

Does the Raise of Local Government's Environmental Attention Have Positive Impacts on Emission Reduction?

-- A Research on the Regulatory Role of Environmental Decentralization

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Abstract

How to fight the battle against pollution has become the focus of attention of the central and local governments. This paper introduces the attention theory in psychology, explains the internal mechanism of environmental attention (EA) of local government affecting environmental pollution (EP) from the two dimensions of environmental regulation (ER) intensity and environmental governance (EG) investment, and discusses the regulatory effect of environmental decentralization (ED). Based on the provincial panel data of 30 provinces (municipalities and autonomous regions) in China from 2000 to 2015, this paper empirically studies the impact of local government's EA on EP. The main research conclusions are as follows: (1) The improvement of local government's EA is conducive to reducing the level of EP. This marked the implementation of the "river length system" and decentralized environmental governance are important ways to achieve green development. (2) After introducing the regulatory role of ED, the impacts of local government's EA on EP was enhanced, which means that ED has a positive regulation effect on the emission reduction effect of local government's environmental attention. (3) The regression results of the spatial Dubin model considering spatial spillover effect show that the increased EA of local governments will significantly reduce the level of environmental pollution, but this effect is mainly from the direct effect, and the spatial spillover effect is not obvious. Finally, the policy suggestions are proposed to strengthen EG through reforming the ED system, raising the EA of local governments, and adjusting the assessment criteria for the performance of local government.

Keywords

Environmental Attention; Emission Reduction; Regulatory Role of Environmental Decentralization.

1. Introduction and Literature Review

Over the 40 Years of China's Reform and Opening Up, China's economic development has made great successes. With the rapid economic development, environmental degradation and ecosystem degradation have gradually become important factors affecting China's long-term economic development. In particular, environmental pollution, such as water pollution in Taihu Lake and frequent pollution incidents such as smog, have brought challenges to China's sustainable economic development. Prevention and control of EP has also become one of China's three major challenges in the next stage. Chinese central government and local

governments at various levels are paying more attention to EG issues. Environment-related terms such as environment, EG, EP and environmental quality (EQ) have appeared repeatedly in government work reports and five-year plans. For example, the 19th National Congress of the Communist Party of China set solving ecological and environmental problems as the strategic target of the development. The 20th CPC National Congress proposed respecting nature, conforming to nature and protecting nature, and classified it as the inherent requirements of building a socialist modern country in an all-round way. The Country Congress on Ecological and EP held in January 2022 further emphasized the need to adhere to a systematic concept, paying attention to increasing the quality of the ecological environment, we should promote increase of the quality of the ecological environment, and bring China's ecological progress to a new level. Ecological civilization construction has been put on the agenda.

Based on the purpose of promoting EG in China, Chinese central and local levels of government have promulgated a large number of laws relating to pollution control and environmental governance, such as "Soil Pollution Prevention and Control Action Plan", "National Land Planning Outline (2016-2030)", and so on. The River Leader System is a policy system initiated by the local government of China to address regional water pollution. The main responsible persons of the party and government to serve as "river leaders" to be responsible for the management of the river and lake environment within the jurisdiction, so as to strengthen the protection of water resources, the prevention and control of water pollution, the treatment of water environment, the ecological restoration of water environment, and the improvement and restoration of the river and lake basin environment. In 2016, the "Suggestions on the Overall Implementation of the River Leader System" was issued, which clearly required local governments at all levels to build the River Leader System until the end of 2018. In addition, the environmental governance system at the local government level also brings forth new ideas. Taking Anhui Province as an example, "Anhui Province's 13th Five Year Project for ecological EP and build planning" and "Anhui Province's Work Plan for Soil Pollution Control", "The 13th Five Year Plan for Resources Saving and Release Decrease", and "Anhui Province's "Thirteenth Five-Year" EP Program" and environmental governance documents have been issued one after another, implementing the construction of an ecological culture system.

Based on the above analysis, pollution prevention and environmental governance have become the key issues urgently needed to be solved in China. Existing literature has made a large number of researches on the influence of environmental regulation on EP, with both theoretical studies and empirical tests based on different sample data. Through studying environmental governance issues from different perspectives, the following three viewpoints are formed: Some scholars' studies show that ER can significantly assist pollution reduction (Shen Zhao, 2022; Bao Tong, 2022; Han Chao and Wang Zhen, 2022); Some scholars believed that ER has a certain promoting and reducing effect (Yin Xiguo, Chen Gang and Fu Xiang, 2005). In addition, some scholars believed that the impact of ER on pollution reduction is uncertain (Li Yongyou and Shen Kunrong, 2008; Cheng, Li and Liu, 2017). With further research, some literature has explored the influence of ER on industrial diversion (Liu Yan and Li Lusang, 2021), FDI (Wen Liqin and Shi Lingjiang, 2023), and technological innovation (Kong Dongmin and Shi Zheng, 2022). To sum up, there are still some differences in the existing research conclusions.

