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DOES REGIONAL ECONOMIC INTEGRATION FACILITATE THE HIGH-QUALITY DEVELOPMENT OF THE TOURISM INDUSTRY? EVIDENCE FROM CHINA[1]

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ABSTRACT. The regional economic integration strategy facilitates not only interconnection between provinces and cities in a region but also the rapid growth of China's tourism economy. Nevertheless, the questions of how the rapid growth of the tourism industry affects the ecological environment and whether it is conducive to the high-quality development of the tourism industry in China remain unanswered. Examining these questions can help to summarise the internal motivations of the regional economic integration strategy to facilitate the high-quality development of the tourism industry. To determine how to resolve the issues in the high-quality development of the tourism industry, using data from provincial statistical yearbooks of China, statistical bulletins, and the CSMAR database from 2001 to 2019, the influence of regional economic integration on the development quality of the tourism industry was analysed empirically. Results show that regional economic integration restrains the high-quality development of tourism in China's Yangtze River Delta. A certain degree of conflict exists between regional economic integration and the ecological environment. The influence of regional economic integration on the

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high-quality development of the tourism industry in different provinces and cities varies. Regional economic integration significantly restrains the overall high-quality development of the tourism industry in the Yangtze River Delta. However, this influence is not significant in the provinces and cities in the region. Therefore, considerable attention should be paid to the conflict risks between regional economic integration and the ecological environment. The different provinces and cities are encouraged to strengthen their communication and cooperation and promote regional economic integration development and ecological environmental improvement simultaneously to realise the sustainable and high-quality development of the tourism industry. This study provides a reference for the policy practice of regional economic integration and the high-quality development of the tourism industry in China.

KEYWORDS: regional economic integration, relative price difference, tourism industry, high-quality development.

JEL classification: Z32, Q56, O11, C33.

Introduction

As an important strategic pillar industry of the national economy, the tourism industry plays an important role in increasing foreign currency earnings, improving the state image, and stimulating domestic demands. As income levels rise and leisure time increases, people are apt to engage increasingly in high-quality tourism consumption. According to the Report of World Tourism Economic Trends (2020), as of December 2019, the global number of overseas tourists increased by 4% to 1.5 billion, and global total tourism income increased by 8.6% to 5.8 trillion dollars. With respect to regional tourism, developed tourism economies are concentrated mainly in Asia-Pacific, the United States, and Europe. America, China, and Germany are the top three in terms of total tourism income, thereby indicating that China plays an important role in global tourism development. Although regional economic integration realised global tourism industry interconnectivity and rapidly changed tourists' travelling intentions and behaviours, determining how regional economic integration affects the high-quality development of the tourism industry in China which is upgrading regional economic integration to a national strategy, would be interesting. Against the background of China's proposed high-quality economic development and sustainable development, examining the influence of regional economic integration on the high-quality development of the tourism industry can provide an academic reference to relevant departments for optimising the tourism development environment.

With the deepening development of regional economic integration in recent years, some studies (Herrera *et al*., 2018; Birendra *et al*., 2021) pointed out that various uncertainty factors, such as ecological crises, environmental pollution, and viruses, may hinder the promotion of the high-quality development of the tourism industry. After the release of the 2030 Agenda for Sustainable Development, China took the initiative to set various sustainable development goals, that is, to effectively connect the high-quality development and national strategy, actively promote the establishment of regional economic integration, and upgrade the regional economic integration of the Yangtze River Delta to a national strategy. Although

China achieved significant progress in ecological civilization and environmental greening, environmental pollution caused by rapid regional economic development remains serious. China remains in the stage of highlighted contradictions, and problems such as imbalance and insufficiency are prominent. Moreover, concerns about the impact of external environment uncertainty emerged. Specifically, the tourism industry halted temporarily owing to the sudden COVID-19 pandemic. Against this background, how to solve the problems faced by the tourism industry and improve the development quality has become an urgent affair. The high-quality development of the tourism industry can serve as an effective assessment of China's current stage and provide direction for tourism industry development (Nguyen, Su., 2021).

Unfortunately, most related studies focused merely on the relationship between the regional economy and tourism industry, and research on the regional economy, ecological environment, and high-quality development of the tourism industry is lacking. This study addresses the following questions: does regional economic integration promote the high-quality development of the tourism industry in China? Do conflicts exist between regional economic integration and the ecological environment? Do differences exist in the impact of regional economic integration on the high-quality development of tourism between the provinces and cities in a region? Empirical studies attempting to answer these questions provided policy suggestions for the coordinated promotion of regional economic integration and high-quality tourism development.

On this basis, an evaluation index system of the high-quality development of the tourism industry is established in this study using panel data from 2001 to 2019. The Yangtze River Delta in China is chosen as the research object. An empirical study of the influence of regional economic integration on the high-quality development of the tourism industry is conducted based on a fixed-effects model combining the theory of sustainable development. Compared with existing studies, the present study provides the following contributions. 1) A comprehensive evaluation index system of the high-quality development of the tourism industry is established. Based on this system, how regional economic integration affects the high-quality development of the tourism industry is explored. 2) Ecological environmental factors are introduced to explore whether regional economic integration conflicts with the ecological environment, thereby restraining the high-quality development of the tourism industry. 3) Differences in the impact of regional economic integration on the high-quality development of the tourism industry between the provinces and cities in the region are analysed by combining the high-quality development of the tourism industry with the national strategy of regional economic integration. This study provides a new understanding of the realisation of the high-quality development of the tourism industry and several countermeasures for the collaborative implementation of regional economic integration, ecological environmental protection, and high-quality development of the tourism industry.

