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The Effect of Transportation Networks on Heritage Tourism and New Urbanization—Empirical Research Based on Rich Heritage Sites in a Chinese Province

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Abstract: Accelerating the construction of transportation networks has become an important bridge to promote the urbanization of heritage tourism destinations. Based on the development dilemma of tourism towns in northwestern China, this study collected the panel data of 10 cities in Shaanxi Province from 2006 to 2019 and used a panel error correction model to investigate the long-term and short-term relationships between heritage tourism and new urbanization. In addition, this paper establishes a regression model of the transportation network's regulatory effect, revealing the extent of the impact of the transportation network on heritage tourism and new urbanization. The results show that (1) in the short term, the influence of heritage tourism on new urbanization is not remarkable, but in the long term, heritage tourism plays a positive role in facilitating new urbanization; (2) the short-term contribution elasticity of new urbanization to heritage tourism is less than that in the long term; (3) the regulatory effect of the transportation network rectifies the deviation caused by overdeveloped urbanization to moderate development in heritage tourism destinations.

Keywords: transportation network; heritage tourism; new urbanization; long- and short-term relationships; regulatory effect

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1. Introduction

In China, the contradiction between the protection of cultural heritage and rapid urbanization development has always been very prominent in Shaanxi, Henan, Shandong, Shanxi, and other provinces with rich cultural relics (see Figure 1). Traditional urbanization has been criticized for the extensive utilization of element resources, the serious separation of urban–rural integration, and the lack of cultural inheritance [1]. In the process of implementing the policy of all-for-one tourism, some historical and cultural villages, ancient villages and towns, ancient buildings, sites, agricultural cultural heritage, and other heritage tourism resources with humanistic characteristics far away from central cities have gradually been favored and valued by people. Also, some regions make full use of the advantages of local heritage tourism resources and eschew the old, traditional way of urbanization that relies solely on the population and land-scale expansion, dig deep into local historical and cultural connotations, and embark on the policy of the new urbanization of heritage tourism areas. The central government of China called the process of the expansion of urban areas, taking into account changes in the living environment, social insurance, and industrial support, new urbanization because it was devoid of the mistakes

in traditional urbanization, where expansion happened extensively without considering people's living needs.

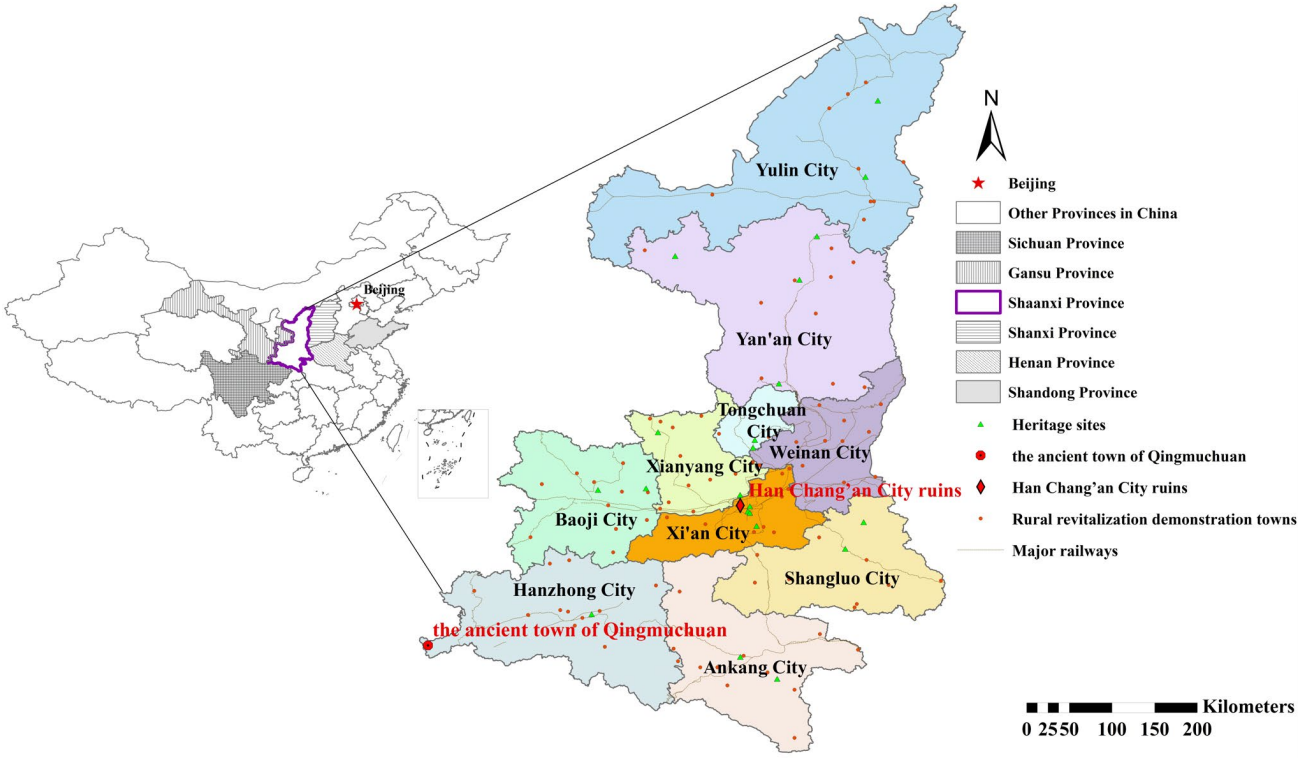

Figure 1. The map of Shaanxi Province in the context of the map of China.

For example, the ancient town of Qingmuchuan, a national 4A-level tourist attraction located in Ningqiang County at the junction of Sichuan, Shaanxi, and Gansu Provinces, was exposed to new urbanization (see Figure 1). During the "May Day" Golden Week in 2019, an ancient town with 221,200 tourists reached a comprehensive tourism income of CNY 103.01 million and total ticket revenue of CNY 607,800, accounting for year-on-year increases of 45.5%, 47.8%, and 26.8% respectively[1]. It is clear that the geographical location and advanced transportation at the junction of the three provinces are important factors for the rapid development of the new urbanization of heritage tourism areas. To this end, the idea of pursuing new urbanization in remote areas that are rich in tourism resources, have underdeveloped economies, and are far away from central cities has been raised. Town governments are determined to vigorously develop comprehensive transportation networks and interregional backbone roads to promote the accessibility of tourist villages and towns. Even though these traditional communities have been built for huge amounts of money, they have declined and been deserted after functioning for only several years. It is crucial to explore some of these problems in depth from a theoretical perspective: Is there a long-term stable and balanced relationship between heritage tourism and new urbanization? Is there a short-term fluctuation adjustment? In this relationship, how do traffic factors affect the two conditions? What are the internal workings?

Shaanxi Province, located in the northwest, is rich in cultural heritage resources, about 70% of which are distributed in suburban and rural areas. Giving full play to regional and cultural characteristics and constructing diversified towns with cultural tourism characteristics is an important idea for Shaanxi Province as a new type of urbanization [2]. The local government of Shaanxi Province has built 35 key demonstration towns and 31 famous cultural tourism towns, promoted the construction of 100 rural revitalization demonstration towns based on the local historic cultural heritage (see Figure 1), and implemented the new urbanization strategy[2]. A total of 122 demonstration towns have historical and cultural heritage objects, which has greatly stimulated and mobilized enthusiasm for the

development of cultural villages with local characteristics. Taking the county heritage sites as the core, comprehensively laying out the transportation network system, optimizing the spatial layout of urban and rural areas, and keeping the balance between spatial and economic patterns in the new urbanization of heritage tourism destinations is practically a theoretical problem that large cultural relic provinces need to solve in the process of new urbanization. This paper explores the panel data of 10 prefecture-level cities in Shaanxi Province from 2006 to 2019. We also studied the long- and short-term relationships between heritage tourism and new urbanization, as well as the impact of short-term fluctuations, through the panel error correction model. In addition, the article presents a regression model for the regulatory effect of transportation networking. This model was generated to test the hypothesis of whether the regulatory effect of the transportation network on the urbanization of heritage tourism destinations is significant. Also, this research reveals the dynamic regulatory mechanism of transportation networking in order to provide a scientific theoretical basis and policy recommendations for the development of new urbanization in areas rich in heritage tourism resources. Beyond that, a new solution to resolve the contradiction between rapid urbanization expansion and cultural heritage protection is proposed. This study contributes to the state-of-the-art literature by exploring the effect of transportation networks on heritage tourism and the new urbanization process. Interestingly, there are very few scientific works devoted to the new phenomenon called "new urbanization", which implies implementing the process of urban expansion more sustainably. So, this research aims to continue the work of previous studies devoted to the development of heritage tourism, transportation networks, and the urbanization process in the case of a Chinese province with an emphasis on sustainable development.

