Research Article

Roles of International Environmental Law in China’s Environmental Productivity: Challenges and Implications

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Received 5 July 2022; Revised 1 August 2022; Accepted 4 August 2022; Published 27 August 2022

Academic Editor: Muhammad Tayyab Sohail

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International environmental law is the basic charter for dealing with international environmental issues, and it plays an important role in international environmental governance. In recent years, China’s economy has achieved great development, but environmental problems are also very prominent. International environmental law provides a basic reference for China’s environmental governance, but it also brings challenges to the development of China’s environmental productivity to a certain extent. At the same time, due to the unique dominant position of international environmental law, it has played a certain restrictive role in the development of China’s environmental productivity. Based on this, in order to promote the sustainable development of China’s economy, this paper took China’s industrial and agricultural development as the research object. This paper has conducted research on China’s industrial and agricultural environmental productivity, aiming to explore the role of international environmental law in China’s environmental productivity. The article first analyzed the limitation of international environmental law on China’s environmental productivity, and then on this basis, the article conducted a numerical simulation of China’s industrial and agricultural environmental productivity. Finally, starting from the actual development situation, the paper aimed to find out the numerical deviation of China’s environmental productivity changes through quantitative analysis. In the course of the research on environmental productivity development, the article found a strong correlation between environmental productivity and international environmental law in China. The correlation between environmental productivity and international environmental law reaches 59.93% in South China and 61.02% in North China. Also, after a series of comparative analyses, the article finds that changes in climate characteristics can exacerbate the regulation of China by international environmental law and seriously affect China’s economic development. In this case, China’s economy declined by 2.6% year-on-year, which further pushed China to practice sustainable development strategies. This shows that it is essential to study the relationship between international environmental law and China’s environmental productivity.

1. Introduction

International environmental law is the overarching charter for all international environmental relations and is a unified constraint on global environmental protection issues. China is a staunch defender of international environmental law. In the process of environmental governance and economic development, China has always implemented and enforced the relevant provisions of international environmental law. As global environmental problems become more severe, the role of international environmental law as hard law is being strengthened. In the process, international environmental law has become stricter in its restrictions on pollution emissions, but this has created a serious conflict with domestic pollution emission regulations. The sustainable development principles of international environmental law have severely restricted China’s economic development and undermined its economic development strategy. China’s environmental productivity has been slow to develop and faces economic, technological, and energy challenges. Moreover, environmental productivity reflects not only local economic conditions, but also China’s overall competitiveness. But opportunities and challenges always go hand in hand. With the combined efforts of international environmental law and Chinese environmental law and regulations, China’s environmental problems will be further improved.
At the same time, the improvement of the ecological environment will, to a certain extent, promote the progress of China’s environmental productivity and bring a broader platform and space for China’s economic development. On this basis, the economic value of China’s industrial and agricultural products will also increase, thus providing a further incentive for the government and practitioners to vigorously develop environmental productivity and promote circular economic development. In other words, international environmental law not only poses a challenge to China’s economic development, but can also promote the progress of China’s environmental productivity and will further facilitate China’s economic development.

Environmental productivity is the latest product of the sinicization of Marxism, which has attracted many scholars to study in recent years. Among them, Abad A established a multistage exponential model by considering the joint production of ideal and nonideal outputs in multiple production processes. The method he proposes not only evaluates the environmental productivity of the entire steel industry but also examines each of its subprocesses. Then, he proved the validity of the proposed model through the application of 48 steel enterprises in China during 2009–2013 [1]. Volis et al. aimed to investigate and study the relationship between environmental innovation, environmental performance, and environmental productivity. Using a regional accounting matrix that includes environmental accounts, he focused on sectoral environmental productivity in Italian regions. In the process, he classified them into the environmental field and the previously established WIPO Green List by adopting different international green technologies. Econometric results show that regions and sectors characterized by higher levels of green technology face better environmental performance [2]. Ahmed et al. pointed out that China has made great economic achievements in the past few decades due to the booming industry. In order to find a sustainable development path, they suggested that it is necessary to evaluate China’s industrial energy and environmental productivity and to explore its reasons. Based on this, they proposed a global productivity index to evaluate China’s industrial energy and environmental productivity and then found the deviation of China’s industrial technological change by relaxing Hicks’ neutral assumption and decomposing industrial technological change [3]. In order to study the environmental productivity of different enterprises, Wei took the amount of enterprise emissions trading as the research object. During the research process, he fully investigated China’s corporate emissions trading data in the past ten years, and based on this, he made predictions on the trading data in the next ten years. Finally, he found that companies with higher environmental productivity also had lower emissions trading amounts [4]. Wang et al. pointed out that, through the formulation of environmental regulation policies, the transformation and optimization of the industrial structure can be promoted, thereby promoting the improvement of its green total factor productivity. In order to verify the relationship between green productivity and industrial structure, they used a data simulation model to analyze the green productivity of different provinces in China [5]. The above scholars have analyzed China’s environmental productivity from different levels, but they have not considered the challenges brought by international environmental law to the development of China’s environmental productivity.

