

Formation and Evolution of the "City-Ferry-Station" Spatial System of Ancient Jiazhou in the Southwest Silk Road Trade Network During the Northern and Southern Song Dynasties

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Abstract: As an important trade corridor connecting the southwest border of ancient China with foreign regions, the Southwest Silk Road witnessed a period of development and transformation during the Northern and Southern Song Dynasties due to the changes in the territorial pattern of the Central Plains regime and the prosperity of the tea-horse trade. Ancient Jiazhou (present-day Leshan), endowed with the geographical advantage of being the confluence of the Min River, Qingyi River and Dadu River, emerged as a core node in the trade network of the Southwest Silk Road. Taking the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties as the research object, this paper combines the research methods of historical geography, transportation history and trade history to sort out its development context from the institutional construction in the Northern Song Dynasty to the dynamic evolution in the Southern Song Dynasty, analyzes the functional coupling and spatial layout characteristics of the spatial elements of the "City-Ferry-Station" system, discusses the dynamic correlation between this system and the tea-horse trade and regional commodity circulation of the Southwest Silk Road, and reveals the construction logic and historical value of Jiazhou's spatial system in the trade network of the Southwest Silk Road. The study finds that the formation of the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties was the joint result of political control, transportation development and trade demand, and its evolutionary process was consistent with the development of the Southwest Silk Road trade network. It not only strengthened Jiazhou's status as a water and land transportation hub in the southwest of Sichuan, but also promoted the in-depth development of regional trade along the Southwest Silk Road, providing a typical case for understanding the spatial interaction between transportation and trade in the ancient southwest border areas of China.

Keywords: Northern and Southern Song Dynasties; Southwest Silk Road; Ancient Jiazhou; City-Ferry-Station.

1. Introduction

1.1 Research Background

The Southwest Silk Road is an important component of the ancient external transportation and trade network of China. Compared with the Northwest Silk Road, it centers on Sichuan and Yunnan and undertakes multiple functions including ethnic exchanges, commodity circulation and cultural integration^[1]. During the Northern and Southern Song Dynasties, the Central Plains regime was in a long-term confrontation with ethnic minority regimes such as the Liao, Western Xia and Jin, which blocked the overland transportation in the northwest. Consequently, the Southwest Silk Road became a vital channel for the Song court to connect with the southwest border areas and foreign regions. Meanwhile, the institutional development of the tea-horse trade

further promoted the reconstruction of the trade network of the Southwest Silk Road. Ancient Jiazhou, located at the confluence of the Min River, Qingyi River and Dadu River, had been a transportation hub in the southwest of Sichuan since the establishment of the prefecture in the Northern Zhou Dynasty. During the Northern and Southern Song Dynasties, its administrative establishment was upgraded from Jiazhou to Jiading Prefecture, and its transportation and trade status rose synchronously, gradually forming a "City-Ferry-Station" spatial system with the prefectural city as the core, ferries as nodes and post stations as veins, which made it a key hub connecting the hinterland of Sichuan, the southwest border areas and foreign regions in the trade network of the Southwest Silk Road. At present, the academic circle has achieved numerous research results on the Southwest Silk Road, transportation in the Song Dynasty and the tea-horse trade. However, the research on the "City-Ferry-Station" spatial system of Jiazhou as a specific node is still weak, and the internal logic of its formation and evolution as well as its interactive relationship with regional trade need to be further explored, which provides an academic space for this paper.

1.2 Research Significance

1.2.1 Theoretical Significance

Taking the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties as the research starting point, this paper combines the spatial analysis of historical geography with the study of trade networks, analyzes the combination rules and evolutionary characteristics of transportation spatial elements, and enriches the research perspective of the transportation spatial system in the ancient southwest border areas of China. Meanwhile, it discusses the dynamic coupling relationship between the transportation spatial system and the trade network, provides a theoretical reference for understanding the spatial interaction mechanism between ancient transportation and trade, and makes up for the deficiency in the research on the spatial system of specific nodes in the current studies on the Southwest Silk Road.

1.2.2 Practical Significance

Sorting out the development context of the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties and exploring its historical value in the trade network of the Southwest Silk Road can provide a historical basis for the protection of historical and cultural heritage and the integrated development of culture and tourism in the southwest of Sichuan in the contemporary era. In addition, the experience of spatial construction of ancient Jiazhou as a water and land transportation hub has certain reference significance for the layout of transportation networks and the coordinated development of regional economy in the contemporary southwest China.

1.3 Research Methods

1.3.1 Historical Document Analysis Method

This paper systematically sorts out the official histories and local chronicles such as History of the Song Dynasty and Treatise on Geography and Monuments, combines the imperial edicts and collected works related to the tea laws and horse administration in the Song Dynasty, and refers to the literature interpretation of the southwest transportation and tea-horse trade in the Song Dynasty in existing studies, to explore the historical materials related to the establishment, layout and development of the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties, so as to provide literature support for the research.

1.3.2 Historical Geography Research Method

From the perspective of historical geography, this paper analyzes the natural geographical endowments and location advantages of Jiazhou, sorts out the geographical distribution characteristics of the spatial elements

of the "City-Ferry-Station" system of Jiazhou in the Northern and Southern Song Dynasties, discusses the adaptation relationship between the spatial system and the natural geographical environment as well as the administrative territorial pattern, and restores its historical spatial form.

1.3.3 Interdisciplinary Comprehensive Research Method

Integrating the theories of transportation history, trade history, urban history and other disciplines, this paper places the "City-Ferry-Station" spatial system in the overall context of the Southwest Silk Road trade network, analyzes the functional coupling of spatial elements, the dynamic mechanism of system evolution and its interactive relationship with regional trade, so as to realize a multi-dimensional and interdisciplinary comprehensive research.

1.3.4 Comparative Research Method

This paper compares the institutional characteristics and layout changes of the "City-Ferry-Station" spatial system of Jiazhou in the Northern Song Dynasty and the Southern Song Dynasty, and analyzes the evolutionary differences of the spatial system in different historical stages. Meanwhile, it compares Jiazhou with other core nodes of the Southwest Silk Road (such as Yazhou and Lizhou), highlighting the unique spatial characteristics and node functions of Jiazhou as a water and land transportation hub.