The rest of this study is arranged as follows: Section 1 presents the literature review; Section 2 introduces the research methods and research data; Section 3 analyses the major empirical findings, including the descriptive statistics, general regression analysis, regional regression analysis, endogenous test, and robust test; Section 4 provides further discussions; and the last section summarises the conclusions and policy suggestions.

1. Literature Review

Existing studies on the analytical framework of tourism industry development focused mainly on development efficiency and quality. The development efficiency of the tourism

industry refers to the efficiency of tourism inputs and outputs, which is used to measure the effectiveness of tourism industry development. The development quality of the tourism industry is reflected by the capability of tourism resources to meet people's demands for high-quality tourism and improve tourists' satisfaction.

First, abundant research on regional economic integration exists. The degree of regional economic integration is measured mainly by market integration or market segmentation. Compared with other measurement methods, the relative price method of Lu, Chen (2009) for estimating results is more stable. Hence, the present study employs the relative price method to estimate the degree of regional economic integration. Second, early studies on the development quality of the tourism industry concentrated on the improvement of regional economic efficiency but rarely included high-quality economic development. As China's economic development gradually enters a new era, high-quality regional economic development has become an important academic topic (Quan *et al*., 2021). Currently, studies on the high-quality development of the tourism industry are in the initial stage. Some studies lingered on the qualitative description of the basic characteristics and countermeasures for the high-quality development of the tourism industry, whereas others discussed the high-quality development of the tourism industry from the quantitative perspective. However, using a single index, such as the tourism industry scale or total factor productivity, to measure the high-quality development of tourism (Meneguel *et al*., 2019; Sarpong *et al*., 2020) cannot effectively reflect its diverse characteristics. Finally, comprehensive studies on the development efficiency of the tourism industry in China and other countries were conducted using mainly data envelopment analysis (Afriat, 1972; Charnes *et al*., 1978; Bankers *et al*., 1984; Chaabouni, 2019; Wang *et al*., 2020). In current empirical studies, numerous inconsistent results on the relationship between the tourism industry and regional economic development were presented (Blake *et al*., 2008). For example, Oh (2004) determined the absence of a relationship between the tourism industry and economic development, whereas Pulido-Fernández, Cárdenas-García (2021) believed that the relationship between tourism and economic development differs significantly in different shocks. As applying related studies to China's tourism industry development is difficult, an analysis based on China's local conditions is necessary.

Based on the above analysis, with respect to the theoretical concept, the high-quality development of the tourism industry refers to the transition from the excessive pursuit of quantity, scale, and speed as well as the past extensive development mode of the blind pursuit of tourism economic benefit growth to the overall promotion of quality-benefit improvement. High-quality development involves implementing the development concept of innovation, coordination, greenness, openness, and sharing (Jiang *et al*., 2021) to realise the sustainable development of the tourism economy, pursue green tourism development, improve tourism innovation capability, optimise the tourism industry structure, and enhance the tourism supply quality. As a result, the collaborative improvement of tourism economic, social benefits, and ecological benefits will be promoted. Generally, the high-quality development of the tourism industry is not the simple pursuit of rapid tourism economic development but the pursuit of coordination between tourism economic efficiency and quality. Promotion of the high-quality development of the tourism industry is an essential trend and objective requirement for adapting to China's economic development. With respect to content, the high-quality development of the tourism industry involves increasing tourism economic efficiency, optimising the tourism industry scale, and improving the tourism ecological environment (Tian *et al*., 2021). With the development of regional economic integration, trade barriers and market segmentation disintegrated, and the free flow of tourism elements in a region was

realised, thereby facilitating regional economic integration (Basnet, Pradhan, 2017; Gao *et al*., 2020). According to traditional experiences, regional economic integration is conducive to improving the development efficiency and quality of the tourism industry. Nevertheless, this experience hypothesis may not exist in reality. People's tourism consumption and the tourism industry's expanded production scale may generate air pollution, and environmental pollution exerts a negative impact on the high-quality development of the tourism industry. Based on this assumption, regional economic integration can degrade ecological environmental quality and hinder the high-quality development of the tourism industry by stimulating residents' demand for tourism consumption and expanding the production scale of the industry. The influence of regional economic integration on the high-quality development of the tourism industry should not be assessed based on traditional experiences but rather from the perspective of the ecological environment.

On this basis, a high-quality development index system of the tourism industry is established in this study from the perspective of tourism efficiency, the tourism industry scale, and tourism ecology. In addition, an empirical study is conducted on the influence of regional economic integration on the high-quality development of the tourism industry in China's Yangtze River Delta. Moreover, regional differences in the high-quality development of the tourism industry are analysed, and the results provide policy suggestions for promoting the high-quality development of the tourism industry in the process of regional economic integration.

