Perception of Chinese Respondents Towards the Impact of China's High-Speed Rail Development on International Economy

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ABSTRACT

This paper examines the development of China's high-speed railway and its impact on the international economy. Through questionnaire surveys and statistical analyses of 108 respondents, the paper verifies the role of high-speed rail in enhancing the efficiency of international trade, attracting foreign direct investment, and promoting technology export. The findings show that the development of China's high-speed rail improves logistics and transport efficiency, reduces trade costs, and significantly boosts the volume and flow of trade between China and other countries. As a modern means of transport, high-speed rail connects more global markets, becomes an important bridge in international trade, and enhances China's position in the global economy. The construction of high-speed railway projects has significantly increased foreign direct investment (FDI) in the regions along the routes and injected new impetus into local economic development. China's successful implementation of high-speed railway projects in the international market, such as the Yavan high-speed railway and the Mocha high-speed railway, has demonstrated China's advanced high-speed railway technology and management capability and has gained wide recognition and positive evaluation from the international community. The export of high-speed railway technology has not only enhanced China's competitiveness in the international market but also promoted the development and progress of global high-speed railway technology.

Keywords China, high-speed rail, development, international economy

BACKGROUND

After more than 20 years of fast expansion, China's high-speed railway has emerged as the world's most advanced high-speed railway network, operating over 40,000 kilometers and holding the top spot globally. With its comprehensive nationwide coverage, the high-speed railway network has created an "eight vertical and eight horizontal" backbone structure that connects significant economic zones and heavily inhabited places, therefore improving interregional transit convenience and economic relations. In terms of speed, efficiency, safety, and environmental protection, China's high-speed railway has achieved incredible feats via independent research and development as well as ongoing technical innovation. With the launch of the Fuxing high-speed train, China has cemented its leadership in high- speed railway technology. The train's exceptional design speed, operational stability, and ride comfort have significantly enhanced high-speed railway operations' punctuality and passenger satisfaction. In addition to substantially accelerating urbanization and regional economic development, the building and maintenance ofHSR has also dramatically increased coordinated regional economic development. Simultaneously, China's high-speed railway has actively engaged in international projects, including the Moscow-Kazan high-speed railway in Russia and the Yavan high-speed railway in Indonesia. These projects have showcased China's high-speed railway's advanced technological, operational management, and standardization capabilities to a global audience while also reinforcing the country's competitiveness and influence in the global market.

China now possesses the most advanced high-speed rail network in the world, and it is a major factor in the advancement of world economy. In addition to enhancing domestic transportation within China, its

vast network coverage and cutting-edge technology have served as a valuable model and source of expertise for other nations and areas. China has successfully established the largest high-speed railway network in the world through independent research and development, innovation, and high-speed railway technology. This has not only increased the effectiveness of domestic transportation but also shown China's leadership in the development of modern infrastructure.

Encouraging international trade and investment: By making logistics and transportation more rapid and effective, cutting down on costs, and shortening travel times, the expansion and upgrading of the high-speed rail network has encouraged the expansion of international trade and investment. High-speed rail, a contemporary kind of transportation, may link more global markets and serve as a vital bridge in international trade.

Encouraging cooperation and technology export: China has proven its strong ability to export technology with the successful implementation of its high-speed railways in the international market, such as the Yavan high-speed railway in Indonesia and the Moscow-Kazan high- speed railway project in the Russian Federation. This not only increases China's dominance in the world of high-speed rail technology, but it also encourages international technological advancement and exchanges by fostering cooperation in the development of high-speed rail infrastructure and technology with other nations.

Raising the standard of infrastructure construction worldwide: China's high-speed railway, with its cutting-edge technology and proven track record, can serve as a model for other nations and regions, offering valuable insights and lessons for infrastructure development worldwide. More nations and areas can be encouraged to achieve sustainable economic development and transportation modernization through international cooperation on high- speed rail projects.