1.4 Research Innovations

1.4.1 Innovation in Research Perspective

Breaking through the existing research perspective of the Southwest Silk Road that focuses on the whole corridor or a single element, this paper takes the "City-Ferry-Station" spatial system as the overall research object, focuses on Jiazhou as a specific node, and discusses the construction logic of the transportation spatial system in the Southwest Silk Road trade network from the perspective of the combination, coupling and evolution of spatial elements, realizing the perspective transformation from "corridor research" to "node spatial research".

1.4.2 Innovation in Research Content

This paper sorts out the process of institutional construction and dynamic evolution of the "City-Ferry-Station" spatial system of Jiazhou in the Northern and Southern Song Dynasties, clarifies the characteristic differences between the institutionalization stage in the Northern Song Dynasty and the transformation and development stage in the Southern Song Dynasty. It also systematically analyzes the functional division and spatial layout rules of the spatial elements of the "City-Ferry-Station" system of Jiazhou for the first time, filling the gap in the research on the specific spatial system of Jiazhou in the studies on the Southwest Silk Road.

1.4.3 Innovation in Research Thinking

Combining the "City-Ferry-Station" spatial system of Jiazhou with the development of the Southwest Silk Road trade network and the tea-horse trade, this paper discusses the dynamic coupling relationship between the transportation spatial system and regional trade, and reveals the internal driving force for the evolution of the spatial system jointly promoted by political control, transportation development and trade demand, breaking through the single thinking of "discussing transportation in isolation from other factors" in the traditional research on transportation history.

2. Literature Review

2.1 Overall Research Context and Achievements of the Southwest Silk Road

Academic research on the Southwest Silk Road began in the early 20th century and has experienced a development process from route textual research to comprehensive research. Early studies focused on the textual research of the routes of the Southwest Silk Road, centering on the specific direction of the Sichuan-India Road, the ancient states along the route and cultural exchanges. In modern and contemporary times, the research perspective has been continuously expanded, covering transportation history, trade history, ethnic history, cultural history and other fields. Fang Tie sorted out the development course of the Southwest Silk Road from a macro perspective, discussed its role in the development of the ancient southwest border areas of China and foreign exchanges, and clarified the historical status of the Southwest Silk Road as a channel for the exchanges and integration of multiple ethnic groups^[2]. Wang Qinghua focused on the relationship between the Southwest Silk Road and Sino-Indian cultural exchanges, analyzed the spread and integration of cultures along the corridor, and highlighted the cultural value of the Southwest Silk Road^[3]. Lan Yong systematically sorted out the development context of ancient Sichuan's transportation routes in *A History of Ancient Sichuan Transportation Routes*, and the research on the route changes and transportation nodes of the Sichuan section of the Southwest Silk Road in the book provides an important transportation history basis for this paper to discuss Jiazhou's transportation spatial system^[4]. Lan Y reconstructed and studied the transportation network of the Southern Silk Road within China by means of GIS technology, which provided a new methodological reference for the visualization and quantitative analysis of historical transportation space, and also a technical reference for this paper to analyze the network characteristics of Jiazhou's "City-Ferry-Station" spatial system^[5]. In general, the overall research on the Southwest Silk Road has yielded rich results, but the research on the spatial system of specific nodes still needs to be deepened, especially the research on the node space under the background of the reconstruction of the Southwest Silk Road trade network in the Northern and Southern Song Dynasties is still insufficient.

2.2 Research Status of Transportation and Tea-Horse Trade in the Song Dynasty

The research on the transportation history of the Song Dynasty is an important part of the research on the ancient Chinese transportation history. The academic circle has achieved numerous results in the research on the transportation management system, land and water transportation networks and transportation nodes of the Song Dynasty. Cao Jiaqi is a representative scholar in the research on the transportation history of the Song Dynasty. His *A Study on the Transportation Management System of the Song Dynasty* sorted out the institutional characteristics of the transportation management system of the Song Dynasty, discussed the development context, route layout and development trend of the land transportation in the southwest of the Song Dynasty, and clarified the role of the southwest transportation of the Song Dynasty in territorial control and trade exchanges, providing an important institutional history basis for this paper to study the institutional construction of Jiazhou's "City-Ferry-Station" spatial system^[6]. Chen Feng's research on the water transport management institutions of the Song Dynasty revealed the system characteristics of the water transportation management of the Song Dynasty, which has reference value for analyzing the water transport and trade management of Jiazhou as a water and land transportation hub^[7]. The tea-horse trade in the Song Dynasty is a research hotspot in the trade history and ethnic trade history of the Song Dynasty. Kuang Lasheng briefly analyzed the formation and development of the tea-horse trade system in the Song Dynasty, and discussed the management system and institutional characteristics of the tea-horse trade^[8]. Guo Mengliang took the poem line "Sichuan tea all flows into the markets of various ethnic groups, and foreign horses often come from thousands of miles away" as the

starting point, sorted out the development course of the tea-horse trade in the Song Dynasty, and analyzed the role of the tea-horse trade in the border control and fiscal revenue of the Song court^[9]. Xie Tiankai focused on the special forms of the tea-horse trade in Sichuan in the Song Dynasty, and discussed the regional characteristics and folk trade forms of the tea-horse trade in Sichuan^[10]. Li Hongling's research on the reasons for the prosperity of overseas trade in the Song Dynasty, although focusing on overseas trade, the analysis of the role of trade policies and transportation development in promoting trade in the paper has reference significance for understanding the development of the Southwest Silk Road trade network in the Song Dynasty^[11]. In general, the research on transportation and tea-horse trade in the Song Dynasty has been relatively in-depth, but the combined research of the two is still insufficient, especially the research on the spatial interaction between the transportation spatial system and the tea-horse trade has not formed systematic results, which provides a starting point for this paper.