2. Literature Review and Theoretical Framework

2.1. The "Driving Effect" of Heritage Tourism on New Urbanization Is the Demand for New Urbanization [3]

From the perspective of demand, heritage tourism, which is a complex industry shaping the connotation of local culture and attracting local residents as well as surrounding tourists, absorbs surplus rural labor [4,5]. On the other hand, the display and reproduction of local cultural heritage have a positive impact on the social culture of the community residents and the overall level of social development of the community. In addition, the gathering of tourists and relevant service personnel, as well as the expansion of urban space, triggered the transfer of the population from the countryside to cities [6]. Taking the world cultural heritage site of Pingyao Ancient City as an example, Ding Xinjun confirmed that heritage tourism is an important driving factor for the development of new urbanization [7]. These studies focus on the demand promotion and the impact of heritage tourism on new urbanization. These studies claim that the development of tourism in heritage sites has driven the industrial spatial structure and population agglomeration of urbanization into prosperous urban life, as well as contributing to the integration of the development of the tourism sphere with other industries in the city [8].

2.2. The "Pulling Effect" of New Urbanization on Heritage Tourism Is the Supply–Help Relationship of Heritage Tourism [9,10]

From the perspective of supply, the implementation of new urbanization takes cultural tourism, commercial logistics, and others as important starting points. In terms of policy support and urban planning, the heritage site's own resource endowment, economic foundation, and other conditions are relied upon to cultivate cultural tourism towns with local characteristics [11,12]. Urban transportation facilities, commercial and tourism services, cultural tastes, as well as the tourism environment provide good development conditions for heritage tourism [13]. New urbanization implementation provides services, technologies, investments, talent, and other platforms for the extension of heritage tourism, rural tourism, leisure and vacation tourism, and other tourism industry chains, promoting the deep integration and development of heritage tourism with other industries [14]. The continuous improvement of urbanization efficiency will induce more tourism demand,

promote higher cultural tourism experience consumption, and promote the ecological green transformation of residents' lifestyles, as well as consumption concepts [15].

2.3. The Coupling and Coordination Mechanism of Transportation Network and Regional Tourism, as Well as the Development of Tourism, Is the First Driving Effect [16]

There is a mechanism of mutual feedback between the evolution of the transportation network and the optimization of the regional tourism space structure [17]. Ye Mao (2017) studied the coupling and coordination of the transportation and tourism systems in western Hunan, showing a low-level development trend of an initial slow decline and then a steady rise and fluctuation [18]. The coordinated development of transportation and tourism has experienced three stages: element agglomeration, element symbiosis, and element integration. The government played a leading role in each stage of the integration between enterprises and innovation [18]. Taking the ancient city of Lijiang as an example, Liu Anle (2018) and others found that the role of transportation in tourism has shown a weakening and then gradually increasing trend. The contribution rate of tourism factors to traffic development is significantly higher than that of transportation factors to tourism development. Transportation and tourism development constitute a two-way feeding relationship and exhibit a significant initial driving effect on the development of the tourism industry [16]. At the micro level, many cultural heritages are scattered in suburban areas and villages, while access to the surrounding scenic spots and resource attractions has promoted the construction of regional tourism transportation networks [19]. However, the traffic capacity carried by heritage resources is subject to objective cultural relic protection and environmental protection policies, such as those related to the site distribution, surrounding environment, and construction and control zones; therefore, the expansion of transportation facilities is limited [20].

2.4. The Long-Term Equilibrium Relationship between Transportation Networking and New Urbanization [21] and Its Obvious Regional Differences [22–24]

There are three development models for the impact of transportation networks on new urbanization: "driving", "synchronous", and "pulling" [25]. There is a long-term balanced interaction between China's new urbanization and comprehensive transportation development, showing a steady upward trend. The nation as a whole and the eastern regions are the pulling type, the central regions are the interactive type, and the western regions are the driving type. In the comprehensive transportation development of the whole country, the eastern and central regions lag behind new urbanization, while the western regions are the opposite [22]. There is significant regional heterogeneity in the impact of transportation infrastructure and the urban scale on the quality improvement of new urbanization. The impact coefficient of transportation infrastructure in the eastern regions is higher than that in the central and western regions, while the impact coefficient of transportation infrastructure in the central and western regions is negative, which, to some extent, restricts the development of urbanization in the central and western regions [23]. The multi-dimensional rail transit and new urbanization systems in the western regions have the characteristics of low development levels but high synergy [24]. There is a long-term balanced cointegration relationship between highway mileage and the urbanization rate. The development of regional highway traffic can promote the process of urbanization, whereas the process of urbanization can also accelerate the development of regional highway traffic. However, there is a certain time lag. It is necessary to follow the principle of "moderately advanced" to plan the regional road transportation system [26]. Also, it is important to stick to a strategic development plan to achieve long-term targets.

From the review of the relevant literature, we can see that scholars have studied the relationship between new urbanization and tourism from different aspects, as well as the relationship with and impact of transportation networking. However, for areas with development constraints, such as heritage tourism areas, there is limited literature on how the interaction among these three factors affects the development of heritage tourism destinations. This paper explores the panel data of 10 prefecture-level cities in

Shaanxi Province from 2006 to 2019 to empirically test whether there is a long-term and stable equilibrium between new urbanization and heritage tourism. Also, we tried to find out how the process of short-term dynamic fluctuations returning to the equilibrium state changes. The transportation network plays an important role in promoting new urbanization and tourism, but there are certain limiting factors to test the regulatory effect of the transportation network. The theoretical framework of this article is shown in Figure 2.

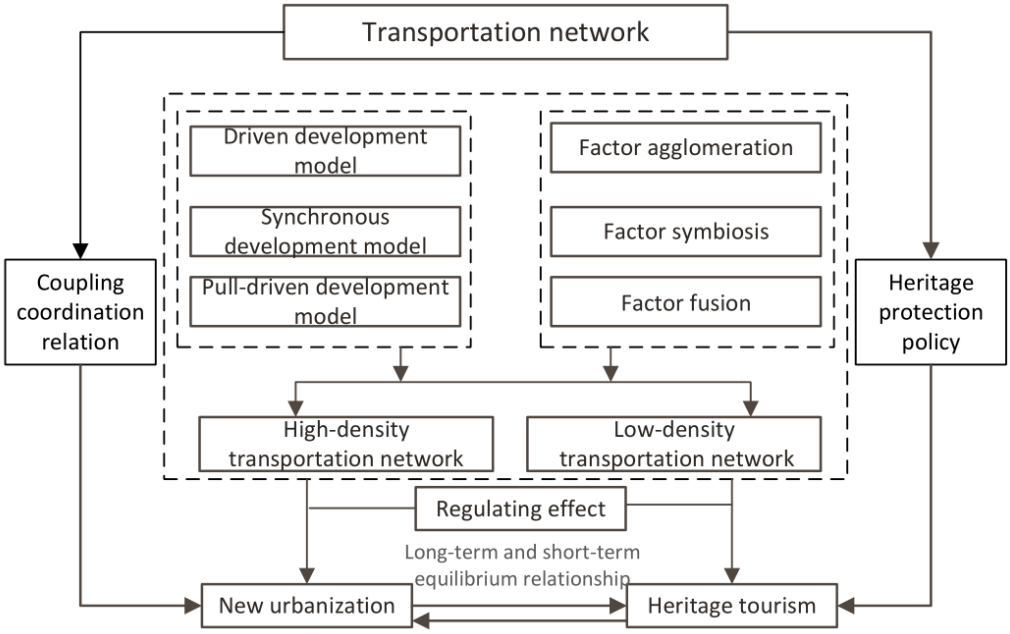

Figure 2. Theoretical framework.

