

Article

Fiscal Decentralization, Pollution and China's Tourism Revenue

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Abstract: This paper focuses on the role of local governments in the development of tourism in China by examining 30 Chinese provinces from 2000 to 2018. The results of empirical research show that fiscal decentralization in China provides local governments with incentives for the development of high pollution industries and of large state-owned enterprises, which do not help the sustainable development of tourism. In addition, there is an “inverted U-shaped” relationship between pollution level and tourism development. Although the growth of China's tourism industry is pollution-based currently, tourism revenue is considered to decline once a threshold is reached. The competition from local governments for foreign investment is conducive to the improvement of environmental quality and increase in tourism revenue. Based on this, we have proposed a series of sustainable tourism development measures.

Keywords: fiscal decentralization; pollution; tourism; local governments

1. Introduction

With the economic development and the improvement of living standards, tourism has gradually developed into an important driving force for China's economic growth. Tourism accounted for 11% of China's GDP in 2018, and its contribution to employment also exceeded 10%. However, the sustainable development of the tourism industry is dependent on the protection of the environment and the natural landscape. Meanwhile, air pollution, sewage and fixed waste turn out to have caused great damage to tourism infrastructure such as cultural relics, monuments and mangroves. On the one hand, pollution might pose a threat to bio-diversity in the ocean, natural landscape on land, and even the entire ecosystem.

China implemented fiscal decentralization reforms in 1994. Fiscal decentralization means that the central government gives local governments (provinces, municipalities and counties) certain autonomy in debt arrangements, budget management, and budget execution. The impacts of the reform in China on the environment and tourism can be analyzed from multiple perspectives. Facing the dilemma of more public goods to provide and less sources for fiscal revenue, local governments across China have been in an urgent need for development of local economy to make up for the lack of financial resources. This development model, coupled with a GDP growth-based assessment system of local government performance, has provided Chinese local governments with strong incentives to develop local economies. However, the rapid growth of the Chinese economy has two opposite effects on the environment. On the one hand, rapid economic development is usually associated with growth in environmental pollution. On the other hand, with the improvement in people's living standards, higher requirements are expected to be imposed on environmental quality. Regarding

the role of local government, Stewart [1] proposed the “race to the bottom” hypothesis; that is, in order to increase financial resources, expand the tax base, increase job opportunities, and maintain social stability, local governments tend to relax environmental regulations and lower the standard of environmental requirements. This competition between different regions within China caused by fiscal decentralization would make some areas pollution-friendly. By contrast, the “race to the top” hypothesis argues that in order to attract investment from multi-national companies, local governments continue to improve environmental quality and expand infrastructure. Hence, this kind of inter-regional competition may lead to improvement in environmental quality.

In the existing environmental policy literature, Stewart [1] proposed the “environmental federalism theory” which is related to the question of whether to adopt a centralized or decentralized model in environmental pollution control. He believed that the implementation of fiscal decentralization would help local governments with the control of environmental pollution. For example, Oates and Portney [2] argued, considering the remarkable cross-regional variation in pollution level, that local pollution control measures must be adapted to local conditions. Compared with the central government, local governments have advantages in obtaining first-hand information about local residents’ preferences and real needs. Therefore, decentralization helps to solve local environmental issues. By contrast, Gray and Shadbegian [3] pointed out that a concentration of fiscal power in the central government can help to achieve a more effective control of environmental pollution because pollution control coordinated by the central government can effectively avoid free-riding by local governments, and can take advantage of scale economies to reduce the cost of pollution control. Therefore, centralization helps to improve environmental quality.

The above studies mostly investigated the impact of fiscal decentralization on pollution. Rather little research has been done on the impact of pollution on tourism. In particular, empirical studies examining the impact of fiscal decentralization and pollution on China’s tourism industry are rare. As the tourism industry has developed into an important sector of China’s economy, any study in this line of research might be of considerable practical significance. Therefore, the contributions of research include the following. First, we use a different set of alternative indicators to measure the impact of fiscal decentralization on tourism development. Second, a set of different indicators is used to investigate the impact of pollution on tourism. In addition, we divided China into three regions, namely eastern, central, and western to examine the cross-regional differences in the impact of fiscal decentralization and pollution on tourism. Finally, we also examine the impact of local government competition on the tourism industry to test whether the impact of local economic development on the tourism industry is consistent with the “race to the top” hypothesis or the “race to the bottom” hypothesis. In-depth research on these issues will help to clarify the effects of economic development on local environment and development of tourism. This can provide important insights for tourism policy making.