Overcoming the obstacles posed by globalization: In the context of globalization, having an effective transportation network is crucial for overcoming the obstacles posed by it. China's high-speed railway can significantly contribute to the global response to climate change, the reduction of carbon emissions, and the achievement of the sustainable development objectives because it is an effective, ecologically friendly, and green form of transportation.

Research Questions that this paper seeks to address are:

1. how has the development of China's high-speed railway contributed to domestic economic growth?

2. how has the development of China's high-speed railway changed China's trade relations with other countries?

3. whether the development of China's high-speed railway has attracted more foreign direct investment

We will investigate how China's development of high-speed rail has affected foreign direct investment, trade relations with other countries, and domestic economic growth. Using a questionnaire survey, we first examine how the building and operation of HSRs contribute to the GDP, taking into account increases in employment and infrastructure spending. Second, it looks into how China's trade relations with other nations have evolved as a result of the HSR, particularly how this has affected trade volume and flows. In the end, it looks at whether the HSR has drawn additional FDI and examines how it has affected foreign-owned companies' investment climate and location.

The outcome of this paper will be important as:

1. **A reference for policymaking:** The development and operation of high-speed rail (HSR) has been heavily funded by the Chinese government, and policymakers must comprehend the financial returns on these expenditures. This study will offer empirical evidence for governments and policymakers in the fields of HSR planning, infrastructure investment, and international collaboration by quantifying the effects of HSR on domestic economic growth, international trade ties, and

foreign direct investment. In particular, the government can benefit from the findings by having a better understanding of the financial advantages of HSR projects.

2. **International Cooperation and Exchange:** As China's high-speed railway technology continues to advance and its global impact grows, the country's exports of this technology have taken on a significant role in its foreign cooperation efforts. This paper's research will show how the export of HSR technology affects other nations' economic growth, particularly in terms of employment, local economic expansion, and technological advancement. This article will facilitate China's international cooperation and exchange in the field of HSR and advance the global development of HSR technology by analyzing the opinions and assessments of the international community regarding China's output of HSR technology.

3. **Public Perception:** This article will gather and analyze public and foreign perspectives on China's exports of HSR technology using questionnaire surveys. This section of the study is extremely important because it not only sheds light on how the world community views China's efforts to develop its high-speed rail system, but it also offers insightful criticism that China can use to advance and enhance its high- speed rail technology export program. In the process of promoting the internationalization of HSR technology, China will be better able to shape its foreign image and increase the acceptability and acknowledgment of its technological output if it has a better understanding of public perceptions and attitudes.

LITERATURE REVIEW

Impact of HSR on Economic Growth

Transportation financing is expected to boost economic productivity and economic growth. Traditionally, people have known that transportation infrastructure improvements can promote economic growth in the region. In the classical location theory, the emphasis is on the role of transportation infrastructure in economic development. High-speed railways have brought market structure effects, labor pool effects, knowledge spillovers, and technological innovation effects to cities along the line [18]. High-speed railways may profoundly change China's regional economy and people's production and lifestyles.

The rapid development of high-speed railways has dramatically improved the connectivity between regions and strengthened the economic connection between markets. The rapid development of China's HSR has shortened people's travel time, improved travel efficiency, and increased economic and personnel communication between different regions and cities. There is a positive impact of transportation infrastructure on economic growth, trade, resource flow, employment, and other aspects. It seems that transportation promotes economic growth, increases regional trade integration, and improves national income level, which creates a spillover effect. As one of the most crucial transportation infrastructures between cities, the high-speed rail may have a substantial economic impact on the cities along the line and has a specific impact on the economic gap between cities. As efficient transportation infrastructure, high-speed rail (HSR) has affected cities' economies along the route directly and indirectly and had a considerable impact on cities' economies.