Scholars conducted research on the advantages and disadvantages of ED and EC in EG. Stewart (1977) believed that the central government should shoulder the duty of EG because environmental problems have the characteristics of public goods, which will help to avert the cothurnus of the common land and the phenomenon of free riding by local governments. In addition, some scholars proposed that regional heterogeneity should not be ignored in EG, and the duty of EG should be undertaken by local governments (Breton & Scott, 1978). Some studies have also shown that regional differences and spillover effects of environmental pollution

(Tang Hui, 2022) are important factors affecting the implementation effect of environmental policies. Under the system of China's concentration of power and finance decentralization, most scholars believe that local governments one-sided pursue the goal of economic growth and vie with each other for growth, resulting in numerous ecological difficulties (Zi Jiafeng and Yang Qi, 2015; Sheng Qiaoyan and Zhou Qin, 2017; Zhang Hua, Feng Chao and Liu Guanchun, 2017). Wang Jun and Yu Zhiwen et al. (2022) suggested that environmental decentralization had a nonlinear influence on environmental pollution. Since the implementation of the "Suggestions on the Overall Implementation of the River Leader System", the question of environmental centralization or decentralization has become an important branch of Chinese scholars' research. Li Qiang (2022) argues that the essence of river chief system is environmental decentralization, and empirical research shows that environmental decentralization has better pollution reduction effect. At the same time, studies by scholars such as (Sun Liwen, 2022), (Cheng Guangbin and Wang Chaoyang, 2022) and (Zhang Fan and Shao Junjie, 2021) also reached a unanimous conclusion that Environmental decentralization contributes to environmental governance. In general, the study on the impact of environmental centralization and decentralization on EG has gradually become a hot issue in the academic circles at home and abroad, and the research conclusions are also different.

In general, the current scholars has done a lot of research on the impact of ER on EG, and has also done a lot of exploration on the impact of ED and EC on EG, which provides a useful reference for the further research of this article. The innovation of this study are: First, the introduction of the concept of "attention" in psychology, based on previous studies, enriches the local government environmental attention index system; second, in the construction of the local government environmental attention indicator system, the text analysis method is used to conduct data mining on government work reports and obtain local government environmental attention indicator data; third, Third, based on the innovation of river governor system, exploring the regulatory influence of ED on the EA reduction influence of local governments, and provide important reference value for China's environmental pollution control; fourth considering the spillover effects of environmental pollution, especially spillover effects and regional differences are important factors affecting environmental decentralization and emission reduction effects (Oates, 2001). In order to make the empirical research conclusions of this article more robust and credible, based on the spatial Dubin model, this paper empirically tests the direct and indirect influences of ED and local government EA on EP, and put forward corresponding policy recommendations in a targeted manner.

2. Mechanism Analysis and Research Hypotheses

Environmental governance is a complex and arduous task. It should be coordinated by multiple subjects. The division of labor and cooperation requires the respect of the central level, as well as the participation of local governments with the public. It was pointed out in the report of the 19th National Congress of the Communist Party of China that the EG system should be constructed with the government as the leading, the enterprise play the main role, and social communities and the common people together involved. The release of the "Suggestions on the Overall Implementation of the River Leader System" provides a new perspective for China's environmental governance. After careful analysis, it is easy to discover that the nature of the river leader system is environmental decentralization (Li Qiang, 2018). The river governor system clarifies the major status of the local government in EG, and influences the local government's EA to control EP by clarifying responsibilities and rights. Attention was originally a concept in psychology, which refers to people's psychological activity to point to and focus on something. This paper introduces the concept of "attention" in psychology into the study of environmental governance, and the local government's EA is used to inspect the local

government's concern about EP and EG. Then, the problem worth paying attention to is the improvement of local governments' EA instrumental in pollution control? What is the internal mechanism of local government environmental attention affecting environmental pollution? Does the environmental decentralization have a regulatory effect on the pollution control impact of local governments' EA under the background of river leader system?