The rest of the paper is structured as follows: Section 2 provides a literature review, Section 3 explains the data sources and research methods, and Sections 4 and 5 give empirical results and robustness tests. Section 5 concludes with policy recommendations.

2. Literature Review

The question of whether centralization or decentralization helps environmental pollution control has long been debated. Song et al. [4] argued that decentralization is not conducive to environmental protection and pollution control. The reasons for this are, first, a central government in formulating environmental protection rules and providing environmental public goods helps to achieve economies of scale and reduce pollution control costs [4,5]. Second, the free-riding behavior of local governments in providing environmental public goods will weaken the effect of pollution control [6]. In addition, under the decentralization system, in order to develop the economy, local governments usually ignore the pollution behavior of enterprises for benefits of economic development. This collusion between

local government and pollution enterprise not only leads to corruption and rent-seeking behavior, but also exacerbates environmental pollution and carbon emissions [7,8].

Hypothesis 1. *Fiscal decentralization will cause more pollution, which is not conducive to the sustainable development of tourism.*

Zhang and Zhao [9] suggested that decentralization might help the control of environmental pollution. First, the level of environmental pollution varies significantly across different regions of a country, and it is difficult for a central government to provide environmental public goods for regions of different environmental conditions. The analysis also shows that a multi-center governance system composed of many governance institutions at multiple levels can achieve higher environmental output than a single-center governance system [10]. Meanwhile, economies of scale can still be achieved even with local governments providing environmental public goods. Secondly, residents can “vote with their feet” to force local governments to improve the environmental quality of their jurisdictions as residents could choose to move out if they cannot bear the harsh environmental conditions in their jurisdictions [11]. Third, compared with the centralized approach, local governments have a better understanding of pollution issues in their jurisdictions and local residents’ preferences for public goods. This helps to provide better environmental public services tailored to local conditions [12]. In addition, under the decentralized system, if environmental pollution within one region gets relatively serious, it could be more likely to be reported by the media or be noticed by the central government. Then, local governments will inevitably strengthen supervision, which will lead to an improved ecological environment [13].

You et al. [14] discussed the impact of local government competition on environmental pollution and believed that local governments are willing to attract high-pollution and high-profit projects under the GDP growth-focused assessment system of official performance. As a result, environmental pollution has intensified, and the innovation and ecological efficiency of enterprises has been reduced. However, Zhang et al. [5] suggested that in order to attract foreign investment, local governments also have a strong incentive to improve the environment. Liu et al. [15] believed that the decoupling of fiscal decentralization and haze pollution is an inverted U relationship. Other studies suggested that fiscal decentralization is not necessarily related to environmental pollution [16], and that the “race-to-the-bottom competition” effect only exists when local government competition is distorted and fiscal and taxation tools fail [17].

Hypothesis 2. *Local government competition will lead to a “race to the bottom”, which is not conducive to tourism development.*

Millimet [18] suggested that local governments can achieve both economic development and environmental protection at the same time. As local governments are only responsible for the quality of the local environment, local governments will not exclude pollution enterprises which can be arranged at the border of the jurisdiction. Such pollution may affect downstream residents but will not affect local residents.

Zhou et al. [19] and others also proposed the tournament promotion theory to explain the principal-agent relationship between the central and local governments in China. The theory states that the central government has a need for local economic growth, and that the incentive for local officials is career promotion. As a response to the strong incentive for political promotion through local economic growth, local officials would attract foreign investment or enterprises from other regions by reducing the environmental regulations in the jurisdiction. Otherwise, multinational corporations would avoid areas with high environmental control standards. This will undoubtedly exacerbate the environmental quality of the jurisdiction.