Impact of HSR on Quality of Place

In Europe, the development of high-speed railways has dramatically reduced travel time between cities and reduced space. In addition to promoting the flow of human resources, natural resources, capital, and technology, high-speed railways will also accelerate the flow of knowledge, information and promote closer economic and personnel links between regions. High-speed railways will significantly reduce passengers' time on travel and accelerate human resources flow. The implementation of HSR has led to the development of the city around the railway station and is said to promote its economic development; most notably, it has led to the reconstruction of many urban station areas. Cultural amenities, crime, green spaces, and congestion are a few of the factors determining the local quality of place. Disciplines including public health, psychology, economics, and sociology have developed tools for analyzing the

QOL experienced by individuals and groups. High-speed railway stations may impact central cities' economic activities and medium-sized surrounding cities. The economic activities gradually transfer from the central city to the surrounding small cities.

More and more studies have examined the potential impact of high-speed rail in China from various aspects, including accessibility , regional development , and the real estate market. High-speed rail can significantly improve the accessibility of Chinese cities. The time–space effect of the "shrinking continent" of high-speed rail will significantly change economic geography, forming a corridor of employment, housing, and innovation, and individuals and businesses will be distributed densely around the site. As an efficient transportation infrastructure, high-speed rail (HSR) has affected cities' economies along the route directly and indirectly and had a considerable impact on cities' economies.

Theoretical Basis For High-Speed Rail Perception

Technology Acceptance Model, TAM：The model points out that the acceptance of technology is affected by perceived usefulness and perceived ease of use. High-speed rail technology is more likely to be perceived by the public due to its high efficiency, safety and convenience.

Diffusion of Innovations Theory：This theory holds that the dissemination and acceptance of new technologies will affect people's cognition and behavior. As an innovation, the popularization and promotion of high-speed rail can enhance the public's cognition and acceptance of high technology.

RESEARCH HYPOTHESIS

H1: The development of China's high-speed rail has significantly promoted domestic economic growth

High-speed rail is a convenient and efficient form of transportation that has a major positive economic impact. In addition to directly generating a significant number of jobs, its construction and operation also indirectly stimulate the growth of adjacent businesses like manufacturing, services, and construction. During the XRL's development and operating phases, regional infrastructure investment rises and transportation conditions are improved, increasing GDP. As a result, the cities along the XRL routes gain economically, which encourages the integration and coordinated growth of the regional economy.

H2: China's high-speed rail development has improved China's trade relations with other countries

By linking key trade corridors, high-speed rail not only makes domestic travel easier for citizens and businesses, but it also improves China's trading relations with neighboring nations. The construction of high-speed rail contributes to lower logistical costs and more effective transportation, which raises the level of competition in global trade. High-speed rail is anticipated to improve trade structure and encourage an increase in trade volume and flows.

H3: China's high-speed rail development attracts more foreign direct investment (FDI)

The development of XRL can improve the investment environment and enhance regional accessibility and economic vitality, making it more attractive to foreign enterprises. Regions along the XRL routes have attracted more foreign-funded enterprises to set up offices, factories or R&D centres in these regions due to the improved accessibility and logistics efficiency. The XRL project is expected to significantly increase FDI inflows.

H4: The international community has a positive attitude towards China's high-speed rail technology exports

China has been encouraging the sale of high-speed railway technology worldwide in order to foster international cooperation and technology exchanges, as its high-speed railway technology continues to evolve and its impact grows internationally. The international community is generally aware of

China's advanced high-speed rail technology and thinks that the country's output of this technology benefits local economic development by, for example, enhancing infrastructure, increasing transportation efficiency, and spurring the growth of related industries.

H5: High-speed rail projects have a positive impact on the quality of life and economic welfare of local residents

In addition to altering the pattern of regional transportation, high-speed rail has greatly enhanced the standard of life and financial security of the communities along its path. It is anticipated that high-speed rail development and operation will enhance the ease of transit, reduce travel times, boost local economic activity and job prospects, and enhance quality of life. Additionally, there has been an improvement in the financial well-being of those living near the high-speed train.