2. Data, Variables, and Methodology

2.1 Methodology

To verify the influence of regional economic integration on the high-quality development of the tourism industry with reference to related research findings, the following regression model was established.

$$\ln(thq_{i,t}) = \alpha + \beta \ln(ecoint_{i,t}) + \lambda c_{i,t} + \gamma_{i,t} + \varphi_{i,t} + \varepsilon_{i,t} \quad (1)$$

Where i and t are province (or city) and year, respectively; $thq_{i,t}$, explained variable, represents the development quality of the tourism industry; $ecoint_{i,t}$, explanatory variable, represents the regional economic integration level; $c_{i,t}$ represents the control variables, including regional GDP, regional per capita GDP, and passenger volume; γ and φ are the province (or city) and year fixed effects, respectively; and ε represents the residual error.

2.2 Variable Selection and Measure

2.2.1 High-quality Development of Tourism Industry

Currently, estimation methods and connotations of the high-quality development of the tourism industry are not uniformly understood. The mainstream research adopts a comprehensive evaluation index system to estimate the high-quality development of the tourism industry. Some studies used TFP as a substitutive index. The high-quality development of the tourism industry has diversified connotations and is the unification of

quality, efficiency, and speed. Therefore, in this study, a comprehensive evaluation index system was established to estimate the high-quality development of the tourism industry.

First, evaluation indicators of the high-quality development of tourism were selected. The high-quality development of the tourism industry involves the organic unity of economic efficiency, social benefits, and ecological benefits. Based on sustainable development theory and new economic growth theory, a comprehensive index system of the high-quality development of the tourism industry was established from the perspective of the tourism industry scale, tourism economic efficiency, and the ecological environment, which is presented in *Table 1*. The tourism industry scale is an important guarantee to develop the tourism economy and improve tourism quality and measured by the number of travel agencies, number of star-rated hotels, and number of beds in the star-rated hotels. Tourism economic efficiency is a key index for evaluating the utilization of tourism industry resources and tourism development speed. The number of inbound travelers, foreign exchange earnings from inbound tourism, and a number of tourism employees were chosen as the proxy variables for tourism economic efficiency. The tourism ecological environment is important for measuring the sustainable development and green development of the tourism industry. The tourism ecological environmental index was measured by forest coverage and the proportion of the tertiary industry in the GDP.

Table 1. Comprehensive evaluation index system of high-quality development of tourism industry

Goal	Level 1 Indicators	Level 2 Indicators
High-quality development of tourism industry	Scale of tourism industry (*scal*)	Number of travel agencies (*ta*)
		Number of star-rated hotels (*rn*)
		Number of beds in star-rated hotels (*hb*)
	Tourism economic efficiency (*rati*)	Number of inbound travelers (*nit*)
		Foreign exchange earnings from inbound tourism (fit)
		Number of tourism employees (*net*)
	Tourism ecological environment (*envi*)	Forest coverage (*fcr*)
		Proportion of tertiary industry in GDP (*pit*)

*Source:*authors'own results.

Second, the index weight was determined. The coefficient of variation (CV) was calculated using the ratio of the standard deviation of each index to the mean value, and the index weight was determined by dividing the CV of each index by the sum of the CV.

$$W_i = S_i \Big/ \overline{X_i} \tag{2}$$

$$q_i = W_i \Big/ \sum_{i=1}^{8} W_i \tag{3}$$

Equation (2) is the calculation formula for the CV, where W_i represents the CV of indicator i, $\overline{X_i}$ represents the mean of indicator i, and S_i is the standard deviation of indicator i. Equation (3) is the calculation formula for the index weight, where q_i represents the weight of indicator i.

Third, the comprehensive score of the high-quality development of tourism was calculated. The comprehensive evaluation index system included multiple indicators; thus, the comprehensive score could not be calculated directly. Therefore, dimensionless processing of the original data was necessary. Equation (4) is the dimensionless processing formula for the indicators, where X_i is indicator i before the dimensionless processing, and x_i refers to indicator i after the dimensionless processing. In addition, $\min X_i$ is the minimum of indicator i, and $\max X_i$ is the maximum of indicator i. Finally, the comprehensive score of the regional high-quality development of the tourism industry was estimated using a linear assessment model after the dimensionless processing. The comprehensive score (CI_i) assessment model is shown in Equation (5).

