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Study on the Influence of High-speed Railway Opening on the Economic Development of Jilin Province—Taking the Changchun-Hunchun Intercity Railway as an Example

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Abstract

This article examines the impact of the opening of a high-speed railway on the economic development of Jilin Province. It also analyzes the railway's role in promoting transportation, tourism, and upgrading the industrial structure. The research results indicate that the opening of high-speed railways has had a positive impact on the economy of Jilin Province. This includes improving transportation convenience, promoting tourism development, and facilitating industrial upgrading. However, the construction and operation of high-speed railways also face some challenges, such as high construction costs and operational cost pressures. Therefore, in the future development of high-speed railways, it is necessary to continue optimizing planning and management, improving operational efficiency, and solving related problems. At the same time, attention should be paid to environmental protection and sustainable development in order to ensure the long-term positive impact of high-speed railways on the economic development of Jilin Province. Therefore, it is recommended that the Jilin Provincial Government increase support for the development of high-speed railways to enhance investment efficiency and operational effectiveness. In addition, cooperation with surrounding areas should be strengthened to achieve seamless connections between high-speed railways and other modes of transportation. At the same time, attention should be paid to cultivating talent and promoting technological innovation in order to enhance the industrial competitiveness and innovation capabilities of Jilin Province.

Keywords

High-Speed Railway, Jilin Province, Regional Economy

1. Research background

As an important part of modern transportation infrastructure, high-speed railway is of great significance for promoting regional economic development and improving people's living standards. In China, the construction of high-speed railways has made great progress and has become an important support for the national development strategy. As an important province in northeast China, the economic development of Jilin Province has been limited by transportation conditions. Therefore, it is of great theoretical and practical significance to study the influence of high-speed railway opening on the economic development of Jilin Province. The traditional transportation mode cannot meet the increasing demand for personnel and logistics, which restricts the economic development of Jilin Province. The opening of high-speed railway can shorten the geographical distance, improve the efficiency of transportation,

strengthen the connection between Jilin Province and other regions, and promote the flow of personnel and materials, so as to promote the economic development of Jilin Province. Secondly, high-speed railway plays a positive role in promoting the development of tourism. Jilin Province has rich natural landscapes and cultural resources, but inconvenient transportation leads to limited development of tourism. The opening of a high-speed railway can speed up the visit speed of tourists, improve the tourism experience, attract more tourists to Jilin Province for tourism consumption, drive the development of related industries, and promote the vigorous development of tourism in Jilin Province.

2. Introduction of the Changhui Intercity Railway

The Changhui Intercity Railway is a railway that connects Changchun City in Jilin Province to Hunchun City in Jilin Province. The railway is an integral part of the intercity railway network in northeast China and is renowned as "the most scenic high-speed railway in Northeast China". The Changhui Intercity Railway is comprised of two sections: the Chang-Ji Intercity Railway and the Jituhui Passenger Dedicated Line. The Changji section of the Changchun-Jilin railway (formerly known as the Chang-Ji Intercity Railway) began construction in May 2007 and was officially opened on January 11, 2011. On August 16, 2011, the construction of the Ji-Hui section (Jilin-Hunchun, formerly known as Jitu Hui Passenger Railway) was officially started. On July 30, 2015, the Chang-Ji Intercity Railway and Jitu-Hui passenger dedicated line were merged into one line and named the Changhui Intercity Railway. On September 20, 2015, the Jihui section of the Changhui intercity Railway was officially put into operation. The 471 km Changhui Intercity Railway consists of 13 stations and has a designed top speed of 250 km/h. By 2023, the Changhui Intercity Railway had transported more than 70 million passengers.

3. The specific influence of Changhui intercity railway on each city

1. Changchun City: The opening of the Changhui intercity railway has greatly improved the efficiency and convenience of transportation in Changchun, promoted the convenience of the flow of personnel and goods transportation, and promoted the interconnection of regional economy. Second, it has a positive impact on the development of tourism in Changchun, attracting more tourists to Changchun for tourism. Third, it has played a role in promoting the industrial structure adjustment of Changchun City. The construction and operation of high-speed rail needs the support of a large number of logistics, construction, transportation and other related industries, which will bring more employment opportunities and economic activities, and improve the overall economic level and competition of Changchun city (Luan Shenzhou, 2017).