3. Research Design and Data Description

3.1. Interpretation of Core Variables

3.1.1. New Urbanization

The new urbanization strategy, in the context of the new era, puts more emphasis on high-level urbanization with humanistic care, cultural heritage, and green production, as well as lifestyle [1]. Development projects based on the local characteristics of resources enhance the local urbanization level and implement the transformation of urban areas. Cultural heritage resources are regarded as the most typical and representative genes of a "humanistic city", while cultural-heritage-resource-rich districts are often positioned as cultural and tourism towns by their urban planning [1]. The concept of new urbanization is generally recognized by academics and governments [27,28]. This paper measures the development level of new urbanization from four primary indicators, namely, economic development, population development, social development, and environmental governance levels, as shown in Table 1.

Table 1. The proxy variables for new urbanization and heritage tourism.

Core Variables	Variable Name		Variable Definition
New Urbanization	Economic Development Level	Share of secondary industry	Output value of secondary industry/GDP
		Share of tertiary sector	Output value of tertiary industry/GDP
		Investment structure	Investment in fixed assets in urban areas/investment in fixed assets in the whole society

Table 1. *Cont.*

Core Variables	Variable Name		Variable Definition
New Urbanization	Population Development Level	Rate of population increase	(Total population of the current period − total population of the previous period)/total population of the previous period
		Rate of urbanization	Urban population/total population
		Share of persons employed in the secondary sector	Number of persons employed in the secondary sector/total number of persons employed in society
		Share of persons employed in the tertiary sector	Number of persons employed in the tertiary sector/total number of persons employed in society
	Social Development Level	Urban road area per capita	Total area of road land in town/population of town
		Water penetration rate	Number of people using water in towns/population of town
		Gas penetration rate	Number of urban gas users/total urban population
	Environmental Governance Level	Disposal rate of domestic waste	Amount of domestic garbage treated/total amount of total domestic garbage
		Sewage treatment rate	Amount of sewage treated/total amount of total sewage
		Green space per capita in parks	Green space of urban parks/total population of cities and towns
		Greening rate of built-up area	Green coverage area of built-up area/built-up area
Heritage Tourism	Heritage Development Degree	Development rate of cultural and scenic spots	Number of developed heritage scenic spots/total number of heritage sites
		Visit rate of museum visitors	Number of museum visitors/number of tourists
		Abundance of cultural relics' scenic spots	Total cultural relics' scenic spots/total cultural relics' scenic spots in the province
		Share rate of cultural relics' scenic spots	Total number of cultural relics' scenic spots/total number of tourist scenic spots
	Heritage Tourism Grade	Occupancy rate of cultural relics' scenic sports at different levels	The product sum of the total number of cultural relics' scenic spots at different levels and the weight of scenic spots at corresponding levels, divided by the total number of cultural relics' scenic spots in the province
		Abundance of cultural relics' scenic spots at different levels	The product sum of the total number of cultural relics' scenic spots at different levels and the weight of scenic spots at corresponding levels divided by the product sum of the total number of cultural relics' scenic spots at different levels and the weight of scenic spots at corresponding levels in the province

Table 1. *Cont.*

Core Variables	Variable Name		Variable Definition
Heritage Tourism	Heritage Protection Degree	Protection strength of cultural relics' scenic spots	The product of the total number of protected cultural scenic spots at different levels and the weight of cultural protection units at corresponding levels, divided by the total number of cultural relic sites
		Protection strength of high-level cultural protection units	The product sum of the total number of provincial, national, and world-class cultural protection units and the weight of corresponding cultural protection units divided by the product sum of the total number of cultural protection units at different levels and the weights of corresponding cultural protection units
		Average number of cultural protection units owned by heritage sites	Total number of cultural protection units/number of cultural heritage sites
		Average floor area of exhibition rooms	Floor area of exhibition rooms/total number of museums
	Heritage Distribution Density	Average number of heritage sites	Total number of cultural relics sites/area
		Average area of cultural relics sites	Area of cultural relics sites/area

3.1.2. Heritage Tourism

There is no perfect indicator system for the measurement of heritage tourism at present. This paper intends to measure the development level of heritage tourism through 4 primary indicators, namely, the heritage development degree, heritage tourism grade, heritage protection degree, and heritage distribution density, as well as 12 secondary-level indicators, as shown in Table 1. Among them, the heritage tourism grade refers to the tourism grade [29], which indicates the quality of heritage tourism resources in this area: 5A-, 4A-, 3A-, 2A-, and 1A-level tourist attractions can represent the abundance of tourist attractions [30]. Their assigned weights are 5.0, 2.5, 1.75, 0.5, and 0.25, respectively, summing up to 10 [31]. The index of the heritage tourism grade is assigned by employing the expert consultation method, while the assigned weights of the heritage protection degrees of national-, provincial-, city-, and county-level cultural relic protection units are 3, 2, and 1 [32]. It is generally believed that high-quality tourism resources with international or national ministries and commission certifications, including world cultural heritage, national key scenic spots, national nature reserves, national forest parks, national historic cultural cities, and national key cultural relic protection units, are strongly preserved, so the assigned weight of the heritage protection degree of cultural relics' scenic spots that are considered both national protection units and world cultural heritage sites is 4. Some high-level cultural protection units are not all cultural relic scenic spots. Although the 18 Mausoleums of the Tang Dynasty and the 11 Mausoleums of the Han Dynasty are all national protection units, only Tang Qian, Tang Qiao, Tang Zhao, Han Yang, Han Mao, and Han Du Mausoleums are developed as cultural relic scenic spots.

3.1.3. Transportation Network

The transportation network is a comprehensive measure of the transportation system. We analyzed relevant research results on the evaluation of the index system of transportation networks [33–35]. In this study, we tried to measure the development level of the transportation network through 3 primary indicators, namely, traffic density, traffic con-

venience, and the traffic service development level, as well as 11 secondary indicators. Among them, traffic density and traffic convenience are assigned grades [33] (see Table 2).

Table 2. Measurement indicators of transportation network.

Variable Name		Critical Value of Traffic Node	
Traffic Density		$x \leq 50$	0.5
		$50 < x \leq 75$	1
		$75 < x \leq 100$	1.5
		$100 < x \leq 125$	2
		$x > 125$	2.5
Traffic Convenience	Center City Convenience	It is a provincial capital city	2
		Distance to provincial capital city < 120 km (1 h economic circle)	1.5
		120–240 km from provincial capital city	1
		Distance to provincial capital city > 240 km (2 h economic circle)	0
	Highway Convenience	Distance to the nearest high-speed entrance and exit < 10 km	2
		10–30 km from the nearest high-speed entrance and exit	1
		30–60 km from the nearest high-speed entrance and exit	0.5
		Distance to the nearest high-speed entrance and exit > 60 km	0
		With lines and stations	$\sum 0.5n \times i/m$
	Railway Convenience	Distance to the nearest station < 30 km	2/m
		30–60 km from the nearest station	1.5/m
		Distance to the nearest station > 60 km	0
	Airport route Convenience	With mainline airports	2.5
		With regional airports	2
		airfield-free	0
Traffic Service Development Level		Amount of passenger traffic	——
		Volume of freight	——
		Ownership of passenger cars operated by highway departments	——
		Ownership of trucks operated by highway departments	——
		Urban bus operation volume	——
		Urban taxi operation volume	——

Note: In the table, x is the highway density, which is equal to the highway mileage/area; n is the number of traffic line access directions; i is the technical grade of the railroad, which is divided into high-speed railroads, passenger-dedicated lines, and other railroads, taking values of 2, 1.5, and 1, respectively. The lowercase m is the grade of the railway station, which is divided into special, first-class, second-class, third-class, and fourth-class stations according to the standards of the Ministry of Railways, taking values of 1, 2, 3, 4, and 5, respectively [33].

3.2. Control Variables

In order to control the heterogeneity among individuals in heritage tourism sites, four control variables are selected, as shown in Table 3. The variable code-named "open" is measured by the proportion of total imports and exports in the GDP of each region

based on the measurement method of Lin Feng (2015) [36]. The research and development intensity (R&D) draws on the method from Cheng Huifang et al. (2015) and measures the proportion of R&D expenditure in the GDP of each region [37]. The way the government intervenes in the development of heritage sites is based upon the method of Chu Min et al. (2018), which implies the use of the proportion of fiscal expenditure in the GDP of each region [38]. The industrialization rate is measured by gross industrial output per capita, drawing on the measure from Zou Wei et al. (2018) [39].