3. Models and Descriptive Statistics of Variables

The relationship between the federal government and the state governments within the U.S. is different from the relationship between the central government and the local governments in China (the Chinese government system is an organized unitary one, which is different from the federal system of the U.S. government). Chinese officials' pursuit of political performance and promotion is also significantly different from that of their counterparts in developed countries such as the United States. Therefore, the impact of fiscal decentralization on the environmental quality China is expected to be different. In addition, the concepts of the "race to the top" and "race to the bottom" are mostly used in the study of environmental pollution, and but not in the research on the tourism industry. The motivations and policies of Chinese local governments to develop tourism might also be different from those in developed countries. Therefore, analyzing the impact of fiscal decentralization and pollution on China's tourism industry has important theoretical and practical significance for the sustainable development of China's tourism industry.

In order to examine the impact of fiscal decentralization and pollution on the development of China's tourism industry, we used Eviews 11 to run the following panel regression:

$$Tourism_{i,t} = \alpha_0 + \beta_1 FD_{i,t} + \beta_2 Pollution_{i,t} + \beta_3 Control_{i,t} + \varepsilon_{i,t} \quad (1)$$

$$Tourism_{i,t} = \alpha_0 + \beta_1 FD_{i,t} + \beta_2 Pollution_{i,t} + \beta_3 Control_{i,t} + \beta_4 FD_{i,t} * Pollution_{i,t} + \varepsilon_{i,t} \quad (2)$$

In Equation (1), Tourism represents tourism revenue. FD and Pollution represent the fiscal decentralization level and pollution level, respectively. Given the availability of data, we used PM_{2.5}, sewage and air quality index to represent pollution. Control represents those control variables, including per capita income (PGDP) of the province, as well as per capita GDP of adjacent provinces (APGDP), trade openness (TRD) and per capita energy consumption (PENERGY). Meanwhile, *i* and *t* represent the *t*-year in the *i*-th province. In view of the lack of data for Tibet, our sample includes 30 Chinese provinces only. α and β are coefficients of the parameter. ε is the disturbance term. In order to examine the effect of fiscal decentralization and pollution on the dependent variable, we have added an interaction term between them (see Equation (2)).

We used two alternative measures of fiscal decentralization, the "income method" and the "expenditure method", respectively. The expenditure method uses the ratio of the fiscal expenditure of provincial government budget in per capita term to that of central government budget. The revenue decentralization method uses the ratio of the fiscal revenue of provincial government budget in per capita term to the fiscal revenue of central government budget to measure the degree of fiscal decentralization.

$$fiscal\ decentralization_{revenue} = \frac{Govt\ revenue : Local\ Level}{Govt\ revenue : Central\ Level} \quad (3)$$

$$fiscal\ decentralization_{expenditure} = \frac{Govt\ expenditure : Local\ Level}{Govt\ expenditure : Central\ Level} \quad (4)$$

To examine the impact of local government behavior on tourism, we included in our study not only measures of fiscal decentralization but also an indicator of competition between different local governments in China. Given that foreign investment is an important resource that local governments in China compete for, we used the actual amount of foreign investment attracted by each province to indicate the degree of local government competition.

This study considered sample intervals from 2000 to 2018. Tourism revenue data were obtained from China Tourism Statistical Yearbook. Fiscal decentralization indicators, per capita income and trade data were from the CEIC database. The pollution data were from the website of aqistudy and gracecode (www.aqistudy.cn; www.gracecode.com/aqi.html). Foreign investment data came from China Statistical Yearbook of Foreign Trade. Per capita income of neighboring provinces is represented as the average GDP per capita of neighboring provinces.

Descriptive statistics of the main variables are shown in Table 1. TOURISM, PGDP, APGDP, TRD, PM, SEWAGE, INDEC, EXDEC, PENERGY, FDI and AQI represent tourism revenue, per capita GDP, per capita GDP of adjacent provinces, trade volume as a share of GDP, Particulate Matter 2.5, daily treatment capacity of sewage, revenue decentralization, expenditure decentralization, per capita energy consumption, foreign direct investment and air quality index, respectively. Among them, the tourism revenue, per capita GDP, per capita GDP of adjacent provinces, daily treatment capacity of sewage, per capita energy consumption were all natural logarithmic values. In view of the availability of China Tourism Statistical Yearbook, potential alternative variables for the measurement of tourism development are: fixed assets, tourism revenue, profit, business taxes and surcharges, profit margins, total labor productivity, per capita profits, employees etc. As Chinese local governments tend to be concerned more about scale than quality in tourism development, and the impact of fiscal decentralization and pollution on enterprises is more about scale than quality, we chose tourism revenue as a measure of tourism development.