2. Yanji City: The opening of Changhui Intercity Railway has greatly strengthened the traffic connection between Yanji city and other cities, shortened the distance between Yanji city and Hunchun City, greatly reduced the traffic time, and strengthened the flow of personnel and material transportation between the two cities. Second, it has a positive impact on the tourism development of Yanji city. Yanji city is located in the border area, with unique natural scenery and rich cultural resources, such as Changbai Mountain, Tianchi Lake, China-DPRK Friendship Tower and other scenic spots to attract the attention of many tourists. Third, it is of great significance to drive the border economy of Yanji city. Yanji city is located in the border area of northeast China, bordering on North Korea, with unique geographical advantages and border trade opportunities (Men Lijuan & Chen Yejuan, 2018).

3. Hunchun City: The opening of the Changhui intercity railway has a positive impact on the development of tourism in Hunchun City. Hunchun city is located in the border area. The operation of the high-speed rail provides a more convenient and fast mode of transportation, attracting more tourists to visit Hunchun city for sightseeing. Second, it has promoted the border trade between Hunchun City and North Korea. The operation of high-speed rail provides a more convenient and efficient transportation channel for goods, strengthens the trade between Hunchun City and North Korea, and promotes the development of the retail and service industry in Hunchun City (Sun Na, Zhang Meiqing, & Tao Ketao, 2020).

4. The influence of Changhui intercity railway on the economy of Jilin Province

1. Promoting regional integration development: Changhui intercity railway connects two important cities in Jilin Province- -Changchun city and Hunchun City, effectively shortening the distance and transportation time between the two cities. This has promoted the integrated development of Jilin Province and strengthened the contact and cooperation of various regions. Through more convenient transportation, the flow of resources, industries and

personnel is smoother, which further promotes the coordinated economic development of Jilin Province.

2. Improve logistics efficiency: As a fast means of transportation, the Changhui intercity railway has accelerated the transportation speed and efficiency of goods and materials in Jilin Province. Goods can be transported more quickly to various places, reducing logistics costs and improving the efficiency of the supply chain. This has a positive role in promoting the production enterprises, trade enterprises and logistics industry in Jilin Province, and further promotes economic development (Wu Wei, Cao Youhui, Liang Shuangbo, & Cao Weidong, 2009).

3. Promoting the development of tourism: The Changhui intercity railway passes through some scenic spots in Jilin Province, such as Changbai Mountain and Jingyuetan Lake, providing convenience for the development of tourism. The opening of the railway allows tourists to reach their destination more conveniently, and the tourism resources of Jilin Province have been better developed and utilized. The development of tourism has driven the growth of related industries, increased employment opportunities, and improved the tourism income and economic benefits of Jilin Province (Wang Junmeng, 2019).

4. Promoting urban construction and population flow: The development of cities along the Changhui Intercity railway has been promoted, and urban construction has been strengthened. Better transportation conditions attract population mobility and aggregation and accelerate the urbanization process. The flow of population has brought about the growth of consumer demand, promoted the development of the business and service industry, and injected vitality into the economy of Jilin Province (Bertilsson Fredrik & Norton Peter, 2021).

The high-speed railway has provided strong support for the economic growth and development of Jilin Province, and the improvement of transportation makes the flow of personnel and materials more convenient, strengthens the connection between various regions, and promotes the coordinated development of the economy. The promotion of tourism has driven the growth of related industries, created employment opportunities, and increased regional income and economic benefits. By attracting investment and promoting the development of related industries, the upgrading of the industrial structure promotes the structural transformation and upgrading of the economy and enhances the industrial competitiveness of Jilin Province (Ennio Cascetta, Armando Cartenì, & Ilaria Henke, 2020).