Table 3. Definition of control variables.

Variable Name	Variable Code	Variable Definition
Degree of opening to the outside world	open	Total import and export value/GDP
Research and development intensity	R&D	Research expenditure/GDP
Government intervention	government	Fiscal expenditure/GDP
Industrialization rate	industry	Gross industrial output value/total employment

3.3. Data Collection and Indexing of Core Variables

This paper collects and collates the panel data of 10 prefecture-level cities in Shaanxi Province from 2006 to 2019. In the original data, the data on new urbanization and the transportation network was taken from the Shaanxi Statistical Yearbook, the China Urban Statistical Yearbook, and the Statistical Bulletin of National Economic and Social Development of prefecture-level cities in Shaanxi Province. The relevant data on heritage tourism was taken from the Shaanxi Provincial Cultural Relics Statistical Yearbook.

In order to eliminate the incommensurability caused by different dimensions and dimensional units, the original data were processed as dimensionless first, and then the panel data on the core variables were processed exponentially by using the linear summation weighted synthesis method. The basic trends of the new urbanization index (urb), heritage tourism index (htour), and transportation network index (trans) of 10 prefecture-level cities in Shaanxi Province from 2006 to 2019 are shown in Figure 3.

The trends of the core variable indexes, that is, the new urbanization, heritage tourism, and the transportation network index, basically grew linearly, but the growth rates were highly inconsistent. In terms of index intervals, the new urbanization index is concentrated in a much smaller range of intervals, indicating that this process is more consistent across municipalities. The dispersion span of the heritage tourism index is large, which indicates that the quality of heritage resources in various cities is quite different.

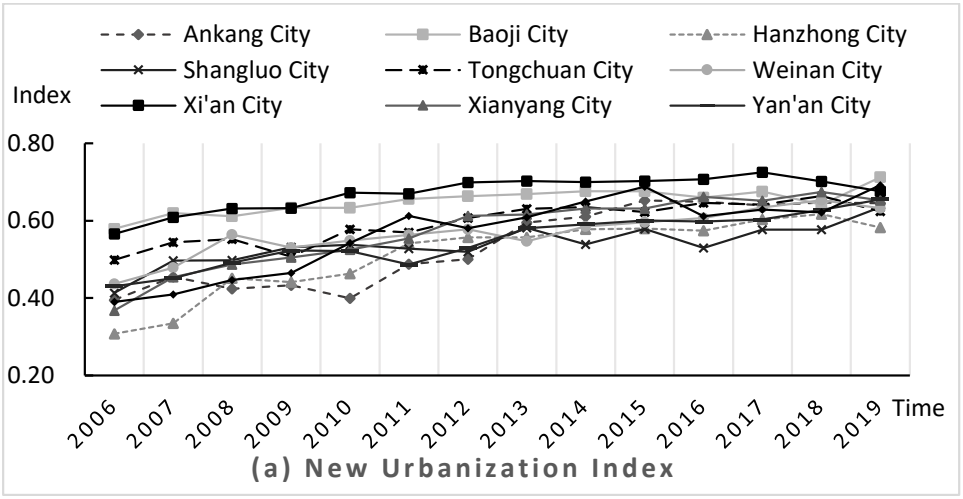

Figure 3. *Cont.*

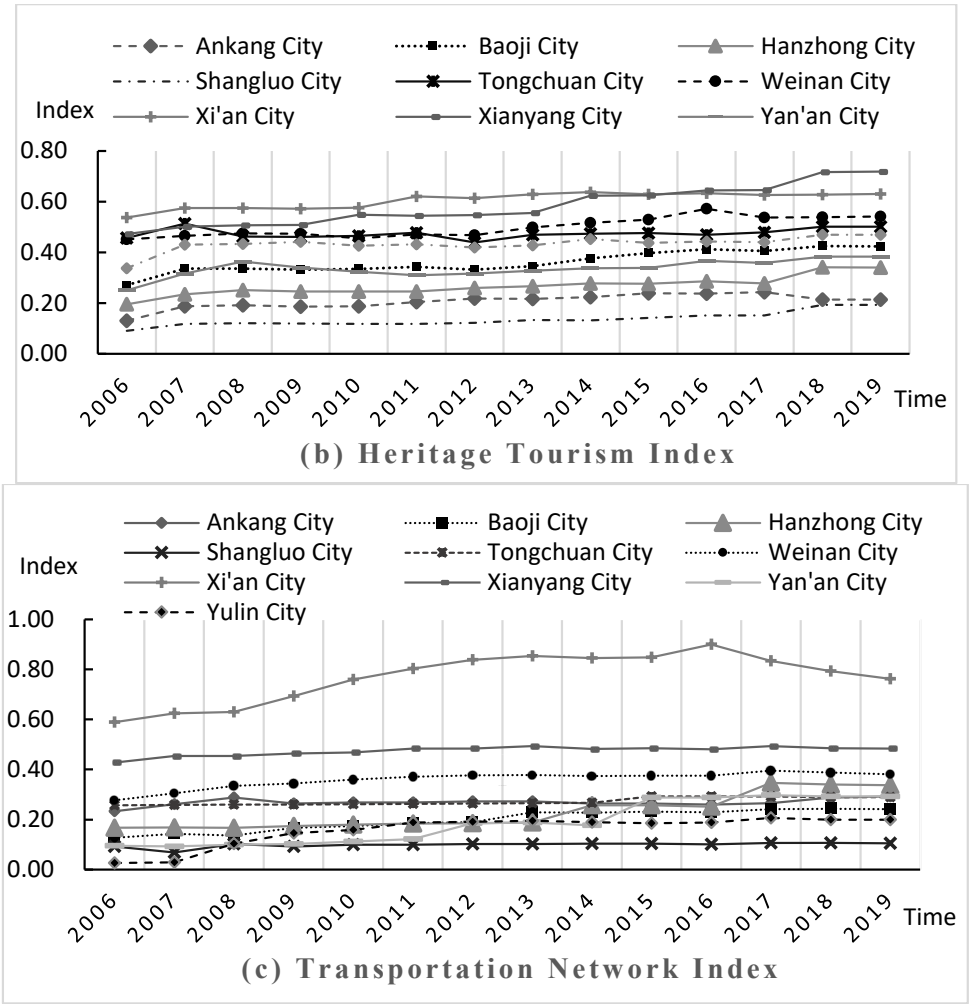

Figure 3. New Urbanization, Heritage Tourism and Transportation Network trend charts.

This research aimed to verify the following hypothesis:

Hypothesis 1 (H1): *The transportation network does not significantly affect the proxy variables of new urbanization and heritage tourism from short-term and long-term perspectives.*

Hypothesis 2 (H2): *The transportation network significantly affects the proxy variables of new urbanization and heritage tourism.*

4. Empirical Results Analysis

4.1. The Stationarity Test of Sample Data

4.1.1. Panel Unit Root Test

To investigate the long-term stable equilibrium relationship between the variables of new urbanization and heritage tourism, it is essential to conduct a stationarity test on the panel data. We used Eviews 6.0 software to perform the unit root tests, namely, the LLC and Fisher-ADF tests, for both the heritage tourism and the new urbanization variables. The results of these tests are presented in Table 4. The test statistics for both series have *p*-values of zero or close to zero at a 95% confidence level. This allows us to reject the null hypothesis of the presence of a unit root, indicating that both series data are stationary and belong to the zero-order integrated (I(0)) series.

Table 4. Panel data unit root test.

Variable	LLC Test		Fisher-ADF Test		Stable or Not
	Statistical Value	*p*.	Statistical Value	*p*.	
htour (heritage tourism)	−8.78443	<0.0001	48.347	0.0004	Stable
urb (new urbanization)	−5.70156	<0.0001	36.5581	0.0132	Stable

4.1.2. Panel Cointegration Test

The cointegration test can examine whether there is a long-term stable equilibrium relationship between variables. If the cointegration test's result is significant, the regression residuals of the equation will be stationary, leading to more accurate regression results. This study employed two widely used panel cointegration test methods, namely, the Pedroni test and the Kao test, both of which assume the null hypothesis of no cointegration relationship. The analysis entails creating intra-group statistics using panel ADF (Augmented Dickey–Fuller test), inter-group ADF statistics, and ADF statistics using the Kao test. The results of these tests are given in Table 5. At the 95% confidence level, the test statistics for all of the methods account for *p*-values close to zero, leading us to reject the null hypothesis of "no cointegration relationship", indicating the presence of a cointegration relationship between the two variables.