For the PM_{2.5} data from 2000 to 2018, the average value of each province was 37.26, the maximum value was 81.93, and the lowest value was 8.84. For the data of fiscal decentralization, the average value of each province is 1.15, the maximum is 5.99, and the minimum is 0.34.

In Table 2, presenting the correlation matrix, tourism income is positively related to pollution. This implies that the development of tourism is correlated with an increase in pollution. This correlation between the two variables is obtained when no other variables are controlled. However, the specific impact depends on the results of empirical regression.

Table 1. Descriptive statistics of the main variables.

	Unit	Definition	Mean	Maximum	Minimum	Std. Dev.	Observations
TOURISM	10,000 RMB	LN tourism revenue	13.627	18.536	8.952	1.232	569
PGDP	RMB	LN per capita GDP	10.083	11.851	7.923	0.841	569
APGDP	RMB	LN per capita GDP of adjacent provinces	10.114	11.580	8.351	0.774	569
TRD	-	Trade/GDP	0.307	1.722	0.017	0.378	569
PM _{2.5}	Micron	PM _{2.5}	37.256	81.929	8.840	16.721	569
SEWAGE	Cub m mn	LN daily treatment capacity of sewage	3.878	21.796	0.080	3.657	569
INDEC	-	Revenue decentralization	1.149	5.994	0.343	1.039	569
EXDEC	-	Expenditure decentralization	4.996	14.877	1.078	3.000	569
PENERGY	SCE Ton mn	LN per capita energy consumption	2.870	9.511	0.556	1.586	569
FDI	USD mn	LN foreign direct investment	7.484	10.485	2.282	1.870	554
AQI	-	Air quality index	4.421	5.951	3.408	0.292	570

Table 2. Correlation matrix of main variables.

	TOURISM	PGDP	APGDP	TRD	PM2.5	INDEC	PENERGY	FDI	AQI
TOURISM	1.00								
PGDP	0.65	1.00							
APGDP	0.56	0.91	1.00						
TRD	0.57	0.40	0.18	1.00					
PM2.5	0.43	0.32	0.33	0.26	1.00				
INDEC	0.50	0.53	0.31	0.81	0.25	1.00			
PENERGY	0.10	0.64	0.52	0.12	−0.03	0.35	1.00		
FDI	0.77	0.66	0.59	0.45	0.61	0.40	0.10	1.00	
AQI	−0.02	0.09	0.04	−0.09	0.28	0.05	0.20	0.03	1.00

4. Empirical Results

The empirical results are shown in Table 3. The first column shows the results of the benchmark model. GDP per capita (PGDP) is shown to be positively correlated with tourism revenue. The coefficient of PGDP is 1.428, which means that a 1% increase in per capita income leads to an increase of 1.428% in tourism revenue. An increase in trade as a share of GDP is shown to help the development of the tourism industry. This is because trade is associated with the proliferation of funds, tourists and tourist information, all of which are conducive to promoting the development of local tourism. The coefficient of the pollution variable is positive. This result can be better understood by taking the current level of China's economic development into consideration. In the past few decades, the development of China's tourism industry has been mainly driven by the growth of the Chinese economy, which has caused a substantial increase in the level of environmental pollution. As a result, tourism is shown to increase with pollution level. Fiscal decentralization is not conducive to the development of tourism. This shows that Hypothesis 1 holds true. This implies that since the fiscal decentralization reform in 1994, in order to increase employment rate and strive for social stability, local governments have tended to vigorously support the development of large state-owned enterprises, as growth in large state-owned enterprises tends to make local economy grow more rapid, which helps local officials to obtain political promotion. By contrast, the firms of the tourism industry in China tend to be small and are not considered a priority for growth by local governments. Hence, a higher degree of fiscal decentralization is shown to be detrimental to the development of tourism. An increase in per capita energy consumption is shown to not help the development of local tourism, because the increase in energy consumption means more carbon emissions, acid rain and environmental pollution. Rises in sea levels, extreme weather, and floods will not only cause great damage to monuments, mangrove forests and other tourism infrastructures, but also threaten the safety of tourists.

Table 3. Impact of fiscal decentralization and pollution on tourism.

