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Research on the Impact of the Opening of High Speed Rail on the Transformation of Urban Industrial Structure in China

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Abstract

As a model of China's transportation infrastructure construction and technological development in the new era, high-speed railways have always been a key project in its economic construction and development. This article is based on a quasi natural experiment of high-speed rail opening, using panel data from 287 cities in China from 2004 to 2019. The multi period double difference method and propensity matching score double difference method are used to test the impact of high-speed rail opening on the proportion of added value of the tertiary industry in prefecture level cities. The heterogeneity of the impact of high-speed rail opening policies is examined in detail from the perspective of urban administrative level and location. Research has found that the opening of high-speed rail can improve the development level of the regional tertiary industry; The impact of high-speed rail opening on the tertiary industry has a long-term timeliness, gradually increasing in the near future and gradually decreasing year by year thereafter; The opening of high-speed rail has a greater impact on provincial capital cities than on non provincial capital cities; The opening of high-speed rail has a significant positive policy impact on the eastern and western regions, but its impact on the central region is not significant. This study has certain significance in providing more empirical research data for related studies.

Keywords

High-speed rail opening, Industrial structure, Multi term DID, PSM-DID.

1. Introduction

Global profit seeking of capital is the fundamental driving force of industrial globalization. With the decline of global economic output caused by the COVID-19 in recent years and the impact of uncertainty brought by the rise of China and the formation of the strategic competition pattern between China and the United States, the global value chain has shrunk, globalization has been reshaped, and from "super globalization" to "limited globalization", The institutional competition between major powers will exist for a long time and present a complex situation [1]. Against the backdrop of increasingly tense international political situations, international trade is constantly facing the threat of uncertain risks, including embargoes on high-tech industries such as ZTE, Huawei, and lithography machines, as well as restrictions on general industrial raw materials and products such as the Xinjiang cotton incident. In order to maintain the vision of stable and orderly development of the Chinese economy, it is necessary to look towards the expanding domestic circular market, Coordinating the development of production and consumption in the domestic commodity market, using the world's largest market as the cornerstone of the development of the second largest economy, and improving domestic consumption capacity is of great significance for building a domestic circulation. The consumption ability of residents and the development of the consumer goods market cannot be separated from income. Income is positively correlated with consumption, but due to the decreasing marginal propensity to consume, a more balanced income level provides a significant contribution to increasing consumption. Improving the balance of wealth

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distribution among the people of the country can further tap into the potential of the internal circulation market. Therefore, it is necessary to improve the development level of underdeveloped areas, so that they can participate in wealth distribution in a better way, increase the income of local residents, and integrate into national economic activities to form a large foundation for expanding the domestic consumption market.

The development of new technologies for material and information exchange can shorten the geographical relative distance of the previous technological stage. The expansion of transportation accessibility within the time limit will enable the efficient transmission of population, materials, and technology in a wider space. Therefore, it is necessary to abandon the development concept of small towns and communities, and comprehensively consider the boundaries of technological efficiency and administrative regions to form a new regional comprehensive economic development plan that weakens competition between administrative regions, National planning that serves the overall development of urban agglomerations.

2. Related research literature

In current research on the impact of China's high-speed rail opening on regional economic development, Niu Fei have confirmed, based on data from 138 cities, that the opening of high-speed rail has a promoting effect on regional economic growth and prioritizes the impact on cities with larger economic and population scales[2]. Xie Liwei also verified through their research on high-speed rail traffic and satellite lighting data that the impact of high-speed rail is more significant in large-scale cities. They also found that the development of high-speed rail has a U-shaped growth effect on the overall economic growth of Chinese cities[3]. Liu Yuping and Zheng Changde found through research and analysis of economic and social development data of various prefecture level cities in the eight ethnic provinces from 2004 to 2018 that the opening of high-speed rail has promoted high-quality development in ethnic areas by improving transportation and stimulating investment[4]. Lu Wanbo and Jia Jing explored the impact of high-speed rail opening on regional economic development disparities from two perspectives: economic development and development imbalance. They found that the opening of high-speed rail can significantly promote urbanization rates, but it will further accelerate regional economic development imbalances[5].