$$x_i = \frac{X_i - \min X_i}{\max X_i - \min X_i} \tag{4}$$

$$CI_i = \sum_{i=1}^{8} q_i x_i \tag{5}$$

2.2.2 Regional Economic Integration

Commonly used regional economic integration measurement methods include intraregional intermediate import shares (Obasaju *et al*., 2021), trade openness and regional trade agreements (Fetahi-Vehapi *et al*., 2015; Tumwebaze, Ijjo, 2015; Keho, 2017; Nawaz *et al*., 2021), the price index (Weinberg *et al*., 1983), the relative price method (Lu, Chen, 2009; Chang, Kim, 2017; Zhao *et al*., 2021), the business cycle approach (Tang,1998), production methods (Young, 2000), and so on. Regional economic integration measures the market integration level of an entire region. Therefore, the relative price difference proposed by Lu, Chen (2009) was used in this study, and the measurement formula is as follows:

$$\Delta Q_{ijt}^k = \ln\left(p_{it}^k\right) - \ln\left(p_{jt}^k\right) \tag{6}$$

$$q_{it}^k = \left|\Delta Q_{it}^k\right| - \left|\overline{\Delta Q_t^k}\right| \tag{7}$$

$$ecoint_{it} = 1 - \sum_{k=1}^{9} q_{ijt}^k \Big/ 9 \tag{8}$$

Where k is a commodity or service, including food, tobacco and liquor, clothing, household articles and services, health care, transportation and communication, education, culture and recreation, tourism , and residence; i, j are paired provinces and cities; and t represents the year. In Equation (6), ΔQ_{ijt}^k represents the relative price of the k-th commodity or service in each paired province and city. The provinces and cities in the region were paired, and the relative price difference in the commodity or service price index p for each paired province and city was determined according to Equation (6) to obtain ΔQ_{ijt}^k. In Equation (7),

q_{it}^{k} represents the difference between the relative price and average relative price of the k-th commodity or service in each province and city. In a given year, the relative prices between each paired province and city were combined by province and city to obtain the relative price $\left|\Delta Q_{it}^{k}\right|$ of the k-th commodity or service in each province and city. The difference between $\left|\Delta Q_{it}^{k}\right|$ and the average relative price $\left|\Delta Q_{it}^{k}\right|$ of all the provinces and cities in the region is q_{it}^{k}. In Equation (8), $ecoint_{it}$ refers to the regional economic integration index of each province and city, and the greater the price difference in the commodities or services between the provinces and cities in the region, the higher the degree of market segmentation. Therefore, $1-\sum_{k=1}^{9} q_{it}^{k} \Big/ 9$ is an effective measure of the regional economic integration index, and the higher the index value, the higher the degree of the regional economic integration of a province and city.

2.3 Data Source

On December 1, 2019, the China State Council issued the Outline of Regional Integration Development Plan for the Yangtze River Delta, which stipulated that the Yangtze River Delta covers Jiangsu Province, Zhejiang Province, Anhui Province and Shanghai. Therefore, the regions in these three provinces and one city were taken as the research sample. Panel data from 2001 to 2019 were used considering data continuity and availability. Data were collected from the *China Tourism Statistical Yearbook*, *China Statistical Yearbook*, *China Regional Economic Statistical Yearbook*, *National Economic and Social Development Statistical Bulletin*, and the CSMAR database. The data collected from the different sources were compared and verified. In the case of inconsistency, the data released by the relevant authority were employed. Moreover, missing data were replaced using the linear trend approach. To eliminate heteroscedasticity caused by disunity units, logarithmic variables were calculated in this study. The descriptive statistics of the variables are listed in *Table 2*.

Table 2. Descriptive statistics of variables

Variables		Observed value	Mean	SD	Min	Max
Scale of tourism industry	*scal*	76	15.92	13.445	0	36.49
Tourism economic efficiency	*rati*	76	19.936	12.973	0	39.838
Tourism ecological environment	*envi*	76	10.762	9.21	0.482	28.622
High-quality development of tourism industry	*thq*	76	46.619	26.315	9.549	92.349
Economic integration degree	*ecoint*	76	98.275	4.673	70.168	99.77
Regional per capita GDP	*pcgdp*	76	10.64	0.824	8.56	11.966
Regional GDP	*gdp*	76	9.892	0.829	8.085	11.509
Passenger volume	*pv*	76	11.141	1.177	8.646	12.5

*Source:*authors'own results.

3. Results Analysis

3.1 Overall Regression Analysis

According to the Hausman test results, the fixed effects model is suitable for testing the effect of regional economic integration on the high-quality development of the tourism industry in the Yangtze River Delta. *Table 3* shows that the regression coefficient of regional economic integration is negative regardless of the introduction of ecological environmental factors and control variables, thereby indicating that regional economic integration is not conducive to promoting the high-quality development of the tourism industry. As market segmentation weakens gradually in the study area, accompanied by economic growth, residents' disposable income and willingness to travel increase. In terms of local economic growth, the provinces and cities destroy the ecological environment in the process of competing for tourists and expanding the scale of tourism, thereby hindering the high-quality development of tourism. Column (1) in *Table 3* presents the analysis results with consideration of the ecological environment, and column (2) lists the analysis results without consideration of the ecological environment. Based on the comparison, it can be seen that regional economic integration restrains the high-quality development of the tourism industry in the Yangtze River Delta significantly when ecological environmental factors are considered. Moreover, the regression coefficient of regional economic integration in column (2) is higher than that in column (1). This result indicates that to a certain extent, the influence of regional economic integration on the high-quality development of the tourism industry is stronger when ecological environmental factors are not considered than when ecological environmental factors are considered. However, such a difference is not significant. This phenomenon can be interpreted as follows: when ecological environmental factors are considered, tourism development is concerned about not only the improvement of tourism economic efficiency but also coordination between tourism economic development and environmental protection, which may weaken the economic benefits gained by tourism industry from regional economic integration. When ecological environmental factors are ignored, the development of regional economic integration facilitates the expansion of the tourism industry. Furthermore, tourism consumers' excessive acceptance can harm the ecological environment, thereby restraining the high-quality development of the tourism industry.