Variable	(I)	(II)	(III)	(IV)	(V)	(VI)
PGDP	1.428 *** (0.011)	1.659 *** (0.126)	1.308 *** (0.020)	1.297 *** (0.017)	1.444 *** (0.008)	1.424 *** (0.009)
TRD	1.039 *** (0.148)	0.959 *** (0.154)	1.047 *** (0.142)	1.013 *** (0.137)	1.019 *** (0.099)	0.981 *** (0.098)
PM _{2.5}	0.005 ** (0.002)	0.005 *** (0.002)	0.063 *** (0.009)	0.032 *** (0.003)		
INDEC	−0.135 ** (0.057)	−0.152 *** (0.058)	−0.138 *** (0.055)	1.003 *** (0.128)		
PENERGY	−0.395 *** (0.024)	−0.41 *** (0.025)	−0.316 *** (0.026)	−0.35 *** (0.022)	−0.262 *** (0.028)	−0.257 *** (0.027)
APGDP		−0.223 * (0.121)				
PM _{2.5} ²			−0.001 *** (0.000)			
PM _{2.5} *INDEC				−0.023 *** (0.002)		
SEWAGE					0.04 *** (0.009)	0.127 *** (0.022)
EXDEC					−0.132 *** (0.016)	−0.130 *** (0.016)
SEWAGE ²						−0.005 *** (0.001)
R-squared	0.652	0.654	0.683	0.703	0.7	0.701
Observations	570	570	570	570	570	570

Notes: The standard errors are in the parentheses. ***, ** and * represent statistical significance at 1%, 5%, and 10% levels, respectively.

In the second column, we added the per capita GDP of neighboring provinces to the model. The development of tourism in a Chinese province is expected to depend not only on the income level

of residents within the province but also on the residents of neighboring provinces. Therefore, we consider the impact of the per capita income of neighboring provinces. Empirical results show that the increase in per capita income of neighboring provinces is not positively associated with the growth of tourism within the province. This means that the economic development of neighboring areas tends to direct more resources to be invested in tourism infrastructure such as hotels and museums within neighboring provinces themselves. However, if the region's economy is relatively less developed than its neighboring areas, tourists will be transferred to neighboring areas with more abundant tourism resources.

In the third column, we added a squared term of pollution. The research results show that although the coefficient of the primary term of pollution is positive, the quadratic term coefficient is negative. This implies an “inverted U-shape” relationship between pollution and tourism revenue. This shows that, initially, the tourism industry is expected to grow with a rise in pollution, but the growth rate tends to decline. Once a threshold in pollution is reached, tourism revenue begins to decline as the pollution level rises. Therefore, strict control of pollution to reduce its negative impact on tourism is not only necessary, but also the only way for tourism to achieve sustainable development.

In the fourth column, we added the cross term of pollution and fiscal decentralization. The research results show that under the condition of pollution, the coefficient of fiscal decentralization is changed from negative to positive. This means that at the pollution-based stage of economic development, the local government has a strong incentive to invest in tourism infrastructure in the short term to promote the development of tourism. However, the negative interaction term between $PM_{2.5}$ and INDEC indicates that this short-term pollution-type growth is unsustainable and eventually leads to a decline in tourism revenue.

In the fifth column, we replaced the pollutant $PM_{2.5}$ in the first column with sewage treatment, and replaced the “revenue method” measure of fiscal decentralization with the “expenditure method”. The calculation results in Table 3 show that the coefficient signs do not change. The coefficient of SEWAGE is still positive. The coefficient of fiscal decentralization is still negative. In the sixth column, we include the GDP per capita of neighboring provinces, but the coefficient fails the significance test. Signs for the other coefficients did not change significantly and all passed the 1% significance test.

5. Robustness Testing

There is a significant cross regional disparity in development of regional tourism in China. China's coastal regions in the east, better economically developed, outperform the central and the western regions in tourism development. The central and the western regions, especially the western regions, have better tourism ecological resources. In order to test the robustness of the model, we divided all samples into three regions—eastern, central, and western—to examine the cross-regional disparity in the factors affecting the development of tourism. The results are shown in Table 4.

Table 4. Influencing factors of tourism development in the eastern, central and western regions.