International environmental law is closely related to the development of China’s environmental productivity. Among them, Zimmermann pointed out that the adjustment and change of international environmental law will directly affect local environmental policies and regulations. In addition to this, he found that many conventions are concerned with environmental protection issues and mentioned that all countries have obligations and responsibilities for environmental damage and pollution caused by their development activities. Most of the Persian Gulf littoral countries are members of these conventions, and they are obliged to comply with environmental obligations and regulations related to their extensive activities along the Persian Gulf and land reclamation [6]. Laina pointed out that the adjustment of international environmental law has brought serious challenges to countries. In order to jointly cope with the challenges, he proposed that, from the perspective of international productivity, efforts should be made to promote the joint response of countries to environmental challenges [7]. Discussing approaches to global governance, Kotzé and French pointed out that international environmental law has been confronting emerging global environmental issues in an innovative way. At the same time, they also pointed out that international environmental law not only regulates global environmental protection issues, but also puts forward new requirements for industries related to environmental protection [8]. Humby believed that treaties or specialized judicial bodies have the advantage of addressing fragmentation and inconsistency in international environmental law, which can fill gaps in international environmental law. At the same time he proposed a centrifugal paradigm that highlights how specialized international judicial institutions can help strengthen the fragmented and inconsistent management functions of the International Court of Justice [9]. Ukovi pointed out that China’s environmental regulations and policies have always followed the pace of international environmental law, but China’s economic environment has also been greatly affected in the process. At the same time, he also pointed out that although the international environmental law has brought challenges to China’s economy, China will surely rise to the challenge [10]. The above scholars have analyzed the rules and systems of international environmental law from different angles, but they have not combined international environmental law with environmental productivity.

Based on China’s environmental productivity, this paper focuses on the challenges and significance of international environmental law to China’s environmental productivity. Based on this, studying the relationship between international environmental law and China’s environmental productivity is conducive to helping China break through the situation quickly and achieve sustainable economic
development. Energy price and energy consumption structure have a negative impact on environmental productivity bias, but the cost of suppressing air and water pollutants has a positive impact on environmental productivity and energy bias. Among them, the deviation between labor and environmental productivity is between 0.55 and 0.57, which indicates that the price of labor will directly affect the local environmental productivity. The reason is that, in the context of international environmental law, rising prices of other energy sources will directly affect the development of local industries and damage the local natural environment. If energy prices are low, it will stimulate the local economy to vigorously develop and reduce the plunder of the natural environment.

2. Restrictions of International Environmental Law on the Development of China’s Environmental Productivity

2.1. Development of China’s Environmental Productivity. Environmental productivity refers to the nature of the productivity of the natural environment and its elements, as well as a green productivity produced by the integration and optimization of the natural environment and social productivity [11]. If the reproduction of water, forests, rivers, coal, and other elements in the environment is destroyed, the environmental productivity will be destroyed, and its supporting role for social development will be weakened.

Since the reform and opening up, China has continuously attached importance to and developed environmental productivity [12]. In terms of environmental legislation, China has made great achievements in accordance with the guidance of international environmental laws. A multilevel environmental legislation system has been initially formed, and environmental productivity has continued to develop. With the advancement of science and technology and the times, although China’s environmental productivity has achieved certain development, its development stamina is insufficient, and the relevant legal protection is lacking [13]. Due to the large gap between the actual conditions in different parts of China, it is difficult for China to formulate uniform rigid regulations in the actual legislative process, which provides regions with a lot of autonomy. In this reality, Guangxi’s environmental productivity has developed rapidly, and many regulations and management methods related to the environment have been proposed [14–16]. For example, Guangxi promulgated the “Guangxi Zhuang Autonomous Region Nanning Qingxiu Mountain Protection Regulations” to escort the development of environmental productivity. However, Guangxi is only a minority that has achieved development and progress. In most areas of China, the development of environmental productivity is extremely unbalanced, which has brought serious challenges to the overall development of China’s environmental productivity.