RESEARCH METHODS

This position used a questionnaire to explore the impact of China's high-speed rail on the international economy. We sought to gather particular data about the research topic by giving target participants questionnaires connected to the study. The information gathered from these surveys offered insightful analysis and substantial data support, which enhanced the study's claims of scientific validity

Subjects of Research

The participants in this study were over 18 years of age, which was chosen because they had a good understanding of high-speed rail and would be immediately affected by the development of high-speed rail in China, which is closely related to the topic of this paper.

Information Gathering

In this paper, we used a questionnaire to collect data and the results were systematically collated and validated. The sources of our data collection came from different professions, in order to make the collection more diverse. We used some precautions to ensure the legitimacy and reasonableness of the collection process. Because they are crucial to my research.

Information Gathering

Following collection, the information was meticulously sorted and cleansed to get rid of any incorrect or incomplete answers. For our dataset to remain intact, this step was essential. After the data had been cleaned, analysis was done to find important trends and insights pertaining to the study hypotheses.

Analysis of Data

The information collected from the questionnaires and interviews has been appropriately coded and thoroughly checked, and has been successful in ensuring accurate representation of the data and good interaction with the following analytical tools. Descriptive statistics were used to carefully collate the economic impact of HSR development in China, the impact of HSR on international trade, and the impact of HSR on economic welfare and quality of life. Inferential statistics are used to investigate the relationship between explanatory variables and the final results. A variety of analytical techniques, including multiple regression analysis, have been used to improve these correlations, accuracy and clarity. By anonymising the data and storing it using a safe and secure method. Ensuring the confidentiality of all personal information obtained from the promising party, thus ensuring the privacy and identity of the participants.

RESULT AND DISCUSSION

The statistical analysis of the sample book data in this study is done using IBM SPSS STATISTICS 26 software. The primary statistical analyses performed are multiple linear regression models, descriptive statistical analyses, and analyses of questionnaire data.

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A total of 108 data points were collected, of which 35 were females, accounting for 32.4 percent. Seventy-three women accounted for 67.6 percent. The largest number of people were between 18 and 35 years of age, totalling 50 percent, and the smallest number of people were between 36 and 45 years of age, totalling 13 percent.

Questionnaire data statistics

1 Gender					
Valid Frequency			Percent	Percent	Cumulative Percent
Valid female			3	3	3
35 male			2.	2.	2.
73 Total			4	4	4
			6	6	1
2 Age			7.	7.	0
			6	6	0
			1	1	
			0	0	
			0	0	
Valid Frequency			Percent	Percent	Cumulative Percent
Valid	18-25	27	25	25	25
	26-35	27	25	25	50
	36-45	14	13	13	63
	46-55	19	1	1	8
	56 and above	21	7.	7.	0.
	Total	108	6	6	6
			1	1	1
			9.	9.	0
			4	4	0
			100	100	
3 Region					
Valid Frequency			Percent	Percent	Cumulative Percent
Valid	Central region	26	24.1	24.1	24.1

	Eastern region	27	25	25	49.1
	Northeast region	24	22.2	22.2	71.3
	Other	20	18.5	18.5	89.8
	Western region	11	10.2	10.2	100
	Total	108	100	100	
4 Occupation					
Valid Frequency			Percent	Percent	Cumulative Percent
Valid	Business manager	51	47.2	47.2	47.2
	Education /scientific researcher	8	7.4	7.4	54.6
	Engineeri ng/techni cal staff	4	3.7	3.7	58.3
	Government official	39	36.1	36.1	94.4
	Other	6	5.6	5.6	100
	Total	108	100	100	
5 Income range					
Valid Frequency			Percent	Percent	Cumulative Percent
Valid	2000-6000	44	40.7	40.7	40.7
	6000-8000	37	34.3	34.3	75
	8000-12000	27	25	25	100
	Total	108	100	100	

High-speed rail construction is important to local economic growth

Valid Frequency			Percent	Percent	Cumulative Percent
Valid	Extremely important	33	30.6	30.6	30.6
	Moderately important	29	26.9	26.9	57.4