In the study of the impact of high-speed rail on the tertiary industry, Yang Yi analyzed panel data of cities along the Shanghai Kunming high-speed rail from 2000 to 2019 and found that the opening of high-speed rail promoted the development of tourism economy in cities along the line, which is conducive to the coordinated development of regional tourism economy and alleviates the Matthew effect of tourism economy[6]. Zhang Ziqiang and Chen Yaoyao found through inter provincial panel data on ethnic regions that the opening of high-speed rail often leads to an increase in tourist arrivals and a decrease in per capita tourism consumption[7]. Only in areas with abundant tourism resources and relatively developed tertiary industries will the degree of decrease in per capita tourism consumption decrease.

Dong Yanmei and Zhu Yingming found through research on different industries that high-speed rail construction significantly reduces the employment level of the primary industry, promoting employment growth in the secondary industry, especially in the tertiary industry, particularly in consumer service industries such as wholesale and retail, accommodation and catering, and high-value added industries such as information and software[8]. Niu Ziheng and Cui Baoyu studied the impact of the opening of high-speed rail from the perspective of labor allocation and found that the opening of high-speed rail can improve the phenomenon of labor mismatch in cities in the central and eastern regions by promoting labor mobility and industrial agglomeration, but has no significant impact on cities in the western region[9]. Shi Zhenkai, Shao Jun, and Wang Meichang empirically tested the impact of high-speed rail opening on the

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allocation of labor resources in the region in a creative and destructive manner based on data from manufacturing enterprises[10].

This article focuses on the impact of high-speed rail opening on the proportion of the tertiary industry in overall economic activity in various cities in China. Using a multi period DID model to analyze panel data of Chinese cities, it attempts to verify whether high-speed rail opening will increase the proportion of the tertiary industry in the region, in order to provide more empirical research data.

3. Theoretical analysis

The opening of high-speed rail has two main impacts on the regional industrial structure: direct and indirect.

Direct impact: mainly due to the improvement of railway transportation accessibility and time efficiency brought about by the construction of high-speed rail, which has an impact on the economic development of the city and its surrounding areas. Compared to airport construction, which generally requires specialized routes for transportation in suburban areas, high-speed rail station construction is often closer to the city, reducing the cost and time of passenger transportation, promoting population mobility between cities, and enhancing the potential consumption capacity of the region's tertiary industry development. At the same time, the convenience and speed of high-speed rail have shortened the space between cities, improved the efficiency of personnel transportation, and reduced the cost of human resource transportation, providing necessary conditions for attracting human resources for the development of the local tertiary industry. Moreover, the improvement in accessibility of high-speed rail lines is not limited to the city where they are located, but can exist in a continuous penetrating circle like distribution [11]. At the same time, the operation of high-speed rail stations is also an important component of the tertiary industry.

Indirect impact: Due to the connection of the high-speed rail network, the connection between regions is closer, and the flow of factors is more convenient. For a larger range of resource endowments, its allocation can be more reasonable and effective. Meanwhile, due to the siphon effect, urbanization has been accelerated in various regions, indirectly improving the level of economic development in the region. The spillover of knowledge and technological innovation from the central city can flow faster through the high-speed rail network to secondary areas, improving the economic development level of the entire region, allocating industrial layout reasonably, and promoting the development of the tertiary industry in the surrounding areas with the rapid flow of resources.

Previous studies have shown that high-speed rail can induce the agglomeration of productive service industries from non high-speed rail cities to high-speed rail cities, thereby enhancing the location advantage of high-speed rail cities [12]. The strengthening of location advantage will increase the intensity of market competition in cities where high-speed rail is opened. Due to cost considerations, Market entities, especially large manufacturing enterprises, usually relocate their production departments from the central cities of high-speed rail networks to peripheral cities along the route, while only retaining the headquarters of enterprises with production service attributes in the central cities. Therefore, overall, this will increase the proportion of productive service industries in the city [13], thereby increasing the proportion of added value in the tertiary industry and improving the overall economic structure of the city, Improve the "high-quality" income level of residents.