Column (3) to column (5) present the estimation results after the control variables are successively introduced, such as economic development level (e.g., regional GDP and regional per capita GDP) and public traffic capacity (e.g., passenger volume). According to the regression results, the sign and significance level of the coefficient of regional economic integration show no significant changes after the control variables are added. This finding proves the satisfactory robustness of the regression results. For the control variables, the coefficient of economic development level is significantly positive, thereby indicating that the high-quality development of the tourism industry is achieved easily in the regions with high economic development levels. The coefficient of public traffic capacity is significantly positive, thereby indicating that the higher the investment in public traffic, the higher the quality development of the tourism industry.

Table 3. Overall regression estimation results

Variables	(1)	(2)	(3)	(4)	(5)
ecoint	−0.629*	−0.424	−1.229*	−1.193*	−0.646*
	(−1.88)	(−3.54)	(−3.93)	(−3.65)	(−3.65)
gdp			12.352***	10.556*	−63.354***
			(4.34)	(2.91)	(-6.95)
pcgdp				2.204	75.018***
				(0.64)	(8.59)
pv					35.398***
					(8.35)
Constant	108.43*	77.537	45.242	36.026	−455.769***
	(3.37)	(7.76)	(1.38)	(0.98)	(−7.42)
R-squared	0.012	0.008	0.153	0.154	0.534

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding t value is in parentheses.

*Source:*authors'own results.

3.2 Regional Regression Analysis

According to the overall regression results, regional economic integration restrains the high-quality development of the tourism industry. Thus, does regional economic integration restrain the high-quality development of the tourism industry in the different provinces and cities in the study area? For a deep analysis of the differences in the impact, the regional regressions are estimated (*Table 4*). It can be seen from *Table 4* that the regional economic integration coefficient of Jiangsu Province, Zhejiang Province, and Shanghai is negative, which is consistent with the overall regional estimation coefficient in *Table 3*. However, the estimation coefficient of Anhui Province is positive, thereby indicating that the impact of regional economic integration on the high-quality development of tourism has obvious regional differences. The estimation coefficient of the regional economic integration in Jiangsu Province, Zhejiang Province, and Shanghai fails in the significance test, thereby indicating that the negative impact of regional economic integration on the high-quality development of the tourism industry is not significant in these provinces and cities. The main reason behind this outcome is that Jiangsu Province, Zhejiang Province, and Shanghai are developed locations along the eastern coast, and the higher the economic development level, the better the tourism development environment, and the stronger the technology and innovation ability to restrain the negative impact. Specifically, Shanghai is a central city in the Yangtze River Delta (Li *et al*., 2019) and plays a role in dominant and radiating functions and facilitates the economic development of the surrounding provinces and cities. Compared with premiums from participating in regional economic integration, Shanghai plays a larger role in promoting regional economic integration. Based on the ideal comprehensive service-supporting facilities, infrastructures, and orientation of the modern metropolis, Shanghai integrates advanced productivity, new technology, excellent talents, and abundant capital and possesses incomparable advantages in the tourism industry scale, tourism economic efficiency, and ecological environment. Therefore, the tourism development quality in Shanghai is relatively high. The negative influence of regional economic integration on the high-quality development of the tourism industry in Shanghai is not significant, which conforms to the theoretical expectations. For Anhui Province, the estimation coefficient of regional economic integration is positive, thereby indicating that regional economic integration is conducive to the high-quality development of the tourism industry in this

province. The reason behind this outcome is that Anhui Province joined the regional economic integration relatively late; thus, the negative impact of regional economic integration has yet to fully emerge.

Table 4. Regional regression analysis results

Variables	Jiangsu Province	Zhejiang Province	Shanghai	Anhui Province
ecoint	−2.261	−0.011	−0.104	0.008
	(−0.95)	(−0.30)	(−1.20)	(0.03)
gdp	171.913***	−28.733	-38.284***	−3.294
	(3.29)	(−0.65)	(-3.66)	(−0.15)
pcgdp	−181.674***	34.946	37.151**	3.365
	(-3.37)	(0.72)	(2.12)	(0.15)
pv	17.46***	18.115***	9.62	−0.367
	(6.60)	(6.20)	(0.67)	(−0.40)
Constant	216.432	−218.202	−87.359	12.178
	(0.90)	(−2.73)	(−1.10)	(0.55)
R-squared	0.809	0.625	0.730	0.016

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding t value is in parentheses.

*Source:*authors'own results.