Variable	Eastern Region	Central Region	Western Region
PGDP	1.271 *** (0.028)	1.333 *** (0.095)	1.344 *** (0.022)
TRD	0.504 *** (0.173)	−0.466 *** (1.41)	1.78 (0.783)
$PM_{2.5}$	0.116 *** (0.013)	0.078 *** (0.031)	0.006 *** (0.089)
INDEC	−0.105 * (0.061)	−0.096 ** (0.455)	−0.434 * (0.260)
PENERGY	−0.411 *** (0.064)	−0.154 ** (0.072)	−0.342 *** (0.036)
$PM_{2.5}^2$	−0.001 *** (0.000)	−0.001 *** (0.000)	−0.001 *** (0.009)
R-squared	0.629	0.369	0.664
Observations	209	152	209

Notes: The standard errors are in the parentheses. ***, ** and * represent statistical significance at 1%, 5%, and 10% levels, respectively.

We can see from Table 3 that the impact of GDP per capita on tourism revenue does not vary across regions. An increase in the share of trade in GDP contributes to the development of tourism in

the eastern and western regions, but not in the central region. This result is related to the fact that the eastern and western regions in China rather than the central region are bordered by foreign countries or have closer trade links with foreign countries. Such trade exchanges are conducive not only to the construction of tourist facilities such as hotels and attractions, but also to the establishment of a good city reputation, thereby promoting tourism growth. Pollution is positively correlated with the development of tourism across all three regions, which is related to the specific pollution-based growth of Chinese economy. However, the negative quadratic term of the pollution variable indicates that once pollution exceeds a certain level, tourism revenue will decline. Therefore, pollution prevention and control measures and promoting the harmonious development of tourism and the natural environment are the only ways to achieve the green and sustainable development of China's tourism industry.

The conclusion that fiscal decentralization is not conducive to the development of tourism still holds true across all regions. This is because the main goal of local governments is economic growth, and it is difficult to promote economic development in the short term with tourism development. Hence, tourism tends to be not considered as the priority of local officials. Rather, large-scale state-owned enterprises engaged in heavy industry or chemical industry are considered as top priority for economic growth by local governments. This consideration by local governments manifests itself as the negative relationship between the fiscal decentralization level and tourism industry's income. An increase in per capita energy consumption is not conducive to the development of tourism. As rising per capita energy consumption is correlated with both climate change and increased pollution, these are serious threats to the development of tourism that depends heavily on environmental sustainability.

Local governments play a vital role in tourism and local economic development. To test the robustness of the model in Table 3, we replaced fiscal decentralization variables with local government competition indicators. Competition among local governments in China can be reflected in the amount of foreign investment attracted. Therefore, we used the actual amount of foreign investment attracted by each province to measure the degree of local government competition. In model (III) in Table 3, we replaced the fiscal decentralization indicator with the local government competition variable. The calculation results shown in column (I) of Table 5 indicate that local government competition is conducive to the development of tourism. This shows that Hypothesis 2 does not hold true. In other words, the competition among local governments to attract foreign investment is shown to be consistent with the "race to the top" hypothesis. This is because, in order to attract foreign investment, local governments have to invest in hotels and transportation infrastructure and improve environmental quality. Good natural environments, transportation systems and tourism infrastructure will not only attract foreign investment, but also encourage multinational companies to invest in the tourism industry. This positive feedback effect further promotes the increase in tourism industry income. In the second column of Table 5, we also added the cross term of fiscal decentralization and government competition. Comparing the coefficients of fiscal decentralization listed in (I)–(III) in Table 3, we see that fiscal decentralization is not conducive to the development of tourism, and on the other hand competition between local governments for foreign investment is conducive to environmental improvement and tourism development. However, the overall effect of the two variables is negative, which means that the negative effect of fiscal decentralization is greater than the positive effect of government competition. The signs of the other variables do not change significantly, and all passed the 1% significance test.

In column (III) of Table 5, we use AQI to replace $PM_{2.5}$ to examine the impact of different pollution variables on the development of tourism. The research results show that both the AQI coefficient and the $PM_{2.5}$ coefficient of column (I) are positive, which indicates that the model has strong robustness. In column (IV) of Table 5, we add the quadratic term of AQI, and the coefficient has also the same sign as $PM_{2.5}$ (both of which are negative). This shows not only that the model has strong robustness, but also that although pollution can help tourism revenue increase in the short term, a further rise in pollution will lead to a decline in tourism revenue once a threshold is reached. Therefore, while promoting economic growth, it is essentially important for local governments to improve environmental quality by protecting natural resources, saving energy and reducing emissions, thereby reducing air, water,

and soil pollution. This can not only promote economic growth in the short term, but also help to realize green sustainable development of tourism in the long term.

