

# Policy Empowerment and Functional Breakthrough: A Comparative Study on the Development Path of Hainan Port in the Context of Free Trade Port

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## Abstract

Under the dual background of global economic integration and the construction of Hainan's FTTP, this study explores how Hainan's ports can transform policy dividends into functional competitiveness through comparative analyses of domestic port development models. The study finds that although Hainan ports enjoy the advantages of system innovation in the FTTP (e.g., ship registration reform, bonded fuel refuelling), they significantly lag behind mature ports in the Yangtze River Delta and Pearl River Delta in terms of scale effect, international route density and integration of port, industry and city. Based on the system of Shanghai port opening, Ningbo Zhoushan port regional integration, Shenzhen port industry integration experience, this paper puts forward the differentiation of Hainan port breakout path: First, deepen the system innovation, explore the "Hainan" ship special supervision rules and "South China Sea Shipping Service Corridor"; Second, promote the "Hainan" ship registration reform, the "South China Sea Shipping Service Corridor"; Second, promote the "South China Sea Shipping Service Corridor". "; Second, to promote the "port + culture and tourism" integration and "bonded warehousing + offshore trade" value-added service chain; Third, to strengthen regional synergies, through the western land and sea new channel "to the sea reconstruction The third is to strengthen regional synergy, through the new western land and sea corridor "re-creation of the sea" and the staggered division of labour with the Beibu Gulf port group. The study shows that Hainan needs to build a "system-driven" development paradigm through the synergy of policy empowerment and functional iteration to provide a reference for the transformation and upgrading of small and medium-sized ports, and to help regional ports to develop synergistically under the framework of RCEP.

**Keywords:** Hainan Free Trade Port; Port Functions; Institutional Innovation; Differentiated Paths; Regional Synergy; Comparative Study.

## 1. introductory

### 1.1 Background of the study and formulation of the problem

With the deepening of global economic integration, the strategic position of ports as key nodes of international trade has become more and more prominent. The construction of Hainan Free Trade Port, as a major initiative of China's deepening reform and opening up, has brought unprecedented opportunities and challenges for the development of Hainan's ports with the unique policy system of "liberalisation of the first line and control of the second line". According to the "overall programme for the construction of Hainan Free Trade Port", before 2025, Hainan will start in due course the whole island closed operation, this system innovation gives Hainan port in trade, investment, transport and

other areas of high degree of freedom and convenience of the policy advantage, is expected to reshape its role in the global shipping network.

However, in the domestic port competition pattern, Hainan port is facing a severe positioning dilemma. Compared with the Yangtze River Delta and Pearl River Delta port groups, Hainan ports in the scale effect there is a significant gap. The above seaport, for example, in 2023 its container throughput of up to 47.303 million TEUs, Ningbo Zhoushan Port cargo throughput is ranked first in the world for 14 consecutive years. And Hainan port in the largest port of Yangpu port, 2023 container throughput is only 1.302 million TEUs, cargo throughput of 120 million tonnes, in terms of throughput capacity, route coverage, infrastructure and other aspects of the difficult to compete with them.

In this context, the core issue is how to effectively transform the policy dividends of Hainan Free Trade Port into the functional competitiveness of the port? Compared with the domestic mature ports, Hainan port and what differentiated breakout path? This is not only related to the realization of the goal of the construction of Hainan Free Trade Port, but also for China to optimize the regional port layout, enhance the role of the strategic pivot of the Maritime Silk Road is of great significance.

## **2 . Theoretical Perspectives: The Interactive Logic of Policy Enabling and Port Functional Evolution**

### **2.1The Triple Dimension of Policy Empowerment**

#### **2.1.1Institutional innovations**

Institutional innovation is the core driver of policy empowerment. In the construction of Hainan's Free Trade Port, the reform of China Yangpu Port's ship registration system has facilitated shipping enterprises. By the end of 2023, more than 100 ships, with a total tonnage of 4.6 million tonnes, had been registered in Yangpu Port, effectively lowering the operating costs of enterprises and improving the efficiency of ship operations. The bonded fuel refuelling policy has also made positive progress, with the volume of bonded fuel refuelled at Yangpu Port reaching 1.5 million tonnes in 2023, a year-on-year increase of 20 per cent, attracting more international ships to call at the port.