2.3 Research Progress of Urban and Regional Trade Networks in the Song Dynasty

The research on urban and regional trade networks in the Song Dynasty is one of the core contents of the research on the social and economic history of the Song Dynasty. The academic circle has carried out in-depth discussions on the development of cities, the formation of trade networks and the interaction of regional economy in the Song Dynasty. G. William Skinner's regional system theory provided an important theoretical framework for the research on urban and regional trade networks in the Song Dynasty. Zhu Wenshan discussed the problems and enlightenment of Skinner's theory by re reading *The City in Late Imperial China*, providing a theoretical reference for understanding the status and role of cities in the regional trade network in the Song Dynasty^[12]. Akira Hamashita's tributary trade system theory analyzed the formation of the ancient Asian economic circle from a macro perspective, and Zhu Yinggui's commentary on this theory provided a perspective for discussing the relationship between the Southwest Silk Road trade network in the Song Dynasty and the Asian economic circle. Zhou Zhenhe's research on the historical political geography of China provided a historical and political geographical basis for analyzing the administrative establishment and political geographical pattern of Jiazhou in the Song Dynasty, as well as the impact of administrative establishment on transportation and trade space^[14]. Yoshinobu Shiba's research on commerce and society in Song China systematically sorted out the social background of the development of commerce, the formation of trade networks and the characteristics of urban commerce in the Song Dynasty, providing an international perspective for understanding the development laws of regional trade networks in the Song Dynasty^[15]. Robert M. Hartwell analyzed the social changes in China from 750 to 1550 from the perspective of population, politics and social transformation, and his research on population distribution and regional economic development in the Song Dynasty provided a reference for discussing the social background of the development of regional trade in Jiazhou in the Northern and Southern Song Dynasties^[16]. Ebrey P B.'s research on the society and politics of the Song Dynasty during the reign of Emperor Huizong provides historical background reference for understanding the impact of political changes between the Northern and Southern Song on transportation and trade in the southwest region^[17]. Wang Shanjun's sorting out of the research course of the social history of the Song Dynasty showed the development trend of the research on the social history of the Song Dynasty, providing ideas for this paper to analyze the evolution of Jiazhou's "City-Ferry-Station" spatial system in combination with the social background^[18]. In addition, Huang Qianxiu's research on the publishing industry in Sichuan in the Song Dynasty, although focusing on the publishing field, the analysis of the regional economic and cultural development in Sichuan in the Song Dynasty in the paper also provided a reference for understanding the regional development background of Jiazhou as a core node in the southwest of Sichuan^[19].

Chaffee J W.'s research on education and social hierarchy in the Song Dynasty provides a new perspective from the social structure view for exploring the formation of commercial entities and the development of regional trade networks in the Song Dynasty[20].In general, the research on urban and regional trade networks in the Song Dynasty has formed a diversified perspective, but the research on the interaction between transportation space and trade networks of specific cities in the southwest of Sichuan is still relatively weak, and the research on the relationship between urban space and trade development of Jiazhou as a core node of the Southwest Silk Road has not received sufficient attention.

3. Node Functions and Temporal-Spatial Background of Jiazhou in the Song Dynasty in the Southwest Silk Road

3.1 Temporal-Spatial Background of the Reconstruction of the Southwest Silk Road Trade Network in the Northern and Southern Song Dynasties

3.1.1 Transformation of Transportation Channels Under the Confrontation Between Central Plains and Border Regimes

During the Northern and Southern Song Dynasties, the Central Plains regime was in a long-term confrontation with ethnic minority regimes such as the Liao, Western Xia and Jin, which blocked the Northwest Silk Road and led to the transformation of traditional external transportation channels. The Southwest Silk Road thus became an important channel for the Song court to connect with the southwest border areas, South Asia and Southeast Asia. Meanwhile, the Song court had increasingly close exchanges with the Tubo, Nanzhao and other regimes in the southwest border areas. To maintain border stability and obtain war horse resources, the Song court strengthened the control and development of the southwest areas, promoting the development of transportation and trade on the Southwest Silk Road.

3.1.2 Tea-Horse Trade System-Driven Commercial Network Upgrade

With the progress of tea production technology in the Song Dynasty, the Sichuan area became an important tea producing area in the country. The huge demand for war horses of the Song court promoted the institutional development of the tea-horse trade. The Song court successively set up Tea and Horse Superintendencies in Chengdu, Yazhou and other places, establishing a sound management system for the tea-horse trade. Sichuan tea became the core commodity of the tea-horse trade, and the Southwest Silk Road became the main channel of the tea-horse trade, which promoted the reconstruction and upgrading of the Southwest Silk Road trade network and the formation of a regional trade system centered on the tea-horse trade.

3.1.3 The historical accumulation and evolution of ancient transportation in the Sichuan-Chu region

Since the Qin and Han Dynasties, the Sichuan area had gradually formed a water transportation network centered on river systems such as the Min River and Qingyi River, as well as land transportation routes connecting the southwest border areas, laying a transportation foundation for the development of the Southwest Silk Road in the Northern and Southern Song Dynasties. During the Northern and Southern Song Dynasties, the Song court strengthened the renovation and institutional construction of transportation routes in the southwest areas, added ferries, post stations and other transportation facilities, and further improved the transportation network of the Southwest Silk Road, providing convenience for commodity circulation.

3.2 Geographical Endowments and Evolution of Administrative Establishment of Jiazhou

3.2.1 The advantageous location of water and land transportation at the confluence of three rivers

Jiazhou is located at the confluence of the Min River, Qingyi River and Dadu River, on the southwestern edge of the Sichuan Basin. It connects the hinterland of Sichuan in the east, the southwest border areas in the west, Yunnan in the south and Chengdu in the north, making it a natural transportation hub of water and land in the southwest of Sichuan. As the core water transportation artery in the Sichuan area, the Min River connects Chengdu in the upper reaches and the Yangtze River in the lower reaches, while the Qingyi River and Dadu River connect Yazhou, Lizhou and other areas in the southwest border areas. Relying on the geographical advantage of the confluence of three rivers, Jiazhou became a water and land transportation hub connecting the water routes in the hinterland of Sichuan and the land routes in the southwest border areas, providing a natural geographical basis for it to play the role of a core node in the Southwest Silk Road.

3.2.2 The administrative evolution from Jiazhou to Jiading Prefecture

Since the establishment of the prefecture in the Northern Zhou Dynasty, Jiazhou had gradually developed into an administrative and transportation hub in the southwest of Sichuan through the development of the Sui and Tang Dynasties. During the Northern and Southern Song Dynasties, important changes took place in the administrative establishment of Jiazhou. It still remained as Jiazhou in the Northern Song Dynasty, subordinate to the Chengdu Fu Road, and was an important prefecture in the southwest of Sichuan. In the 16th year of the Chunxi reign in the Southern Song Dynasty, because Jiazhou was the former fief of Emperor Ningzong, it was upgraded from a prefecture to a fu (prefecture of higher rank), named Jiading Prefecture. The upgrade of administrative grade led to the synchronous improvement of its jurisdiction and political status, providing an administrative system guarantee for the development of transportation and trade in Jiazhou and the formation of the "City-Ferry-Station" spatial system.