First of all, the improvement of local governments' environmental attention is instrumental in decreasing the degree of EP. The augment of local governments' EA is instrumental in developing local governments' investment in EG and environmental regulation, increasing investment in environmental governance and pollution reduction, and thus decreasing the degree of EP. As mentioned above, the increase in environmental attention promotes the enhancement of local governments' attention to environmental issues, which in turn increases the human, material, and financial resources invested in environmental issues, and improves the strength of ER. The improvement of ER intensity can affect the level of environmental pollution through two aspects: First of all, the investment in environmental control of enterprises has been increased, the social cost brought by environmental pollution has been transformed into the internal cost of enterprises, the pollution emission of enterprises has been restrained, the production mode has been changed and the level of environmental pollution has been reduced. On the other hand, the enhancement of ER strength has transmitted more perfect and specific environmental protection information to residents, which is instrumental in increasing residents' sense of energy conservation and EP, and reducing the level of EP by affecting residents' consumption behavior and enterprises' production behavior.

In view of the foregoing analysis, the hypothesis 1 is advanced:

H1: Increasing the EA of local governments is helpful to decreasing EP.

Second, environmental decentralization may have two effects on the ER influence of environmental attention. Besides, under the system of environmental decentralization, local governments assume the duty of EG. In order to optimize the economic and social level within their jurisdiction, improve the quality of life of residents, and achieve remarkable achievements, environmental governance will be strengthened, thus increasing attention to pollution protection and investment in environmental governance. At the same time, the increase of EQ under the ED system has become an important aspect of local government performance assessment. Under this background, local governments will attach more importance to pollution govern, and can raise the manufacturing cost of polluting businesses and decrease the degree of environmental pollution by means of taxing carbon tax. However, under the system of environmental decentralization, there are problems such as information asymmetry and inconsistent goals between central and local level managers. In order to safeguard the interests of local economic development and consolidate their achievements, local governments may still be used to paying attention to the GDP growth rate of the region, and their environmental protection concept is difficult to change fundamentally. In addition, China's environmental protection inspectors and environmental interview mechanism started late, supervision measures and interview mechanisms need to be improved to effectively supervise the environmental governance of local level managers, the execution of local government environmental laws may be more to serve the needs of local economic development, and this situation can not be effectively regulated, which may aggravate the degree of EP, weaken the influence of environmental control, and can not effectively solve the problem of EP.

In view of the foregoing analysis, the hypothesis 2 is advanced:

H2: Environmental decentralization can regulate the pollution control influence of local level managers' environmental attention.

3. Research Design

3.1. Model Structure

So as to empirically examine the impacts of EA on China's EP, on the basis of previous mechanism examination, the econometric model was constructed:

$$POLLUTION_{it} = \beta_0 + \beta_1 EI_{it} + \beta_2 ED_{it} + \beta_3 INTER_{it} + \beta_4 CONTROL_{it} + \varepsilon_{it} \quad (1)$$

The explained variable *POLLUTION* expresses environmental pollution, the core explanatory variable *EI* of the model represents local government environmental attention, environmental decentralization *ED* is the moderating variable, *INTER* is the interactive term of local government environmental attention *EI* and environmental decentralization *ED*, which represents the product of *EI* and *ED*, that is, the $INTER = EI \times ED$, and *CONTROL* is other control variables that affect environmental pollution, the subscript *t* represents the time unit, the subscript *i* is the inter-provincial unit in China, ε_{it} is the stochastic interference item of the mold, and β_i are the parameters to be estimated of the mold.

3.2. Variable Setting

Explained variable: environmental pollution (*POLLUTION*). The existing literature usually adopts industrial "three wastes" and SO₂ emissions to represent pollution. In order to characterize environmental pollution as comprehensively as possible, based on the availability of data, six pollution indicators including industrial waste water emission, industrial waste gas emissions, industrial smoke emissions, industrial dust emissions, industrial sulfur dioxide emissions, industrial solid waste discharge were selected to construct a comprehensive pollution index. On the basis of standardization, the entropy method was used to ascertain the weight of each index, and finally the synthetical index of environmental pollution is obtained.

Explanatory variable: local government environmental attention (*EI*). Based on the research of scholars Wang Yinhong and Li Mengzhu (2017), this paper selects the following keywords related to environmental pollution: Ecology, ecological environment, ecological civilization, energy saving, sustainable development, green, greening, green water and green mountains, environmental protection (environmental protection), environmental governance (environmental remediation, environmental pollution remediation, environmental comprehensive governance, pollution control), environmental quality, environmentally friendly, beautiful, pollution, discharge, air pollution, water pollution (sewage), soil pollution, PM_{2.5}, PM₁₀, New energy, resource conservation (energy conservation), energy consumption (energy intensity, energy efficiency). This paper collected the government work reports across 30 provinces in China from 2000 to 2015, conducted data mining for annual task statements of local governments, counted the frequency of the above keywords in the task statements of provincial and municipal governments each year, and characterize the local government's EA.