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4. Model building

4.1. Research method

The opening of high-speed rail nationwide can be seen as a "quasi natural experiment". Therefore, the use of multiple difference (DID) method can be considered to compare and estimate the impact of high-speed rail opening policy on the regional tertiary industry by using cities that have already opened high-speed rail and cities that have not opened high-speed rail as the experimental treatment group and control group, respectively. Meanwhile, due to the inconsistent opening times of high-speed railways in various regions, this article adopts a multi period and multiple difference method to measure the impact of high-speed railway opening on the tertiary industry in various regions. The specific equation is as follows:

$$ind_{it} = \beta_0 + \beta_1 dt_{it} + \beta_2 \sum X_{it} + \varphi_t + \mu_i + \varepsilon_{it} \quad (1)$$

Among them, ind_{it} represents the proportion of the added value of the tertiary industry in economic activities in each city; Take $treated$ as the virtual variable of the city. If the city is a high-speed rail open city, take 1. If the city is a non high-speed rail open city, take 0; Take t as the time dummy variable, set 0 before the high-speed rail is opened and set 1 after it is opened; The interaction term dt is $treated^* t$, and its regression coefficient β_1 is the degree of impact of high-speed rail opening on the tertiary industry in various regions that this article focuses on; X_{it} represents each control variable; φ_t is a fixed effect on urban individuals; μ_i is a fixed time effect; ε_{it} is the residual term.

4.2. Variable settings

4.2.1. Explained Variable

The proportion of added value in the tertiary industry (Ind). Used to reflect the industrial structure in local economic activities.

4.2.2. Core explanatory variables

The opening of high-speed rail. This article sets urban dummy variables ($treated_{it}$), time dummy variables (t_i), and their interaction terms (dt_{it}) to handle the policy effects of high-speed rail opening. Among them, dt_{it} is the core explanatory variable, and its coefficient reflects the effects produced after policy implementation.

4.2.3. Control variable

The control variables mainly include: regional economic level (lnAGDP), and the proportion of the tertiary industry in cities with more developed regional economies is often higher. This article uses logarithmic data after regional GDP adjustment as a variable representing the degree of urban economic development. Government size (lnA General), local fiscal expenditure can reflect the size of local governments, and the larger the government, the greater the support it can provide for local economic development. This article uses the expenditure data of the logarithm after the general budget expenditure of local finance is reduced as a variable representing government size. Market size (lnASale), a larger market size implies a more active flow of production factors and labor. This article uses the logarithm of the total retail sales of consumer goods after adjustment to represent the variable of local market size. Human capital, abundant human capital, plays an important role in promoting local industrial development. This article adopts the total number of employed people as a variable of regional human capital. Scientific innovation (lnASE) and technology play an important role in promoting regional economic development, especially in the development of the tertiary industry. This article uses logarithmic data after regional science expenditure adjustment as the representative variable of regional science innovation. Public services (BiH), good public services can not only attract high-level talents for the region but also provide material support

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for the development of the tertiary industry. This article uses the number of hospital beds in hospitals to represent the level of public service development in the region.

Table 1: Descriptive Statistics of Variables

variable	N	average	standard	min	max
ind	4,017	39.16	9.722	8.58	83.52
treated	4,018	0.512	0.5	0	1
dt	4,018	0.317	0.465	0	1
lnAGDP	4,016	16.12	0.993	13.16	19.47
lnASale	4,012	15.07	1.142	5.194	18.59
lnASE	4,006	9.668	1.569	3.526	15.28
lnAGeneral	4,016	14.3	0.915	10.96	18.05
employed	4,008	52.64	78.49	4.21	986.9
BiH	4,006	17,528	16,359	940	177,410

Data source: According to the "China Urban Statistical Yearbook" from 2004 to 2019

4.3. Data Description

The data on the opening of high-speed rail in this article is compiled from relevant websites, and the urban panel data used in China from 2006 to 2019 are all from the China Statistical Yearbook and the China Urban Statistical Yearbook. Considering the lack of statistical data in a few cities and regions, panel data from 287 prefecture level cities and above were ultimately determined as samples. Considering that the number of cities in China that have opened high-speed railways is in a phase of slowing down after 2014, 148 cities that had already opened high-speed railways before (including) 2014 were treated as the experimental group, and the remaining 139 cities were treated as the control group.