3.3 Core Node Functions of Jiazhou in the Southwest Silk Road Trade Network

3.3.1 Function as a Water and Land Transportation Hub

Jiazhou was an important water and land transportation hub of the Sichuan section of the Southwest Silk Road. Commodities such as tea, silk and salt from the hinterland of Sichuan were transported to Jiazhou via the water route of the Min River, and then transferred to the tea-horse trade markets in the southwest border areas such as Yazhou and Lizhou via the land routes along the Qingyi River and Dadu River. Meanwhile, commodities such as war horses and medicinal materials from the southwest border areas were transported to Jiazhou via land routes, and then transferred to the hinterland of Sichuan and the Central Plains via the water route of the Min River. The water and land transportation function of Jiazhou realized the effective connection between the land and water routes of the Southwest Silk Road, promoting the cross-regional circulation of regional commodities.

3.3.2 Function as a Commodity Distribution Center

Relying on the advantages of a water and land transportation hub, Jiazhou gradually became an important commodity distribution center in the trade network of the Southwest Silk Road. During the Northern and Southern Song Dynasties, the area under Jiazhou City became an important transshipment and berthing place for commodities such as Sichuan tea, with more than 100 boats berthing here during the tea transportation season. Meanwhile, a special commodity trading market was formed in Jiazhou City, gathering various commodities from the hinterland of Sichuan and the southwest border areas, becoming an important platform for regional commodity trading and promoting the agglomeration development of trade on the Southwest Silk Road.

3.3.3 Function of Transportation Control and Guarantee

As an administrative and transportation hub in the southwest of Sichuan, Jiazhou undertook an important function of transportation control and guarantee on the Southwest Silk Road. During the Northern and Southern Song Dynasties, Jiazhou set up a sound transportation management institution to conduct unified management of transportation facilities such as ferries and post stations^[21]. Meanwhile, stockades and fortresses were built along the routes to strengthen the defense of transportation routes, ensuring the safety and smoothness of commodity circulation on the Southwest Silk Road. In addition, as an important shipbuilding center in Sichuan in the Song Dynasty, Jiazhou built 45 official ships every year, providing ship guarantee for the water transportation on the Southwest Silk Road and promoting the development of water transportation.

3.3.4 Function of Ethnic Exchanges and Cultural Integration

Jiazhou is located in the intersection zone of the Han nationality and the ethnic minorities in the southwest, and was an important node of ethnic exchanges and cultural integration in the Northern and Southern Song Dynasties. All ethnic groups along the Southwest Silk Road conducted commodity trading and cultural exchanges through Jiazhou. Commodities such as tea and silk of the Han nationality and commodities such as war horses and medicinal materials of ethnic minorities were exchanged in Jiazhou. Meanwhile, the cultures and customs of all ethnic groups were spread and integrated with each other in Jiazhou, promoting the exchanges and integration of ethnic groups in the southwest border areas and providing a cultural foundation for the stable development of the Southwest Silk Road.

4. Institutionalization and Evolution of Jiazhou's "City-Ferry-Station" Spatial System from the Northern Song Dynasty to the Southern Song Dynasty

4.1 Northern Song Dynasty Institutional Construction of Jiazhou's "City-Ferry-Station" Spatial System

4.1.1 Southwest Transportation Control and the Rise of the Tea-Horse Trade in the Northern Song Dynasty

After the establishment of the Northern Song Dynasty, the court strengthened the administrative and transportation control of the southwest areas, and gradually improved the transportation management system of the southwest areas, providing an institutional background for the establishment of Jiazhou's "City-Ferry-Station" spatial system. Meanwhile, the tea-horse trade gradually developed in the Northern Song Dynasty, and Sichuan tea began to become the core commodity of the tea-horse trade. The increasing trade demand on the Southwest Silk Road promoted the establishment and improvement of transportation facilities in Jiazhou, laying a trade foundation for the formation of the spatial system.

4.1.2 Spatial Finalization of the Prefectural City as the Administrative and Trade Core

In the Northern Song Dynasty, the prefectural city of Jiazhou (the seat of Longyou County) was gradually finalized and became the core of the "City-Ferry-Station" spatial system. Relying on the geographical advantage of the confluence of three rivers, the prefectural city was laid out along the banks of the Min River and Qingyi River, with functional areas such as administrative office areas, trade and transaction areas and residential areas formed in the city. The spatial agglomeration of administrative institutions and trade markets strengthened the administrative and trade core functions of the prefectural city. Meanwhile, defensive facilities such as city walls and moats were built around the prefectural city, further consolidating its status as a core node in the southwest of Sichuan and making it the spatial and functional core of Jiazhou's "City-Ferry-Station" spatial system.

4.1.3 Institutional Layout of the Ferry System and Transshipment Nodes

In the Northern Song Dynasty, an institutional ferry system was formed in Jiazhou, becoming an important node of water and land transportation. Ferries were mainly distributed at the confluence of the three rivers and along the Qingyi River and Dadu River, including core ferries such as Pingqiang Ferry, Lingyun Ferry and Chenxi Ferry. The layout of ferries was consistent with the commodity circulation routes of the Southwest Silk Road, realizing the effective connection between water and land routes. Meanwhile, the Northern Song government set up a special ferry management institution to conduct unified management of ship operation, commodity transshipment and tax collection at ferries, promoting the institutional development of the ferry system, which became an important spatial element of Jiazhou's "City-Ferry-Station" spatial system.

4.1.4 Sorting Out of the Standardized Post Station System as the Transportation Vein

In the Northern Song Dynasty, the post station system of Jiazhou was gradually standardized, becoming an important part of the transportation vein of the Southwest Silk Road. Post stations were divided into water post stations and land post stations. Water post stations were mainly laid out along the Min River and Qingyi River, including Pingqiang Post Station, Lingyun Post Station, Sansheng Post Station and Chenxi Post Station. Land post stations were laid out along the land routes of the Southwest Silk Road, connecting Jiazhou with Yazhou, Lizhou, Meizhou and other places. In accordance with the transportation management system of the Song Dynasty, the Northern Song government unified the standards for the setting, scale and functions of post stations. Post stations undertook important functions such as document delivery, official travel reception and merchant accommodation, and also became important transshipment stations for commodity circulation, promoting the sorting out of the veins of Jiazhou's "City-Ferry-Station" spatial system and realizing the interconnection of spatial elements.