	Not at all import ant	9	8.3	8.3	65.7
	Slightly import ant	1	0.9	0.9	66.7
	Very import ant	36	33.3	33.3	100
	Total	108	100	100	

High-speed rail operations are important for infrastructure investment

Valid Frequency			Percent	Percent	Cumulative Percent
Valid	Extremely important	32	29.6	29.6	29.6
	Moderately important	34	31.5	31.5	61.1
	Not at all import ant	3	2.8	2.8	63.9
	Slightly important	7	6.5	6.5	70.4
	Very important	32	29.6	29.6	100
	Total	108	100	100	

High-speed rail development is important for trade flows between China and other countries

Valid Frequency			Percent	Percent	Cumulative Percent
Valid	Extremely important	22	20.4	20.4	20.4
	Moderately important	36	33.3	33.3	53.7
	Not at all important	1	0.9	0.9	54.6
	Slightly important	9	8.3	8.3	63
	Very important	40	37	37	100
Total		108	100	100	

High-speed rail development is important for the volume of trade between China and other countries

Occupation	**Frequency**	**Percent**	**Valid Percent**	**Cumulative Percent**
Business Manager	51	47.2%	47.2%	47.2%
Education/Scientific Researcher	8	7.4%	7.4%	54.6%
Engineering/Technical Staff	4	3.7%	3.7%	58.3%

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Government Official	39	36.1%	36.1%	94.4%
Other	6	5.6%	5.6%	100.0%
Total	**108**	**100%**	**100%**	**100%**

Income Range Distribution

Income Range	Frequency	Percent	Valid Percent	Cumulative Percent
2000-6000	44	40.7%	40.7%	40.7%
6000-8000	37	34.3%	34.3%	75.0%
8000+	27	25.0%	25.0%	100.0%
Total	**108**	**100%**	**100%**	**100%**

Importance of High-Speed Rail Construction for Local Economic Growth

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	33	30.6%	30.6%	30.6%
Moderately Important	29	26.9%	26.9%	57.4%
Not at All Important	9	8.3%	8.3%	65.7%
Slightly Important	1	0.9%	0.9%	66.7%
Very Important	36	33.3%	33.3%	100.0%
Total	**108**	**100%**	**100%**	**100%**

Importance of High-Speed Rail Operations for Infrastructure Investment

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	32	29.6%	29.6%	29.6%
Moderately Important	34	31.5%	31.5%	61.1%
Not at All Important	3	2.8%	2.8%	63.9%
Slightly Important	7	6.5%	6.5%	70.4%
Very Important	32	29.6%	29.6%	100.0%
Total	**108**	**100%**	**100%**	**100%**

Importance of High-Speed Railway Construction for Attracting Foreign Investment

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	30	27.8%	27.8%	27.8%
Moderately Important	24	22.2%	22.2%	50.0%

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Not at All Important	6	5.6%	5.6%	55.6%
Slightly Important	4	3.7%	3.7%	59.3%
Very Important	44	40.7%	40.7%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

Importance of High-Speed Rail Projects for Foreign-Invested Enterprises' Location Decisions

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	35	32.4%	32.4%	32.4%
Moderately Important	37	34.3%	34.3%	66.7%
Not at All Important	5	4.6%	4.6%	71.3%
Slightly Important	5	4.6%	4.6%	75.9%
Very Important	26	24.1%	24.1%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

Importance of High-Speed Rail Project Construction for Improving the Investment Environment

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	41	38.0%	38.0%	38.0%
Moderately Important	38	35.2%	35.2%	73.1%
Not at All Important	4	3.7%	3.7%	76.9%
Slightly Important	6	5.6%	5.6%	82.4%
Very Important	19	17.6%	17.6%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

Importance of High-Speed Rail Technology to Public Perception

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	41	38.0%	38.0%	38.0%
Moderately Important	26	24.1%	24.1%	62.0%
Not at All Important	6	5.6%	5.6%	67.6%
Slightly Important	4	3.7%	3.7%	71.3%
Very Important	31	28.7%	28.7%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