Table 5. Panel cointegration test of new urbanization and heritage tourism.

Inspection Method	Statistical Value	Statistical Value	*p*.	Existence of Cointegration Relationship
Pedronic test	Panel ADF	−2.250424	0.0153	Yes
	Group ADF	−1.814099	0.0348	Yes
Kao test	ADF	−2.131131	0.0165	Yes

The above test results indicate that in the process of new urbanization, both the conservation and development of heritage tourism are influenced by the level of urbanization. Factors such as the urban economic development level, population size, consumption level, urban spatial expansion, urban environment, ecological conservation, and environmental protection concepts play a promoting role in the local development of heritage tourism.

4.2. Panel Error Correction Model

The presence of a long-term cointegration relationship between heritage tourism and new urbanization implies that even short-term deviations from equilibrium will have to be corrected. For this reason, establishing a panel error correction model (ECM) allows us to further examine the long-term and short-term relationships between the two variables. ECM effectively decomposes the factors influencing the changes into the sum of long-term static and short-term dynamic relationships.

Given the cointegration relationship between the variables of heritage tourism and new urbanization, the basic characteristic of cointegration variables is their response to deviations from long-term equilibrium. Therefore, taking heritage tourism and new urbanization as explanatory and dependent variables, respectively, two panel error correction model equations of the long-term equilibrium relationship can be formulated as follows:

$$\Delta urb_{it} = \theta_0 + \theta_1 \Delta htour_{it} + \theta_2 (urb_{it-1} - mhtour_{it-1}) + e_{it} \quad (1)$$

$$\Delta htour_{it} = \delta_0 + \delta_1 \Delta urb_{it} + \delta_2 (htour_{it-1} - nurb_{it-1}) + \varepsilon_{it} \quad (2)$$

In the model equations, the combination of sequences within the parentheses reflects the extent to which the dependent variable deviates from long-term equilibrium. The parameters θ_2 and δ_2 represent adjustment coefficients, reflecting the speed of error correction.

If these coefficients are negative, it indicates that the errors deviating from equilibrium are corrected over time; otherwise, it suggests that there is no long-term dynamic adjustment relationship between the variables. θ_1 and δ_1 represent the short-term impact of the explanatory variable on the dependent variable, while "m" and "n" represent the long-term impact. θ_0 and δ_0 represent the intercept terms.

4.3. Test Results for the Long-Term and Short-Term Relationships between Heritage Tourism and New Urbanization

The estimation results of the error correction model (DFE—Dark Frame Error) are presented in Table 6. The coefficients for the error correction adjustments are all negative and statistically significant at the 1% level ($\theta_2 = -0.287$ ***, $\delta_2 = -0.502$ ***). This shows that there is a reverse error correction mechanism in the relationship between heritage tourism and new urbanization.

Table 6. Panel error correction model estimation results.

Parameters	Explanatory Variable	DFE Estimation	
		Coefficient	t
Long-term impacts m, n	htour	0.198 ***	3.33
	urb	0.445 ***	9.55
Short-term impacts θ_1, δ_1	Δhtour	0.029	0.29
	Δurb	0.210 ***	2.73
Adjustment coefficients θ_2, δ_2	htour→urb	−0.287 ***	−5.95
	urb→htour	−0.502 ***	−6.45
Intercept terms θ_0, δ_0	htour→urb	0.002 ***	6.39
	urb→htour	0.002 ***	6.684

Note: *** indicates significance at the 99% confidence level.

(1) Whether in the longterm or shortterm, the impact of new urbanization on heritage tourism is highly significant; however, it shows different contribution elasticities. In the short term, the contribution elasticity (0.210) of new urbanization to heritage tourism is less than half of its long-term contribution elasticity (0.445). In the long run, as high-quality heritage tourism resources receive recognition from UNESCO and national ministries, and as the number of world cultural heritage sites continues to increase, the contribution elasticity of new urbanization to heritage tourism also grows. For every increase of one standard deviation in heritage tourism, new urbanization's contribution rises by 0.445%.

Since joining the "Convention Concerning the Protection of World Cultural and Natural Heritage" in 1985, China has become one of the countries with the fastest growth in the number of World Heritage sites. This period also coincides with the 35 years of China's rapid urbanization development. Various regions in China have developed multiple urbanization models from the bottom up, especially culture and tourism-oriented towns that combine regional characteristics and promote cultural heritage, becoming key construction projects for local governments to promote new urbanization [1]. The rise and fall of some local culture and tourism-oriented towns also offer intriguing experiences and lessons for the development path of new urbanization. In the process of rapid and extensive urbanization, some local governments' blind and short-term actions to build "ancient cities", "ancient towns", and "ancient villages" with massive investments have led to numerous man-made tourist attractions that are short-lived, resulting in failures and a waste of tourism investments.

(2) In the short term, the impact of heritage tourism on new urbanization has not shown significant changes, but in the long term, heritage tourism has had a positive promoting effect on new urbanization. The *t*-test value for the short-term impact of heritage

tourism on new urbanization did not pass the significance test (θ_1 = 0.029, t = 0.29), whereas, in the long term, it was significant at the 99% confidence level (m = 0.198 ***, t = 3.33).

The core products of heritage tourism are considered public goods and are subject to strict cultural heritage and environmental protection policies. A substantial amount of government fiscal funds is allocated to cultural heritage and environmental protection projects. Comprehensive museums are open to the public for free, and the charging standards for the thematic protection museums are strictly controlled by the government. Tourism's economic function is subordinate to its social, cultural, and educational public services, while significant financial inputs are required for regular maintenance and management expenses. The long-term impact of cultural heritage tourism on urban development is evidenced by the tremendous achievements in the integration of culture and tourism in Xi'an City. The Han Chang'an City World Heritage project in Xi'an City involves environmental improvement, heritage site display, infrastructure, plant configuration, land requisition and demolition, native dweller resettlement, etc., with a total expenditure of over CNY 13 billion of which nearly CNY 10 billion will be used for compensation, resettlement, social insurance, transitional expenses, and land costs for the relocated residents. According to a conservative estimate with a construction intensity of 50%, the overall protection fund for the Han Chang'an City site (see Figure 1) is expected to be about CNY 50 billion[3]. The pressure of massive financial protection funds has driven the Xi'an municipal government to continuously innovate cultural heritage tourism policies, leading to the formation of the "cultural tourism and urban construction" mode in the protection of Xi'an's large-scale historical sites. Cultural heritage sites are combined with urban commercial districts, central green spaces, residential properties, urban forests, and ecological landscape belts to create a multi-functional urban format integrating sightseeing tourism, leisure entertainment, business exhibitions, and tourism real estate. The 3.2-square-kilometer Daming Palace National Heritage Park is integrated into the comprehensive transformation of a 19.6-square-kilometer urban area, with a market value of CNY 12 billion to construct the Daming Palace National Heritage Park. This has driven the social and economic development of the surrounding areas and promoted the perfect integration of heritage tourism sites with modern urban development. In June 2014, the Weiyang Palace Site in Chang'an City and the Tang Chang'an City Daming Palace Site were successfully included in the World Heritage List as part of the "Silk Roads: Chang'an-Tianshan Corridor" cultural heritage, making them new tourist hotspots located in the northern suburbs of Xi'an.

(3) In the long-term, the contribution of new urbanization to heritage tourism by far surpasses the contribution of heritage tourism to new urbanization. New urbanization significantly stimulates heritage tourism. For every 1% increase in heritage tourism, the growth rate of new urbanization will rise by 0.198%, whereas for each 1% increase in the growth rate of new urbanization, heritage tourism will increase by 0.445%. This implies that a higher level of new urbanization can greatly enhance the positive impact on the growth of local heritage tourism. This conclusion further corroborates arguments indicating that in both the long and short term, new urbanization plays a crucial role in driving heritage tourism. From this conclusion, practical policies can be derived, emphasizing the necessity of sustained efforts to strengthen the input of elements in new urbanization, enhance the demand and supply system of urban areas, establish a well-functioning tourism support system, and combine it with the advantages of local heritage resources. Only by doing so can new urban areas with distinctive cultural features be formed, ensuring that culture and tourism-oriented towns possess sustainable vitality and distinctive local IP culture characteristics.