Compared with Shanghai FTZ, Shanghai FTZ has mature experience in international transshipment consolidation business. Yangshan Special Comprehensive Bonded Zone has achieved rapid consolidation and distribution of international transshipment cargoes by optimising the supervision mode, and the volume of international transshipment consolidation business in 2023 will reach 2 million TEUs. Hainan ports can learn from Shanghai's experience, further improve relevant policies and enhance the competitiveness of transshipment business.

#### **2.1.2regional coordination**

Regional synergy is an important way for ports to expand their hinterland and enhance their influence. Hainan actively participates in the construction of new western land and sea corridors, and strengthens cooperation with the regions along the corridors. in 2023, the trade volume of goods between Hainan and the provinces along the new western land and sea corridors will reach 50 billion yuan, a year-on-year increase of 15 per cent. Through sea-railway intermodal transport and other means, Hainan's ports have extended their services to inland areas, enhancing their ability to radiate the regional economy.

Comparing with Ningbo Zhoushan Port, its deep integration with the Yangtze River Economic Belt has achieved remarkable results. Through cooperation with ports along the Yangtze River, Ningbo Zhoushan Port has constructed a perfect inland waterway transport network, and the volume of river-sea intermodal transport will reach 160 million tonnes in 2023, which realises the synergistic development of the port and the hinterland. Hainan port needs to further strengthen the synergy with the ports along the new western land and sea corridor, optimise the collection and transportation system, and enhance the efficiency of regional synergy.

### **2.1.3Function Iteration**

Functional iteration is an inevitable requirement to adapt to market demand and enhance the comprehensive competitiveness of the port. The positioning of Hainan as an international tourism and consumption centre brings opportunities for the development of the cruise economy. By 2023, Hainan will have opened a number of international cruise lines and received 500,000 cruise tourists. However, compared with Shenzhen Port's "front port, middle district and back city" model, Hainan's ports are still inadequate in terms of functional integration. Shenzhen port has formed an efficient industrial agglomeration and urban development model through the synergistic development of port, industry and city. Hainan ports should learn from Shenzhen's experience, strengthen the integration of tourism, logistics, trade and other functions, and promote the integrated development of port, industry and city.

## **2.2The social constructedness of the evolution of port functions**

### **2.2.1Transformation from "transport hub" to "institutional testing ground"**

With the implementation of the FTTP policy, Hainan ports are transforming from traditional transport hubs to institutional testing grounds. Through the implementation of the policy of "liberalisation of the first line and control of the second line", Hainan ports have become an important node in the domestic and international double cycle, and are exploring institutional innovations in trade liberalisation and investment facilitation. This transformation has not only enhanced the economic function of the port, but also strengthened its position in the national strategy.

### **2.2.2The Dynamic Game of Policy Orientation and Market Demand**

There is a dynamic game relationship between policy orientation and market demand. The relative lack of top-level design of Hainan's logistics industry has led to the failure of some policies to fully meet market demand in the process of implementation. For example, although Yangpu port has policy advantages, but the density of international routes is insufficient, in 2023, Yangpu port international routes only 30, it is difficult to meet the logistics needs of enterprises. Therefore, Hainan ports in the development process, the need to balance policy guidance and market demand, to ensure the effective implementation of policies.

## **3 . A typological comparison of domestic port development models**

### **3.1Shanghai Port: Institutional Openness and Global Hub Functions**

Relying on the policies of the FTZ, Shanghai Port has actively built a shipping service chain. In terms of ship registration, Shanghai FTZ has implemented the "China Yangshan Port" port registration system,

simplified the registration process, and attracted a large number of international ship registrations. By 2023, the number of "China Yangshan Port" ships will reach 80. In the field of shipping finance, Shanghai has formed a relatively complete shipping financial service system, and the premium income of shipping insurance will reach RMB 5 billion in 2023, providing comprehensive financial support for shipping enterprises.