Regulating variable: Environmental decentralization (*ED*). Central administration and local administrations at all levels are the two major subjects of China's EG and the major makers and executors of environmental policies. In this paper, referring to the research of Qi Yu and Lu Hongyou et al (2014), the percentage of local EP department personnel in the national EP department personnel is used to express the *ED* index, and characterized by *ED*. In order to avoid endogenous problems, $1 - (GDP_{it}/GDP_t)$ is adopted to deflate the decentralization of the environment, The specific calculation process is:

$$ED_{it} = \left[\frac{(LEPP_{it} / POP_{it})}{NEPP_t / POP_t} \right] \times [1 - (GDP_{it} / GDP_t)] \quad (2)$$

In the formula, $LEPP_{it}$ represents the environmental protection system personnel of the year *t* of the *i*th province, $NEPP_t$ represents the personnel of the national EP channel in year *t*, POP_{it} represents the population scale of the year *t* of the *i*th province; POP_t means the total population

scale of the year t in China, GDP_{it} means the i province's GDP of the year t ; GDP_t means the national GDP of the year t .

Control variables: In this paper, economic growth, fiscal decentralization, investment, opening to the outside world, industrial upgrading and institutional quality are selected as control variables. Among them, economic growth is represented by the GDP of every province (city or district) and represented by GDP. FD indicates that the proportion of provincial (municipal and district) budgetary expenditure at the same level in the central budget represents fiscal decentralization. Investment in fixed assets represents the level of investment. The ratio of the total import and export trade volume of each province (city, district) to its GDP represents opening up, $OPEN$ said. With reference to the research of Li Qiang (2017), the industrial structure upgrading and rationalization index are constructed and standardized, and the industrial upgrading comprehensive index is synthesized by entropy method, which is represented by IND . Refer to the "China Marketization Index" published by Fan Gang et al., which represents the quality of the system, INS said.

3.3. Data Description

A sample of 480 observed values was used in this paper, Including provincial panel data of China's 30 provinces (cities and districts) from 2000 to 2015 (excluding Tibet). Since the environmental decentralization data of the core variables in this paper are from China Environmental Annals and China Environmental Statistics Annals, the latest editions of these two yearbooks are 2019 edition (2018 data), but the statistical calibre of the yearbooks in 2018 and 2017 has changed somewhat. A large number of indicators such as ED , decentralization of administrative, decentralization of environmental supervision, and decentralization of environmental monitoring are missing. In addition, China Environmental Statistical Yearbook lacks data from 2000 and 2001. Therefore, part of the empirical research of this project is mainly on account of the provincial panel data of China's 30 provinces (cities and districts) from 2000 to 2015. The missing data of individual regions (years) shall be supplemented by mean value interpolation. All data processing in this paper was completed in STATA 16 software.

4. Empirical Analysis

4.1. Quantitative Inspection

To empirically examine the impact of China's EA on EP, this part first utilizes the static panel pattern to estimate. The Hausman test method to ascertain whether the fixed influence pattern or random influence pattern estimation method ought to be adopted. In order to avoid the unobservable effect of individual influence or time influence in the pattern, both individual influence and time influence are controlled in the pattern estimation. The estimated outcomes are revealed in Table 1. Table 1 inspection outcomes indicate that the regression ratio of EA variable is passive and marked at a significant degree of 5%, suggesting that the improvement of EA enhances local government environmental governance investment intensity and environmental regulation intensity, and then reduces environmental pollution. Hypothesis 1 is verified, how to improve local government environmental attention and promote China's EG the key problem to be solved. It is also found that the regression ratio of environmental separation variable is striking passive, which indicates that surroundings separation is helpful to decrease the level of EP. The ratio of mutual project between EA and ED is active and marked at a significant degree of 1%, suggesting that ED plays a passive part in regulating the influence of EA on environmental pollution. Environmental decentralization weakens the pollution treatment influence of local government EA, reduces the effectiveness of environmental policy and exacerbates environmental pollution level. Hypothesis 2 is verified, which indicates that the central level managers ought to improve the environmental interview and monitor system

as soon as possible, and take binding measures to promote the local government to control pollution. The study also obtained that the ratio of mutual project of economic growth variables is marked active, and such results show that the rapid economic growth will aggravate the Chinese environmental pollution level, which shows that how to attain the coupling optimization of financial increase and EP is a key problem that China needs to solve right now. The ratio of mutual project of fiscal decentralization variables is evidently active, suggesting that fiscal decentralization increases the degree of EP in China. Therefore, we shows that Chinese financial decentralization is an major element to aggravate EP in China , which is identical to the test conclusion of Zhang Kezhong (2011). The ratio of mutual project of open variables is marked active, means that improve the level of openness intensified the environmental pollution, foreign enterprises usually choose higher open cities for investment, these cities are less regulated and more relaxed environmental regulations , most of its output comes from foreign direct investment, shows that the " pollution heaven hypothesis " effect exists evidently.