4.1.5 Spatial Layout Characteristics of Jiazhou's "City-Ferry-Station" Spatial System in the Northern Song Dynasty

Centered on the prefectural city, with ferries as water and land transshipment nodes and post stations as transportation veins, Jiazhou's "City-Ferry-Station" spatial system in the Northern Song Dynasty formed the spatial layout characteristics of "core radiation, node connection and vein connection". The spatial system was distributed in a belt shape along the Min River, Qingyi River and Dadu River, highly consistent with the trade circulation routes of the Southwest Silk Road. The spatial elements complemented each other in function and were interconnected, initially forming an institutional and standardized transportation spatial system, which provided an important spatial guarantee for commodity circulation on the Southwest Silk Road.

4.2 Between the Northern and Southern Song Dynasties: Driving Factors for the Transformation of Jiazhou's "City-Ferry-Station" Spatial System

4.2.1 The Southward Migration of the Song Court and the Strengthened Control of the Southwest Border Under the Change of Political Pattern

Between the Northern and Southern Song Dynasties, the Song court moved southward, and the political center was transferred to the south. The Southern Song court attached more importance to the strategic status of the southwest areas. To maintain border stability, obtain war horse resources and fiscal revenue, the Southern Song government further strengthened the control of the southwest border areas, enhanced the management of transportation and trade on the Southwest Silk Road, and promoted the transformation and development of Jiazhou's transportation spatial system.

4.2.2 Trade Expansion and Route Optimization Driven by the Prosperity of the Tea-Horse Trade

Between the Northern and Southern Song Dynasties, the tea-horse trade became increasingly prosperous. The Southern Song government further improved the management system of the tea-horse trade and expanded the scale of the tea-horse trade, with the trading volume of Sichuan tea increasing significantly and the trade demand on the Southwest Silk Road continuing to expand. To adapt to the expansion of trade demand, the Southern Song government optimized the commodity circulation routes of the Southwest Silk Road, promoting the improvement of transportation facilities such as ferries and post stations in Jiazhou and the adjustment of their spatial layout, which became the core driving factor for the transformation of Jiazhou's "City-Ferry-Station" spatial system.

4.2.3 The Establishment of Jiading Prefecture and the Improvement of the Management System Under the Upgrade of Administrative Establishment

In the 16th year of the Chunxi reign in the Southern Song Dynasty, Jiazhou was upgraded to Jiading Prefecture, with the administrative grade raised and the jurisdiction expanded. The Southern Song government further improved the administrative and transportation management system of Jiading Prefecture, added relevant management institutions and transportation facilities, strengthened the status of Jiading Prefecture as a core node in the southwest of Sichuan, and provided an administrative system guarantee for the transformation of the "City-Ferry-Station" spatial system.

4.3 Southern Song Dynasty: Dynamic Evolution of Jiazhou's "City-Ferry-Station" Spatial System

4.3.1 Expansion of the Prefectural City's Functions and Dual Strengthening of Trade and Military Functions

In the Southern Song Dynasty, Jiading Prefectural City replaced the original Jiazhou Prefectural City as the core of the spatial system, and its functions were further expanded. On the basis of the original administrative and trade functions, the military function was greatly strengthened. To cope with the ethnic situation and military threats in the southwest border areas, the Southern Song government built a large number of stockades and fortresses around Jiading Prefectural City, forming a defense system centered on the prefectural city. Meanwhile, the trade function of the prefectural city was further expanded, with the scale of trade markets in the city enlarged and the types and quantities of commodity transactions increased significantly, making it an important commodity trading and distribution center in the trade network of the Southwest Silk Road. The dual strengthening of administrative, trade and military functions promoted the further consolidation of the core status of the prefectural city.

4.3.2 Optimization of the Ferry System and Adjustment of Transshipment Capacity and Spatial Layout

In the Southern Song Dynasty, on the basis of the institutionalization in the Northern Song Dynasty, the ferry system of Jiazhou was optimized, with the transshipment capacity of core ferries greatly improved. The government improved the ship facilities at ferries, increased the number of ships and raised the load capacity of ships, adapting to the commodity transshipment demand after the expansion of the tea-horse trade scale. Meanwhile, the spatial layout of ferries was further adjusted, with a number of ferries added along the Qingyi River and Dadu River, strengthening the connection with the tea-horse trade markets in the southwest border areas. The spatial layout of the ferry system became more reasonable, and its consistency with the trade circulation routes was further improved.

4.3.3 Improvement of the Post Station System and Construction of the Courier Station Network

In the Southern Song Dynasty, the post station system of Jiazhou was further improved. On the basis of the original water and land post stations, courier stations were densely set up, forming an integrated transportation vein of "post stations-courier stations". There were many courier stations such as Baiyan Courier Station, Jiuxi Courier Station and Mianzhu Courier Station just between Jiading Prefectural City and Jiajiang City. Courier stations undertook the functions of fast document delivery and small commodity transshipment, complementing post stations in function. Meanwhile, the layout of post stations and courier stations was further refined, covering the jurisdiction of Jiading Prefecture and the main routes of the Southwest Silk Road, realizing the refined development of the transportation network and promoting the interconnection of Jiazhou's "City-Ferry-Station" spatial system.

4.3.4 Integration of Stockades, Fortresses and Transportation Facilities and Coordination of Defense and Trade

In the Southern Song Dynasty, to strengthen the defense of transportation routes and the trade guarantee on the Southwest Silk Road, Jiazhou integrated the construction of stockades and fortresses with the layout of transportation facilities, building a number of stockades and fortresses such as Longjiu Stockade, Muchuan Stockade and Sanlaizhuo Stockade around traffic arteries, ferries and post stations, forming a defense stockade group at the northern foot of the Wuzhi Mountain. Stockades and fortresses not only undertook the function of military defense, but also provided safety guarantee and material supply for passing merchants and travelers, realizing the spatial coordination of defense and trade guarantee, and further improving the functions of Jiazhou's "City-Ferry-Station" spatial system.

