	246.7	12.2
Jiangyin Port	2642.0	18.8	5.3	16.9	684.7	10.6
Changzhou Port	946.0	41.0	3.4	46.2	94.4	2.7
Zhenjiang Port	2459.1	-24.7	3.3	-6.1	415.1	5.4
Yangzhou Port	1068.3	-13.5	5.3	-9.6	90.0	-26.3
Nanjing Port	2250.0	13.0	18.1	-36.5	318.0	12.6
Maanshan Port	1053.5	12.9	3.0	74.7	84.8	5.2
Wuhu Port	1327.3	1.3	11.2	8.4	29.0	-26.3
Tongling Port	768.1	-1.2	0.3	-13.2	2.6	2.7
Hefei Port	387.6	110.2	3.8	147.9	5.0	86.3
Total:	43980.3	2.5	791.9	10.6	12669.3	4.0

Table 1 Throughput completion of major ports in the Yangtze River Delta in December 2020

Container throughput of the port of the Yangtze River Delta has increased compared with last year. Container throughput of Shanghai Port reached 3.636 million TEU in December, with a year-on-year growth rate of 11.3%. The total volume is high, and the growth rate is also super high. Although the container throughput of Zhoushan Port in Ningbo is 2.237m TEU, which is less than that of Shanghai Port, its year-on-year growth rate of 15.4% indicates that its growth trend is slightly better than that of Shanghai Port. As an inland river port, Suzhou's container throughput in December was 508,000 TEU, showing its development potential and status.

Foreign trade is the basis and condition for the development of port logistics. 95% of China's import and export trade goods are distributed through ports. As an important link in the whole logistics supply chain, the growth of its throughput is closely related to the growth of trade. The throughput of foreign trade cargo is regarded as the index of each production link of port logistics. From the data in the table shows that the vast majority of port cargo throughput in the growth of foreign trade, the average growth rate of 4%, this means that although the new champions the cause of the outbreak, the average growth rate slowed compared to previous years, but under the Yangtze river delta integration strategy, port logistics development situation is still good, demand is still growing, but at the same time, The throughput of some ports decreases or the throughput growth rate slows down, which shows that the development of port logistics is also facing some new problems.

3.2 Problems of the promotion of Government in Yangtze River Delta

3.2.1 Strong competition in the Yangtze River Delta region

The Yangtze River Delta region has the highest port density in China. Duplication of hinterlands, similar logistics functions and homogenization of import and export goods highlight the structural contradictions of ports. Although the integration of the Yangtze River Delta has become a national strategy, along with the gradual weakening of the border effect between the provinces of Shanghai, Jiangsu, Zhejiang and Anhui, the common market has been formed, and each port is under different jurisdiction. Therefore, there are serious competition among the ports and serious contradictions in the development of logistics.

3.2.2 Unreasonable port collection and distribution system

At present, the pattern of transportation of highway, waterway and railway in our country is not coordinated. Highway transportation is limited by topography and geology, with small traffic volume and high freight. Waterway transportation is mainly affected by hydrological and meteorological conditions of waterway, and there are many uncontrollable factors. Rail transport is less flexible and the amount of goods transported across inland rivers is too small. To analyze the above seaport, Shanghai seaport has convenient land and water transportation and prosperous logistics market. Transportation structure in Shanghai port, however, the ratio of highway transport is too high, waterway and railway transport ratio is too small, in

serious imbalance, lead to its surrounding areas in congested roads, plus the cumbersome logistics operation, logistics turnover rate is greatly reduced, and the whole port transportation system is inefficient.

3.2.3 Low logistics informatization level

Although the Yangtze River Delta is one of the most economically developed regions in China, there are still many deficiencies in the level of logistics professional information technology. The overall construction of logistics started late, there is a certain gap compared with the developed countries, and there are obvious differences in the logistics of different regions, such as the company information standards are not unified, resulting in the logistics information difficult to achieve effective allocation of resources, logistics companies are difficult to carry out reasonable and effective competition. Current basic information collection also needs to rely on manual input, so there are problems such as low efficiency, high error rate and untimely update, which affect the whole transmission and application in the later stage. When negotiating with international customers, due to the lack of comprehensive modern logistics information, it is difficult to meet customer needs, resulting in low customer satisfaction and trust on port logistics.

3.2.4 Poor port logistics function

The world logistics industry has gone through four stages. The first stage is the traditional logistics industry, which is responsible for transportation, transshipment and storage. The second stage is the distribution logistics industry which integrates the functions of transportation, transshipment, storage, packing and unpacking,

storage management and processing. The third stage is the integrated logistics of commodity flow, information flow, capital flow and talent flow. The fourth stage is the port logistics supply chain. At present, most of the port logistics in the Yangtze River Delta is still based on the traditional agency, storage, customs declaration, distribution and other services. The logistics services provided for customers are single in function and form, with low added value, and it is difficult to form a complete logistics supply chain service. There is still a big gap between them and the development requirements of modern port logistics industry.

3.3 Measures and Achievements of the promotion of Government in Yangtze River Delta

3.3.1 Measures and Achievements of Shanghai Port

At present, the cooperation between Shanghai Port and Jiangsu and Zhejiang Port is mainly carried out through capital cooperation, information cooperation, business cooperation, strategic cooperation and mechanism improvement. Capital cooperation is mainly carried out along with the "Yangtze River Strategy" of Shanghai Port. Since 2001, in order to give full play to the "golden waterway" of the Yangtze River and the leading leading advantage of Shanghai Port, SIPG has vigorously promoted terminal operation projects in the Yangtze River Basin with Shanghai Port as its home port, and provided integrated port logistics services covering the Yangtze River Basin with "point, line and surface". Through management, capital and technology export, cultivating container market, setting up branch shipping enterprises, developing inland transportation and comprehensive agency business, the agglomeration and radiating capacity of Shanghai international shipping center and the coordinated development of serving regional economy have been enhanced. At present, the framework pattern of "point, line and surface" of the Yangtze River

strategy has been basically formed. In the Yangtze River Delta region, the terminal projects with capital as the link mainly include Jiangyin and Sunan Container Terminal in Jiangsu Province, Nanjing Port Corporation and Taicang Zhenghe Container Terminal; Zhejiang Province Wenzhou Jinyang, Pinghu Dushan, Anji Port and other container terminals. In addition, SIPG and Ningbo Zhoushan Port Group set up a joint venture East China Sea Shipping Insurance Company; With ningbo Zhoushan port group established Shanghai port and navigation equity investment company.