Table 1. Benchmark Test Results

Model	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Pollution	Pollution	Pollution	Pollution	Pollution	Pollution
Estimation method	RE	FE	FE	FE	FE	FE
<i>EI</i>	-0.001*** (-3.11)	-0.001*** (-3.07)	-0.001** (-2.46)	-0.001** (-2.46)	-0.001** (-2.45)	-0.001** (-2.50)
<i>ED</i>	-0.098*** (-3.66)	-0.070*** (-2.77)	-0.072*** (-2.87)	-0.072*** (-2.87)	-0.073*** (-2.82)	-0.077*** (-2.97)
<i>INTER</i>	0.002*** (3.62)	0.001*** (3.54)	0.001*** (3.09)	0.001*** (3.08)	0.001*** (3.07)	0.001*** (3.10)
<i>GDP</i>	-0.003 (-0.69)	0.036*** (5.36)	0.024*** (3.21)	0.024*** (3.10)	0.024*** (3.01)	0.032*** (3.61)
<i>INVEST</i>		-0.058*** (-5.89)	-0.073*** (-7.00)	-0.073*** (-6.93)	-0.073*** (-6.87)	-0.079*** (-7.19)
<i>FD</i>			0.604*** (3.94)	0.604*** (3.94)	0.605*** (3.94)	0.555*** (3.58)
<i>IND</i>				0.003 (0.06)	0.003 (0.08)	-0.012 (-0.28)
<i>INS</i>					-0.001 (-0.21)	-0.001 (-0.39)
<i>OPEN</i>						0.033** (2.05)
	0.889*** (26.69)	0.857*** (31.24)	0.823*** (29.11)	0.822*** (26.66)	0.827*** (21.95)	0.832*** (22.12)
<i>_CONS</i>	480	480	480	480	480	480
<i>Hausmanvalue</i>	1.44	83.19	113.53	46.54	171.14	220.07
<i>Time effect</i>	control	control	control	control	control	control
<i>Individual effect</i>	control	control	control	control	control	control

Note: The numbers in parentheses are the estimated t(z) values of each explanatory variable coefficient, and ***, **, and * represent that it is significant at the significance level of 1%, 5%, and 10%, respectively.

It is noteworthy that the influence of the fixed asset investment on China's EP is marked passive, suggesting that the rapid growth of the investment is helpful to reducing the level of the

environmental pollution in China, which is opposite to the inspection results of most of the existing literature. In addition, the variable coefficient of industrial upgrading and system quality variables is not significant, indicating that the impact of industrial transformation and upgrading and system innovation on China's environmental pollution is not obvious.

4.2. Robustness Test Taking Account of Spatial Spillover Effects

According to the first law of geography, everything is associated with other things, but things that are closer are more closely connected than things that are far away. China's various regions are closely linked in transportation, energy, labor, logistics, tourism and so on. The degree of inter-regional ties makes China's inter-regional economic development more and more integrated. In particular, environmental pollution has strong fluidity, that is, local environmental pollution not only affects the environmental quality in the area, but also affects the environmental degree of the surrounding regions. Regional EP also has intense spatial dependence, so the existence of environmental pollution spillover effect will affect the results of model estimation. For this reason, this part examines the effect of environmental decentralization in the previous empirical research from two dimensions. First, the mold (1) and mold (2) in Table 2 are the spatial Doberman model analysis outcomes considering spatial spillover effect. The spatial Doberman equation of mold (1) is tested with fixed influence mold, and the spatial Doberman equation of mold (2) is tested with random influence mold. The variable selection is consistent with Table 1. On the structure of spatial weight matrix, this paper uses geographical adjacency method to obtain spatial weight matrix.