In the integration process of the Yangtze River Delta, Shanghai Port plays the role of a "hard core" hub. Through the synergistic development with neighbouring ports, a port group with clear division of labour and complementary advantages has been constructed. In 2023, the container water-to-water transshipment volume between Shanghai Port and Ningbo Zhoushan Port will reach 12 million TEUs, which will effectively enhance the overall competitiveness of the regional port group. Meanwhile, Shanghai Port has actively expanded its international routes and established business connections with more than 500 ports in more than 200 countries and regions around the world, making it an important global shipping hub.

### **3.2 Ningbo Zhoushan Port: Regional Integration and Scale Effect**

Through the reform of port integration, Ningbo Zhoushan Port has cracked the problem of resource mismatch. After the merger of Ningbo Port and Zhoushan Port in 2006, the optimal allocation of resources has been achieved, and the port's throughput capacity has been significantly increased. By 2023, the cargo throughput of Ningbo Zhoushan Port will reach 1.26 billion tonnes, and the container capacity will reach 33.35 million TEUs, which are both ranked in the global top rank.

As a base for the storage and transport of bulk commodities, Ningbo Zhoushan Port plays an important role in the protection of national strategic materials. The port has perfect bulk commodity storage facilities, and the throughput of iron ore, crude oil and other bulk commodities will reach 300 million tonnes and 200 million tonnes in 2023 respectively. In contrast, Hainan's oil and gas industry chain has short boards, and there is a big gap between the oil and gas resources reserves, processing capacity and Ningbo Zhoushan Port, which needs to strengthen the relevant infrastructure construction and industry cultivation.

### **3.3 Shenzhen Port: Technology Innovation and Industry Integration**

Shenzhen Port has achieved remarkable results in the construction of smart ports. Taking Yantian Port as an example, its automation upgrading project has significantly improved the efficiency of terminal operations. Through the introduction of automated loading and unloading equipment, intelligent scheduling system, etc., the container loading and unloading efficiency of Yantian Port has increased by 30 per cent, and the residence time of ships in the port has been shortened by 20 per cent.

Shenzhen Port is actively exploring the "port + cross-border e-commerce" mode of industry innovation. Relying on Shenzhen's well-developed e-commerce industry, the port and e-commerce enterprises have cooperated to create an efficient cross-border logistics service system. In 2023, the cross-border e-commerce business volume of the Shenzhen port reached 10 million orders, realising the synergistic development of the port and e-commerce industry. Hainan can learn from Shenzhen's experience, combined with the island duty-free policy, to expand the "port + duty-free shopping" and other new business models, to enhance the comprehensive service capacity of the port.

### **3.4 Hainan Port: Policy Dividends and Functional Limitations**

Hainan ports enjoy policy dividends, but also face many functional limitations. In the ship registration,

bonded oil and other policy implementation, although achieved some results, but compared with the international advanced level there is still a gap. Yangpu port international route density is insufficient, restricting the function of its international logistics hub.

Under the positioning of "international tourism and consumption centre", there is a problem of functional fragmentation in Hainan ports. The synergistic development of cruise homeports and container hubs faces difficulties and lacks a unified planning and coordination mechanism. For example, the construction of the Sanya cruise homeport fails to effectively connect with the surrounding logistics facilities, affecting the improvement of the port's comprehensive benefits. Therefore, Hainan ports need to strengthen functional integration, optimise resource allocation and enhance overall competitiveness.

## **4. Differentiated Breakout Path for Hainan Ports**

### **4.1 Further breakthroughs in institutional innovation**

#### **4.1.1 Exploring special supervision rules for "Hainan" ships**

With reference to the experience of Hong Kong's free ports in facilitating ship registration, Hainan can explore the establishment of special regulatory rules for "Hainan-registered" ships. It should further simplify the ship registration process, lower the registration threshold and provide more tax incentives and operational facilities to eligible ships. For example, exempting ships registered in Hainan from tonnage tax, shortening the ship inspection cycle, etc., to attract more international ships to register in Hainan and enhance the international shipping resources gathering capacity of Hainan ports.

#### **4.1.2 Building a "South China Sea Shipping Service Corridor"**

Hainan should actively build a "South China Sea shipping service corridor" and strengthen the docking of shipping rules with the Guangdong-Hong Kong-Macao Greater Bay Area and ASEAN. Through the establishment of a regional shipping co-operation alliance, it should work together to formulate unified shipping standards and norms and promote the free flow of shipping resources in the region. For example, it will strengthen co-operation in areas such as shipping insurance and maritime arbitration to create a regional shipping service highland and enhance the influence of Hainan's ports in the South China Sea region.