In terms of information cooperation, at present, SIPG has basically achieved the docking with the system of the terminals it invests in along the Yangtze River, realized the whole tracking and inquiry of the cargo status from the main port of the trunk line to Shanghai Port, and is actively expanding the information docking with other ports. In terms of strategic cooperation, Zhejiang and Shanghai signed a memorandum of cooperation in July 2017, in which SIPG will strengthen strategic cooperation with Zhejiang Port Group and accelerate the development and construction of Xiaoyangshan in an all-round way. On November 1, 2017, port group, jiangsu port group and cosco shipping group three parties signed the memorandum of strategic cooperation, three parties on the basis of long-term friendship and cooperation, jointly establish a strategic cooperative partnership, the implementation of the "area" initiative, accelerate the construction of the Yangtze river economic belt and boost the coordinated development of Yangtze river delta economic circle, Reduce regional logistics costs and strengthen the north wing of Shanghai International Shipping Center. Business cooperation, basic form with Shanghai as the center, Shanghai port in jiangsu and zhejiang, for the two wings, in the Yangtze river basin as the hinterland, rational division of labor, work closely with domestic other ports of international hub port, the port group attaches great importance to the business and the surrounding ports so and coordination, promote power seamless,

continuously improve service level and efficiency. In terms of improving the regional linkage mechanism, the Yangtze River Economic Belt Shipping Alliance has been established. On July 20, 2017, under the guidance and support of the National Development and Reform Commission (NDRC), SIpg established the Yangtze River Economic Belt Shipping Alliance with 13 port and shipping enterprises along the Yangtze River. SIpg serves as the chairman unit and implements the major strategic arrangements for the development of the Yangtze River Economic Belt with practical actions. Through the alliance should play the role of coordination, promote the coordinated development of the Yangtze river shipping resources optimization configuration and, the key to build a container, bulk cargo, multimodal transport system, the construction of green port and shipping system, maintaining fair market order, promote the ship type standardization, promote close inspection through, promote the Yangtze river and navigation information integration, coordination and cooperation, increase business We will promote the establishment of a green, efficient, convenient, safe and transparent river-sea combined transport system to reduce regional logistics costs and improve logistics efficiency. Under the support and guidance of the National Development and Reform Commission (NDRC), an important work of the Alliance is to build a comprehensive service information platform for Yangtze River container river-sea combined transport with innovative thinking of "+ Internet", innovate the operation mode of the river-sea combined transport, and realize the business synergy of the river-sea combined transport. Sipg is quickening construction of the platform, by building along the river oriented "port, dry branch managers, logistics, the shipper" integrated information service platform, realize the real-time dynamic query tracking and visualization, and further optimize the scheduling, functions, such as transaction settlement, efforts to build a new, efficient, convenient and transparent along the new ecological ports and logistics. At present, the platform has integrated the data of major ports along the Yangtze River,

and is developing shipping service modules. It plans to complete the pilot projects of some ports and routes in the first half of this year, so as to improve the efficiency of container water-water transport, improve the stowage rate of ships at the port, and reduce the cost of comprehensive ports of goods.

From the perspective of market competition, Shanghai Port has certain homogeneous competition with neighboring ports, and some hinterlands of cargo sources overlap, and the overall situation is in a state of local orderly competition. The orderly competition is conducive to improving the overall service level of regional ports, but the potential signs of disordered competition cannot be ignored. SIPG and Ningbo Zhoushan Port Group have established a high-level meeting and coordination mechanism, holding meetings every year to discuss the hot spots and development of the industry.