Table 2 suggests the estimated outcomes of the spatial Dubin mold, and the FE and RE represent the fixed-influences and random-influences mold respectively. In summary, the test outcomes in Table 2 suggests that the spatial autoregressive ratio is ρ active and remarkable at the significant degree of 1%. It suggests that EP in various areas of China has strong spatial correlation. According to the test outcomes of mold (1)(2) in Table 2, the coefficient of local government EA variable is -0.001, which is remarkable at the degree of 1%, suggesting that the increase of local government EA is beneficial to reduce the degree of EP, which is identical with the test outcomes in Table 1. The $W*EI$ ratio of the spatial lag term is not remarkable, which suggests that the spatial spillover influence is not obvious, that is, the improvement of local government environmental attention is helpful to reduce the degree of local EP, but the impact on the surrounding area EP is not obvious. The coefficient of ED variable is prominently passive at the degree of 1%, which indicates that environmental decentralization ED is helpful to reduce the level of EP in China, and the ratio of the spatial lag variable $W*ED$ for environmental decentralization is not significant. It means that the spatial overflow influence of ED on EP in China is not obvious. It is also concluded that the INTER ratio of ED and local government environmental attention interaction variables is prominently active at the degree of 1%, which further suggests that environmental decentralization negatively regulates the pollution treatment influence of local government EA, which is basically identical with the test outcomes in Table 1. The influences of mold (1) - model (8) of other control variables in Table 2 on China's environmental pollution are basically the same as those in Table 1. Specifically, economic growth (GDP), financial decentralization (FD) and opening up (OPEN) have a significant active influence on China's EP, which means that rapid economic growth, Chinese-style fiscal decentralization and opening up to the outside world have intensified China's EP degree. The variable ratio of industrial upgrading (IND) is passive but not remarkable, suggesting that the impact of industrial upgrading on EP is not obvious. Institutional innovation (INS) and fixed asset investment (INVEST) variable coefficients are negative and are significant at 1% significance, meaning that institutional reform and rapid development of investment are an important means to reduce the pollution level in China.

Table 2. Estimation Results of Spatial Dubin Model

Model	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Dependent variable	Pollution	Pollution	Pollution	Pollution	Pollution	Pollution	Pollution	Pollution
Estimation method	FE	RE	FE	RE	FE	RE	FE	RE
<i>EI</i>	-0.001*** (-3.09)	-0.001*** (-3.39)	-0.001** (-2.48)	-0.001** (-2.48)	-0.0004* (-1.66)	-0.0005* (-1.75)	-0.001** (-2.14)	-0.001** (-2.20)
<i>ED</i>	-0.106*** (-4.33)	-0.116*** (-4.58)						
<i>INTER</i>	0.001*** (3.52)	0.002*** (3.87)	0.001*** (3.01)	0.001*** (3.06)	0.001** (2.37)	0.001** (2.49)	0.001*** (2.66)	0.001*** (2.71)
<i>GDP</i>	0.047*** (5.94)	0.044*** (5.29)	0.051*** (6.49)	0.049*** (5.90)	0.038*** (4.91)	0.037*** (4.55)	0.040*** (5.05)	0.038*** (4.60)
<i>INVEST</i>	-0.093*** (-9.23)	-0.088*** (-8.31)	-0.096*** (-9.38)	-0.092*** (-8.56)	-0.089*** (-8.99)	-0.086*** (-8.32)	-0.084*** (-8.37)	-0.081*** (-7.72)
<i>FD</i>	0.304** (2.32)	0.258* (1.88)	0.276** (2.09)	0.231* (1.68)	0.378*** (2.91)	0.312** (2.31)	0.399*** (3.02)	0.341** (2.47)
<i>IND</i>	-0.022 (-0.54)	-0.016 (-0.37)	-0.056 (-1.35)	-0.045 (-1.03)	-0.050 (-1.21)	-0.050 (-1.17)	-0.026 (-0.64)	-0.015 (-0.36)
<i>INS</i>	-0.013*** (-4.20)	-0.012*** (-3.94)	-0.011*** (-3.57)	-0.009*** (-2.97)	-0.012*** (-4.13)	-0.012*** (-3.85)	-0.013*** (-4.27)	-0.012*** (-3.98)
<i>OPEN</i>	0.041*** (2.85)	0.037** (2.44)	0.031** (2.14)	0.030** (2.00)	0.033** (2.27)	0.028* (1.92)	0.039*** (2.68)	0.037** (2.45)
<i>_CONS</i>		0.735*** (5.67)		0.546*** (4.34)		0.848*** (7.54)		0.677*** (5.39)
ρ	15.419*** (6.90)	10.911*** (4.21)	15.331*** (6.80)	10.482*** (3.92)	14.792*** (6.38)	10.583*** (4.25)	15.515*** (7.00)	11.514*** (4.47)
<i>W*EI</i>	0.001 (0.02)	-0.099** (-2.02)	0.005 (0.10)	-0.072 (-1.51)	0.019 (0.54)	-0.019 (-0.56)	0.053 (0.90)	-0.038 (-0.64)
<i>W*ED</i>	3.964 (1.22)	-3.280 (-1.09)						
<i>W*INTER</i>	0.023 (0.46)	0.125*** (2.61)	0.016 (0.34)	0.094** (2.02)	0.016 (0.47)	0.058* (1.77)	-0.025 (-0.46)	0.062 (1.14)
<i>W*GDP</i>	-1.364 (-1.12)	-1.292 (-1.01)	-0.348 (-0.28)	0.328 (0.25)	-1.896* (-1.69)	-1.661 (-1.43)	-2.281* (-1.93)	-2.320* (-1.87)
<i>W*INVEST</i>	3.261*** (3.34)	3.420*** (3.34)	2.472** (2.54)	2.326** (2.28)	4.019*** (4.49)	4.048*** (4.31)	4.083*** (4.37)	4.166*** (4.25)
<i>W*FD</i>	-12.519 (-1.50)	-12.381 (-1.42)	-18.625** (-2.21)	-21.118** (-2.41)	-12.134 (-1.50)	-12.979 (-1.56)	-10.471 (-1.25)	-9.359 (-1.07)
<i>W*IND</i>	6.982* (1.66)	5.515 (1.26)	4.705 (1.08)	3.547 (0.78)	8.327** (2.02)	4.826 (1.17)	10.994*** (2.69)	9.647** (2.26)
<i>W*INS</i>	-0.047 (-0.23)	-0.182 (-0.87)	0.039 (0.17)	-0.226 (-0.96)	-0.088 (-0.45)	-0.107 (-0.52)	-0.153 (-0.77)	-0.256 (-1.23)
<i>W*OPEN</i>	-1.380 (-1.14)	-1.749 (-1.37)	-1.836 (-1.45)	-2.196 (-1.64)	-0.902 (-0.75)	-1.357 (-1.08)	-0.889 (-0.71)	-1.057 (-0.81)
<i>Loglikelihood</i>	887.41	783.76	884.83	779.24	889.5	789.97	885.27	780.84
<i>R²</i>	0.4060	0.4028	0.3927	0.4047	0.4310	0.4277	0.4067	0.3987
<i>Sigma²</i>	0.0014	.0016	0.0014	0.0016	0.0014	0.0015	0.0014	0.0015