3.3 Endogenous Test

The above regression analysis of the influence of regional economic integration on the high-quality development of the tourism industry may encounter the endogenous problem. Given the addition of the economic development level and public traffic capacity, the endogenous problem may stem mainly from the reverse causality between regional economic integration and the high-quality development of the tourism industry. To eliminate the endogenous problem caused by reverse causality, the first-order lag of regional economic integration degree is used to discuss its influence on the high-quality development of the tourism industry in the present stage. Under this circumstance, the above econometric model is transformed into:

$$\ln(thq_{i,t}) = \alpha + \beta \ln(ecoint_{i,t-1}) + \lambda c_{i,t} + \gamma_{i,t} + \varphi_{i,t} + \varepsilon_{i,t} \quad (9)$$

Table 5. Regression results of an endogenous test

Variables	Yangtze River Delta	Jiangsu Province	Zhejiang Province	Shanghai	Anhui Province
lecoint	−0.697***	−2.892	−0.068	−0.160***	−0.210
	(−4.08)	(−1.12)	(−1.46)	(-2.83)	(−0.91)
gdp	−62.697***	197.718***	−45.307	−36.223***	5.201
	(−6.73)	(2.98)	(-0.93)	(−3.56)	(0.20)
pcgdp	76.572***	−207.664***	53.99	30.17*	−5.14
	(8.49)	(-3.07)	(1.01)	(1.77)	(−0.20)
pv	35.902***	17.745***	18.641***	17.855	−0.45
	(8.32)	(6.72)	(6.28)	(1.49)	(−0.05)
Constant	−480.785***	283.679	−256.314***	−99.737	34.407
	(−7.68)	(1.04)	(−2.75)	(−1.26)	(1.35)
R-squared	0.555	0.823	0.614	0.710	0.036

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding t value is in parentheses; *lecoint* refers to the first-order lag of regional economic integration.

*Source:*authors'own results.

In this study, the least-squares method is used for the regression of model (9), and the regression results are listed in *Table 5*. Regardless of whether it is endogenous, the coefficient sign is consistent, reflecting that the probability of regional economic integration being influenced by the high-quality development of the tourism industry is relatively low. Accordingly, the probability of the endogenous problem caused by reverse causality occurring is relatively low. Therefore, the main conclusion is unaffected. That is, after controlling for endogeneity, the conclusion that regional economic integration inhibits the high-quality development of tourism remains valid.

3.4 Robustness Test

To test the robustness of the results, the high-quality development of the tourism industry is remeasured. Specifically, the tourism industry scale, tourism economic efficiency, and tourism ecological environment are measured using the number of travel agencies, number of inbound travellers, and proportion of the tertiary industry in the GDP, respectively. The comprehensive score of the high-quality development of the tourism industry is calculated using the linear assessment model, and the robustness test results are listed in *Table 6*. Based on the first two columns, the conclusion remains unchanged regardless of whether the control variables are added. The regression coefficient of regional economic integration is significantly negative, thereby indicating that regional economic integration is not conducive to the high-quality development of the tourism industry. The last two columns in Table 6 show the estimation results of the influence of the first-order lag of regional economic integration on the high-quality development of the tourism industry with consideration of the endogenous problem, which is similar to those in *Table 5*. Similarly, the coefficient of regional economic integration is significantly negative, and the previous conclusion remains unaffected regardless of whether the control variables are added. This result proves the satisfactory robustness of the estimation results.

Table 6. Robustness test results

Variables	(6)	(7)	(8)	(9)
ecoint	−0.767***	−0.532***	−0.776***	−0.537***
	(−2.68)	(−2.67)	(−3.71)	(−2.98)
gdp		−54.939***		−56.468***
		(−4.37)		(−4.38)
pcgdp		69.259***		72.706***
		(5.31)		(5.43)
pv		21.529***		22.757***
		(4.00)		(4.16)
Constant	126.073***	−330.467***	126.658***	−366.523***
	(4.67)	(−3.93)	(6.76)	(−4.28)
R-squared	0.013	0.346	0.015	0.363

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding *t* value is in parentheses.

*Source:*authors'own results.

4. Further Discussions

In 2010, China officially approved the implementation of the Yangtze River Delta regional plan, which opened a new chapter in the local regional economic integration.

Moreover, regional economic integration in the Yangtze River Delta was upgraded to a national strategy in 2018, which positively promoted regional economic construction. Therefore, this study asks the following questions: How do the policies related to regional economic integration affect the high-quality development of the tourism industry? Are the policies conducive to promoting the high-quality development of the tourism industry? To address these problems, the year of the proposed policies is chosen as the demarcation point, and regression is conducted on the different periods of time. The results are presented in *Table 7*.

Table 7. Estimation results before and after the proposal of regional economic integration

Variables	2001–2010 (10)	2011–2017 (11)	2018–2019 (12)	2010 and 2018 deleted (13)
ecoint	−0.535***	12.815*	−5.314	−0.599***
	(-3.14)	(1.66)	(−0.89)	(−3.39)
gdp	−50.917***	−76.523***	−120.463***	−64.811***
	(−4.29)	(-5.84)	(−15.95)	(−6.64)
pcgdp	66.027***	132.863***	133.525***	75.682***
	(6.96)	(8.62)	(21.75)	(8.13)
pv	31.219***	46.123***	77.705***	36.006***
	(6.78)	(8.25)	(15.89)	(7.87)
Constant	−440.117***	−2424.876***	−513.493	−459.328***
	(−8.76)	(−3.07)	(−0.85)	(−7.01)
R-squared	0.684	0.794	0.995	0.538

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding *t* value is in parentheses.