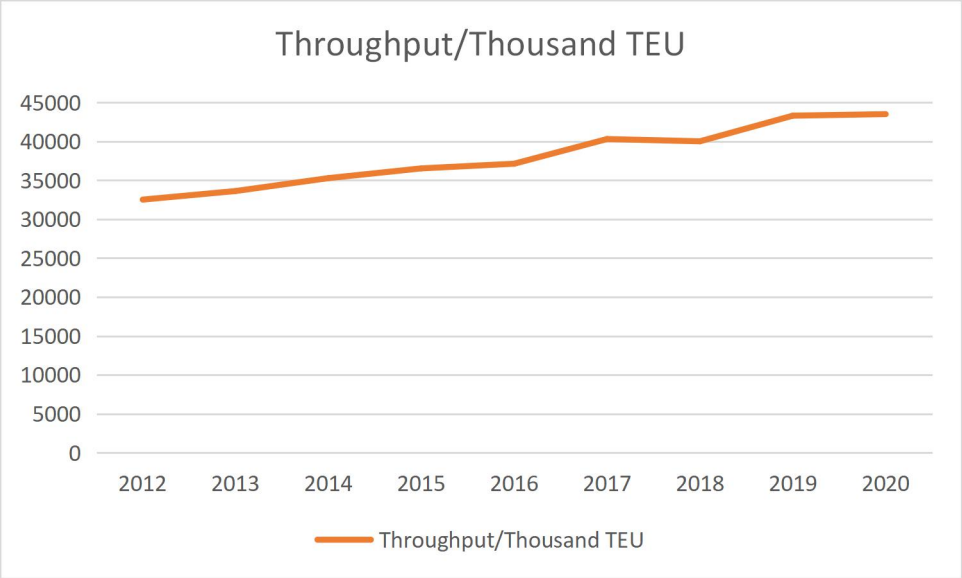

Table 2 Shanghai Port Container Throughput(Thousand TEU) Growth Chart

3.3.2 Measures and Achievements of Ningbo Zhoushan Port

Ningbo Zhoushan Port makes full use of the geographical location and deep-water shoreline advantages of Yangshan, Qushan and Meishan Islands, coordinates the planning of Asia-Pacific Free Trade Port, and strives to break through the mechanism and policy reform in the fields of investment, trade, finance and finance. Transport and employment of personnel for ocean-going trade, international transit and coastal transport. Accelerate the construction of Yangshan, Meishan and Qushan terminals, integrate the development of container logistics, entrepot trade, offshore finance, international procurement, distribution and distribution services of Dayang, Xiaoyang and Meishan terminals; Comprehensive development of Qushan iron ore and crude oil transfer distribution, warehousing processing, futures trade, international payment and settlement services. We will standardize international shipping rules and promote customs, border defense and maritime management at ports in line with international standards. In accordance with the customs of "one line, two line hold" regulatory requirements, and promote the Internet of electronic technology such as RFID application regulation, regulatory infrastructure to support electronic money to the Seine, implementation technology breakthrough in the field of port electronic data sharing, the depth of the development of electronic port function, adjust and optimize the existing regulatory system and operational mechanism, to speed up customs clearance paperless classification reform.

Ningbo zhoushan port give full play to the integration of port in the province, the hinterland of port and regional port of the advantage of network nodes, gather port multimodal transport resources, draw lessons from taobao, perfect the electronic commerce platform "online business hall" and "logistics trading" function, build the "one-stop" port container logistics e-commerce platform. To solve the "door to door", "customer to customer" logistics service needs. We will accelerate the injection of

superior logistics resources of Ningbo Zhoushan Port into the platform, and actively guide the marketing system docking platform of domestic and foreign shipping companies, yard storage companies, freight forwarding companies, card receiving companies, customs brokers and international trading companies, breaking the current pattern of container logistics market segmentation and information asymmetry.Ningbo Zhoushan Port National Multi-modal Transport Demonstration Project consolidates and improves the capacity of the three major container sea-rail transport channels, and enhances the capacity of Yiwu as the important node and Hangzhou, Shaoxing, Jinhua, Huzhou, Shanjiao, Nanchang and Hefei as the main nodes. Zhuji City, Quzhou, Taizhou, Lishui, Yingtan, Xinyu, Bengbu, Wuhu, Jixi, Yingnan, Chongqing, Changzhou, Xuzhou, Suzhou, Wuhan, Xiangyang, Shiyan, Jingmen, Zhumadian and Chengdu are three inland node networks. We will improve the coastal inner branch lines of ports and the inner branch lines of Yangtze river of ports. Promote the bulk cargo water transport transit system with the ports of Wuhu, Maanshan, Taicang and other ports as nodes, so as to realize the seamless connection of the first and second phases of river-sea combined transport.

Ningbo zhoushan port is concentrated in the energy of the overall arrangement of the daxie island, inner part of zhenhai, beilun, close to zhoushan green, petrochemical, and away from jinshan petrochemical, yangzi petrochemical, petrochemical, jinling petrochemical, and other oil and gas pipeline in the Yangtze river delta base, thereby improve the coastal area of oil and gas pipeline network, connect trunk pipeline along the river. Optimize the industrial spatial layout of Daxie Island, adjust the function of Daxie investment international container berths, and speed up the construction of a national LNG landing center. Accelerate the construction of international oil storage and transportation base and oil trading center, and establish a storage system and operation model combining state storage, legal storage, commercial storage and enterprise storage. We will improve the integrated industrial

chain of green petrochemical and liquefied petroleum gas resources. Including ports, production, storage, transportation and trade. Innovatively promote the construction of China (Zhejiang) Bulk Commodity Trading Center and Zhejiang Port Bulk Commodity Trading Center, and build a crude oil trading market with international influence. Northeast Asia Bonded Fuel Filling Center and Eastern Coastal LNG Storage and Transportation Base.

Ningbo Zhoushan Port and Electronic Port promote EDI information sharing. With the "storage yard" as the starting point, containers promote the electronic delivery of receipts, packing lists, bills of lading and other documents of port container equipment, so as to realize paperless circulation of documents among docks, ship agents, storage yards, shipping companies, freight forwarders, card drivers and port logistics. Design and establish an open and interactive global port and shipping logistics information exchange platform for shippers. Promote the EDI docking between Zhoushan Port and Yangtze River Delta Port in Ningbo and inland waterless ports, break the information island among ports, railways and freight yards, optimize the information transfer process of sea-railway, river-sea, river-sea and other multimodal transport, and form the real-time information closed-loop of cargo import and export status and property rights transfer. To further promote Ningbo Zhoushan Port Group to integrate the information resources of Marine ports in Zhejiang Province, to systematically design the management framework of port and navigation logistics production, human resources, finance, audit, materials, etc., to strengthen information interconnection, and to build an integrated and integrated operation management decision-making platform.

Promote the integration of Ningbo Zhoushan Port and port supervision, and effectively break the institutional barriers of "two passes". Simplifies the customs, frontier defense, maritime departments for international sailing ships and import and export goods in Ningbo Zhoushan port for a variety of procedures, as the same port

shift for handling. Accelerate the construction of smart ports, promote the integration of EDI at ports and the "single window" function of international trade, and improve the efficiency of customs clearance and international trade facilitation. Promote the exchange of information, mutual recognition of supervision and mutual assistance in law enforcement among port law enforcement agencies in the Yangtze River Delta, and promote the integration of customs clearance, inspection and quarantine along the Yangtze River Economic Belt. Implement the Ningbo Zhoushan Integration Action Plan, and establish a long-term mechanism for the two cities to jointly use waterway anchorage and other infrastructure investment. Accelerate the integrated construction of waterway anchorage and other infrastructure, so as to realize joint planning, joint construction, joint use and joint management. Coordinating the pilotage management mechanism of Ningbo Zhoushan Port Area, constructing the pilotage system of Ningbo Zhoushan Port, realizing the win-win situation, sharing and co-management of the two places, and solving the problem of "territorial management and separate pilotage" of Ningbo Zhoushan Port Area.