(4) From the perspective of the reverse correction speed, which reflects short-term fluctuations while returning to the long-term equilibrium, heritage tourism shows a faster response compared to the level of new urbanization. The significant negative coefficients for Δhtour and Δurb indicate the existence of a reverse error correction mechanism between heritage tourism and new urbanization. When heritage tourism

experiences a short-term fluctuation of one standard deviation, the economy of new urbanization can recover by 0.287% toward its original level. On the other hand, when the economy of new urbanization undergoes a short-term fluctuation of one standard deviation in the opposite direction, heritage tourism can see a 0.502% return toward its original level. This recovery rate for heritage tourism is nearly twice as fast as that of new urbanization, highlighting the multiplier effect advantage of heritage tourism on the national economy and its role in accelerating the promotion of new urbanization. This conclusion further explains and supports the notion that heritage tourism may not contribute significantly to new urbanization in the short term, but it has a highly significant and elastic contribution in the long term. Therefore, regions rich in cultural heritage resources should not disregard the actual level of local economic development. Also, it is not recommended to hastily construct historical-themed towns with the hope of boosting the local economy through tourism in the short term. Such efforts may have counterproductive results and hinder the healthy development of urban economies. Instead, local governments should focus on vigorously promoting the development of new urbanization economies and establishing a sound tourism infrastructure, which will further foster the prosperity of heritage tourism in the region.

4.4. Regulatory Effect Regression Model

The level of development of the transportation network directly influences urbanization and plays a crucial driving role in promoting new urbanization and regional integration [40]. Improvements in transportation infrastructure have a positive impact on both new urbanization and regional integration. In areas with dense cultural heritage resources, there are strict policies governing the protection of cultural relics within the core preservation zones and construction control zones. For instance, there are restrictions on cultural relics' "purple line" control, the construction of high buildings, and land use [41]. The total area of the Han Chang'an City ruins in the northern suburbs of Xi'an is 75 square kilometers. In conjunction with the Silk Road World Heritage application project, a 6.1-square-kilometer area of the Weiyang Palace ruins has undergone cultural relic protection and display projects, as well as environmental improvement projects. For roads within the ruins area, there are restrictions on the excavation depth, ranging from 0.3 m to 1 m. Based on this fact, this paper argues that, in the significant relationship between new urbanization and heritage tourism, the expansion and extension of the transportation network have both promoting and limiting effects.

The contribution of long-term new urbanization to heritage tourism is far greater than vice versa. We further investigated how the rapid development of heritage tourism, under the expansion and extension of the transportation network, impacts new urbanization.

Using hierarchical regression analysis, we established two regression models to test the regulatory effect of the transportation network on new urbanization and heritage tourism. We took new urbanization (*urb*) as the dependent variable, heritage tourism (*htour*) as an independent variable, and the transportation network (*trans*) as a regulatory variable. Equation (1) represents the general regression equation, while Equation (2) includes the interaction term (product term) between heritage tourism and the transportation network. If the determination coefficient R^2 of Equation (4) is significantly larger than that of Equation (3), it indicates a significant moderating effect [42].

$$urb_{it} = \varphi_0 + \varphi_1 htour_{it} + Z_{it} + \mu_{it} \tag{3}$$

$$urb_{it} = \varphi_0 + \varphi_1 htour_{it} + \varphi_2 trans_{it} + \varphi_1 htour_{it} trans_{it} + Z_{it} + \mu_{it} \tag{4}$$

Before conducting the regression analysis, we performed a test for multicollinearity. The correlation coefficients between the explanatory variables were mostly below 0.5. The interval estimates of the variance inflation factor (VIF) test ranged from 1.46 to 5.50, with a

mean VIF value of 2.83, significantly lower than the maximum tolerance threshold of 10. This indicates that the model is not affected by multicollinearity.

4.5. Model Estimation Methods

Based on the Hausman test results, the fixed-effects (FE) method was employed for parameter estimation, as shown in Table 7 for Model 1 and Model 2. Model 2 includes an additional interaction term between heritage tourism and the transportation network compared to Model 1. The goodness of fit, as indicated by the R-squared values, shows that Model 2 ($R^2 = 0.754$) is better than Model 1 ($R^2 = 0.644$), indicating that the moderating effect in Model 2 is significant compared to Model 1. Therefore, under the assumption of no endogeneity issues, Model 2 can better estimate the regulatory effect of the transportation network. The interaction term between heritage tourism and the transportation network is found to be significantly negative ($\beta = -2.147$, $p < 0.01$), indicating that the transportation network plays a significant negative regulating role between heritage tourism and new urbanization. A denser transportation network with increasing traffic capacity results in overcrowded tourist attractions and a decline in the quality of tourist reception. Simultaneously, the pressure of commercial land use on heritage objects leads to a continuous encroachment on heritage conservation land, causing damage to the cultural heritage preservation environment. This also results in a decrease in the quality of the tourist experience, a reduction in the number of tourists, and a weakening of the positive promotion effect on urban economic development.

4.6. Handling Endogeneity

In Model 4 in Table 7, the fixed-effects (FE) method is used for estimation, with the null hypothesis assuming the exogeneity of the explanatory variables, meaning that the explanatory variables are assumed to be unrelated to the random disturbance term. However, heritage tourism, being the core explanatory variable in this study, exhibits a bidirectional interactive influence with new urbanization, as thoroughly demonstrated in the previous error correction model analysis. The DurbinWuHausman endogeneity test conducted with the model shows that at the 10% significance level, the statistics significantly reject the null hypothesis that "heritage tourism is exogenous," indicating that heritage tourism does indeed suffer from endogeneity issues.

To avoid estimation biases caused by endogeneity, the instrumental variable (IV) estimation method is adopted to address this problem. Borrowing from the approach of Yang, S. et al. (2017) and Wu, X. et al. (2019), the proximity of the source market and forest coverage rate are used as instrumental variables for heritage tourism. The validity of the instrumental variables is assessed through the Two-Stage Least-Squares (IV-2SLS) estimation [43,44]. The statistical results are shown in Table 7. The IV-2SLS estimation results indicate that when each instrumental variable is individually introduced, the Kleibergen–Paap rk LM statistics are significant at the 99% confidence level, indicating that the instrumental variables effectively identify endogeneity. The Cragg–Donald Wald F statistics are all above the critical value of 15%, and the F-values of the first stage in Model 3 to Model 6 are all greater than 10, indicating that there are no problems with several instrumental variables. Model 7 and Model 8 simultaneously introduce both instrumental variables. Based on the criteria of the above test statistics, the *p*-values of the over-identification test are all above 0.1, indicating that both instrumental variables satisfy exogeneity. These test results demonstrate the validity of the selected instrumental variables. Model 4, Model 6, and Model 8 include the interaction term between heritage tourism and the transportation network. It can be observed that the negative regulatory effect of the transportation network on heritage tourism and new urbanization remains unchanged, confirming the reliability of the estimation results using the fixed-effects model.

Table 7. Estimation results of transportation network's regulatory effect.