Table 5. Impact of Local Government Competition on Tourism Development.

Variable	(I)	(II)	(III)	(IV)
PGDP	1.269 *** (0.024)	1.26 *** (0.025)	1.208 *** (0.051)	0.781 *** (0.076)
TRD	0.611 *** (0.085)	0.910 *** (0.140)	0.669 *** (0.087)	0.745 *** (0.083)
FDI	0.095 *** (0.025)	0.106 *** (0.025)	0.148 *** (0.023)	0.233 *** (0.024)
PENERGY	−0.336 *** (0.024)	−0.311 *** (0.025)	−0.411 *** (0.024)	−0.27 *** (0.03)
PM _{2.5}	0.053 *** (0.009)	0.054 *** (0.009)		
PM _{2.5} ²	−0.001 *** (0.000)	−0.001 *** (0.000)		
FDI*INDEC		−0.016 *** (0.006)		
AQI			0.296 *** (0.085)	2.116 *** (0.262)
AQI ²				−0.246 *** (0.034)
R-squared	0.691608	0.696	0.633767	0.71688
Observations	554	554	480	480

Notes: The standard errors are in the parentheses. *** represents statistical significance at 1% level.

6. Conclusions and Policy Recommendations

This study examines fiscal decentralization, pollution, and their impacts on tourism development for 30 provinces in China. The research results show that GDP per capita and trade openness are positively related to tourism revenue. However, the development of China's tourism industry is correlated with an increase in pollution. However, the quadratic term of the pollution variable is negative, which indicates that although tourism revenue might be increased at the cost of higher level of pollution in the short term, a further rise in pollution will lead to a decline in tourism revenue once a threshold is reached. Hence, there is an “inverted U-shape” relationship between pollution and tourism revenue. The fiscal decentralization leads to a “race to the bottom”. This shows that collusion between local governments and enterprises aggravate environmental pollution and carbon emissions. This is consistent with the findings of Zhang et al. [8]. The increase in per capita GDP of neighboring provinces is not conducive to the growth of tourism in the province. Hence, the development of China's tourism industry presents a curse on the less developed regions. The negative cross-term of pollution and fiscal decentralization indicates that short-term pollution-based growth is unsustainable and will eventually lead to a decline in tourism revenue. The robustness tests on the eastern, central and western regions of China show that the coefficients for dealing with trade variables in the central region are inconsistent with the basic model in Table 3, and the coefficients of other variables have shown strong robustness.

Local government competition is conducive to the development of tourism. This is consistent with the findings of Zhang et al. [5]. The local government competition for foreign investment is shown to be consistent with a “race to the top” hypothesis. That is, fiscal decentralization is not conducive to the development of tourism, but competition between local governments for foreign investment is conducive to environmental improvement and tourism development. However, the overall effect of the two is negative, which means that the negative effect of fiscal decentralization is greater than the positive effect of government competition. The results of using the AQI to replace PM_{2.5} show that the coefficient of AQI is the same as that of PM_{2.5}, which indicates that the model has strong robustness.

Based on the above research conclusions, we propose the following main policy measures. First, the central government should strengthen supervision of the environmental enforcement of local officials. The GDP-growth oriented appraisal approach to local officials' performance needs to be reformed to prevent local officials from lowering environmental protection standards for short-term GDP growth. Secondly, the independent law enforcement power of environmental supervision by environmental protection agencies needs to be strengthened to break collusion between local

governments and state-owned enterprises and constrain local governments and local officials from lowering environmental protection standards. Thirdly, in view of the reduction in environmental protection standards by Chinese local governments in order to attract investment, the growth in the Chinese tourism industry has been more of the pollution-type. Therefore, the connection with international environmental protection law enforcement agencies and standards to improve environmental standards help to promote the sustainable development of tourism. China's advantages in attracting foreign investment and foreign trade development should be used to get foreign experience in the development of clean tourism, promote industrial upgrading and drive the tourism industry to achieve clean and high-quality sustainable development.

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