Special drainage channels for ports such as Beilun and Zhenhai are planned to be expanded, and the layout of storage yards outside the ports is adjusted along the special drainage channels to promote the separation of people and cargo in port urban space. We will guide the integrated operation of Ningbo Bonded Zone, Beilun Port Area, Zhenhai Logistics Hub Port and Zhenhai Port Area, and promote the intensive and centralized utilization of port space. We will seize the opportunity of IMO 2020 ship sulfur limit and China's ecological civilization construction, and earnestly implement the green project of port and shipping logistics. We will step up efforts to replace port machinery with oil and electricity, and accelerate the construction, renovation and application of shore power facilities for ships. We will strengthen the construction of discharge control areas for ships, and do a good job in the reception and disposal of pollutants from ships. We will resolutely eliminate old vehicles and

ships and promote energy-efficient and environment-friendly ships.

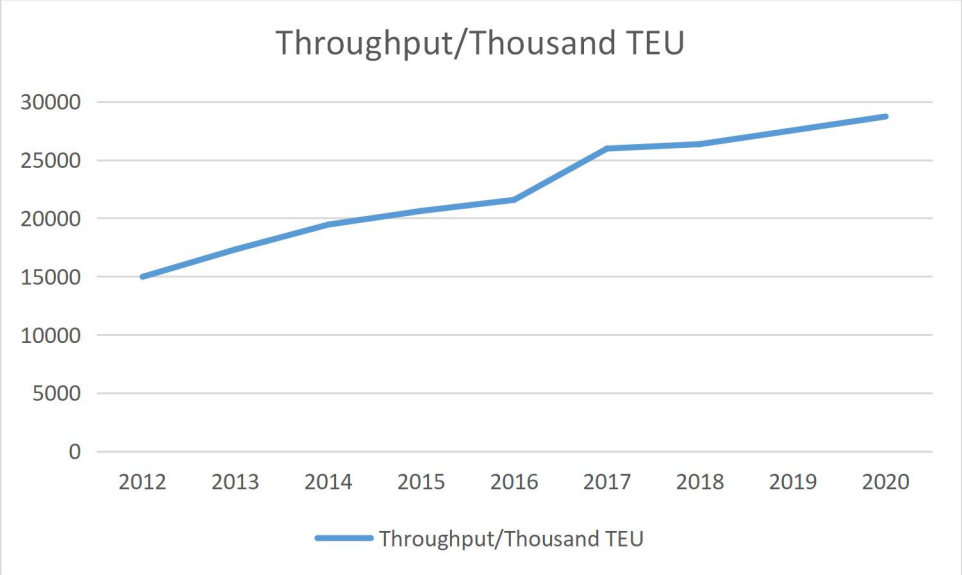

Table 3 Ningbo Zhoushan Port Throughput(Thousand TEU) Growth Chart

3.3.3 Promotion of government of the integration of Shanghai Port and Ningbo Zhoushan Port

Located in the Yangtze River Delta Economic Belt, Shanghai is the economic center of China, with a number of financial headquarters. There is little co-operation among ports in the Yangtze River Delta, but much competition. The competition between Shanghai Port and Ningbo-Zhoushan Port is dominated by Shanghai Port. With the opening of the Hangzhou Bay Bridge, the competition between the two will be further intensified. The zero-sum game between the two ports will not bring benefits, but will intensify the competition of other ports in the Yangtze River Delta. In order to avoid failure in the vicious competition, Hong Kong and Hong Kong learn from international experience, promote resource integration with the government as an intermediary, and participate in broader cooperation on the basis of small cooperation, so as to achieve a win-win situation in the end. The integration of resources between Shanghai port and ningbo Zhoushan port has been highly valued by the central

government, Shanghai municipal government, ningbo municipal government and Zhoushan municipal government. Therefore, the integration of resources between Hong Kong and Hong Kong is a mode in which the government acts as an intermediary and enterprises participate, and it is completed under the participation of multiple subjects. The local government should jump out of some restrictions, strengthen cooperation and exchanges with enterprises, update the system in time, improve the management system, and provide all possible services for the resource integration between the two ports. While the government is monitoring them, the government should reduce administrative intervention in port development and give the two ports more rights of independent development. The Ports Association has been established to act as a bridge between the government and ports, providing information services to port partners. In terms of market operation, Hong Kong and Hong Kong enterprises have followed the principles of market economy, participated in market-oriented reform, strengthened international cooperation, expanded the scope of cooperation, innovated the mode of cooperation, and continued to grow through cooperation.

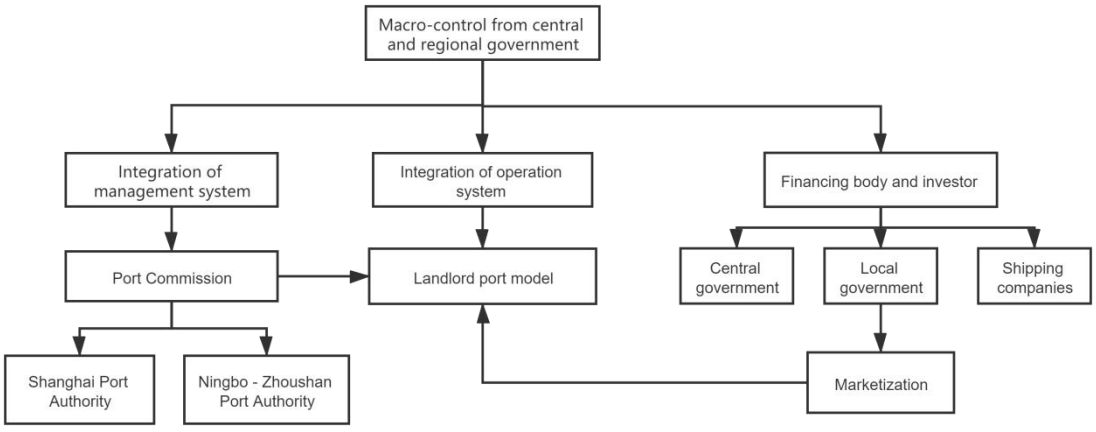

Figure 1 The Process of Resource Integration of Shanghai Port and Ningbo-Zhoushan Port