Model	Fixed Effects		Single Introduction of the First Instrumental Variable		Single Introduction of the Second Instrumental Variable		Simultaneous Introduction of Both Instrumental Variables	
	M1	M2	M3	M4	M5	M6	M7	M8
htour	0.0111 *** (0.00274)	0.0261 *** (0.0060)	0.0088 *** (0.0027)	0.0206 *** (0.0067)	0.0089 ** (0.0038)	0.0171 ** (0.0077)	0.0088 *** (0.0027)	0.0195 *** (0.0066)
Trans	0.2780 *** (0.0841)	0.7610 *** (0.2080)	0.0994 ** (0.0391)	0.7780 *** (0.2470)	0.0983 ** (0.0472)	0.6710 ** (0.2840)	0.0992 *** (0.0379)	0.7430 *** (0.2480)
htour×trans		−2.147 ** (0.821)		−2.7620 ** (1.0770)		−2.2500 * (1.2450)		−2.5930 ** (1.0740)
open	1.26×10^{-5} (8.82×10^{-6})	1.43×10^{-3} (8.28×10^{-6})	1.10×10^{-6} (4.50×10^{-6})	-2.51×10^{-7} (3.62×10^{-6})	1.13×10^{-6} (4.93×10^{-6})	-4.43×10^{-7} (3.80×10^{-6})	1.11×10^{-6} (4.56×10^{-6})	-3.14×10^{-7} (3.67×10^{-6})
R&D	−0.1651 * (0.0910)	−0.1270 (0.0904)	0.0011 (0.0567)	0.1110 * (0.0586)	0.0009 (0.0600)	0.0934 * (0.0545)	0.00109 (0.0572)	0.1050 * (0.0559)
government	0.0054 *** (0.00116)	0.0050 *** (0.00111)	0.0038 *** (0.0012)	0.00284 *** (0.000870)	0.0038 *** (0.0012)	0.0028 *** (0.0008)	0.0038 *** (0.0012)	0.0028 *** (0.0009)
industry	1.89×10^{-8} *** (6.36×10^{-9})	1.64×10^{-8} ** (6.30×10^{-9})	9.86×10^{-9} * (5.32×10^{-9})	1.78×10^{-8} *** (4.41×10^{-9})	9.75×10^{-9} (6.84×10^{-9})	1.83×10^{-8} *** (4.47×10^{-9})	9.84×10^{-9} * (5.40×10^{-9})	1.80×10^{-8} *** (4.41×10^{-9})
cons	0.0023 *** (0.0008)	−0.0011 (0.0014)	0.0047 *** (0.0005)	0.0010 (0.0016)	0.0046 *** (0.0005)	0.2446 ** (0.0901)	0.0046 *** (0.0004)	0.0012 (0.0016)
R2	0.644	0.754						
Hausman test	10.00 * [0.0751]	11.78 * [0.0671]						
First-stage F-statistic			34.1324	67.4653	16.0413	36.0756	20.7185	69.9878
Second-stage R2			0.4098	0.4799	0.4081	0.4866	0.4095	0.4825
Kleibergen–Paap rk LM statistic			27.870 [<0.0001]	24.047 [<0.0001]	13.263 [0.0003]	40.443 [<0.0001]	27.957 [<0.0001]	40.594 [<0.0001]
Cragg–Donald Wald F-statistic			35.760	118.241	14.676	61.681	19.032	82.796
Hansen-overid statistic							0.0008 [0.9769]	0.4209 [0.5165]

Note: () represents coefficient standard errors, [] represents corresponding statistical test *p*. ***, **, and * indicate significance levels of 1%, 5%, and 10% respectively.

5. Dynamic Regulatory Mechanism of Transportation Network Effect on Urbanization of Heritage Tourism Destinations

5.1. Dynamic Regulation Path of Transportation Network

In order to clearly reflect the regulatory effect of the transportation network, this study presents the dynamic relationship between heritage tourism and new urbanization, as shown in Figure 4. The figure predicts the level of new urbanization based on the entire range of values for heritage tourism while simultaneously examining the impact of differences in high- and low-density transportation networks on new urbanization. The mean plus and minus the standard deviation of the transportation network index represents high-density and low-density, respectively.

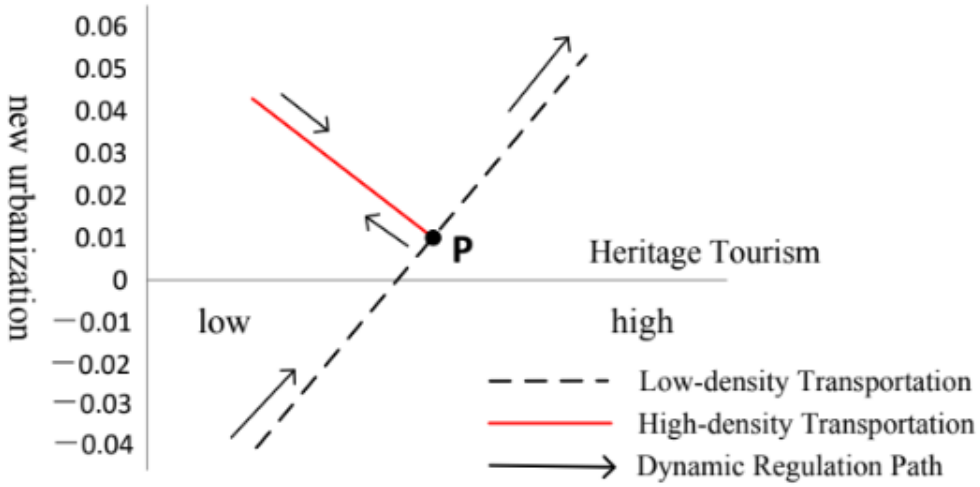

Figure 4. Simulation of the dynamic regulatory pathway of transportation network. Arrows indicate the mechanism of equilibrium among three variables, while p point is the equilibrium point.

From the simulation graph, it can be observed that at low-density levels of the transportation network, the general demands of both urbanization and heritage tourism are met. The development of the transportation network contributes positively to the continuous improvement of both heritage tourism and new urbanization levels, playing a positive regulatory role. This conclusion is also supported by the results presented in Table 7, where the regression coefficients for heritage tourism and the transportation network are all positive at the 99% and 95% confidence levels. After reaching point P, where the density of the transportation network transitions from low to high, the positive regulatory effect on new urbanization is maintained, but a negative regulatory effect on heritage tourism begins to emerge. This finding is also evident in Table 7, where the interaction coefficient between heritage tourism and transportation network is significantly negative at the 95% confidence level, indicating a significant negative regulatory effect of the transportation network on heritage tourism. Heritage tourism destinations with dense transportation networks have increased carrying capacities, which may result in overcrowding and a decline in the quality of tourism reception as the town's economy fails to cope with the growing influx of visitors. With policy adjustments toward people-oriented urbanization and the strict protection of cultural relics, high-density transportation networks eventually revert to a turning point P, where both the positive regulatory effect of the transportation network on new urbanization and the negative regulatory effect on heritage tourism are weakened until returning to the original turning point. At the inflection point, the transportation carrying capacity reaches a relative equilibrium state, leading to the recovery of the positive regulatory effect at low-density levels of the transportation network. The graph clearly shows that the regulatory effect of the transportation network between new urbanization and heritage tourism follows a pathway of positive and then negative regulation and back to positive regulation, correcting the deviation caused by excessive tourism development.

5.2. The Realistic Logic of Low-Density Moderate Development in Heritage Tourism Destinations

As the urban economic and industrial levels improve, the industrial structure becomes more rational, infrastructure continuously gets upgraded, and cultural awareness among community residents strengthens. Additionally, there is an enhancement in tourists' consumption patterns and expense levels. As a result, the long-term mechanism of promoting heritage tourism was formed as an integral part of the urban economic system.

During the process of new urbanization, as industrialization levels and infrastructure conditions continuously improved and strengthened, the development of transportation networks facilitated the positive and constructive role of heritage tourism. With the expansion of urban development, transportation networks sprawl and become much denser. Consequently, some remote heritage tourism sites attract an influx of tourists due to im-

proved transportation. In the short term, the capacity to accommodate a high tourism demand becomes insufficient, leading to severe overloading, that is, the deterioration of the tourism environment. It will also lead to a decline in tourism quality and the destruction of vulnerable heritage resources. Renowned heritage tourism destinations are suffering from the excessive commercialization of tourism development with the constraints of rigid cultural and environmental protection policies. The positive effect of heritage tourism on new urbanization is gradually weakening, and meanwhile, the negative impactsare growing. In 2007, six Chinese World Heritage sites, including Lijiang Ancient Town, received a "Yellow Card Warning" from UNESCO. In June 2009, UNESCO removed the "Dresden Elbe Valley" in Germany from the World Heritage List because the local government constructed a modern four-lane, 635 m long bridge across the valley, severely damaging the landscape. With the regulation and adjustment of rigid policies, excessively commercialized heritage tourism destinations have gradually returned to a level that their transportation networks can sustain. Heritage tourism has once again resumed its positive regulatory role in promoting new urbanization. Some heritage tourism sites warned by UNESCO have actively strengthened environmental rectification and resource protection measures. Moreover, they were obliged to restrict tourist flow to restore the carrying capacity of transportation networks to a reasonable level.