*Source:*authors'own results.

Column (10) in *Table 7* shows the regression results for the period before the proposal of the regional integration policy for the Yangtze River Delta in 2010, and the coefficient is significantly negative. Column (11) lists the regression results for the period of 2011–2017, before the regional economic integration policy for the Yangtze River Delta was upgraded to a national strategic policy in 2018, and the coefficient is significantly positive. These results prove that improving regional economic integration promoted the high-quality development of the tourism industry after the state proposed the regional planning policy for the Yangtze River Delta. Column (12) presents the estimation results for the period after the regional economic integration policy for the Yangtze River Delta was upgraded to a national strategy in 2018. Although the coefficient is negative, it fails in the significance test, thereby indicating that China's regional integration policy for the Yangtze River Delta generates some disturbances in this study. On this basis, the years 2010 and 2018 are deleted. According to the estimation results in column (13), the coefficient is significantly negative after 2010 and 2018 and thus deleted, which is consistent with the above conclusion. This result is obtained perhaps because, after the proposal of the regional reform policy for the Yangtze River Delta, the provinces and cities in the study area accelerated their implementation of construction and reform, strengthened their internal resource integration, and destroyed trade barriers. Moreover, relevant reform measures were in favor of tourism economic development, which enabled the improvement of attractions for tourism consumers. However, many social problems emerged with the wave of mass tourists, including rising prices and environmental pollution, which are unfavorable for the high-quality development of the tourism industry. Generally, the main conclusion remains unchanged after the policy impact is excluded.

Furthermore, differences in the effect of internal policies are considered. The aforementioned analysis shows that the influence of regional economic integration on the high-quality development of the tourism industry in Shanghai, a central city in the Yangtze River Delta (Li *et al.*, 2019), is not significant. The critical reason is that the provinces and cities in the Yangtze River Delta are influenced by the regional economic integration policy differently. On this basis, analysing the high-quality development of the tourism industry leads to deviation owing to geological positions. Thus, in this study, the Yangtze River Delta is divided into the central area (Shanghai) and noncentral areas (Jiangsu Province, Zhejiang Province, and Anhui Province). Whether the high-quality development of the tourism industry in the central and noncentral areas is significantly influenced by regional economic integration is investigated after years of interferences are deleted, and the results are presented in *Table 8*.

Table 8. Classification regression results

Variables	Noncentral areas			Central area
	(15)	(16)	(17)	(18)
ecoint	−0.947***	−0.809***	−0.505***	−0.097
	(−4.46)	(-2.80)	(−5.92)	(−1.11)
gdp		34.579***		10.203
		(4.30)		(0.75)
pcgdp		−62.337***		−42.497***
		(−4.90)		(−3.63)
pv		75.126***		42.534**
		(5.21)		(2.25)
Constant	142.2***	−440.39***	89.1899***	−113.744
	(7.64)	(−5.07)	(11.35)	(−1.22)
R-squared	0.017	0.549	0.215	0.762

Notes: ***, **, and * represent significance at the 1%, 5%, and 10% levels, respectively. The corresponding *t* value is in parentheses.

*Source:*authors'own results.

It can be seen from *Table 8* that the coefficient of *ecoint* is negative. In other words, the high-quality development of the tourism industry in the central and noncentral areas is sensitive to regional economic integration regardless of whether the control variables are added. Column (15) and column (16) show that the coefficient of the noncentral areas (Jiangsu Province, Zhejiang Province, and Anhui Province) is negative at the 1% level of significance. This result indicates that regional economic integration in the Yangtze River Delta significantly restrains the high-quality development of the tourism industry in the noncentral areas. Column (17) reveals that the coefficient of the central area (Shanghai) is significantly negative before the control variables are added but the negative coefficient is not significant at the 10% level after the control variables are added. This finding demonstrates that compared with the central area, the noncentral areas of the Yangtze River Delta are more concerned about the high-quality development of the tourism industry. As regional economic integration in the Yangtze River Delta promotes the integration of local tourism resources and accelerates interconnection and cooperation among tourism-related industries, such industries in the central area are encouraged to transfer to the noncentral areas. This act may help the noncentral areas improve the tourism industry and tourism economic environment, thereby increasing tourism competitiveness and attractions in such areas. Generally, regional economic integration in the Yangtze River Delta is conducive to narrowing the gap between the noncentral areas and central areas in terms of the high-quality

development of the tourism industry, thereby facilitating the coordinated development of the tourism industry in the study area.

Conclusions and policy implications

Research conclusions

In this study, whether regional economic integration promotes the high-quality development of the tourism industry in the Yangtze River Delta in China is discussed, and the main conclusions are presented below.