4.3.5 Evolution Characteristics of Jiazhou's "City-Ferry-Station" Spatial System in the Southern Song Dynasty

On the basis of the institutional construction in the Northern Song Dynasty, Jiazhou's "City-Ferry-Station" spatial system in the Southern Song Dynasty presented the evolutionary characteristics of "function expansion, layout optimization, network refinement and coordinated development". The core of the spatial system was upgraded from the prefectural city to the fu city, with its functions changing from focusing on administration and trade to attaching equal importance to administration, trade and military affairs. The ferry and post station systems were further improved, and the dense setting of courier stations promoted the refinement of the transportation network. The integration of stockades, fortresses and transportation facilities realized the spatial coordination of defense and trade guarantee, and the functional coupling between spatial elements became closer, forming a dynamic and integrated transportation spatial system that adapted to the development demand of the Southwest Silk Road trade network in the Southern Song Dynasty.

4.4 Dynamic Mechanism of the Evolution of Jiazhou's "City-Ferry-Station" Spatial System in the Northern and Southern Song Dynasties

4.4.1 Royal Control Driven by Politics and Guarantee of Administrative Establishment

The administrative and transportation control of the southwest areas by the Northern and Southern Song courts was the core political driving force for the evolution of Jiazhou's "City-Ferry-Station" spatial system. The institutionalization of the transportation management system in the Northern Song Dynasty and the strengthened control of the southwest border areas in the Southern Song Dynasty provided an institutional guarantee for the establishment and evolution of the spatial system. The upgrade of Jiazhou's administrative establishment from a

prefecture to a fu further promoted the function expansion and layout optimization of the spatial system, highlighting the leading role of political factors in the evolution of the transportation spatial system.

4.4.2 Tea-Horse Trade Driven by Economy and Guidance of Regional Trade Demand

The institutionalization and prosperous development of the tea-horse trade in the Northern and Southern Song Dynasties, as well as the reconstruction and upgrading of the Southwest Silk Road trade network, were the core economic driving forces for the evolution of Jiazhou's "City-Ferry-Station" spatial system. The continuous expansion of trade demand promoted the improvement of transportation facilities such as ferries and post stations in Jiazhou and the enhancement of their transshipment capacity. The optimization of commodity circulation routes promoted the adjustment of the spatial system layout, highlighting the guiding role of economic demand in the evolution of the transportation spatial system.

4.4.3 Natural Endowments and Location Advantages Based on Geography

The natural geographical endowments of Jiazhou at the confluence of three rivers and its location advantage as a water and land transportation hub in the southwest of Sichuan were the natural foundation for the evolution of the "City-Ferry-Station" spatial system. The natural geographical environment determined the basic layout characteristics of the spatial system, which was distributed in a belt shape along the three rivers. The location advantage provided support for the function exertion and evolution of the spatial system, enabling Jiazhou to become a core node in the Southwest Silk Road trade network and realize the functions of water and land transportation and commodity distribution.

4.4.4 Progress in Shipbuilding and Transportation Facilities Supported by Technology

The progress of shipbuilding technology and the improvement of transportation facility construction technology in the Northern and Southern Song Dynasties were the technical driving forces for the evolution of Jiazhou's "City-Ferry-Station" spatial system. As an important shipbuilding center in Sichuan in the Song Dynasty, the progress of shipbuilding technology in Jiazhou improved the quality and quantity of ships, providing a ship guarantee for water transportation. The improvement of the construction technology of transportation facilities such as post stations, ferries, stockades and fortresses promoted the improvement of transportation facilities and the optimization of their spatial layout, providing technical support for the evolution of the spatial system.

5. Dynamic Coupling Between the Spatial System of Jiazhou and Regional Trade in the Song Dynasty

5.1 Two-Way Interaction Between the "City-Ferry-Station" Spatial System and the Tea-Horse Trade

5.1.1 Guarantee and Promotion of the Tea-Horse Trade by the Spatial System

Jiazhou's "City-Ferry-Station" spatial system provided a sound transportation guarantee for the tea-horse trade. The commodity distribution center centered on the fu/prefectural city realized the concentration and transshipment of Sichuan tea. The water and land transshipment system with ferries as nodes realized the efficient transshipment of Sichuan tea from the hinterland of Sichuan to the southwest border areas. The transportation network with post stations and courier stations as veins guaranteed the smooth circulation of the tea-horse trade. Meanwhile, the institutionalization and evolution of the spatial system promoted the scale expansion and route optimization of the tea-horse trade. The improvement of transportation facilities and the enhancement of transshipment capacity in Jiazhou led to a significant increase in the trading volume of Sichuan tea, and the adjustment of the spatial layout optimized the circulation routes of the tea-horse trade, reduced trade costs and promoted the sustainable development of the tea-horse trade.

5.1.2 Traction and Reconstruction of the Spatial System by the Tea-Horse Trade

The institutionalization and prosperous development of the tea-horse trade exerted a strong traction on Jiazhou's "City-Ferry-Station" spatial system. The commodity demand of the tea-horse trade promoted the function expansion of the spatial system, making the trade function of Jiazhou's prefectural/fu city continuously strengthened and becoming an important distribution center for the tea-horse trade. The scale expansion of the tea-horse trade promoted the improvement of the spatial system facilities. To adapt to the demand of Sichuan tea transshipment, the government added ferries, post stations and courier stations, and improved the transshipment capacity of transportation facilities. The route optimization of the tea-horse trade promoted the reconstruction of the spatial system layout, making the layout of ferries and post stations more consistent with the circulation routes of the tea-horse trade and realizing the high integration of the spatial system and the tea-horse trade routes.

5.2 Spatial Adaptation Between the "City-Ferry-Station" Spatial System and Regional Commodity Circulation

5.2.1 Adaptation of the Hierarchical Structure of the Spatial System to the Hierarchical Characteristics of Commodity Circulation

Jiazhou's "City-Ferry-Station" spatial system formed a three-level hierarchical structure of "fu/prefectural city - ferry - post station/courier station", which was highly adapted to the three-level hierarchical characteristics of "core distribution - node transshipment - branch circulation" of regional commodity circulation. As the first-level core, the fu/prefectural city undertook the function of core distribution of regional commodities, gathering large quantities of commodities from the hinterland of Sichuan and the southwest border areas. As the second-level nodes, ferries undertook the function of water and land transshipment, realizing the circulation of large commodities across different transportation modes. As the third-level branches, post stations and courier stations undertook the function of branch circulation of regional commodities, realizing the diffusion of commodities to the surrounding areas. The adaptation of the hierarchical structure promoted the efficient circulation of regional commodities.