As a unique form of tourism resources, heritage tourism destinations require conservation as a prerequisite for development. The extensive expansion of transportation networks can potentially harm these valuable heritage resources. To control heritage-oriented urbanization, the international practice involves delineating the boundary between the core protected area of the heritage tourism destination and the peripheral controlled development zone. Beyond this boundary, transportation networks are integrated with urban transportation systems, while within it, aspects such as the transportation density and capacity are incorporated into overall cultural heritage conservation planning, following the requirements of heritage and environmental protection. To avoid excessive congestion at transportation transition points, heritage tourism sites often implement measures such as reservation systems, daily visitor limits, and designated buffer zones with an additional tourism experience to alleviate and manage transportation pressure. By facilitating seamless transitions between different transportation systems, low-density and appropriate development of heritage tourism sites can be effectively regulated. For instance, within the core protected area of a heritage tourism site, only footpaths and non-motorized vehicle lanes are provided to control the instantaneous flow of visitors. Furthermore, in comprehensive urban planning, strict control is exercised to maintain harmony and openness between city skylines and the environment of heritage tourism destinations [45]. The development of smart, green, and efficient transportation systems is encouraged, optimizing the operation of road networks and guiding urban development toward intensity and efficiency [22]. The core protected area of the Han Chang'an City ruins in the northern suburbs of Xi'an covers an area of 36 square kilometers. It was announced as one of the first national key cultural relic protection units in 1961 and has undergone three large-scale urban planning and construction projects. By strictly controlling the transportation network at the boundary of the heritage site, the original appearance of the ancient city ruins including the Han Dynasty palaces and city walls has been well preserved, and the site was successfully inscribed as a UNESCO World Heritage Site in 2014. The transportation roads within this enclave tourism have been fully integrated into the overall protection planning of Han Chang'an City, particularly in terms of visitor services and infrastructure facilities. In Xixian New District of Xi'an City, the protected cultural heritage land covers 137 square kilometers, with a controlled developing zone of 105 square kilometers, which accounts for nearly 40% of the planned construction in the new area. The low-density transportation network within the new area effectively controls the expansion pressure of urban development [46]. The above facts illustrate that long-perspective urban planning and top-level system design can effectively control the sprawl of urbanization and restrict tourists' excessive influx into heritage tourism destinations.

6. Conclusions and Discussion

6.1. Research Findings and Theoretical Contributions

This study is based on the real challenges of the urbanization development of heritage tourism destinations. It used panel data from ten prefecture-level cities in Shaanxi Province for the period 2006–2019. By employing a panel error correction model, the study analyzed the short-term and long-term relationships between new urbanization and heritage tourism and established a regression model to explore the dynamic moderating mechanism of the transportation network effect on the impact of new urbanization on heritage tourism destinations.

The degree of mutual influence between new urbanization and heritage tourism is inconsistent. New urbanization has a positive impact on heritage tourism destinations in both the short and long term, while the contribution elasticity is also significant. Conversely, the impact of heritage tourism on new urbanization remains relatively stable in the short term but exhibits a significant positive effect in the long term. Moreover, in the long run, new urbanization contributes more to heritage tourism than vice versa. A 1% increase in the development level of heritage tourism leads to a 0.198% increase in the growth rate of new urbanization, while a 1% increase in the growth rate of new urbanization results in a 0.445% increase in the development level of heritage tourism. Thus, the driving effect of new urbanization on heritage tourism is highly significant.

The short-term contribution elasticity of new urbanization to heritage tourism is smaller compared to that in the long term. In the short term, the contribution elasticity of new urbanization to heritage tourism is 0.21, while in the long term, it increases to 0.445. The reverse correction speed from short-term fluctuations to long-term equilibrium shows that heritage tourism responds faster than new urbanization. A one-standard-deviation reverse change in heritage tourism leads to a 0.287% recovery in the economy of new urbanization, while a one-standard-deviation reverse change in the economy of new urbanization results in a 0.502% recovery in heritage tourism. The recovery speed of heritage tourism is nearly twice as fast as that of new urbanization. Thus, only continuous and increased investment in the elements of new urbanization can manifest the benefits of promoting the local economy through heritage tourism. Otherwise, short-term investment solely in heritage tourism may not yield significant results.

At a low-density level of the transportation network, transportation network development positively regulates the development of heritage tourism and new urbanization. After reaching an inflection point, transportation network development continues to have a positive regulatory effect on new urbanization while starting to negatively affect heritage tourism. With the adjustment of heritage site policies, high-density transportation networks return to the inflection point. The same process then continues with low-density transportation networks. It can be observed that transportation network development regulates heritage tourism and new urbanization in a sequence of positive and negative regulation, gradually bringing the overdeveloped heritage tourism back to a balanced and moderate development trajectory, effectively promoting the level of new urbanization. So, all in all, we can conclude that the null hypothesis, which states that the transportation network does not affect new urbanization and heritage tourism from short-term and long-term perspectives, can be rejected.

6.2. Managerial Implications

(1) Heritage tourism destinations should actively promote the high-quality development of new urbanization, enhance the function of heritage tourism as an optimized allocation of urban resources, improve tourism infrastructure, and create new urban areas with rich local cultural characteristics. The healthy development of new urbanization is a long-term and gradual process that requires the continuous improvement of urban–rural social structures, infrastructure, and resource-environment-carrying systems to provide a comprehensive supply for the orderly and moderate development of heritage tourism [46]. The transportation networks in heritage tourism destina-

tions should promote a reasonable spatial layout of new urbanization to ensure the long-term vitality of the tourism industry [40,47].

(2) Efforts should be made to strengthen the intelligence and intensification of the transportation network system. Connecting towns and heritage tourism destinations plays a vital role in regulating the accessibility, convenience, smoothness, and limited capacity of heritage tourism destinations [48]. Comprehensively developing smart and intensive transportation using top-level system design can improve the spatial structure of new urbanization in heritage tourism destinations [49,50]. On the one hand, it should connect seamlessly with the urban transportation network, and on the other hand, it should be integrated with heritage tourism destination protection projects.

(3) Moderately control should be employed in the development speed of transportation networks between new urbanization and heritage tourism destinations. The western regions have significant ecological and cultural fragility with a limited environmental carrying capacity. The only way to realize urbanization is to moderate development. Generally speaking, in the process of new urbanization, also according to the conservation management plan, the development speed of transportation in heritage tourism destinations should be slower than that in central urban areas. It is essential to integrate the transportation of heritage tourism destinations into the overall planning of new urbanization and cultural heritage protection [17,51,52]. The approach will effectively reconcile the contradiction between the low-density moderate development of heritage tourism destinations and the rapid expansion of new urbanization.

6.3. Limitations and Issues for Further Discussion

Limited by the data collection, this study focused on the cities in China's Shaanxi Province. If the statistical data from the Chinese official documents covered the heritage sites in villages and counties, the empirical analysis would be more representative.

The conclusions drawn from this study confirm the viewpoints of Zhu Hong [20] and Li Lei [48] on the development of urban transportation and cultural heritage protection in Beijing. It is important to emphasize that the research findings do not imply that the transportation network in heritage tourism destinations should be ignored or weakened but rather suggest the effective control of low-density transportation network development. As shown in Figure 4, there are some issues that need further research, such as the methodology for calculating the inflection point threshold of the transportation network density in heritage tourism destinations. Also, it is important to inspect the regional heterogeneity around the inflection point, because the eastern and western regions in China differ in their new urbanization levels. Moreover, the early warning system and coordination mechanisms within heritage tourism destinations should also be worked out appropriately. The above-mentioned issues need to be addressed in further research, and a more extensive and systematic analysis should be carried out.

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Notes

[1] "Tourism Review about May Day Holiday in 2019", Qingmuchuan Ancient Town Scenic Area, https://www.qmcgz.com/news/gzdt/370.html (accessed on 7 May 2019).

[2] In 2015, many cities have broadened their restrictions on urban settlements. Xi'an Railway Port has become the largest railway logistics distribution center in Asia. The green coverage rate of urban built-up areas has reached 40.8%. Sponge cities and garden cities have become development goals.

[3] The data and information are sourced from the Institute of Architectural History at the China Architecture Design & Research Group and other related institutions. The specific document is titled "Detailed Planning of the Weiyang Palace Area in the Han Chang'an City Archaeological Site Park (2012–2020)," dated October 2012.

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