Table 3 is the outcome of space spillover decomposition of the spatial Dubin model, focusing on the direct effects, indirect (overflow) influences and main influences of expositive variables and control variables. The main influence is the addition of the immediate and mediate effects, specifically, the immediate influence of local government environmental attention EI on Chinese environmental pollution is prominently passive. Its mediate and main effects are prominently passive in the stochastic influence mold (RE), but not significant in the fixed -

influence mold (FE). It shows that the impact of local government EA on Chinese EP mainly stems from its direct effect, that is, the environmental attention of regional i has a direct suppressive impact on EP in the region, the environmental attention in other areas has no obvious impact on the environmental pollution in the area. The direct impact of ED on China's environmental pollution is prominently negative at the degree of 1%, and the mediate impact is not remarkable, which indicates that the pollution treatment impact of ED mainly comes from the direct effect. Environmental decentralization and environmental attention interaction INTER coefficient is positive, its spillover effect decomposition outcomes are mainly identical with environmental decentralization and environmental attention. The direct impact of the two interplay items on environmental pollution in China is prominently active at the degree of 1%. Spillover effect and total effect are not significant in fixed influence mold and positive in stochastic influence mold. That is, the influence of the two interaction on environmental pollution is mainly derived from the direct effect. Among other control variables, with the exception of the immediate and mediate influences of fixed asset investment, the pollution reduction effects of most control variables are also derived from direct effects, such as economic growth, fiscal decentralization, institutional innovation and opening up. At the same time, the immediate and indirect influences of industrial upgrading on EP are not remarkable, which is identical with the previous regression tests.