5.2.2 Consistency between the Network Layout of the Spatial System and the Route Distribution of Commodity Circulation

Jiazhou's "City-Ferry-Station" spatial system was laid out in a belt-shaped network along the Min River, Qingyi River and Dadu River, which was highly consistent with the route distribution of regional commodity circulation on the Southwest Silk Road. Water post stations and ferries along the Min River connected the water commodity circulation routes in the hinterland of Sichuan. Land post stations, ferries and courier stations along the Qingyi River and Dadu River connected the land commodity circulation routes in the southwest border areas. The consistency between the network layout and the circulation routes realized the interconnection of regional commodity circulation routes, promoting the integrated development of the Southwest Silk Road trade network.

5.2.3 Matching of the Functional Division of the Spatial System with the Link Demands of Commodity Circulation

The various elements of Jiazhou's "City-Ferry-Station" spatial system formed a clear functional division. The prefectural/fu city undertook the functions of commodity distribution, transaction and management; ferries undertook the functions of water and land transshipment and loading and unloading; post stations undertook the functions of merchant and traveler reception, document delivery and commodity transshipment; courier stations undertook the functions of small commodity transshipment and fast communication. The functional division of

each element was highly matched with the link demands of regional commodity circulation such as distribution, transshipment, transaction and distribution, realizing the seamless connection of all links of commodity circulation and improving the efficiency of regional commodity circulation.

5.3 Development of Jiazhou's Regional Trade Driven by the "City-Ferry-Station" Spatial System

5.3.1 Expansion of Trade Scale and Improvement of Commodity Transactions

Driven by the "City-Ferry-Station" spatial system, the scale of Jiazhou's regional trade continued to expand. Relying on the sound transportation facilities and efficient commodity circulation system, Jiazhou became an important commodity distribution center in the Southwest Silk Road trade network, with the trading volume of commodities such as Sichuan tea, silk, salt, war horses and medicinal materials increasing significantly. Meanwhile, the types of commodity transactions were continuously enriched. In addition to the core commodities of the tea-horse trade, the transactions of handicrafts and agricultural products became increasingly prosperous, promoting the diversified development of Jiazhou's regional trade.

5.3.2 Enrichment of Trade Formats and Development of Professional Markets and Folk Trade

The improvement of the "City-Ferry-Station" spatial system promoted the enrichment of Jiazhou's trade formats. Specialized markets such as tea markets, horse markets and silk markets were formed in the prefectural/fu city, realizing the specialized transaction of large commodities. Meanwhile, folk trade fairs were formed around ferries and post stations, becoming an important platform for folk commodity transactions. The joint development of professional markets and folk trade formed a diversified trade format, promoting the prosperity of Jiazhou's regional trade.

5.3.3 Diversification of Trade Entities - Agglomeration of Official Merchants, Folk Merchants and Ethnic Merchants

The core node function of Jiazhou's "City-Ferry-Station" spatial system attracted the agglomeration of diversified trade entities. As the leading force of the tea-horse trade, official merchants set up special trade institutions in Jiazhou to engage in the official transaction of tea and war horses. Folk merchants participated in the folk trade of various commodities and became an important part of regional trade. Ethnic merchants came from various ethnic minorities in the southwest border areas and conducted commodity transactions with the Han nationality, promoting the trade exchanges between ethnic groups. The agglomeration of official merchants, folk merchants and ethnic merchants formed a diversified trade entity structure, promoting the interactive development of Jiazhou's regional trade.

5.4 Feedback Effect of Regional Trade Development on the "City-Ferry-Station" Spatial System

5.4.1 Promoting the Further Improvement of Transportation Facilities

The expansion of the scale of regional trade and the improvement of trade demand put forward higher requirements for the transportation facilities of Jiazhou, promoting the further improvement of transportation facilities such as ferries, post stations and courier stations. To adapt to the demand of trade development, the government added transportation facilities and improved transshipment capacity, while the folk participated in the construction and operation of transportation facilities, forming a development model of joint construction by the government and the folk for transportation facilities, and further improving the "City-Ferry-Station" spatial system.

5.4.2 Promoting the Continuous Expansion of the Spatial System's Functions

The diversified development of regional trade promoted the continuous expansion of the functions of Jiazhou's "City-Ferry-Station" spatial system. In addition to the original transportation, trade and administrative functions, the spatial system gradually integrated functions such as finance, warehousing and logistics. Specialized warehousing institutions and financial institutions appeared in the prefectural/fu city, and logistics distribution centers were formed around ferries and post stations. The expansion of functions made the spatial system more adaptable to the demand of regional trade development and promoted the dynamic evolution of the spatial system.

5.4.3 Strengthening the Core Node Status of the Spatial System

The prosperous development of regional trade further strengthened the core node status of Jiazhou's "City-Ferry-Station" spatial system in the Southwest Silk Road trade network. Jiazhou's status as a water and land transportation hub and commodity distribution center in the southwest of Sichuan was more consolidated, making it an indispensable important link in the Southwest Silk Road trade network. Meanwhile, the development of trade promoted the prosperity of Jiazhou's regional economy, further enhancing the regional influence of Jiazhou and providing an economic support for the sustainable development of the spatial system.

5.5 Historical Enlightenment from the Coupling Between Jiazhou's "City-Ferry-Station" Spatial System and Regional Trade in the Song Dynasty

The dynamic coupling between Jiazhou's "City-Ferry-Station" spatial system and regional trade in the Song Dynasty revealed the internal interaction law between the ancient transportation spatial system and the development of regional trade: the transportation spatial system is an important foundation for the development of regional trade, and a sound transportation spatial system can provide transportation guarantee and spatial support for trade development, promoting the expansion of trade scale and the enrichment of trade formats; the development of regional trade is the core driving force for the evolution of the transportation spatial system, and the traction of trade demand can promote the improvement of facilities, function expansion and layout optimization of the transportation spatial system. The dynamic coupling of the two realized the coordinated development of transportation and trade, promoting the prosperity of regional economy and the reconstruction of trade networks. This historical law provides an important historical enlightenment for the layout of regional transportation networks and the development of trade economy in the contemporary era.