4 Analysis of the cases of the port integration promoted by government at home and abroad

4.1 Analysis of the case of domestic port integration promoted by government

4.1.1 Shipping Policy Status of Tianjin-Hebei Port Group

The Ministry of Communications, Tianjin Municipalization and Hebei Province have jointly issued the Work Plan for Accelerating the Coordinated Development of Tianjin and Hebei Ports (2017-2020), which clearly requires that a world-class port group with Tianjin Port as the core and Hebei Port as the two wings, with reasonable layout, clear division of labor, safe and green ports should be basically built. First, optimize the layout and functional division of Tianjin Port, and actively build Tianjin Port into a comprehensive gateway hub, focusing on container, commercial vehicle roll-on and cruise transportation. Hebei port mainly focuses on bulk material transportation, vigorously expands the port industry, modern logistics and other service functions, and effectively interacts with Tianjin port in a dislocated development. We will strengthen the position of Tianjin Port as a hub port for container trunk lines, develop feeder lines and domestic trade transportation for Hebei ports, and strengthen the interconnection of container trunk and branch between Tianjin and Hebei ports. Give play to the role of Hebei port as the main channel in bulk dry bulk cargo transportation. In coal, ore and crude oil transportation, according to the positioning of the port to determine the loading and unloading port. Second, to accelerate the integration of port resources, strictly examine the rationality and compliance of port shoreline from the perspective of the utilization of similar terminals, carry out overall planning for the construction of new projects based on the established Tianjin-Hebei port joint venture company, and explore the establishment of state-owned capital operation company in Tianjin-Hebei

joint venture, so as to avoid repeated construction and waste of shoreline resources. Third, Tianjin-Hebei port enterprises are encouraged to jointly build and share inland waterless ports, share freight information resources and intermodal transport network, optimize the pattern of port collection and distribution, and increase the proportion of iron and water intermodal transport. Fourth, we will support Tianjin to undertake the relocation of ship-related non-core functions of the capital. We will expand the shipping service functions of Hebei ports, and support Hebei ports in carrying out value-added services such as coal blending, coal washing, ore screening and ore blending. Support the development of Tianjin International Cruise Port, and effectively promote regional ship emission control. We will implement the plan for the Bohai Rim (Beijing-Tianjin-Hebei) Ship Emission Control Zone, establish a unified law enforcement standard for ports in the region, and improve our ability to monitor and supervise air pollution from ships.

4.1.2 Shipping Policy Status of the Guangdong-Hong Kong-Macao Bay Area

According to the requirements of the Outline of the Development Plan for the Guangdong-Hong Kong-Macao Greater Bay Area, the international competitiveness of the Pearl River Delta port group should be enhanced. We will consolidate and enhance Hong Kong's status as an international shipping center, support Hong Kong in developing high-end shipping services such as ship management and leasing, ship financing, maritime insurance, maritime law and dispute resolution, and provide services to enterprises from the mainland and Macao. We will enhance the comprehensive international shipping service functions of Guangzhou and Shenzhen, further enhance the infrastructure service capacity of ports and waterways, and form a port, shipping, logistics and supporting service system with Hong Kong that complement each other's advantages and benefit each other, so as to enhance the

overall international competitiveness of the port group. We will improve collection and distribution networks for inland waterways, railways and highways, with the focus on major coastal ports. We will promote the development of the Pan-Pearl River Delta region, and realize the interconnected development of the Guangdong-Hong Kong-Macao Greater Bay Area, the city clusters on the west coast of the Taiwan Straits and the city clusters in the Beibu Gulf by relying on coastal railways, high-grade highways and major ports.

4.2 Analysis of the case of foreign port integration promoted by government

4.2.1 Shipping policy status of US port group

New York - New Jersey port group is the largest port group along the east coast of North America, handling 25 million tons of cargo every year, including 4.5 million tons of containers, and is an important shipping distribution center in North America. New York - New Jersey port group through the joint establishment of port authority, the implementation of unified management and planning, to achieve the development of shipping economies of scale. The port authority is responsible for the construction and maintenance of port docks, investment in upgrading and renovating port infrastructure, and the dredging of port channels to accommodate larger vessels with deeper draft. At the same time, the Port Authority invested in the construction of inter-port information system. In 1986, it opened the "Information Port" and became the world's first high-tech enterprise park and communication center. In 2001, the "real-time freight information system" was established to provide first-hand information of port freight for dock companies, shipping companies, customs and coast guard. At the same time, the Port Authority established a police unit under the Port Authority to maintain security in the port area. In terms of promoting economic construction in the port area, the sale of bonds to raise funds for the construction of

port infrastructure does not depend on the government's budget and does not increase the burden on regional taxpayers. Port authority, the taxation rights of shareholders nor its income mainly is bond sales and transport facilities used in collection of fees and rent, all income deducting depreciation, the principal and interest loans and bonds, and other expenses are owned by the port authority, used for port development and the establishment of public welfare, income also don't have to be turned over to the government, presents the independent and the characteristics of the self-sustaining. Northwest Ports Alliance is jointly managed by the management committees of the Port of Seattle Authority and the Port of Tacoma Authority, and the two ports have roughly the same amount of assets invested in Northwest Ports Alliance. Due to certain differences in port scale and business scope between the two ports, in order to ensure equal asset investment, external third-party consulting institutions are introduced to conduct independent and objective asset assessment, so as to ensure the equivalence of investment between the two parties and the equalization of future revenue and cost. The two ports authorities continue to operate independently, managing other operations other than those licensed to the Northwest Ports Alliance. In terms of the alliance decision-making mechanism, the management committee composed of officials elected by the two ports jointly participates in the decision-making.