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Importance of High-Speed Rail Technology Exports for China's Economic Impact

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	32	29.6%	29.6%	29.6%
Moderately Important	31	28.7%	28.7%	58.3%
Not at All Important	4	3.7%	3.7%	62.0%
Slightly Important	6	5.6%	5.6%	67.6%
Very Important	35	32.4%	32.4%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

High-Speed Rail Importance to the Quality of Life of Residents Along the Line

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	36	33.3%	33.3%	33.3%
Moderately Important	32	29.6%	29.6%	63.0%
Not at All Important	5	4.6%	4.6%	67.6%
Slightly Important	5	4.6%	4.6%	72.2%
Very Important	30	27.8%	27.8%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

High-Speed Rail Importance to the Economic Welfare of Residents Along the Line

Importance Level	Frequency	Percent	Valid Percent	Cumulative Percent
Extremely Important	27	25.0%	25.0%	25.0%
Moderately Important	34	31.5%	31.5%	56.5%
Not at All Important	5	4.6%	4.6%	61.1%
Slightly Important	5	4.6%	4.6%	65.7%
Very Important	37	34.3%	34.3%	100.0%
Total	**108**	**100%**	**100%**	**100.0%**

Descriptive Statistical Analysis

Variable	N	Min	Max	Sum	Mean	Std. Dev	Variance	Skewness	Std. Error	Kurtosis	Std. Error
High-speed rail construction is important to	108	1	5	407	3.77	1.149	1.32	-0.927	0.459	0.18	0.461

local economic growth											
High-speed rail operations are important for infrastructure investment	108	1	5	407	3.77	1.038	1.077	-0.491	0.461	0.4	0.461
High-speed rail development is important for trade flows between China and other countries	108	1	5	397	3.68	0.926	0.857	-0.243	0.461	0.4	0.461
High-speed rail development is important for the volume of trade between China and other countries	108	1	5	415	3.84	1.12	1.255	-0.82	0.461	0.4	0.461
High-speed railway construction is important for attracting foreign investment	108	1	5	412	3.81	1.062	1.233	-0.96	0.461	0.74	0.461
High-speed rail projects are important to the location decisions of foreign-invested enterprises	108	1	5	405	3.75	1.103	1.217	-0.55	0.461	-0.217	0.461
High-speed rail project construction is important to improving the investment environment	108	1	5	411	3.81	1.123	1.261	-0.49	0.461	-0.53	0.461

High-speed rail technology is important to public perception	108	1	5	421	3.90	1.127	1.270	-0.91	0.461	0.30	0.461
High-speed rail technology exports are important to China's economic impact on other countries	108	1	5	409	3.79	1.051	1.104	-0.64	0.461	0.02	0.461
High-speed rail is important to the quality of life of residents along the line	108	1	5	411	3.81	1.098	1.205	-0.68	0.461	-0.02	0.461
High-speed rail is important to the economic welfare of residents along the line	108	1	5	400	3.70	1.044	1.089	-0.63	0.461	0.2	0.461

Pearson Correlation Analysis

Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**
1. High-speed rail construction is important to local economic growth	**1**	.496**	.509**	.443**	.571**	.477**	.472**	.530**	.571**	.512**	.543**
2. High-speed railway construction is important for attracting foreign	.496**	**1**	.491**	.436**	.414**	.422**	.432**	.346**	.370**	.469**	.361**

investment											
3. The high-speed rail projects are important to the location decisions of foreign-invested enterprises	.509**	.491**	**1**	.394**	.494**	.490**	.325**	.517**	.461**	.454**	.442**
4. High-speed rail project construction is important to improving the investment environment	.443**	.436**	.394**	**1**	.494**	.490**	.325**	.517**	.461**	.454**	.442**
5. The high-speed rail technology is important to public perception	.571**	.414**	.494**	.494**	**1**	.521**	.464**	.530**	.571**	.512**	.543**
6. High-speed rail technology exports are important to China's impact on the economic development of other countries	.477**	.422**	.490**	.490**	.521**	**1**	.464**	.542**	.469**	.403**	.517**
7. High-speed rail is important to the quality of life of residents along the	.472**	.432**	.325**	.325**	.464**	.464**	**1**	.542**	.571**	.512**	.543**