6. Conclusion

6.1 Main Research Conclusions

Taking the "City-Ferry-Station" spatial system of ancient Jiazhou in the Southwest Silk Road trade network during the Northern and Southern Song Dynasties as the research object, this paper systematically sorts out its formation and evolution context, analyzes its node functions, spatial characteristics and dynamic mechanism, and discusses its dynamic coupling relationship with regional trade, drawing the following main conclusions:

The reconstruction of the Southwest Silk Road trade network during the Northern and Southern Song Dynasties provided an important temporal-spatial background for the formation of Jiazhou's "City-Ferry-Station" spatial system. With the geographical endowments at the confluence of three rivers and the upgrade of administrative establishment from a prefecture to a fu, Jiazhou became a core node with the functions of water and land transportation, commodity distribution, transportation control and ethnic integration

in the Southwest Silk Road trade network, laying a geographical and administrative foundation for the formation of the spatial system.

Furthermore, Jiazhou's "City-Ferry-Station" spatial system in the Northern and Southern Song Dynasties experienced a development process of institutional construction in the Northern Song Dynasty and dynamic evolution in the Southern Song Dynasty. In the Northern Song Dynasty, an institutional spatial system with the prefectural city as the core, ferries as nodes and post stations as veins was formed, presenting the layout characteristics of "core radiation, node connection and vein connection". Driven by the change of political pattern, the prosperity of the tea-horse trade and the upgrade of administrative establishment in the Southern Song Dynasty, the spatial system realized dynamic evolution, with the functions of the fu city expanded, the ferry system optimized, the post station network refined, and the stockades, fortresses integrated with transportation facilities, presenting the evolutionary characteristics of "function expansion, layout optimization, network refinement and coordinated development".

The evolution of Jiazhou's "City-Ferry-Station" spatial system in the Northern and Southern Song Dynasties was the joint result of political driving, economic pulling, geographical foundation and technical support. Among them, the southwest control and administrative establishment of the Song court were the institutional guarantee, the demand of the tea-horse trade and regional trade was the core guidance, the geographical endowments at the confluence of three rivers were the spatial foundation, and the progress of shipbuilding and transportation facility construction technology was an important support. The four driving forces interacted with each other, promoting the sustainable development of the spatial system.

It is particularly emphasized that a dynamic coupling relationship was formed between Jiazhou's "City-Ferry-Station" spatial system and regional trade in the Song Dynasty. The spatial system provided a sound transportation guarantee and spatial support for the tea-horse trade and regional commodity circulation, promoting the expansion of regional trade scale, the enrichment of trade formats and the diversification of trade entities. The development of regional trade exerted a traction and feedback effect on the spatial system, promoting the improvement of transportation facilities, the expansion of functions and the strengthening of the core node status. The coordinated development of the two promoted the prosperity of Jiazhou's regional economy and the in-depth development of the Southwest Silk Road trade network.

In summary, the formation and evolution of Jiazhou's "City-Ferry-Station" spatial system in the Northern and Southern Song Dynasties is a typical case of the construction of the transportation spatial system in the ancient southwest border areas of China. Its spatial layout and functional coupling rules reveal the spatial interaction mechanism between ancient transportation and trade, and highlight the important historical status of Jiazhou in the development history of the Southwest Silk Road.

6.2 Research Limitations and Prospects

6.2.1 Research Limitations

Although this paper has achieved certain results in the research on Jiazhou's "City-Ferry-Station" spatial system in the Northern and Southern Song Dynasties, there are still some limitations. First, restricted by historical materials, the textual research on the specific establishment time, scale and operation details of some ferries and post stations in Jiazhou is still weak, and the historical spatial form of some spatial elements is difficult to restore accurately. Second, the quantitative analysis of Jiazhou's "City-Ferry-Station" spatial system is insufficient. It fails to conduct a systematic statistics and analysis of data such as commodity transshipment volume and the scale of merchant and traveler flow, and the quantitative research on the coupling between the spatial system and regional trade needs to be deepened. Third, the comparative research on the spatial system

between Jiazhou and other core nodes of the Southwest Silk Road is not in-depth enough, failing to fully highlight the uniqueness and regional correlation of Jiazhou's spatial system.

6.2.2 Research Prospects

In view of the limitations of this paper, further research can be carried out from the following aspects in the future. First, explore more historical materials such as local chronicles, stone inscriptions and collected works, and combine with archaeological findings to conduct more accurate textual research and restoration of the specific establishment and historical spatial form of the spatial elements of Jiazhou's "City-Ferry-Station" system. Second, introduce quantitative research methods such as GIS and spatial analysis to conduct quantitative analysis of the layout characteristics and network structure of Jiazhou's "City-Ferry-Station" spatial system, and conduct quantitative research on the coupling relationship between the spatial system and regional trade in combination with trade data, so as to improve the scientificity and accuracy of the research. Third, strengthen the comparative research on Jiazhou and other core nodes of the Southwest Silk Road, analyze the characteristic differences and regional correlation of the spatial systems of different nodes, and discuss the overall construction logic of the transportation spatial system in the Southwest Silk Road trade network. Fourth, extend the research perspective to the Yuan, Ming and Qing Dynasties, discuss the subsequent evolution and historical inheritance of Jiazhou's "City-Ferry-Station" spatial system, explore its historical and cultural value, and provide a more comprehensive historical basis for the protection of historical and cultural heritage and regional development in the contemporary era.

6.3 Historical Value and Contemporary Enlightenment

As an important part of the Southwest Silk Road trade network, Jiazhou's "City-Ferry-Station" spatial system in the Northern and Southern Song Dynasties has important historical value. It not only promoted the development of the Southwest Silk Road and the prosperity of regional trade in the Northern and Southern Song Dynasties, promoted the exchanges and integration of ethnic groups in the southwest border areas, but also accumulated valuable experience for the construction of the transportation spatial system in the ancient southwest border areas of China, becoming an important part of the ancient Chinese transportation history and trade history.

Meanwhile, the dynamic coupling law between Jiazhou's "City-Ferry-Station" spatial system and regional trade in the Song Dynasty provides important enlightenment for contemporary regional development. In the development of contemporary regional economy, attention should be paid to the layout and improvement of transportation networks, give full play to the core node role of transportation hubs, and promote the coordinated development of transportation and trade. We should rely on regional geographical endowments and location advantages to build characteristic regional trade centers and promote the characteristic and diversified development of regional economy. We should strengthen the coordinated planning of regional transportation and trade, realize the high adaptation of the transportation spatial system and the trade network, and promote the coordinated development of regional economy and the integrated construction of trade networks.

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