Table 3. Spillover decomposition

Model	Immediate Influence		Spillover Influence		Main Influence	
	<i>FE</i>	<i>RE</i>	<i>FE</i>	<i>RE</i>	<i>FE</i>	<i>RE</i>
<i>EI</i>	-0.001*** (-2.95)	-0.002*** (-3.73)	-0.001 (-0.31)	-0.007* (-1.92)	-0.003 (-0.55)	-0.008** (-2.24)
<i>ED</i>	-0.101*** (-3.84)	-0.123*** (-4.63)	0.190 (0.68)	-0.280 (-1.39)	0.088 (0.30)	-0.403* (-1.88)
<i>INTER</i>	0.001*** (3.52)	0.002*** (4.33)	0.004 (0.81)	0.008** (2.35)	0.005 (1.07)	0.010*** (2.71)
<i>GDP</i>	0.045*** (4.87)	0.042*** (4.83)	-0.054 (-0.47)	-0.055 (-0.72)	-0.009 (-0.07)	-0.013 (-0.16)
<i>INVEST</i>	-0.088*** (-8.66)	-0.084*** (-8.13)	0.148* (1.70)	0.148** (2.42)	0.059 (0.65)	0.064 (0.97)
<i>FD</i>	0.284** (2.18)	0.244* (1.84)	-0.632 (-0.87)	-0.523 (-1.05)	-0.348 (-0.46)	-0.279 (-0.58)
<i>IND</i>	-0.006 (-0.14)	-0.007 (-0.18)	0.536 (1.54)	0.319 (1.27)	0.530 (1.46)	0.311 (1.19)
<i>INS</i>	-0.013*** (-4.37)	-0.013*** (-4.08)	-0.019 (-1.14)	-0.018 (-1.47)	-0.032* (-1.93)	-0.031** (-2.57)
<i>OPEN</i>	0.040*** (2.91)	0.035** (2.50)	-0.058 (-0.58)	-0.080 (-1.10)	-0.018 (-0.18)	-0.045 (-0.62)

5. Research Consequents and Suggestions

The rapid economic development results in the increasingly serious environmental pollution, hence how to promote environmental governance in China has become a hot issue for the government and the public. The central and local governments attach great importance to environmental issues and introduce a series of relevant policies and regulations to solve them. Since the promulgation of "Suggestions on the Overall Implementation of the River Leader System", the implementation of the river leader system is bound to have an important impact on the EG of local governments. This paper starts from the innovation of China's river chief system, argues that the essence of River Leader System lies in environmental decentralization.

Under this background, the policies and regulations of local environmental governance emerge in endlessly. Does the raise of local government's environmental attention help to reduce environmental pollution? We focused on the impact mechanism of local government's environmental attention on China's environmental pollution, and explored the regulatory role of ED. The following research conclusions are drawn:

(1) Local government environmental attention is conducive to decreasing China's EP level. After introducing the ED regulation influence, the containment influence of local government environmental attention on environmental pollution is weakened, which indicates that ED has a passive regulatory influence on the emission reduction effect of local government environmental attention. It means that the central government should further strengthen the system of environmental protection interview and environmental protection supervision, realize the effective link between environmental interview and supervision, adopt binding measures to promote local government pollution control, and then realize the synergetic advancement of EP and economy.

(2) The regression results of spatial Dubin model considering spatial spillover influence show that the improvement of local government environmental attention will significantly reduce the degree of EP. This effect is greater when considering the spatial spillover influence, meaning that the static panel model will underestimate the pollution control influence of local government EA. It is also discovered that the influence of local government EA on EP is mainly due to direct effect, and its spatial spillover influence is not obvious.

(3) In terms of other factors affecting environmental pollution, fixed assets investment, industrial upgrading and institutional innovation are helpful to decreasing the degree of EP, indicating that increasing investment, promoting industrial transformation and upgrading and promoting institutional change are effective ways to reduce the level of environmental pollution. Economic growth, fiscal decentralization and opening to the outside world will aggravate China's environmental pollution level, which means that how to realize the synergism of economic growth and environmental improvement is still the key problem that China needs to solve in the next stage.

To sum up, the following policy recommendations are submitted:

(1) To promote the innovation of "River Leader System" system, to carry out the reform of ED system, to endow local governments with greater autonomy in EG, and to influence the degree of China's EP by improving the environmental attention of local governments. Attention reflects the attention of decision makers about something, improving local government environmental attention is the attention to environmental problems. The improvement of government environmental attention is more conducive to increasing government environmental governance investment and environmental regulation intensity. By influencing enterprise production and residents' consumption behavior, it not only affects total energy consumption, energy structure and energy efficiency, but also affects environmental quality. The empirical research of this paper also shows that improving the environmental attention of local governments is an important means to improve environmental pollution.

(2) The previous assessment system with the GDP as the sole criterion should be reformed and the environmental quality into the central government assessment system for local governments. Many researches have shown that Chinese finance decentralization and the "GDP championship" between local governments are important factors that aggravate China's environmental pollution. If the environmental quality is brought into the local government assessment index system, it is bound to create a kind of environmental quality competition between local governments. Through this kind of environmental quality competition, the degree of EP in China will be reduced and the environmental quality will be improved.

Data Availability

The data used to support the findings of this study are available from the corresponding author upon request.

Conflicts of Interest

This manuscript has not been submitted to, nor is under review at, another journal or other publishing venue. The authors have no affiliation with any organization with a direct or indirect financial interest in the subject matter discussed in the manuscript.

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