In this case, the distribution of China’s environmental productivity is both scattered and concentrated. Decentralization means that the development of China’s environmental productivity is relatively scattered, and many areas where environmental productivity has achieved good development are scattered [17]. Concentration means that the overall development of China’s environmental productivity is relatively concentrated; that is, the development of environmental productivity is generally slow.

2.2. Numerical Simulation of Environmental Productivity. In order to further develop China’s environmental productivity and study the impact of international environmental law on China’s environmental productivity, the environmental productivity of China’s industry and agriculture was taken as an example to simulate its environmental productivity. On this basis, in order to assess the bias in the simulation, we further propose a related bias model.

The environment has a profound impact on the development of industry and agriculture and determines the actual local environmental productivity. In order to fully study the impact of international environmental law on China’s environmental productivity, it is necessary to accurately express the environmental productivity. Among them, the simulation model of China’s environmental productivity is expressed as follows:

\[
\frac{d\mathcal{P}}{dt} = r_1 + r_2 \cdot \exp\left(\xi + \sqrt{\mathcal{K}_u}\right),
\]

\[
\xi = -\mathcal{G} \left[ r_3 \cdot \left( \mathcal{F}_{\text{max}} - \mathcal{F}_{\text{0}} \right) \left( \mathcal{F}_{\text{0}} - \mathcal{F}_{\text{min}} \right) \right].
\]

Among them, \(\xi\) represents the environmental development conditions, \(\mathcal{K}_u\) represents the economic development coefficient, and \(\mathcal{G}\) represents the policy support in different regions. In this process, regional environmental factors are the main factors affecting the regional environmental productivity.

Since the commodity rate of China’s agriculture is relatively low, its economic coefficient is analyzed from the perspective of environmental development. In the process of characterization, the economic coefficient is naturally divided into two parts:

\[
\mathcal{W} = \frac{\mathcal{P}}{\mathcal{Q}} = \frac{\mathcal{Q}_1}{\mathcal{Q}} + \frac{\mathcal{Q}_2}{\mathcal{Q}}
\]

\[
10^3\mathcal{Q}_1 = 354.11\mathcal{F} - 12.223\mathcal{F}_i^2 + 1.231\mathcal{\mathcal{Q}}.
\]

In the above formula, the economic coefficient \(\mathcal{W}\) consists of two parts, the economic quantity \(\mathcal{Q}\) and the output \(\mathcal{F}\). Among them, \(\mathcal{Q}_1\) represents the conversion coefficient, which describes the maximum output under certain productivity conditions. \(\mathcal{Q}_2\) represents the accumulation factor, which describes the minimum energy consumption required to produce a quantitative product.

On the basis of the above analysis, the environmental productivity simulation model can preliminarily simulate the development and change of the minimum environmental conditions of China’s environmental productivity. Then, the most basic environmental productivity can be obtained by using the economic coefficient. The calculation process is as follows:
10^3 \delta_i \times 0.18152 T_i^3 + 10^\delta_j \times 1.2387 T_j^2,
\mathcal{Y}(f) = \beta \cdot \mathcal{R}_{ij}.

(3)

In the above formula, \(\mathcal{Y}(f)\) represents the final yield. The degree of deviation between economic output and the environment can be expressed as

\[ \mathcal{R} = \frac{\delta \cdot c}{1 + \delta c} \]

(4)

Among them, \(\mathcal{R}\) describes the degree of deviation between environmental productivity and environmental change, \(\delta\) represents economic output, and \(\delta\) represents the magnitude of environmental change.

2.3. Impact of International Environmental Law on China’s Environmental Productivity. International environmental law is one of the important components of international law [18–20]. In the development and change of international environmental law, Chinese environmental law also changes and develops accordingly. Regarding the basic principles of international environmental law, China has always adhered to and basically followed and constantly balanced the balance between international environmental law and Chinese environmental regulations [21]. However, with the acceleration of China’s development, the pressure on China’s internal environment has also increased, which will inevitably lead to a collision between China’s economic development and environmental development and an imbalance between international environmental laws and Chinese environmental regulations. In other words, during the development of China’s environmental productivity, the changes and development of international environmental laws have brought great restrictions on China’s environmental productivity.