(1) Regional economic integration significantly restrains the high-quality development of the tourism industry. (2) Pressure on tourism destinations increases as the production scale expands, residents' income increases, and tourism intention strengthens, which can harm the ecological environment of tourism destinations and generate conflicts between regional economic integration and the tourism ecological environment to a certain extent. (3) Significant regional differences exist in the high-quality development of the tourism industry. Specifically, Shanghai, which is a central city in the Yangtze River Delta, has a relatively high tourism industry development quality. Therefore, the negative influence of regional economic integration on the high-quality development of the tourism industry in Shanghai is not significant. By contrast, regional economic integration has a positive impact on the high-quality development of the tourism industry in Anhui Province, as it joined the regional economic integration late; thus, the negative effect has yet to emerge completely.

Policy implications

The above conclusions have considerable significance for the coordinated promotion of regional economic integration and the high-quality development of the tourism industry. Thus, the following policy suggestions are presented.

(1) In the continuous promotion of regional economic integration, considerable attention should be paid to the conflict risks between regional economic integration, the ecological environment, and the high-quality development of the tourism industry. The provinces and cities in the study area should break the regional protectionism and advocate collaboration to resolve the conflicts between regional economic integration and the ecological environment to accelerate the implementation of the high-quality development of the tourism industry. The city and provinces should determine and understand the connotations of the high-quality development of the tourism industry, respond positively to the orientation of national policies and promote the continuous development of the tourism industry toward high-quality development. Although regional economic integration has a negative impact on the high-quality development of tourism, in the long run, the establishment of a unified regional market is conducive to promoting the free flow of tourism resources in the region to reduce tourism development costs. At the same time, if the market segmentation exceeds a certain critical value, tourism development may be negatively affected. Therefore, all localities forgoing local protectionism and moving toward market integration to benefit from regional economic integration (Lu, Chen, 2009) to achieve the high-quality development of tourism would be the ideal state. (2) The service quality of the tourism industry should be improved, and the sustainable development of tourism should be accelerated. Relevant administrative departments in the provinces and city in the Yangtze River Delta should consider local attraction elements when developing tourist attractions or formulating tourism development strategies; develop high-quality tourism experience activities; promote interaction among tourism enterprises, including star-rated hotels, tourist attractions, and travel agencies; expand the development scale of the tourism industry

reasonably; improve tourism economic efficiency and the ecological environment; and promote "quality" based on "quantity" to realise the sustainable and high-quality development of the tourism industry. (3) The philosophy of sustainable and green development should be adopted, and the quality of the tourism environment should be improved. Insisting on green sustainable development is important to promote the high-quality development of the tourism industry. The provinces and cities in the Yangtze River Delta should abandon the tourism industry development model that destroys nature and the ecological environment, increase the utilisation of tourism resources, and develop the tourism industry reasonably. Moreover, they should abandon the goal mechanism of "driving the local GDP by expanding the scale of the tourism industry violently" and increase initiatives and enthusiasm to promote the high-quality development of the tourism industry by adopting green ecology, improving people's livelihood, and meeting people's demand for a good life as practical assessment content. Therefore, the provinces and cities in the Yangtze River Delta should pay attention to the conflict risks between regional economic integration and the ecological environment, strengthen communication and cooperation, share the development platform of regional economic integration, and promote the development of regional economic integration and the ecological environmental simultaneously to accelerate the sustainable high-quality development of the tourism industry.

Some limitations to this study should be mentioned. One is that the relative price difference method is used to measure regional economic integration, and the discussion of factor markets (such as labour, capital and technology) is insufficient. The second limitation is that the research sample is only limited to the Yangtze River Delta of China, and other urban agglomerations are not taken into consideration. Future studies are needed to compare the impact mechanism of factor market integration on high-quality tourism development in different urban agglomerations to provide more targeted policy implications for relevant departments.

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AR REGIONINĖ EKONOMINĖ INTEGRACIJA PADEDA UŽTIKRINTI KOKYBIŠKĄ TURIZMO PRAMONĖS PLĖTRĄ: KINIJOS DUOMENYS

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SANTRAUKA

Regioninės ekonominės integracijos strategija ne tik palengvina regiono provincijų ir miestų tarpusavio ryšius, bet ir spartina Kinijos turizmo ekonomikos augimą. Siekiant nustatyti, kaip spręsti kokybiškos turizmo pramonės plėtros problemas, remiantis Kinijos provincijų statistikos metraščių, statistinių suvestinių ir CSMAR duomenų bazės 2001–2019 m. duomenimis, empiriškai išanalizuotas regioninės ekonominės integracijos poveikis turizmo pramonės plėtros kokybei. Rezultatai rodo, kad egzistuoja tam tikras konfliktas tarp regioninės ekonominės integracijos ir ekologinės aplinkos. Regioninės ekonominės integracijos įtaka kokybiškam turizmo pramonės vystymuisi įvairiose provincijose ir miestuose yra skirtinga. Regioninė ekonominė integracija reikšmingai stabdo bendrą aukštos kokybės turizmo pramonės plėtrą Jangdzės upės deltoje. Šis tyrimas yra regioninės ekonominės integracijos ir aukštos kokybės turizmo pramonės plėtros Kinijoje politikos praktikos pavyzdys.

REIKŠMINIAI ŽODŽIAI: regioninė ekonominė integracija; santykinis kainų skirtumas; turizmo pramonė; kokybiška plėtra.