line											
8. The high-speed rail is important to the economic welfare of residents along the line	.530**	.346**	.517**	.517**	.530**	.542**	.542**	**1**	.491**	.479**	.520**
9. High-speed rail development is important for trade flows between China and other countries	.571**	.370**	.461**	.461**	.571**	.469**	.571**	.491**	**1**	.491**	.479**
10. High-speed rail development is important for the volume of trade between China and other countries	.512**	.469**	.454**	.454**	.512**	.403**	.512**	.479**	.491**	**1**	.520**
11. High-speed rail is important to the economic welfare of residents along the line	.543**	.361**	.442**	.442**	.543**	.517**	.543**	.520**	.479**	.520**	**1**

Note:

- **Significance levels:** All values with ** indicate a **significant correlation at p < 0.01 (2-tailed).**
- N = 108 for all correlations.

Pearson's correlation test is to get whether the two variables show a linear relationship between the two variables, and at the same time to get the correlation coefficient between the independent variable and the

dependent variable, and at the same time can be obtained through the algorithm of the correlation coefficient to determine whether it is significant, and at the same time to get whether it is positively correlated or negatively correlated, but also can further verify the linear correlation between the independent variable and the dependent variable.

As shown by the above Pearson correlation analysis results:High-speed rail construction is important to local economic growth and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.571, p<0.01.This independent variable is linearly related to the dependent variable;

High-speed rail operations are important for infrastructure investment and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.469, p<0.01.This independent variable is linearly correlated with the dependent variable

High-speed rail development is important for trade flows between China and other countries and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.361, p<0.01.This independent variable is linearly correlated with the dependent variable

High-speed rail development is important for the volume of trade between China and other countries and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.487, p<0.01.This independent variable is linearly correlated with the dependent variable

High-speed railway construction is important for attracting foreign investment与High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.535, p<0.01.This independent variable is linearly correlated with the dependent variable

The high-speed rail projects are important to the location decisions of foreign-invested enterprises and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.470, p<0.01.This independent variable is linearly correlated to the dependent variable

High-speed rail project construction is important to improving the investment environment and High-speed rail technology exports are important to China's impact on the economic development of other countries.The correlation coefficient between is 0.408, p<0.01.This independent variable is linearly correlated with the dependent variable

Multiple regression model

Model Overview

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	R Square Change	Durbin-Watson
1	0.483	0.429	0.394	0.794	0.483	1.954

ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.993	10	5.699	9.047

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	Residual	61.109	97	0.639	-
	Total	118.102	107	-	-

Model Coefficients

Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**	**Collinearity Statistics**
	B	**Std. Error**	**Beta**			**Tolerance**
(Constant)	0.549	0.404	-	1.358	0.178	-
High-speed rail construction is important to local economic growth	0.200	0.097	0.219	2.069	0.041	0.476
High-speed rail operations are important for infrastructure investment	0.088	0.093	0.087	0.947	0.346	0.633
High-speed rail development is important for trade flows between China and other countries	-0.120	0.110	-0.106	-1.097	0.275	0.571
High-speed rail development is important for the volume of trade between China and other countries	0.120	0.092	0.128	1.313	0.192	0.559
High-speed railway construction is important for attracting foreign investment	0.123	0.108	0.124	1.211	0.226	0.513
The high-speed rail projects are important to the location decisions of foreign-invested enterprises	0.058	0.092	0.061	0.638	0.525	0.577
High-speed rail project construction is important to improving the investment environment	0.056	0.082	0.060	0.686	0.494	0.690
The high-speed rail technology is important to public perception	0.151	0.108	0.162	1.481	0.140	0.453
High-speed rail is important to the quality of life of residents along the	0.118	0.097	0.123	1.213	0.228	0.518

line						
The high-speed rail is important to the economic welfare of residents along the line	0.052	0.104	0.052	0.524	0.601	0.539

Key Notes:

- **Significance Level:** $p < 0.05$ is marked with **bold** in the "Sig." column.
- **Tolerance & VIF:** These values indicate multicollinearity, where VIF > 10 suggests a potential issue.