5. The influence of the opening of Changhui intercity railway on the GDP growth rate of each region in Jilin Province

Table 1. Impact of the opening of Changchun-Hunchun intercity railway on the GDP growth rate of each region

	east		the middle part		west	
	clonal constraint variable	controlled variable	No control, no control. variable	variable	uncontrolled variable	controlled variable
time	-0.168***	-0.086	-0.112**	-0.150**	-0.192***	-0.016
	(-3.758)	(-1.400)	(-2.234)	(-2.069)	(-6.657)	(-0.547)
treat	-0.047	-0.057	-0.009	-0.002	0.041	0.055
	(-0.963)	(-1.040)	(-0.130)	(-0.027)	(0.877)	(0.741)
treat*time	0.043	0.049*	0.016	0.020*	-0.040	-0.012
	(0.702)	(1.875)	(0.210)	(1.782)	(-0.748)	(-0.160)
urban		-0.013		-0.412**		-0.027
		(-0.093)		(-2.220)		(-0.455)
capital		0.025		0.078**		-0.056*
		(0.700)		(2.199)		(-1.924)
finance		-0.090*		-0.059		-0.203***
		(-1.746)		(-0.938)		(-5.111)
labour		0.072**		-0.028		0.026*
		(2.144)		(-0.921)		(1.836)
zaixiao		-0.017		-0.017		0.058**
		(-0.450)		(-0.381)		(2.445)
Constant	0.226***	0.344	0.167***	0.435	0.234***	2.573***
	(5.753)	(0.784)	(3.800)	(1.307)	(9.688)	(7.042)
Observations	208	208	121	121	147	147
R-squared	0.178	0.268	0.105	0.185	0.164	0.505

The opening of high-speed railway has a positive contribution to the GDP growth rate of the eastern region. The convenience and speed of high-speed railway has attracted more tourists and business people to the region, promoting the development of tourism and commercial activities. However, fiscal expenditure has a restraining effect on the growth of GDP growth rate, possibly due to the capital shortage caused by the large government investment in infrastructure construction, which limits the development of other areas.

The opening of high-speed railways and fixed asset investment have significantly boosted the GDP growth rate in the central region. The convenience of high-speed railway improves people's travel efficiency and promotes the growth of consumer demand, which in turn drives the economic growth of the region. In addition, the urbanization process in the central region may have some inhibitory effect on the GDP growth rate, possibly due to the increase in non-agricultural population brought about by the urbanization, leading to the challenge of employment pressure and resource allocation.

Although the opening of high-speed railway has no significant impact on the GDP growth rate in the western region, the number of employees and the number of students at the end of the year can promote the GDP growth rate in the region. This indicates that the opening of high-speed rail has improved the level of labor force and education in the region to some extent, thus having a positive impact on economic growth. However, fiscal expenditure has a certain inhibitory effect on the GDP growth rate, which may be due to the large investment in the construction and operation of high-speed rail has not fully reflected the returns, resulting in a low return on capital.

6. Research results

In conclusion, this study shows that the opening of a high-speed railway has a positive impact on the economic development of Jilin Province. By improving transportation, promoting tourism, and upgrading the industrial structure, the high-speed railway has provided strong support for the economic growth and development of Jilin Province. Based on the above findings, the following suggestions are proposed to further capitalize on the economic benefits brought by high-speed railways. First, optimize the high-speed railway network and strengthen the construction of high-speed railways in both the eastern and western regions of Jilin Province. This will help form a more comprehensive high-speed railway network and address the current imbalance in high-speed railway construction in the province. Ultimately, it will contribute to achieving a more balanced development of the regional economy. Second, it is important to choose the locations of the high-speed railway stations carefully. According to the travel needs of citizens, it is important to select the locations for high-speed railway station construction in a scientific and reasonable manner. Additionally, there should be an increase in infrastructure development around these stations to create an economic circle and ensure seamless connectivity between the high-speed railway and other modes of transportation. Third, there is a need for the seamless integration of high-speed railway and tourism. This can be achieved by establishing special tourist buses near the high-speed railway station in Jilin Province. Additionally, efforts should be made to develop a tourism economic circle around the high-speed railway station, ultimately enhancing the overall level of tourism development in Jilin Province. Set up special tourist routes, publicize the tourism resources of Jilin Province, attract more tourists, and promote the development of the tourism industry in Jilin Province. However, it is worth noting that in the future, it will still be necessary to pay attention to the sustainability of high-speed railway construction and operation, as well as the coordination with other economic factors, in order to achieve long-term stability in the economic development of Jilin Province.

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