5. Empirical Study

5.1. Benchmark Regression

Based on the previous text, basic regression was conducted, and the regression results are shown in Table 2. Among them, Model 1 only uses the interaction term representing the virtual variable of high-speed rail opening as the explanatory variable for regression, and the regression results show that the coefficient of the interaction term is significantly positive. Model 2 added control variables for regression on the basis of Model 1, and the regression results remained significantly positive, but their coefficients significantly decreased. Through Model 3, it was found that the regression results without adding control variables and only considering time fixed effects are still significantly positive and smaller than Model 1. Model 4 incorporates control for time fixed effects and individual fixed effects, and the coefficient of its regression result is significantly positive, indicating that the opening of high-speed rail can increase the proportion of added value of the tertiary industry in the region, improve the regional economic structure, and increase the income level of residents.

Table 2: Benchmark Regression Results

	Model 1	Model 2	Model 3	Model 4
dt	7.017***	1.215***	1.307***	1.202***
	-28.15	-5	-6.66	-6.51
Control Variable	YES	YES	YES	YES
Constant	36.934***	-31.710***	36.011***	256.351***

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	-80.72	(-6.78)	-73.5	-21.23
Observations	4,017	3,992	4,017	3,992
R-squared				0.911
Number of id	287	287	287	287
id FE				YES
Year FE			YES	YES

*** p<0.01, ** p<0.05, * p<0.1

5.2. Parallel trend test

The method of double difference estimation is to compare the experimental group and the control group in a time dimension to simulate the impact of policy shocks. This requires that the experimental group and the control group have similar trends of change before the policy shock, that is, they must meet the assumption of parallel trends. Therefore, this article uses the event study method proposed by Jacobson et al. for parallel trend testing[14]. This method can be represented as:

$$ind_{it} = \beta_3 + \sum_{t=-5}^{7} \delta_t D_{it} + \sum X_{it} + \varphi_t + \mu_i + \varepsilon_{it} \quad (2)$$

Among them, D_{it} is a set of dummy variables. When city i has already opened high-speed rail in year t, it is set to 1; otherwise, it is set to 0. The symbols of the other variables are the same as equation (1). δ_t is the core coefficient in this equation, which reflects the difference in the proportion of the tertiary industry between cities with and without high-speed rail in the t-th year of high-speed rail operation.

Considering the issue of data quantity, this article summarizes data from more than 5 years before the opening of high-speed rail into issue 5, and data from more than 7 years after the opening of high-speed rail into issue 7, with the sixth period before the opening of high-speed rail as the base period. Figure 1 reflects the results of the parallel trend test, indicating that the estimated coefficients for each period before the high-speed rail opening were not significant, indicating that there was no significant difference between the experimental group and the control group before the high-speed rail opening. Therefore, the study sample passed the parallel trend test. At the same time, it can be seen that the policy stimulus brought by the opening of high-speed rail will have a process of first increasing and then decreasing.

5.3. Robust Test

5.3.1. Regression analysis based on PSM-DID method

Due to the different endowments of each city during the high-speed rail construction process, policy formulation may take into account the basic endowment of the city itself to determine whether it is open to traffic. Therefore, there may be selective bias in the sample. This article uses the PSM-DID method to conduct robustness tests on the benchmark regression results of the impact of high-speed rail opening on the proportion of the tertiary industry. The variables selected in this article, including the level of urban economic development, population size, and market size, which may affect the opening of high-speed rail, were used as covariates. The 1:1 nearest neighbor matching method within the caliper range was adopted to match the score of the sample cities. And the kernel density function curve was drawn based on the matching between the experimental group and the control group. From Figure 2, it can be seen that the probability density distribution of the control group samples after propensity matching treatment tends to be more consistent with that of the experimental group, with the vast majority of logarithmic samples in a common support domain, indicating that the two matched

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urban sample data are more similar in all aspects, and the selectivity bias between the two is basically eliminated.