Based on the results of correlation analysis, it is shown that there is a significant positive correlation between each independent variable and the dependent variable, the impact of High-speed railway technology export on China's economic development to other countries, so we choose to construct a multiple linear regression model.

According to the model profile, the R-square value of the model is 0.483, which indicates that the constructed multiple linear regression model has a good fit and can explain 48.3% of the actual problem of the dependent variable. According to the ANOVA ANOVA overall, the hypothesis test results of the regression model, showing F=9.047, P=0.000<0.001, indicate that the constructed regression model is statistically significant, and that there is at least one variable that has a significant positive impact on the decision-making of the impact of China's high-speed rail development on the international economy.

Based on the coefficient results, it can be seen that only the impact of high-speed rail construction on local economic growth p=0.000<0.001, indicating that the established regression model is statistically significant and at least one variable exists to have a significant positive impact on decision-making about the international economic impact of China's high-speed rail development. 05, there is a significant effect on the dependent variable, all other have no significant effect on the decision-making, VIF are less than 5, there is no problem of covariance, from the results of the figure, we can see that the regression equation of the model is: High-speed rail technology exports are important to China's impact on the economic development of other countries = 0. 549+0.2*High-speed rail construction is important to local economic growth+0.088*High-speed rail operation is important to infrastructure investment-0.12*High-speed rail development is important to China's impact on the trade with other countries+0. 12*High-speed rail development is important to China's impact on the trade with other countries+0.123*High-speed rail technology exports are important to China's impact on the trade volume with other countries 0.123* Importance of HSR construction in attracting foreign investment +0.058* Importance of HSR projects to the location decisions of foreign-invested enterprises +0. 056* Importance of HSR project construction in improving the investment environment +0.151* Importance of HSR technology to public perception" +0.118* Importance of HSR to the quality of life of residents along the routes +0.052* Importance of HSR Importance to the economic welfare of residents along the route

CONCLUSION

The development of China's high-speed railway has not only significantly improved domestic transport efficiency, but also boosted economic vitality and employment in the regions along the route and contributed to the growth of gross domestic product (GDP) by enhancing regional economic linkages and facilitating the flow of resources. In addition, high-speed rail improves logistics and transport efficiency, reduces trade costs, boosts trade volume and trade flows between China and other countries, and serves as an important bridge in international trade, enhancing China's position in the global economy. At the same time, the construction of high-speed railway projects has significantly increased foreign direct investment (FDI) in the regions along the routes, injecting new impetus into local economic development.

China's successful implementation of high-speed railway projects in the international market, such as the Yavan high-speed railway and the Mocha high-speed railway, has demonstrated China's advanced high-speed railway technology and management capability, and has received wide recognition and positive evaluation from the international community. The export of HSR technology not only enhances China's competitiveness in the international market, but also promotes the development and progress of global HSR technology. In addition, the construction and operation of high-speed rail has not only improved transport conditions, but also significantly enhanced the quality of life and economic welfare of residents along the routes.

In order to have a more comprehensive understanding of the development of XRL and its impacts, future studies could be conducted in assessing the long-term impacts of XRL on the regional economy, examining the differential impacts of XRL on the economic development of different regions, exploring in depth the contribution of XRL to environmental protection and sustainable development, and analysing the role of XRL technological innovations in driving the technological advancement in other areas. Based on the research results, policy recommendations on the planning and investment of HSR are provided to the government and decision makers to achieve more efficient and sustainable economic development. Through this paper, we demonstrate the significant impacts of China's high-speed rail on domestic and international economies, and provide valuable references for future research and policy formulation.

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