4.2.2 Shipping policy status of European port groups

The largest port group in Europe is the Northwest European Port Group, which is distributed on the west coast of the European continent. On the coastline of less than 1,500 kilometers, there are many ports of different scales, such as Port of Hamburg, Port of Bremen, Port of Amsterdam, Port of Lordan, Port of Antwerp, Port of Zeebrugge, Port of Gent and Port of Southampton. Because most of the ports' main

hinterland is continental Europe, they handle roughly the same types of cargo, and they are in different countries, so the competition is particularly intense. From the perspective of throughput, the cargo throughput of major ports in Northwest Europe does not differ much. For example, the container throughput of Rotterdam Port, Hamburg Port and Antwerp Port is basically similar. In terms of cargo types, petroleum, ore, grain and coal are the main import and export cargo categories of the three ports. The similarity of Marine cargo structure leads to the fierce competition among the three ports for shipowner, shipowner and hinterland supply. Excessive competition among ports not only leads to ineffective allocation of resources, but also leads to internecine damage. With the deepening of the integration of the EU, the ports of the north-west European port group have gradually developed cooperation, which is embodied in the establishment of the European Port Organization and the operation of the Belgian-Dutch port system. In 1993 the European Union set up the European Seaports Organisation (ESPO) to avoid unregulated competition among ports in the region. The main objectives of ESPO are to ensure that the importance of European ports is recognized by the EU and its member states, to promote free and fair competition among ports, to ensure the economic efficiency of European ports, to implement the highest possible safety standards at European ports, and to encourage ports to protect the environment. The main function of ESPO is to influence the formulation of the EU's open policy towards a safe, effective and sustainable European port system. ESPO represents the port authorities, port associations and port administrations of the European Union seaports, which serve the interests of ports by appointing representatives to present their views and opinions at the general assembly and finally reach a consensus. In addition to acting as a policy adviser to its members and the EU, ESPO provides a platform for European ports to discuss important issues, including the promotion of free competition, port financing, environmental protection, shipping and port

services, vocational training and seafarer safety. ESPO membership consists mainly of port authorities, port administrations and port associations at EU ports, and is open to a few non-EU countries in the European Free Trade Area (EFTA). Its members serve the interests of the ports, as well as the development of the EU, the European Common Market and transport policy in general, by appointing representatives to present their views and opinions at plenary meetings and ultimately reaching consensus. The mandate of ESPO is to influence the formulation of open EU policy to create a safe, effective and sustainable European port system.

4.2.3 Shipping policy status of Japan port groups

Japan as resource-poor island, its strategic resources and industrial raw materials is highly dependent on imports, the government will be the operation and development of the port as the key to the national economy and the hub, rather than simply related to the interests of local governments, therefore, port planning and coordination by the central government firmly, only will ports devolved to local port agency. In this study, Osaka Bay Port Group and Tokyo Bay Port Group in Japan were used as reference. Osaka bay port group includes the port of Osaka and towards, are the important international trade port and industrial center, in terms of cargo throughput and container throughput, both relatively close, towards and Osaka port is Japan's fourth and fifth port, respectively, in terms of market relations, there is an obvious between the two port competition in the market, but the two port is facing many internal and external factors, Therefore, the pursuit of coordinated development has become the only way for the two Hong Kong to achieve long-term development. In order to avoid excessive competition between the two ports, improve the operation efficiency of the container terminals of the two ports, enhance the negotiating power of the ship owners, reverse the unfavorable situation of domestic goods outflow, and promote the interactive development between the ports, Kobe Port and Osaka Port are fully

aware of the necessity and urgency of strengthening the coordinated development between the two ports. In addition, the central government of Japan is also eager to build a strategic international container port, Kobe Port and Osaka Port began to continue to carry out in-depth cooperation to achieve coordinated development. The cooperation between the two ports mainly includes the use of a common port name and the establishment of a jointly funded port management company. The original port of Osaka, port of Kobe and port of Nishinomiya were renamed as the port of Hanshin in terms of the use of a common port name. Compared with the use of a common port name, the establishment of a port management company jointly funded by the two ports is more characteristic of substantive and coordinated development. In 2014, the Port Authority of Kobe and the Port Authority of Osaka jointly formed a Port Management Company (KOIP), known as the Kobe - Osaka International Port Group. This port management company only carries out integrated management of the container terminal business of the two ports, and does not involve other professional terminals. The main purpose of establishing KOIP by the Japanese central government and relevant local governments is to effectively develop and utilize the terminal resources of Kobe Port and Osaka Port to avoid repeated construction and resource waste. It can better respond to the development demand and change of the consolidated transportation market; strengthen the negotiating power of the port side with the ship side and provide more and better port services for the shipper.

4.3 Analysis of the points got from the cases

From the current situation of the above port groups, we can summarize the following reference points that have been implemented and achieved results in these port groups and are applicable to the port groups in the Yangtze River Delta:

The first point is to speed up the construction of information network between ports, realize the sharing of freight information resources and intermodal transport network, and promote the linkage of policies. The second point is to optimize the layout and division of labor of ports to promote differentiated development among ports. The third point is to establish a joint venture company to carry out the construction of new projects as a whole to avoid repeated construction and waste of shoreline resources. Fourth, the central port can drive the development of the surrounding ports, so as to achieve common progress, avoid mistakes and reduce the cost of trial and error. Fifth, strengthen unified leadership or set up third-party regulatory agencies to solve key and difficult problems across regions, departments and industries, and promote the coordinated development of port groups in the Yangtze River Delta.