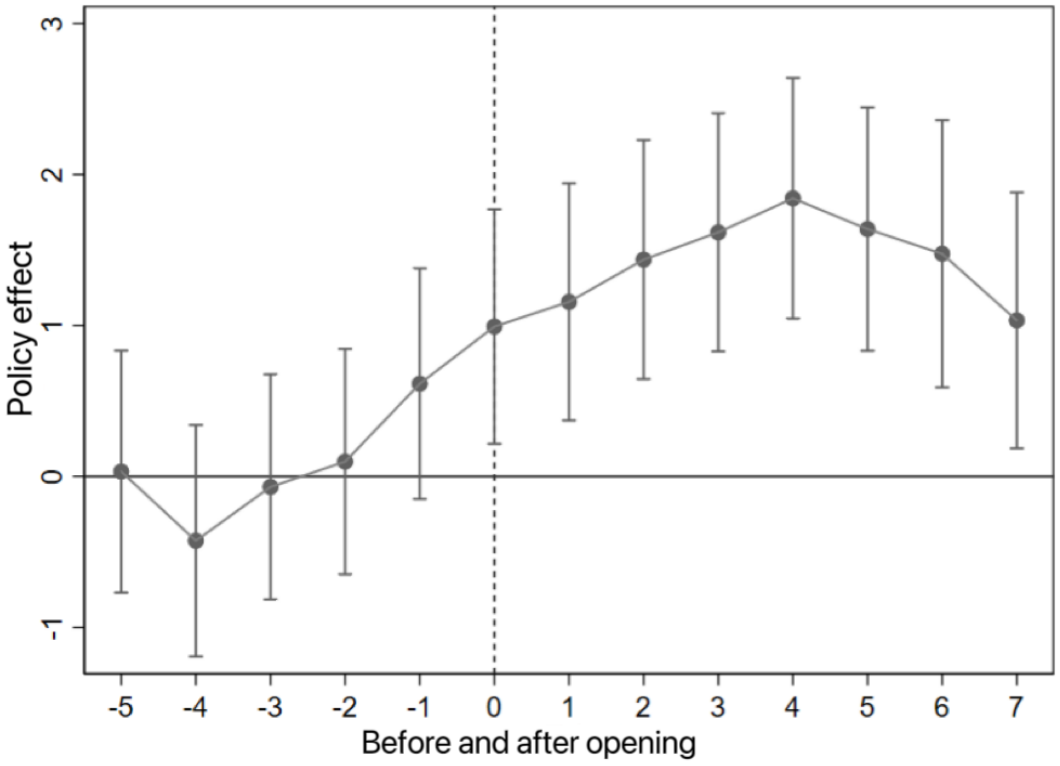

Figure 1: Parallel Trend Test

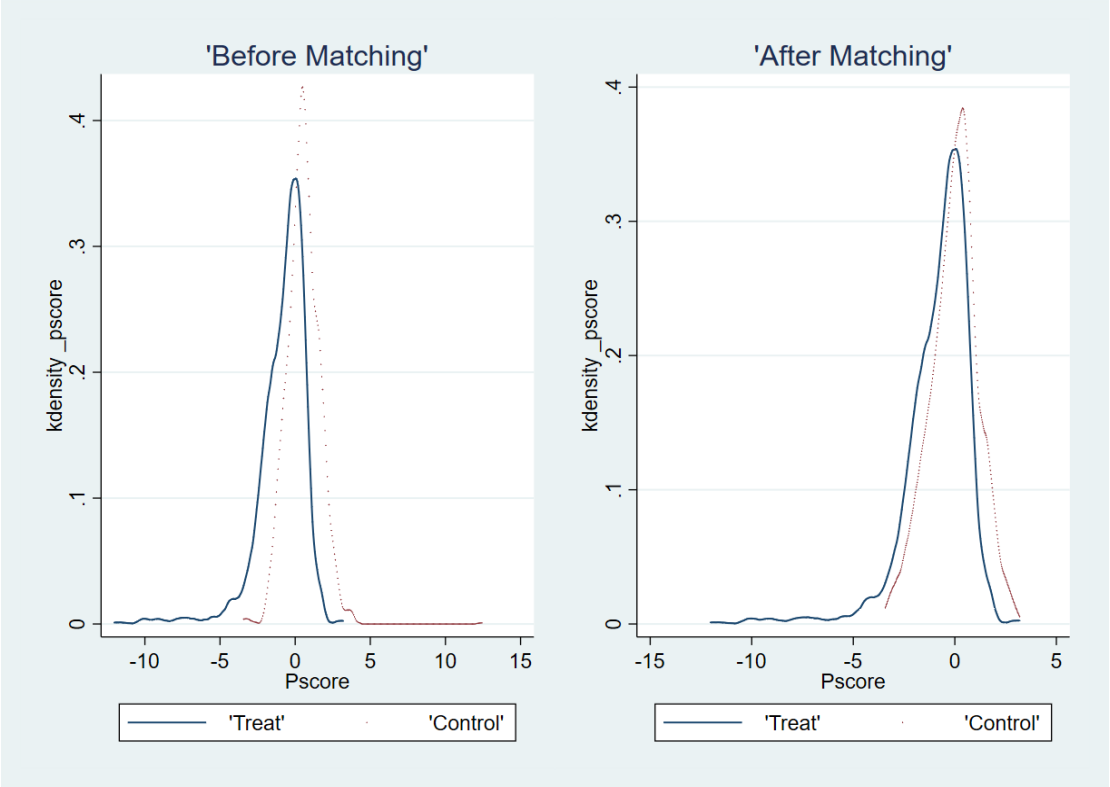

Figure 2: Kernel density function curve

After verifying the sample data after propensity matching, the regression results are shown in Table 3 by continuing to perform multi period multiple difference estimation according to

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equation (1). Similar to the results of the benchmark regression shown in Table 2, the regression coefficient of the interaction term of high-speed rail opening is significantly positive and the values are similar, indicating that the opening of high-speed rail can indeed increase the proportion of added value of the tertiary industry in the prefecture level city area. The results of the benchmark regression have strong reliability.

Table 3: Sample regression results after propensity matching scores

	Model 1	Model 2	Model 3
dt	6.792***	1.188***	1.119***
	-26.52	-5.04	-6.08
Control Variable	YES	YES	YES
Constant	36.677***	-18.562***	215.424***
	-85.3	(-3.85)	-18.25
Observations	3,872	3,872	3,872
R-squared			0.738
id FE			YES
Year FE			YES

*** p<0.01, ** p<0.05, * p<0.1

5.3.2. Replace the dependent variable

This article studies the changes in regional industrial structure in order to explore whether the opening of high-speed rail has a promoting effect on the economic development of prefecture level cities. Therefore, it is considered to replace the proportion of the added value of the tertiary industry as the explained variable with the logarithm of the absolute value added of the tertiary industry after adjustment, for the robustness test of benchmark regression. As shown in Table 4, the regression results after replacing the dependent variable were positive in the process of not adding control variables and gradually adding control variables and fixed effects, and were significant at the 1% level, indicating that the opening of high-speed rail can indeed improve the development level of the regional tertiary industry and provide a better source of income for local residents. It also indicates that the opening of high-speed rail has an increasing effect on the proportion of added value of the tertiary industry in regional economic activities, and even with the replacement of the dependent variable, the regression results are still significant.