2.3.1. Restrictions on Production Methods under International Environmental Law. With the continuous development of the economy and society, energy-saving and efficient production methods are increasingly recognized by international environmental laws [22, 23]. The development momentum of China’s industrial and agricultural production has always been insufficient, and its development concept is very different from that advocated by international environmental law [24]. On the one hand, the degree of mechanization in China is not high, and agricultural planting and harvesting rely on artificial cultivation, which not only increases the consumption of resources and waste of energy, but also causes certain damage to the natural environment. On the other hand, industrial production will inevitably bring about environmental pollution, destroy the local ecology, and hinder the sustainable development of environmental productivity [25].

2.3.2. Limitations of International Environmental Law in Sustainable Development. At the same time, as energy depletion and excessive waste of resources have become global issues, international environmental law has paid more and more attention to the concept of sustainable development. China’s industry and agriculture cannot form intensive production in the process of development, which cannot meet the needs of sustainable development, thus seriously hindering the development of China’s environmental productivity. Under this circumstance, the mechanization and intensive development of China’s industry and agriculture can continuously form sustainable development in terms of economy and resources and at the same time promote the development of China’s environmental productivity [26]. However, in most areas of China, due to environmental damage and economic decline, the development of environmental productivity in these areas still has a long way to go to meet the requirements of sustainable development. Therefore, international environmental law has brought serious constraints to China’s environmental productivity in terms of economic and environmental sustainable development.

3. Challenges Brought by Changes in International Environmental Law to China’s Environmental Productivity

From the above analysis, we can know that the development of China’s environmental productivity is directly affected by factors such as environment and energy. As we all know, China is a country rich in energy, which contains very rich natural resources. However, with the development of economy, China’s energy reserves cannot meet its increasing energy demand, which forces it to import energy. And since joining the WTO, China has become the world’s factory, so its demand for energy is increasing day by day. International environmental law is an international general law for coordinating environmental protection and strengthening international environmental protection and cooperation. With the aggravation of global climate problems, international environmental law is increasingly showing mandatory features, and the situation of hard legalisation of international environmental law has become clear.

In this context, in order to protect their own interests, countries around the world have taken some actions aimed at maintaining their privileges and unique interests under international environmental law. Due to their relatively advanced technology and high level of economic development, developed countries are basically in a dominant
position in the formulation of international environmental laws. However, developing countries have gradually become victims of changes in international environmental law due to technological and economic backwardness. China is the largest developing country in the world, so under the change and adjustment of international environmental law, China is in a very disadvantageous position.

Under the control of public opinion and technology in developed countries, the change and development of international environmental law is imminent. Although today’s climate issues have delayed the mandatory measures of international environmental law, as time goes on, international environmental law will become more and more restrictive to developing countries such as China. First, it will seriously affect China’s energy strategic security. At present, China’s energy needs are basically maintained by imports, but with the stricter international environmental laws, China’s energy reserve plan will definitely be disrupted. Second, it affects China’s carbon emissions trading rights. With the accelerating process of hard legalization of international environmental law, it is an inevitable trend for China to be included in the list of regulated carbon emissions. Therefore, this will seriously further hinder the development of China’s environmental productivity and bring heavy damage to China’s economy. Finally, with the intensification of climate problems, many substandard industries and services in China will be suspended or regulated by international environmental laws, which makes the development of China’s environmental productivity without guarantee.

4. Development of China’s Environmental Productivity under the Background of International Environmental Law

According to the environmental productivity simulation model and related algorithms proposed in this paper, it combines some of the production materials of the China Industrial and Agricultural Cooperation Group in 2016 and 2017. On this basis, the article uses real data to test the model and reduces the error in the design and practice process. At the same time, in order to study the relationship between environmental productivity and changes in international environmental law, the article uses correlation analysis to analyze the degree of correlation between China’s environmental productivity and international environmental law. The results are shown in Table 1.

Table 1 shows that there is a strong correlation between environmental productivity and international environmental law. Among them, the degree of correlation between environmental productivity and international environmental law in South China reached 59.93%, and the degree of correlation between environmental productivity and international environmental law in North China reached 61.02%, which shows that there is a close connection between China’s environmental productivity and international environmental law.