5 Analysis on the strategy and measures of the promotion of Government in Yangtze River Delta

5.1 Accelerating the construction of the interport information network and the smart port

Informationization is the breakthrough and core of building strong port. Port competitiveness and transformation and upgrading depend on information, intelligence, digitalization, automation, management and service, which will also be the fundamental difference between modern ports and traditional ports. Informatization is not only a huge system, but also an endless process of development. It is full of fierce international competition and ever-changing technological progress. It is far from enough to rely solely on the strength of a port enterprise or research institution. We should make full use of our institutional and institutional advantages to build world-class ports. To study and formulate the overall development plan for the informatization of the navigation industry of the Yangtze River Delta Port, guided by market demand and international advances. Defining development goals, priorities, tasks for different stages and safeguards. We will give full play to the wisdom of governments at all levels, port, navigation, information technology research institutions and port enterprises, break down tasks, clarify responsibilities, coordinate efforts, tackle key problems, and promptly summarize and disseminate development achievements. As a long-term strategic task to continue to advance, speed up the development of port and shipping industry information, seize the commanding heights of port information power, and make contributions to the construction of world-class ports.

5.2 Optimizing the port layout and division of labor, and promoting the differentiated development between ports

Due to the homogenization of shipping industry and the convergence of Marine cargo structure in the Yangtze River Delta region, the structure of Marine cargo in the Yangtze River Delta region should be adjusted and optimized to realize the dislocation development of regional port groups. In terms of ideas and concepts, we can refer to and learn from the development model of the Beijing-Tianjin-Hebei Port Group and the Guangdong-Hong Kong-Macao Greater Bay Area, realize the effective allocation of shipping resources in the Yangtze River Delta region, take the lead in pilot free trade zones around the region, and "seek common ground while shelving differences". On the basis of learning from the successful experience of Shanghai Pilot Free Trade Zone and based on the development level of shipping economy and the basis of business forms in various regions, we should do a good job in undertaking and transferring relevant industries to achieve dislocation development and seek differentiated layout. According to the overall planning of the integrated development of the Yangtze River Delta, shipping policies will be issued to avoid "zero-sum game" and "disorderly competition", and gradually expand and promote beyond the pilot free trade zone. The shipping industry consists of four elements: "ship, port, cargo and line". There is no distinction between high and low in itself, only "upstream and downstream". Shanghai, as the leading city in the Yangtze River Delta region, should continue to play a leading and exemplary role, and the complementarity and displacement competition between Jiangsu and Zhejiang provinces on the two wings will further strengthen the position of the Yangtze River Delta region as a cargo hub port group. Shipping finance, insurance and other industries with high added value should be undertaken by Shanghai, which has a developed financial market and perfect legal protection. In terms of traditional

cargo transportation, Shanghai Yangshan Port should focus on ocean transportation and container cargo loading and unloading. In fact, Yangshan Port has long given up the import and export business of coal, iron ore and other bulk cargo.
Ningbo-Zhoushan Port of Zhejiang Province, which has excellent port hydrology and inland transportation, should focus on coastal transportation and the loading and unloading of general cargo and bulk cargo, so as to comprehensively improve the capacity of the Yangtze River Delta port group to accept large bulk carriers, especially to develop the second-class ship type of river-sea direct transportation. Among them, Zhoushan Port should continue to give full play to the advantage of being the first to try out the bonded oil policy, so as to become the largest refueling port in China and make up for the shortcoming of Shanghai Port. Nanjing Port and Lianyungang Port in Jiangsu Province, which are committed to the development of comprehensive hub ports, should focus on inland river transportation, and form a perfect linkage mechanism of shipping policies in the free trade zone while seeking "differentiated" development.

5.3 Establishing a joint venture company and making overall development and construction

In order to promote the differentiated development among the ports in the Yangtze River Delta region, the respective pilot trade zones of the Yangtze River Delta should actively explore the multi-port cooperation and joint port construction, accelerate the port development, and promote the coordinated development and complementary advantages among regional ports in view of the serious competition within the port group, the intersecting port hinterland and the overlapping positioning problems. Expand the scope and depth of the existing container terminal and shipping line cooperation in the Yangtze River Delta region. The concrete approach can draw

lessons from the development experience of the port groups in Japan, Europe and the United States, and actively explore the multi-port cooperation and complementary advantages. It is suggested to establish the Yangtze River Delta Port Group, located in the Shanghai Pilot Free Trade Zone, above the administrative committee of the respective pilot trade zones, and directly connect with the relevant ministries and commissions of the State Council or the deliberation and coordination agencies. According to the actual demand of the coordination of shipping industry in different places, we actively strive for the support and authorization of the central ministries and commissions, and clarify the relationship between the local authority and the central authority. The port group is jointly managed by a management committee composed of the major port authorities of Shanghai, Zhejiang, Jiangsu and Anhui provinces. But the port authority in the assets in the alliance should be almost the same, due to the long triangle area around the port there are large difference between scale and business scope, in order to guarantee the balance of the equivalent input, should bring in outside third party consultancy, an independent objective appraisal, so as to ensure the equivalence of all investment assets and future income and cost allocation and capitation. In terms of administration, the local port authorities still operate independently, managing and operating other businesses except those authorized by the Yangtze River Delta Port Group. In terms of the decision-making mechanism of the group, the management committee is composed of personnel nominated by the port administration agencies to participate in the decision-making together.

5.4 Driving the development of the surrounding ports by the central port and achieving common progress

The key to improve the ability of resource allocation is to attract more ships to

register at Shanghai Port, so as to promote the development of Shanghai's high-end shipping industry in management, law, insurance, financing, inspection and other fields as well as the cultivation of high-end shipping talents. The coordinated development of shipping policies in the Yangtze River Delta region should start with the transformation of the cooperation concept and turn it into a multi-center mode of linkage and innovation of shipping policies in pilot free trade zones led by Shanghai. However, the replication and promotion of policies should not interfere with the implementation effect of the original policies. Blind promotion and replication of the policy experience of Shanghai Pilot Free Trade Zone, regardless of the basis of local business forms and development level, will produce adverse effects and disperse the aggregation effect caused by the implementation of shipping policies. In the final analysis, the linkage of the shipping policies in the Yangtze River Delta Pilot Trade Zones does not mean that the shipping policies of the Pilot Free Trade Zones in each region should be completely consistent. While maintaining the common contents of the region, the shipping policies of the Pilot Free Trade Zone in Shanghai should be copied and promoted selectively. Therefore, the differentiation advantage of Shanghai in building an international shipping center is highlighted. Such differentiation is not only reflected in the different incentive mechanisms for the development of local shipping economy and shipping industry, but also should be understood to mean that the shipping policies of the pilot free trade zones should not be blindly copied and promoted, so as to avoid the repetition of the same or similar shipping policies in the context of the multi-center model construction of the pilot free trade zones.