Table 4: Regression results after replacing the dependent variable

	Model 1	Model 2	Model 3
dt	0.895***	0.028***	0.025***
	-43.59	-4.1	-4.38
Control Variable	YES	YES	YES
Constant	14.872***	-2.724***	5.229***
	-292.65	(-21.37)	-14.88
Observations	4,016	3,992	3,992
R-squared			0.969
id FE			YES
Year FE			YES

*** p<0.01, ** p<0.05, * p<0.1

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6. Heterogeneity analysis

6.1. Heterogeneity of administrative power

Generally speaking, as the administrative center of a provincial-level administrative region, provincial capital cities often have advantages over other prefecture level cities in terms of historical culture, industrial foundation, transportation infrastructure, and administrative convenience. Therefore, they have more elements and resources to gather. These superior conditions may lead to heterogeneity differences in the benefits of high-speed rail opening for provincial capital cities compared to other prefecture level cities. This article divides the experimental group samples into two groups for research: provincial capital cities and non provincial capital cities, and removes data from a very small number of provincial capital cities that did not open high-speed rail before 2015. The regression results are shown in Table 5. It can be seen that the regression results for both provincial and non provincial capital cities are positive, and significant at the 1% level, indicating that the opening of high-speed rail has an increasing impact on the proportion of added value of the tertiary industry in both cities. At the same time, it can also be found that the regression coefficient of the impact on provincial capital cities is significantly higher than that on non provincial capital cities, indicating that the opening of high-speed rail has a better effect on the proportion of added value of the tertiary industry in provincial capital cities than in non provincial capital cities. The reason for this phenomenon may be that provincial capital cities are often regional transportation centers with superior industrial foundations and administrative priorities. Therefore, due to the siphon effect, provincial capital cities can attract more opportunities for the development of the tertiary industry and human resources to improve their own tertiary industry construction through the opening of high-speed railways, which reduces spatial distance.

Table 5: Results between provincial capital cities and non provincial capital cities

	Provincial capital	Non provincial capital
dt	2.141***	1.081***
	-4.89	-5.36
Control Variable	YES	YES
Constant	248.538***	252.781***
	-17.13	-20.67
Observations	2,248	3,573
R-squared	0.732	0.721
Company FE	YES	YES
Year FE	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

6.2. Heterogeneity in the East, Central, and West

Considering the vast territory of China, there is a significant regional imbalance in economic development. The eastern region is located in the coastal area, with convenient transportation and excellent industrial foundation, while also enjoying numerous development policies. Therefore, the eastern region has greater advantages in economic development compared to the central and western regions, and this difference may lead to heterogeneity in the implementation of the high-speed rail opening policy. This article grouped the samples according to the division of the eastern, central, and western regions, and conducted regression analysis on them. The regression results are shown in Table 6.

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Table 6: Regression Results for Eastern, Central, and Western Cities

	Eastern region	Central region	Western Region
dt	1.207***	0.322	2.683***
	-4.92	-1.2	-5.74
Control Variable	YES	YES	YES
Constant	258.909***	270.591***	264.886***
	-19.49	-18.44	-16.41
Observations	3,027	2,682	2,165
R-squared	0.91	0.893	0.895
Company FE	YES	YES	YES
Year FE	YES	YES	YES

*** p<0.01, ** p<0.05, * p<0.1

It can be seen that the opening of high-speed rail has a positive impact on the proportion of the tertiary industry in cities in the eastern, central, and western regions, and both the eastern and western sample groups are significant at the 1% level. However, the regression results of the central sample group are not significant. The reason for this phenomenon may be that the central region was originally located in the core area of China's transportation map, with various types of highways, railways, and shipping transportation already highly developed, and the economy has a certain degree of development. The spatial reduction effect brought by the opening of high-speed railways is not irreplaceable within the region. At the same time, due to the opening of high-speed rail, the spatial distance between the eastern and central regions has been shortened. According to the push-pull theory, the siphon effect in the eastern region can be extended to the central region, which has a greater pulling force on the internal adaptation of resources, talents, and technology in the eastern region to its economic development level. Therefore, the opening of high-speed rail has a significant impact on cities in the eastern region, but not on cities in the central region. At the same time, due to the formation of a certain scale of high-speed rail network construction, the opening effect of high-speed rail is more easily manifested. The higher the density of high-speed rail network, the more conducive it is to capture the opening effect of high-speed rail [15]. Due to the overall larger scale of the high-speed rail network in the eastern region of China compared to the central region, and the higher average density of the high-speed rail network in the eastern urban agglomeration, the policy effects brought by the opening of high-speed rail will have a significant impact.