The reason for this is that most of China’s plains and hills are concentrated in South China, which conforms to the topographical factors of agricultural and industrial layout. Moreover, because these regions have relatively developed economies and relatively strong awareness of environmental protection, the frequency of communication with the outside world is relatively high, and they are easily affected by changes in international environmental laws. At the same time, North China is relatively close to the Chinese capital, and relevant policies can be implemented there soon, so it determines that the environmental productivity of the region is basically guaranteed.

In order to analyze the exact relationship between environmental productivity and international environmental law, the article then analyzes the specific impact of international environmental law on China’s environmental productivity from different perspectives. Among them, the percentage distribution of agricultural environmental productivity anomaly under different economic development conditions is shown in Table 2.

Table 2 shows that there is a high link between environmental productivity and economic disparity, with the highest economic coefficient reaching 9.6%. In terms of distribution, we can see that the overall environmental productivity of China’s agriculture presents a medium-high-high trend. Among them, the Yunnan-Guizhou Plateau and other places have higher economic coefficients, mainly because the natural conditions of the Yunnan-Guizhou Plateau and other places are relatively good, the ecological environment is well maintained, and it is suitable for agricultural production, so its environmental productivity is also maintained at a high level.

Due to the wide distribution of China’s industries, this article only analyzes the impact of international environmental law on China’s environmental productivity from several perspectives. Among them, the percentage distribution of industrial environmental productivity anomaly under different economic development conditions is shown in Table 3.

Table 3 shows that the anomalous percentage distribution of environmental productivity of China’s industry basically shows a high-medium trend. Among them, due to the developed economy in the middle and lower reaches of the Yangtze River, it maintains a relatively high economic coefficient and output. In this case, the local area has enough energy and technology to protect the environment, so its environmental productivity remains at a high level, but as a port city, it is extremely vulnerable to changes in international environmental laws. At the same time, under its influence, changes in local environmental policies will also bring heavy losses to the development of industrial environmental productivity. In this case, the local economic coefficient tends to be zero at the lowest.

The reason is that the middle and lower reaches of the Yangtze River are the window for China to communicate with the world, so it is most vulnerable to the influence of international environmental laws. In this case, local environmental regulations are largely aligned with policies and international ideas.
5. China’s Environmental Productivity Results under International Environmental Law

At the same time, under the influence of local environment and policies, the distribution of environmental productivity in China also presents many characteristics. In this process, international environmental law has played a leading role in China’s environmental policy formulation, so it also promotes changes in environmental productivity to a certain extent. Next, this paper will focus on analyzing the deviation of environmental productivity under the background of international environmental law from the aspects of economic foundation, energy price, industrial scale, and climate characteristics.

### Table 1: Environmental productivity and international environmental law in different geographical dimensions.

| Types           | Economic factor | Economic base | Energy prices | Climate features |
|-----------------|-----------------|---------------|---------------|-----------------|
| South China     | 22.5            | 16.9          | 45.6          | 59.93           |
| North China     | 23.1            | 18.5          | 49.5          | 61.02           |
| Northwest       | 35.6            | 20.54         | 55.2          | 56.2            |

### Table 2: Distribution of agroenvironmental productivity under different economic development scenarios.

| Environmental productivity | Coefficient (W) | Percentage (Q) | Percentage (T) |
|-----------------------------|-----------------|----------------|----------------|
| Y (f1)                      | 9.6             | 14.4           | 10.7           |
| Y (f2)                      | 2.0             | 11.2           | 11.9           |
| Y (f3)                      | 9.2             | 12.2           | 16.4           |

### Table 3: Percentage distribution of industrial environmental productivity anomaly under different economic development conditions.

| Environmental productivity | Coefficient (W) | Percentage (Q) | Percentage (T) |
|-----------------------------|-----------------|----------------|----------------|
| Y (f1)                      | 24.9            | 15.8           | 2.5            |
| Y (f2)                      | 21.0            | 14.1           | 3.7            |
| Y (f3)                      | 25.8            | 0              | 1.8            |

5.1. Deviation between Economic Base and Environmental Productivity. The local economic environment directly reflects the local natural environment, which will also have a great impact on the environmental productivity of the country. According to the environmental productivity simulation model, China’s environmental productivity is preliminarily estimated, and the deviation between the estimated value and the actual value is shown in Figure 1.

Figure 1 shows that the economic base has a clear positive effect on the environmental productivity bias, while the infrastructure has a direct negative effect on the environmental productivity bias. Among them, the deviation coefficient between the economic base and environmental productivity is 0.35. This is because, in most parts of China, economic development is showing an abnormal
development pattern. In this model, people often choose to sacrifice the environment to develop the economy, so the areas with higher economic foundations tend to have lower environmental productivity.