5.5 Strengthening unified leadership or establish coordination agencies

The coordination of shipping policies in the Pilot Free Trade Zone involves the

coordination between the central and local authorities. The relevant policies of the Pilot Free Trade Zone are issued by the State Council, and the local governments do not have enough right to speak in the revision and adjustment of major shipping policies in the Pilot Free Trade Zone. Even the shipping policy implemented in the Shanghai Pilot Free Trade Zone may not be recognized and implemented by the Zhejiang and Jiangsu Pilot Free Trade Zones, which requires the State Council to set up a special agency to coordinate the system and policy from the national level. It is suggested that the State Council should set up a discussion and coordination body for the respective pilot trade zones in the Yangtze River Delta, and a national discussion and coordination body should be set up to effectively connect the Yangtze River Delta Regional Cooperation Office and the Shanghai Combined Port Management Committee. According to the planning scheme issued by the above institutions and put forward countermeasures and suggestions. Taking the respective pilot trade zones of the Yangtze River Delta as a platform, China issued the Collaborative Plan on Port and Shipping Integration in the Pilot Free Trade Zone of the Yangtze River Delta to ensure the effective implementation of the Six Action Plans on Coordinating the Development of Port and Shipping Integration in the Yangtze River Delta by the Ministry of Communications. In horizontal plane, to the deliberation and coordination agencies of the Yangtze river delta trade their experimental zone shipping policy linkage regular investigation and argumentation, current situation and problems in solicit long triangle trade each test area management committee and the related enterprises, to carry out the comprehensive related experts and evaluation, on the basis of forming the policy file level under the State Council. We should make a choice on the basis of comprehensive evaluation and dialectical analysis as to whether the shipping system is worth copying and popularizing. The post-policy evaluation mechanism should be improved, and the respective pilot trade zones in the Yangtze River Delta should be empowered to formulate and implement relevant

shipping policies through the form of batch application for authorization in a checklist. However, the scope of jurisdiction of each region shall be clarified. The deliberation and coordination body shall have the right to revoke the shipping policies of the pilot free trade zone that are formulated and formed beyond the scope of its jurisdiction. The deliberation and coordination body shall have the right to request the suspension or even abolition of the policies of the pilot free trade zone that are harmful to the interests of other pilot free trade zones in the Yangtze River Delta region and are not conducive to the linkage of regional shipping policies.

5.6 The government guides to solve the problem of game among the integration of port resources under its jurisdiction

Port is the distribution center and hub of land and water transportation, and it is also the existence of enterprises in the market economy to pursue interests. In the process of resource integration promoted by the government, the ports under the jurisdiction have carried out a lot of games for their own interests. The three provinces and one municipal government in the Yangtze River Delta should find out these phenomena in time and solve the game problem under the guidance of macro-control and the function of government. The main factors affecting the integration of port resources are: geographical location, freedom of cargo distribution, port cost and operation efficiency. The location and freedom of movement of the cargo is not optional by the port. The related hardware conditions are necessary for port improvement, so they are not the main competitors. Port charges and operation efficiency are the key points of port competition. Although the relevant charges are solved by the government, the government cannot comprehensively monitor them under the condition of marketization, and the prices are regulated by the market. Therefore, the marketization of port charges is an inevitable development trend. Port competition to

expand the port scale, speed up the construction of infrastructure. In order to digest the fixed assets of the port, the scale of the port must be expanded. The enlargement of port scale inevitably leads to the contention of limited resources among ports. All ports hope to attract ships by lowering the price, and the price competition of ports through marketization will be more and more fierce. Although the price reduction improves the efficiency of ports, the increasingly intensified price competition will evolve into vicious competition among ports, which will bring heavy burden to any port group in the Yangtze River Delta and make it difficult to achieve healthy development. Therefore, this vicious competition needs the participation and coordination of the three provinces and one municipal government in the Yangtze River Delta, so as to play the macro-control role of the government and control the price.

6. Conclusion

In the functional system of global urban agglomeration, the shipping center based on port group is an important part of the function of resource allocation, which complements the overall construction of global urban agglomeration. From the development history of global cities and port clusters such as London, New York, Singapore and Hong Kong, we can see that port clusters play an important role in enhancing the resource allocation capacity and energy level of global urban agglomerations. On the one hand, as the node or hub in the global material and passenger circulation network, the international shipping center plays a role in the allocation of commodity flow, capital flow, information flow and other elements and resources, and improves the allocation capacity of global urban resources. International shipping center, on the other hand, is the source of the source of science and technology innovation through fusion, with city development including shipping finance, maritime insurance and maritime consulting services, maritime technology, maritime training education, maritime law, maritime and other high-end industry research communication, improve the high-end link in the global urban control, improve the radiation ability of the network.

In addition, the Yangtze River Delta port group should take advantage of its status as an international shipping center to provide high quality and convenient comprehensive port services and to improve the operation efficiency of various multinational companies and reduce the comprehensive transportation cost. Only in this way can we improve the comprehensive service capacity of global cities, promote the development of global cities into shipping agglomeration, attract the headquarters and branches of multinational corporations to gather in global cities and enhance the gateway status of global cities. Enhancing the resource allocation capacity of the port group in the Yangtze River Delta is conducive to enhancing the

competitiveness and influence of the Yangtze River Delta city group in the global city group.

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