### **4.2 Ecological reconfiguration of functional synergies**

#### **4.2.1 "Harbour + Tourism: Yachting and Island Tourism Design"**

Drawing on the experience of international cruise economy development, Hainan can promote the deep integration of "port + culture and tourism". Carry out the pilot yacht free travel, improve the yacht rental, maintenance, supply and other ancillary services. Design island tourism line, the port and the surrounding tourist attractions in series, to create tourism products with Hainan characteristics. For example, with Sanya Port as the centre, the development of yacht tourism routes around Hainan Island, driving tourism consumption along the route and enhancing the tourism service function of the port.

#### **4.2.2 Value-added service chain of "Bonded Warehousing + Offshore Trade".**

Comparing with the experience of Shanghai Yangshan Special Integrated Free Trade Zone, Hainan can

build a value-added service chain of "bonded warehousing + offshore trade". Take advantage of the FTZ policy to develop bonded warehousing business and attract domestic and foreign enterprises to set up warehousing centres in Hainan. On this basis, to carry out offshore trade pilot, to provide enterprises with trade settlement, financing and other services, to enhance the port's value-added trade capacity. For example, an offshore trade service platform has been set up in Yangpu Port to provide one-stop services for enterprises and promote the development of offshore trade.

### **4.3 Breakthrough Strategies for Regional Synergy**

#### **4.3.1 "Reinventing the sea port" in the new western land and sea corridor**

According to the logic of choosing a gateway port for the new western land and sea corridor, Hainan should strengthen its function of "re-creation of the sea port" in the corridor. Increase investment in the construction of key ports, such as Yangpu Port, and upgrade the infrastructure level and service capacity of the port. Strengthen industrial co-operation with regions along the corridor and create a demonstration zone for collaborative industrial development. For example, the construction of a bulk commodity trading centre in Yangpu Port for the new western land and sea corridor will attract the gathering of resources from regions along the corridor and enhance the position of Hainan's ports in the corridor.

#### **4.3.2 Staggered division of labour mechanism with Zhanjiang and Qinzhou ports**

In order to avoid homogeneous competition with the Beibu Gulf port group, Hainan ports need to establish a staggered division of labour mechanism with Zhanjiang Port and Qinzhou Port. According to their respective resource endowments and development positioning, a clear division of labour and collaboration relationship. Hainan port can focus on the development of high-end shipping services, cruise tourism and other characteristics of the industry, Zhanjiang port can focus on bulk cargo transport, Qinzhou port can strengthen the industrial docking with ASEAN. Through the staggered development, to achieve synergy of regional port groups, and enhance the overall competitiveness.

## **5. Conclusions and Implications**

### **5.1 Common Laws of Domestic Port Development Patterns**

Through the comparative analysis of domestic port development models, it is found that policy empowerment needs to be deeply coupled with market demand and regional endowment. Shanghai Port relies on the openness of the system and regional advantages to build a global hub; Ningbo Zhoushan Port realises scale effects through regional integration; Shenzhen Port promotes industry integration with the help of technological innovation. These successful cases show that port development should give full play to policy advantages, combine with its own reality, meet market demand and achieve sustainable development.

Functional breakthrough relies on the two-way breakthrough of system innovation and business innovation. Ports enhance their competitiveness through continuous innovation of systems and modes of operation. Hainan ports should learn from these experiences and, on the basis of policy empowerment, strengthen system innovation and industry innovation to realise the transformation and upgrading of functions.



## 5.2 The value of the specificity of the Hainan experience

Hainan's port development experience is of particular value. With the support of the free trade port policy, it provides a "system-driven" development paradigm for small and medium-sized ports. Through institutional innovation, it makes up for the size disadvantage and enhances the functional competitiveness of the port.

Under the framework of RCEP, Hainan ports can explore the construction of the "South China Sea Regional Port Community of Destiny". Strengthen cooperation with neighbouring ports, jointly respond to the challenges of the global shipping market, enhance the right of regional ports to speak in the field of international shipping, and make greater contributions to the development of China's maritime economy.

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