5.2. Deviation between Energy Prices and Environmental Productivity. The price of energy directly affects local environmental productivity. At the same time, energy prices are also an intuitive reflection of international environmental law, which to a certain extent reflects environmental policies and local environmental protection efforts. Among them, the deviation distribution between energy prices and environmental productivity is shown in Figure 2.

Figure 2 shows that energy prices and energy consumption structure have a negative impact on environmental productivity bias, but the cost of suppressing air and water pollutants has a positive impact on environmental productivity and energy bias. Among them, the deviation between labor and environmental productivity is between 0.55 and 0.57, which indicates that the price of labor will directly affect the local environmental productivity. The reason is that, in the context of international environmental law, rising prices of other energy sources will directly affect the development of local industries and damage the local natural environment. If energy prices are low, it will stimulate the local economy to vigorously develop and reduce the plunder of the natural environment.

5.3. Industrial Scale and Environmental Productivity Deviation. Since industry is the foundation of China’s economy, it is necessary to expand the scale of industry in order to improve China’s economic coefficient. However, vigorously developing industry may damage the environment and affect environmental productivity, which is very different from the principles of international environmental law. Therefore, international environmental law will play a certain regulatory role in the development of China’s environmental productivity. Among them, the deviation between industrial scale and environmental productivity is shown in Figure 3.

Figure 3 shows that, in most regions of China, the industrial scale is large, but the level of environmental protection is not high. Among them, in Guangzhou and other places, the predicted environmental force is 9% lower than the actual value, which shows that, in relatively economically developed regions, due to technological progress and
development of concepts, local environmental productivity is relatively greatly affected by international environmental laws. In this case, the industrial scale directly reflects the local level of environmental productivity.

5.4. Bias between Climate Characteristics and Environmental Productivity. Climate is often an important factor affecting environmental productivity. Because climate and environmental characteristics are often closely related to local environmental and environmental protection policies, climate characteristics are often the best indicator of environmental productivity. Among them, the deviation distribution of climate characteristics and environmental productivity is shown in Figure 4.

Figure 4 shows that, in most of China, there is often a link between climatic characteristics and environmental conditions. Among them, especially in South China and other places, due to the relatively developed economy, this destroys the local climate characteristics to a certain extent, so the environmental productivity of the place is also affected. In South China and Central China, China’s environmental productivity has also been affected, down 26% year-on-year due to changing climatic characteristics and regulation by international environmental laws. The reason is that, in most parts of China, due to the reform and regulation of international environmental laws, China’s environmental productivity has also been greatly affected, which has led to a decline in the level of environmental productivity.

Undoubtedly, international environmental law has brought serious obstacles to the development of China’s environmental productivity, but it has also helped China to improve the ecological environment to a certain extent, which further promotes the sustainable development of China’s economy and continuously improves environmental productivity. In this context, the relevant concepts of international environmental law continue to promote the development of China’s environmental productivity, and it also points out the direction for China’s economic development.

6. Conclusion

With the acceleration of globalization, the influence of international environmental law has gradually spread throughout the world. Environmental productivity concentrates on the natural productivity of a country and represents the local level of ecological development. China, as the world’s largest developing country, is increasingly playing a pivotal role in environmental governance and other areas. Against the backdrop of the reformulation of international environmental law, China’s traditional economic development model and economic development strategy are seriously at odds with the concept of sustainable development advocated by international environmental law. In this process, how to balance economic development and environmental protection at the same time has become a major challenge that China needs to face. Therefore, it is of great significance to study the impact of international environmental law on China’s economic development and environmental productivity.

Although international environmental law has brought challenges to the development of China’s environmental productivity, it has also promoted China’s economic development to a certain extent. The article constructs an environmental productivity simulation model and analyzes the relationship between international environmental law and China’s environmental productivity at a mathematical and theoretical level. In addition, the article also analyzes the deviations between China’s environmental productivity and the impact of international environmental law in terms of economic fundamentals and energy prices. However, due to time and the limitations of the research field, the article does not go into the study of international environmental law.
also does not take into account the impact of actual policy differences on environmental productivity. Based on this, the article will continue to expand the research area in the future, aiming to study Chinese environmental productivity under different factors in depth.

**Data Availability**

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

**Conflicts of Interest**

The author declares that there are no conflicts of interest.

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