Observing the coefficients of the regression results, it can be found that the impact of the high-speed rail opening policy on the western region is much greater than that on the eastern region. The reason for this situation may be that the western region is too far from the core area of China's economic development, exceeding the siphon flow range of factors that high-speed rail can provide. Moreover, the western region has a large amount of ecological resources that were previously difficult to participate in economic activities. These endowments have been activated by market behavior by connecting economically developed areas after the opening of high-speed rail, greatly enhancing the development vitality of the tertiary industry in the western region, making its contribution to the proportion of added value of the local tertiary industry greater. It also effectively validates the proposal at the beginning of this article to monetize the ecological resources of peripheral areas and cities by utilizing the development of the tertiary industry, so that they can participate in the distribution of wealth created by the whole society in national economic activities, thereby improving the income level of residents,

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especially those in remote areas, and providing potential consumption power for the development of the internal circulation market.

7. Conclusion

This article is based on a quasi natural experiment of high-speed rail opening. Based on theoretical analysis, panel data from 287 cities from 2004 to 2019 were used to empirically test the impact of high-speed rail opening on regional industrial structure changes using methods such as multi period multiple difference and PSM-DID. The main conclusions drawn are as follows: high-speed rail opening can improve the level of regional industrial structure; The impact of the opening of high-speed rail on the regional industrial structure has a long-term timeliness, which gradually increases in the near future and gradually decreases year by year thereafter; The opening of high-speed rail has a greater impact on provincial capital cities than on non provincial capital cities; The opening of high-speed rail has a significant positive policy impact on the eastern and western regions, but its impact on the central region is not significant.

According to the research findings of this article, there are policy implications as follows:

Firstly, the construction of basic transportation facilities represented by high-speed rail can improve the development level of the regional tertiary industry. Using the opening of high-speed rail as a catalyst for economic development, promoting rapid spillover of economic activities in a wider region. Large and medium-sized cities have certain advantages as stations, and they need to enhance their sensitivity to the flow of factors brought about by the opening of high-speed rail, respond quickly, and make good use of the promoting effect of high-speed rail on the local economy as soon as possible. Small cities should actively deploy local transportation routes to connect with high-speed rail networks and improve the efficiency of factor allocation.

Secondly, due to the long-term timeliness of the opening of high-speed rail for the development of the regional tertiary industry, there is a phenomenon of gradually decreasing impact in the near future. High speed rail cities should prepare for subsequent development policies and industries during the planning period of high-speed rail construction, maintain two-way communication with regional central cities, seize window opportunities during the growth period of policy influence, widely attract the inflow of resources, technology, and manpower, and promote resource sharing among the tertiary industry, Improve the level of green innovation at the industrial level and build a third-party industry platform that can retain passersby.

The policy impact brought about by the opening of high-speed rail has regional heterogeneity, which includes differences between provincial capital cities and non provincial capital cities, as well as differences in the eastern, central, and western regions. Under the guidance of national urban agglomeration policies, local governments should leverage the linkage between provincial capital cities, take advantage of the higher impact of provincial capital city policies, establish a coordinated and unified mechanism for coordinated development within urban agglomerations, utilize the endowment resources of local cities to attract resources from provincial capital cities, distribute the significant impact of provincial capital central cities, and generate policy effects in secondary cities, The formation of an echo chamber effect continuously strengthens the region's ability to absorb policy impacts proactively. At the same time, for the western region, it is necessary to establish an ecological resource input and control mechanism as soon as possible, allocate and develop ecological resources reasonably and effectively, and then use the new media brought by technological development to enable the natural endowments of remote areas to participate in social economic activities, so that local residents can obtain their rightful social wealth distribution rights.

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